

PROCEEDINGS OF THE 12th
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INNOVATION AND MANAGEMENT

November 20-22, 2015

Chief Editors

Wang Yingming, Xu Hongyi

Associate Editor

Ken Kaminishi, Geert Duysters, Arnaldo de Hoyos, Jussi Kantola

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【Summary】

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Fostering Open Collaborative Innovation for Micro and Small Technology-Based Firms in Brazil

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Abstract: Innovation happens as a combination or a result of various phenomena (i.e. entrepreneurship, business environment, interactions etc.), it is almost impossible to be explained by a single discipline itself. Due to the fact that there are many facets to explore in order to cover all aspects to innovation, the present paper approaches this theme with emphasis on the sociological perspective, considering that innovation is not a solitary, but an interactive phenomenon, which firms develop connections able to reach new innovation sources, new processes and technologies. As a theoretical reference, this paper develops the argument of the importance of the firms' interaction linkages and connections and their influence on the efficiency of the innovation system. So, in this context, the authors decided to adopt the survey method to examine whether or not interaction linkages have an impact on micro and small technology-based firms' innovativeness in Brazil. So, the findings showed that interactions between firms and other innovation agents such as universities, research centers, financial institutions and other partners is very important to the development of open collaborative innovation activities and have direct impact on the level of innovativeness. Finally, this paper seems to conclude that innovation is a result of combination of various interaction linkages and not a solitary phenomenon restricted to the firm itself that may be appropriately fostered.

Key words: Open innovation; Networking-interactions; Business management and sociology

1 Introduction

In the last three decades, globalization has increasingly demanded firms and the whole economy to operate under pressure for new products and services. With the increasing speed of globalization, many scholars such as Freeman (1995), Powell, Kenneth and Laurel (1996), Porter (1998) and Etzkowitz and Leydesdorff (2000) have agreed that only innovative firms can guarantee the long term capability to prosper and gain competitive advantage. In the past, the concept of competitive advantages relied on accessing and controlling of raw materials. Nowadays, it relies on the creation of new technologies. Strategies that may have served firms before, it does not seem to work in the today or future contexts. To be competitive, companies must shift from an isolated organizational strategy to a more open mind-set, able to deal with different economic agents in different environments (local, national and even global).

This new scenario of competition has forced firms to develop products/services involving an increase amount of knowledge-intensive activities. These activities range from product design, management procedures and marketing strategies to new interaction linkages between firms and economic agents such as universities, research centers and government, able to become key elements to this new sustainable innovation mode of production. This premise suggests that technological changes have the power to establish new standards for the transformation of the whole economy (Freeman, 1988).

Despite innovation seems to depend on many factors (i.e. entrepreneurial spirit, local infrastructure, legal and political dimensions and the presence of important innovation agents), one has been highlighted as an important factor: networking. Interaction processes between firms and other economic agents, in large measure, have become an important element of competitive advantage. The creation of competitive advantage through innovation seems to suggest that firms need to reach new sources of innovation in order to develop new technologies. Thus, networking plays a key role at the heart of any discussion on competitiveness and innovativeness; therefore, the current concept of globalization, based on technological development is certainly different from globalization of the past. Innovation seems to be an economic and social phenomenon influenced by internal and external factors, establishing a new paradigm: networking permits to build new technological capability and specialization leading to the improvement of firm's innovativeness.

Overall, there is certainly no recipe to succeed in this so competitive environment, however, successful strategies to facilitate innovation initiatives and to create an environment to foster entrepreneurship and innovation, includes an understanding of the conjunction of some actors working together in a collaborative manner creating an interactive behavior able to build an appropriate innovation environment.

2 Literature Review

2.1 Innovation - Modern history and concepts

Historically, the emphasis on studies of innovation began in early 1930's by economist from the Austrian School of economics mainly. Joseph Schumpeter (the so called "founding father of innovation studies") was the most prominent economist from this school of thought and defended that innovation is as a complex mechanism of the introduction of a new product, process, service, method of production, opening of a new market, new source of raw material or the establishment of new businesses (Schumpeter, 1979). He started arguing that modern capitalism was dynamic and evolutionary, and innovation was behind firms' competitiveness and country economic growth. Since then, some scholars are investigating under what conditions this is allowed to happen.

More recently, authors such as Motta (1989) interpreted innovation as the discovery of a new opportunity. It is the use of uncommon tools or something new, to give creative solution to problems detected and the final outcome of the creative process. To Tidd, Bessant and Pavitt (2001), innovation also is a result of new knowledge, experiences and abilities to create new things (i.e. products, processes and services). It has three phases:

Opportunities detected

Choice of strategies

Introduction of innovation to the market.

At micro-level, within companies, the innovation process combines both internal and external elements organized on a systematic way and always should be based on a landscape of abundant knowledge and cooperation (Chesbrough, 2003). At macro-level, considering the whole economy, innovation can be generated by a wide range of different agents such as universities and research centres; therefore, firms have to acquire new capabilities such as to manage a network of interactions with different actors and to become flexible enough to get information and knowledge retained by a variety of different actors (European Commission, 2004).

Even though the concept of innovation seems to be very broad, for the purpose of this paper, the authors consider the concept of innovation suggested by The Oslo Manual (2005): "*innovation as the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations*" (OECD/EUROSTAT, 2005).

2.2 Networking - Concepts and perspectives

According to Castell (1999), the 21st century seems to be characterized by three features: global, informational and networked. In this sense, innovation initiatives are increasing substantially through networks of firms and other innovation agents. The expansion of the social-networked models is directly associated to the increase of innovation initiatives (Rothwell, 1994). This premise suggests that innovation combines both internal and external factors and based on an abundant cooperation and networking environment. So, firms which not co-operate and network limit and reduce their capacity to innovate.

Oliver (1990) argued that networking was a response for the pressure of the globalization phenomenon; so, in order to reduce the pressure of the external environment, firms decided to participate in business networks. The networking approach resulted in competitive gains for firms which could not obtain by individual efforts (Balestrin and Verschoore, 2008).

Networks also involve many definitions. One of these definitions consider that business networks, in general, involve a group of firms, business units, universities, governments, customers or other actors which co-operate on a joint development project or objective in order to overcome common problems, to achieve collective efficiency and to penetrate in new markets (Unido, 2001). Other authors such as Hunt, Doyle, McDermott and McCormack (2005) advocated that business networks are about fostering cooperation, facilitating the transfer of knowledge and information between companies, enhancing the learning process, allowing firms to share costs and risks. Finally, the authors agreed with Cooke (1996) who defined business networks as a formal and informal non-hierarchical organizational arrangement in

which firms make relational contracts with each other through a set of linkages to facilitate the exchange of information and technologies.

In common, most of authors share the idea that business networks is emerging as a relevant tool to promote the development of new innovation initiatives leading to the general improvement of overall firm's performance. So, the increase of firm's innovation activities depends on the increase of the interaction linkages that they maintain (Ahuja, 2000). In the business field, collaboration manifests through collaborative arrangements and are structured according to the following typologies: alliances, joint-ventures, coalitions, consortia, cross-licensing and business network (Tidd, Bessant and Pavitt, 2001). However, there is a tendency for innovation to be associated increasingly with local and non-local interactions; therefore, firms must search for innovation sources regardless of whether they are geographically close or not (Melo, 2011).

Although it is clear that networking is of significant importance to the development of innovation activities, it does not seem to happen by itself. It depends on factors such as cooperation and collaboration. Authors such as Gray (1996) argued that collaboration offers an antidote to turbulence by building a collective capacity to respond to these conditions. This process whereby two or more parties work together for mutual benefits is of immeasurable importance and is at the heart of any discussion about networking.

Porter and Fuller (1996) argued that the main motivation for firms to co-operate is from external factors such as search for economy of scale, reduction of risks response to market pressures or the need for technology or market access. Other authors such as Huxham (1996) advocated that the key motive for firms to engage in collaborative activities is the focus on outputs which results could not be achieved individually and materialized into collaborative advantages. To Hunt et al. (2005) working in collaboration with others, firms are enabled to achieve competitive advantages faster, cheaper and with less risk and disruption to operations. Overall, benefits of collaborative activities are numerous with many cases of success of firms' improvement of competitiveness through engagement in networks. To Huxman (1996), collaboration and co-operation between firms happen due to the perception of mutual gains and it is highly motivated by self-interest, even though, it does not imply that self-interest is at the expense of others.

So in this context, it is reasonable to suggest that successful innovation initiatives are result of successful firms' participation in business networks on a collaborative mode with constant flows of knowledge, information and resources, improving innovativeness collectively.

3 Methodology

This topic outlines the basic methodological premises of this study. The choice of the authors to investigate whether or not interaction linkages have an impact on micro and small technology-based firms' innovativeness in Brazil, was based on the survey strategy under the perspective of the relationship between innovation and interaction. The presumable existence of this relationship (not causality) as well as the effectiveness of the impact on firm's innovativeness and gains in competitive advantages is defended by many other authors such as Ahuja (2000) and Balestrin and Verschoore (2008).

The key methodological points pertaining to this study are as follows:

- Qualitative research;
- Explanatory mainly;
- Cross-sectional study;

Data collection strategy was the use of survey interviews with administration of a structured closed-ended questionnaire (the questionnaire was based on the Oslo Manual (OECD/EUROSTAT, 2005).

To approach this problem, the authors decided to perform this study in Brazil, in particular, the Brazilian micro and small technology-based firms located in the technology pole of Campinas, State of São Paulo and Porto Digital Information and Communication Technology Cluster located in Recife, State of Pernambuco. Both locations are internationally recognized as niches of excellence pole in technology.

4 Findings

In this topic, the authors describe the empirical findings regarding the investigation of firm's interaction behaviour and innovation process. These findings were results of the PhD thesis submitted

by Paulo Melo to Waterford Institute of Technology (WIT) in Ireland. Topics related to interaction behaviour were focused only on those interactions aimed to the development of innovation activities.

The authors of this study summarize the main findings as follow:

- 1) Firms surveyed: 19 firms in Campinas and 13 in Recife;
- 2) Firm's size: Campinas - (74%) predominantly micro sized firms (less than 10 employees)
Recife - (69%) predominantly small sized firms (11- 50 employees);
- 3) Overall firms engaged in innovation activities:
Campinas - 18 firms (95%)
Recife - 13 firms (100%)
- 4) Interaction behaviour

The findings showed that 100% of firms surveyed in both locations had interactions linkages for the development of innovation activities : Campinas - 19 firms and Recife - 13 firms.

Another finding was related to the perception of the importance of interaction linkages to the development of innovative projects. According to Cortrights (2006), to improve firm's innovativeness, they should be engaged in collaborative arrangements. So, one relevant finding derived from this study showed that 94% and 100% of firms surveyed in Campinas and Recife respectively considered interaction linkages of "high" or "medium" importance to innovation activities (see Table 1).

Table 1 Importance of Interactions for Innovation Activities Source: current study

Degrees of importance	Campinas No. of firms	Recife No. of firms
High	10(59%)	09 (69%)
Medium	06 (35%)	04 (31%)
Low	01 (6%)	-
None	-	-
Total	17 (100%)	13(100%)
No answer	02	-

Regarding interaction partners, firms in both locations seemed to interact with different partners (see Figure 1) in order to develop their innovation projects. In Table 2, the study shows types of interaction partners which firms had experienced interaction linkages.

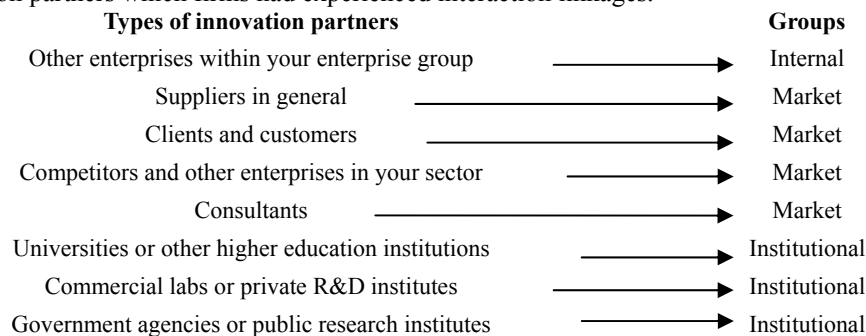


Figure 1 Classification of Types of Innovation Partners Source: current study

Table 2 Classification of Types of Innovation Partners Source: current study

Types of innovation partners	Group	Campinas No. of firms	Recife No. of firms
Other enterprises within your enterprise group	Internal	02 (14%)	04 (31%)
Suppliers in general	Market	05 (36%)	04 (31%)
Clients and customers	Market	06 (43%)	06 (46%)
Competitors and other enterprise in your sector	Market	07 (50%)	12 (92%)
Consultants	Market	08 (57%)	06 (46%)
Universities or other higher education institutions	Institutional	12 (86%)	05 (38%)
Commercial labs or private R&D institutes	Institutional	04(29%)	04 (31%)

Government agencies or public research institutes	Institutional	05(36%)	13 (100%)
No. of firms which answered this question	-	14 (100%)	13(100%)
No answer	-	05	-
Total of firms	-	19	13

At last, in Table 3, the study showed the geographic extent of the network of relationships for the development of innovation projects. The findings showed that 57% of firms located in Campinas and 70% located in Recife have experienced interactions within and outside the cluster and 29% of firms located in Campinas and 15% in Recife reported interaction experienced within the cluster only.

Table 3 Locations of Innovation Partners Source: current study

Locations / No. of firms	Campinas	Recife
Within the cluster only	4 (29%)	2 (15%)
Outside the cluster only	2 (14%)	2 (15%)
Both (within and outside the clusters)	8 (57%)	9 (70%)
Total of firms which answered this question	14 (100%)	13 (100%)
No answer	05	-

5 Conclusions

Overall, the results of this study indicate that apparently innovative firms are also very active as far as networking is concerned. Firms in both locations seem to confirm that their interaction behaviour determine the level of firms' innovativeness. The findings showed that 100% of firms surveyed were engaged in innovation and interaction activities in order to develop their innovation projects.

Another finding revealed that firms interact with different partners in different locations which may lead to the conclusion that the level of interaction is not limited to geographic proximity.

These important findings seemed to be in line with Huxman (1996), Ahuja (2000) and Hunt et al. (2005) who advocated that firm's innovativeness depends on the increase of their interaction linkages, interaction with others enable to achieve competitive advantages faster, cheaper and with less risks and these interaction linkages happen mainly because of the perception of mutual gains respectively.

Finally, this paper seemed to conclude that: i. the level of firm's innovativeness is strongly influenced by their interaction linkages; ii. Interaction linkages are not restricted geographically and iii. despite spatial agglomerations seemed not to be the main locus of innovation partners, it is still relevant to the development of innovation activities, especially for micro and small sized firms; therefore, innovation seemed to be not a solitaire phenomenon restricted to the firm itself that may be appropriately fostered.

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Development Process Realignment of Final Course Assignment-FCA: Technologist in Human Resource Management

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Abstract: The education has approached the individual's productive market and technology contributes to this transformation. In this process, the College of Technology ENIAC - FAPI supports productive market with technological education. The case study of the subject is the Final Course Assignment-FCA, called TCC, Technology course in Human Resource Management, developed in the second semester. The methodology was field survey with former students of the course, documentary and bibliographic research. With this data, the process was contextualized proposing the inclusion of one more semester to develop the work, keeping the five-phase structure and further research. The goal was only analyze changes in the expansion of the working period of development, but also in the form of process evaluation considering the active student in the building process and construction of the theoretical and practical knowledge through initiation to scientific research.

Key words: Human resources; Completion of course work; Knowledge

1 Introduction

One of the purposes of education is to approach the individual's productive market, understanding the whole process of transformation to which this has been suffering over the years.

In this process, the technology has greatly contributed to the transformation process. People stop being seen as resources and become part of them, the society of knowledge, and intellectual capital as a competitive advantage factor for organizations to contribute to its portfolio of personal and professional skills.

According to Gil (2001, p. 24):

People management, however, is also a tendency that manifests itself more in academic world than actually in business, as the clearest expression of its existence has been given by works revisions related to Human Resource Management and courses that are being offered by specialized institutions.

The Ministry of Education and Culture focuses on the technological education directed to professionals of all levels of education and economic sectors that become able to enter the business market.

Analyzing the needs of business market and training people, the Technology College Eniac - Fapi, 30 years in the market, offers the degree in Technology in Human Resource Management lasting four semesters, total of 1660 hours.

According to the Education Project Course - PPC (. 2014, p 6) "the course is growing demand for professionals with integrated vision of the human resources subsystems in a metropolitan area of high density industrial and post-industrial".

According to IBGE - Brazilian Institute of Geography and Statistics - Data (2011), Guarulhos is the second city in Sao Paulo in population and wealth creation. According to the IBGE 2010 population is 1,221,979 people and occupies the 8th position among the 100 largest cities in terms of PIB - Gross National Product.

The mission of Technology College Eniac - FAPI in its quality policy is "Educate and Train Citizens to Succeed in Life, being competent in the business market, socially responsible and active in preserving the environment, with reference to ethics, dialogue and respect for future generations" (www.eniac.com.br).

Analyzing the transformation and communion with its mission, the institution, although not being required by the Ministry of Education and Culture, establishing in its pedagogical plan of course producing a final course Assignment - FCA, in order to bring the student to the business market.

Since its beginning in 2008, the work has undergone a series of refinements from the empirical analysis of its processes.

The Active Learning Methodologies has been discussed in the educational daily routine. According

to Araujo & Sastre (2009, p. 7) “Learning Active Methodologies are the core of this perspective and the Problem-Based Learning (PBL) is one of the ways that has been adapting to this new role.”

Mayo et al. (. 1993, p 227) describes:

The Problem-based learning is a teaching strategy that introduces students to significant situations and context in the real world. To the professor, the learning process mediator competes provide resources, guidance and instruction to students as they develop their knowledge and skills in problems solving.

The assignment is done in pairs and not a random choice. It is justified by the context to the real world, so teamwork.

The five phases of research throughout the semester allow for the most often, only the bibliographical research and study the implementation of a subsystems tool of Human Resources in any organization.

The changes take place not only in the development of work which only from one semester will turn for two semesters while maintaining the five-phase structure, allowing the student to further research on the chosen theme, expansion of the development period, but also in form of assessment, which aims to make the student an active agent in the construction of research and knowledge.

Sant’anna (1995a p 27) claims that: “the evaluation will only be efficient and effective if it occurs interactively between professor and student, both going in the same direction, towards the same goals.”

Clarifying the above, the objective of this work is to restructure the development process of final course assignment - TCC making it an empowering tool and construction of theoretical and practical knowledge through initiation to scientific research, by defining research lines that will direct students to specific mentors in their fields of knowledge.

Based on the facts presented, an important question is: how to make the active agent in student scientific research process?

As a secondary objective, approximate the pair scientific approach to the scientific research group of College of Technology Eniac for article publication from work in the scientific initiation magazine called Kaleidoscope.

2 Theoretical Framework

2.1 Current context in which the final course assignment - FCA is developed

The College of Technology ENIAC - FAPI has been in the market for 30 years, located in Guarulhos - São Paulo. IBGE - Brazilian Institute of Geography and Statistics -Data (2011) shows that São Paulo is the second city in population and wealth creation. According to the IBGE 2010 population is 1,221,979 people, and occupies the 8th position among the 100 largest cities in terms of GDP (PIB).

Faced with this population demands, the College of Technology ENIAC - FAPI offers modular graduate courses (Bachelor’s degree and Technology) and Management, Information Technology, Engineering and Industry post-graduation courses.

According to the pedagogical project of a Course- PPC (2014, p.8) “The course of Technology in Human Resource Management at College of Technology - FAPI meets the demand for professionals with integrated vision of the Human Resources subsystems, in a metropolitan region with high industrial density and post-industrial”.

The object of study is the process in which it is inserted the development of Final Course Assignment - FCA of Technology in Human Resources Management higher course, held in the second half of the course according to the course curriculum, presented in Table 1.

Table 1 Curricular Course

Entrepreneurship 1st Semester	Human Relations 2nd Semester
<ul style="list-style-type: none"> · Applied Informatics · Management Models · Mathematics · Organization and management processes · Social and environmental policies · Corporate Communications · Entrepreneurship integration project 	<ul style="list-style-type: none"> · Attractiveness and selection · Organizational Psychology · Compensation and Benefits · People Management Competency · Citizenship and socio environmental responsibility · Project of human relations
Planning and personnel administration 3rd semester	Maintenance and development of talents 4th semester

<ul style="list-style-type: none"> · Personnel department Operations · Labor law and social security · Union relations and labor negotiations · Culture and organizational climate · Health and safety on work · Project planning and personnel administration 	<ul style="list-style-type: none"> · Training and Development · Strategic planning in human resources · Performance Evaluation · Economic News in people management · Corporate education and knowledge management · Final Course Assignment · Maintenance Design and development of talents project
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Source: prepared by the authors in 2015.

The technological course curriculums must be thought considering the actors involved, the student and society. The student belonging to the learning system, immersed in the four pillars of education: learning to live together, learning to learn, learning to do, learning to be. On the other hand, society and the productive system, facing all the changes arising from the competitive global market (Prado, 2006).

The curriculum course has taken into consideration these axes to contextualize and re-contextualize, making it the most suitable for the local institution and mode. In this context, the Final Course Assignment - FCA, called TCC, reports comes to the individual a point sampling with practiced in the labor market.

The Final Course Assignment - FCA is performed in pairs, in five steps over a semester, the first step being soon after the beginning of school year and the fifth stage is in the second to last half semester according to the academic calendar. There is the sixth step, called the representation (recovery), they only be forwarded the pairs which need to make subtle adjustments at assignment.

Students throughout the process did not develop the assignment in accordance with the guidelines, development rules; cultural norms and the ABNT (Brazilian Technical Standards Association) will be submitted to the Banking Examiner. Making oral presentation with visual aids and they are argued by two appointed professors of the institution.

In order to develop it, at the beginning of the semester it is disclosed through the student's portal (www.portaleniac.com.br) and college walls, the final course Assignment - FCA will be started. The students are invited to attend the opening lecture. As a whole, they are held three lectures during the semester that aims to present:

- Overview and the importance of a Final Course Assignment;
- How the assignment should be done throughout the semester;
- Who are and the role of guiding in the development process;
- Present the materials available on the student's portal;
- The phases and content to be posted at each step;
- Methodology and,
- Agreement.

In the student's portal the materials are available:

- Explanatory Manual on the production of final course assignment - FCA;
- Material lectures;
- Instructions for the double composition;
- Calendar with the dates and contents to be posted in each step;
- Framework personal attendance of the final course Assignment - FCA;
- Team of a final course Assignment - FCA;
- Places to insert the steps of final course Assignment - FCA;
- Explanatory video guidance on the production of the final course Assignment - FCA and,
- Explanatory document on "What is Plagiarism".

Students have at their disposal once a week, for three hours, classroom support professor mentor, whose responsibility is to advise on the development of the assignment and clear up any doubts about the online feedback.

Each phase sent by the student through the portal, the guiding evaluate the assignment, verifying that the requested content was sent; the methodological standards are being respected; if the development follows a logical sequence of subjects and if there is plagiarism.

Severino (. 2000, p 18) defines methodology as: an extremely useful and safe instrumental for the pregnancy of a mature attitude towards the scientific, political and philosophical problems that our university education faces; are operational tools. Whether technical or software, through which students

can achieve greater depth in science, the arts or philosophy, which, after all, is the intrinsic goal of teaching and academic learning.

The papers submitted by students through the portal are called posting. The period between the posting and the return from the academic advisor takes about two weeks. The student has approximately seven calendar days to correct and new post. On average, each semester, are assessed sixty works by guiding. Table 2 shows the six stages and the contents to be developed and delivered via the portal at each step.

Table 2 Phases and Posting Content to the FCA

FCA posting phases	Content to be developed
1st step	Introduce the topic and a brief description of the duo's idea for the choice and the development of TCC.
2nd step	Develop: <ul style="list-style-type: none"> · Summary; · Introduction (purpose, context and justification); · Obligatory references. Five books that theme for the research to be developed and a book of Scientific Work Methodology must be reported. Books should be obligatorily of physical or virtual library of Eniac, which may be supplemented by other sources; · Commitment term.
3rd step	Develop Chapters 1 and 2, respecting the cultural norms and ABNT (Brazilian Association of Technical Standards).
4th step	Complementary work; <ul style="list-style-type: none"> · Present references; · Complete the work; · Add the first few pages.
5th step	Present the complete work with all corrections.
6th step	Represent with the corrections indicated.

Source: prepared by the authors in 2015.

All steps have their importance; it is on the fifth step there assignment note. At this stage the guiding will:

- approve assigning grade from 6 to 10;
- disapprove assigning score from 0 to 5;
- indicate for the sixth step correction and assign score from 0 to 5 (deprecated) and from 6 to 7 (approved);
- indicate to the examiner that assigns score from 0 to 5 (deprecated) and from 6 to 7 (approved).

If the pair student has not posted one of the steps, it will be disapproved or recommended for the examination board.

2.2 Opportunities changes that benefit stakeholders

Considering the four pillars of knowledge, it should be noted that the inter-relationship between the work market and the gym, enables the formation of multi specialized professionals. According to Prado (2006, p. 225). " you must acquire certain skills and abilities, capable of prepare future technologists to understand and analyze the process in which they operate criticizing him and, if necessary, improve it. "

The skills and expertise to management are very important and, according to Jones (2010), there are many kinds of work in an organization and the development of specializations in the work division is possible.

Developing the student the final course assignment - FCA was institutionalized in 2008 and since then has undergone series of adjustments to provide the opportunity for better learning.

As Severino says (2007a, p. 25):

The teaching / learning process in college has its differential in the way of dealing with knowledge. Here, knowledge must be acquired not through its products, but its processes. This must occur through the construction of the objects to know and not the representation of these objects. Therefore, the University, knowledge must be built by the student's active experience and not be assimilated passively, as occurs more often in didactic-pedagogic environments of basic education.

Throughout the semester, in addition to classes, students develop: Integration Project; Module Course Assignment (MCM), measuring activities, two essay proofs, a written electronic test and a portfolio. Last semester arises over an academic assignment, which is to develop the final course

assignment - FCA.

When we think of the new active methodologies, we see the Problem-Based Learning (PBL). For Freire (1996, p. 31) “the student inserted into problems will be increasingly prepared for new challenges.”

Berbel (1998, p. 144) emphasizes that "a true methodology is a problematic understood as a set of methods, techniques, procedures, activities or intentionally selected and arranged in each step, in accordance to the nature of problem under study, and the general conditions of the participants”.

This is just a formality curricular for 70% of students, it is not meant as a fortifier in building the knowledge of their academic field. When they face the assignment as a problem they cannot reach the goal in their essence. The other 30% perceive the assignment as an opportunity to articulate and strengthen the training process. Through the presence list and observation from the second speech frequency is approximately 20% of total double, very low rate. Thus, errors are very similar in posts.

For this construction, the guiding role assumes full importance, namely that motivates and guides all students to the development of the phases shown in Table 2: Phases and posting content to the FCA. As Severino says (2007b, p. 202) “but, with a supervisor, the student will also have a personal and direct monitoring in conducting its research activities.”

The time period between the first and fifth step, which goes from the theme definition to the assignment completion, is approximately 90 days.

The situation problem happens in this scenario, as detailed in Figure 1: Composition of the problem situation diagnosis.

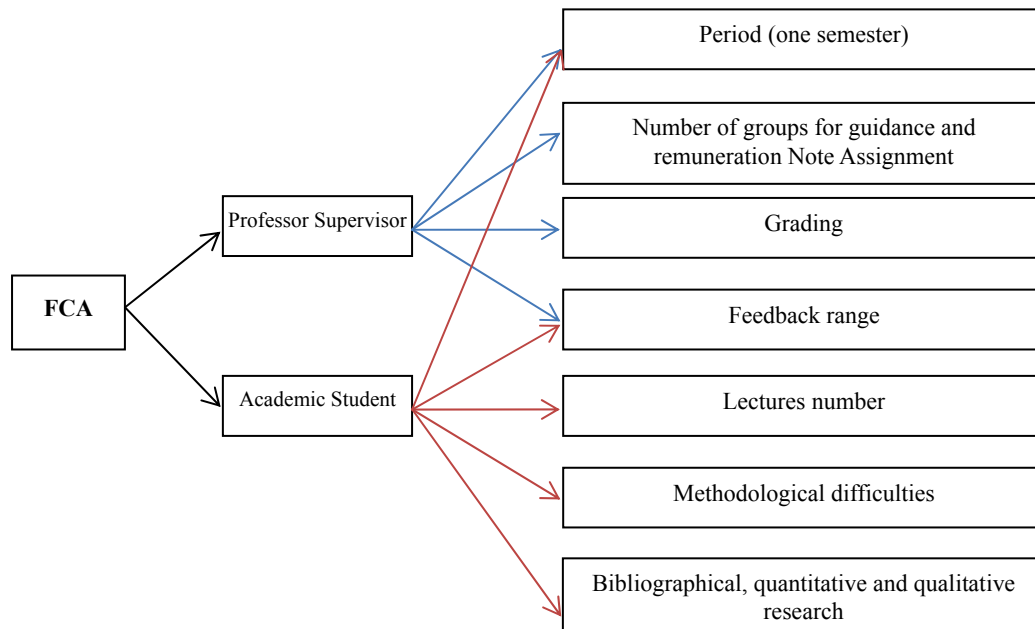


Figure 1 Composition of the Problem Situation Diagnosis

Source: prepared by the authors in 2015

Two actors are the main actors of the process: the supervisors and the students. It is observed that two indicators are common: a period of one semester and feedback range. The other indicators are relevant to each of the actors.

Concerning to the professor supervisor:

Period of one semester and number of groups for guidance: the supervisor has three weekly hours for personal assistance of all pairs assigned to it, but in the period near post date where there is a higher incidence of demand by the students, coming to meet fifteen double on average.

The remuneration corresponds to the contact period of hours. The activity of the advisor is not limited to personal assistance. Every posting phases jobs are thoroughly analyzed and fed back provided fixes needed for the next posting. This activity is held until the end of assignment.

Feedback range: After posting, the supervisor has on average 15 days to make corrections and

provide feedback session to the student via portal. From the second phase, the period for correction is very fair, because to verify the methodological issues, if presented bibliographies are sufficient to sustain the assignment, among others.

Grading: In every stage there is feedback to the student, but in the fifth stage that the supervisor assigns the note. It is identified at that stage a problem: the student, even with all the feedback, we do not always understand whether objectives were achieved. And when the student is sent to the bank or fail there is a big question, because until then for your understanding posting only guarantee approval.

Concerning to the student:

Period of one semester: the student has a semester to understand the purpose of a final course assignment - FCA and within that understanding the mechanisms for formalization of written work.

Feedback interval: after the posting of each step, the student has to wait about fifteen days to the advisor with his inferences as corrections. The student has only an average of seven calendar days to make adjustments and make the next phase of post with the complements for next step. Which period is insufficient because the student has its curricular assignments: portfolio, essay assessments, measurement activities, etc.

Number of lectures: during the semester are offered three lectures, an initial and two others on the same matter, bibliographic references, the ABNT standards structure, plagiarism and its consequences. The number of lectures is insufficient for the amount of work.

Methodological difficulties: even with academic studies over four semesters, students have not yet mastered the ABNT and have the mastery of writing and cultural norms, presenting difficulty in construction work.

Bibliographical, quantitative and qualitative research: to understand the difficulties facing the ABNT, the student has difficulty in researching and developing the work making use of direct and indirect quotes, developing quantitative or qualitative research and preparing the final remarks.

Salomon (1977, p. 136) "scientific work has been renamed the concretion of scientific activity, thus research and treatment in writing of the issues addressed methodically."

3 Methodological Procedures

The research has used the case study method, base on documental research, explanatory research and substantiated by the literature.

The study focus on the process in which it is inserted the development of final course assignment - FCA of university degree in Technology in Human Resources Management, taken during the last semester of this course.

The ISS - (Institute of Superior Studies) - College of Technology ENIAC - FAPI, 30 years in business, is located in Guarulhos city - São Paulo, São Paulo is the second city in population and in wealth generation, according to IBGE (Brazilian Institute of Geography and Statistics) data. Its mission: "Educating and training citizens to succeed in life, being competent in the labor market, socially responsible and active in preserving the environment, with reference to ethics, dialogue and respect for future generations" (www.eniac.com.br).

Faced with this population demand, it has been offered modular courses, Graduate (Bachelor's degree and Technology), postgraduate in Management, and graduation in Information Technology, Engineering and Industry.

The course curriculum contemplates the development of the final course assignment - FCA, although not required by the Ministry of Education and Culture, in order to understand the importance of preparing and approaching the student's productive market for this requirement.

However, the current format of FCA does not allow combining theoretical knowledge to practice through research by the short time for their development.

The authors of the case study are guiding and it enabled the fieldwork. Qualitative research was conducted through unstructured conversations and student complaints about the difficulties in carrying out bibliographic research and the practical application of knowledge.

The analysis phase of work and feedback to students through the college portal and the biggest errors encountered during the correction and the correct application of methodology.

The supervisors experience and the information wealth collected from students have offered the possibility to analyze the case and propose solution which meets the institution objective, technological course and the student with regard to knowledge and the labor market.

For documentary research it has used the pedagogical project of the course (PPC), according to

Cervo, Bervian and Da Silva (2014, p. 62) "documental research: documents are investigated in order to describe and compare practices and habits, trends, differences and other features".

The bibliographic research was based state of the art on the subject.

4 Analysis and Discussion of Results

According to the Political Project Course - PPC of ENIAC College (2014, p. 11).The course aims at training to develop professional skills that will result in people management, creating conditions to articulate, mobilize and put into action knowledge, skills, values and attitudes to respond in unique and creatively, efficiently and effectively, the challenges and the labor market requirements.

Following these precepts, the proposed intervention argues alternatives for the problem solution situation, providing opportunities for changes to redesign of the development and delivery the final course assignment - FCA to reach your goal.

Just as phenomenology, methodology of questioning, the process of awareness is always unfinished. It is a continuous and progressive reality unveiling, and the new reality always becomes the subject of a new critical reflection (Vasconcellos, 1999, p. 44).

The redesign process leads searches and perceptions, and the coexistence of this. The more they the students are involved in such problems, as beings in the world and with the world, the more they feel challenged (Freire, 1987, p. 70).

The course curriculum was divided into three major areas of knowledge, as shown in Table 3 Research areas as pedagogical project of the course (PPC).

Table 3 Research Areas as Pedagogical Project of the Course (PPC)

Knowledge management	Market Place of Work and People	Labor legislation
Corporate education; Training and development; Performance evaluation; Culture and organizational climate; People management competency.	Attractiveness and selection; Selection technologies; Covenants business school.	Administrative practices; Health and safety; Sustainability.

Source: prepared by the authors in 2015.

Every action of the Human Resources area has a direct effect on the organization and people, ranging from the candidate's attraction for the company, development, retention to the voluntary or not shutdown. It is understood that the topics chosen within any of the lines of research will impact on the organization and the employee.

We have chosen defining lines to direct supervised the students to professor supervisors' area. It is proposed the limit of 20 pairs to each supervisor.

Regarding the supervisor's remuneration, as mentioned, the practice is presented in two dimensions: assessment and correction both in person and online, through the educational portal.

Today the remuneration corresponds to the payment of three weekly class hours and the proposal would, besides the hours of classroom attendance, be paid an additional 12 classroom hours for online correction phase. Building and sharing quality education in knowledge society is essential investment in the continuing professor's training in order to, in fact it reaches the goal of being the mediator of the teaching-learning process.

According to the National Education Plan; Planning the Next Decade, Knowing the 20 Goals of the National Education Plan (2014 p. 43):

Target 13: improving the quality of academic education and increasing the proportion of masters and doctors of the college professors in effective exercising throughout the academic education system to 75% (seventy five percent), and of the total, at least 35 % (thirty five percent) doctors.

The quality of academic education is directly related to various aspects, including, teaching, research, extension, and student performance, the management of the institution and the titration of the college, especially in master and doctor courses.

The remuneration is a factor for personal investment in knowledge and sharing it with society.

The period of six months is insufficient for execution / development of a final course assignment - FCA, according to its proposal to fortify the knowledge within the study area, through the initiation of a student in scientific research.

The assignment should be started one semester before the semester called 1and the subsequent semester to semester called 2, thus the duo will have one year to research and develop the final course

assignment - FCA, without conflicting with the academic activities required during the semester.

In the semester 1, the FCA coordinator will make two guidance lectures about the paper. In the second half of school beginning, will take place the inaugural lecture. Students will be invited through the portal and walls. The lecture will address the following topics:

- Overview and the importance of final course assignment;
- The importance of scientific research initiation;
- How the assignment should be conducted in two semesters;
- Present research lines;
- The organization of double;
- Subject choice and presentation of a plan assignment;
- Who are the supervisor professors and the role of development process;
- Unpublished assignment and agreement.
- Present the materials available on the student's portal. The only material that changes is the calendar, from one to two semesters with all specified dates.

The first posting by the pair should take place within fifteen days after the inaugural lecture and includes: theme, references and planning work. The return deadline shall be fifteen days.

The second lecture will take place forty-five days after the beginning classes focusing on the development of TCC.

- Structuring the summary;
- Development of introduction;
- Details of ABNT for direct and indirect quotations;
- Methodology types: field research, case study;
- Opening discussion about the lecture doubts, and
- First chapter theoretical foundation.

The second phase posting will be thirty days after the lecture date two and the supervisor will have twenty days for feedback indicating what should be changed and developed for posting. In the second semester, it will take place three lectures.

The lecture 3 will take place ten days after the classes beginning focusing on development of chapter two, methodology and quantitative or qualitative research, request the company's authorization term researched and open for discussion in case. The post will be the twentieth day following lecture and feedback will be fifteen days after posting.

Lecture 4 will be fifty days after the classes beginning and deal with the discussion of research, graphics presentation, guidance on the conclusions and references. The post will be approximately twenty days to the paper posting and the supervisor will have twenty days for feedback.

The lecture 5 will be seventy-five days after classes beginning and will lead to the final course assignment. At this time, besides guidelines to step 5, students will be advised about sixth step (recovery), arguing by the examiner or fail banks. The supervisors will have twenty days for correction and feedback session.

The sixth stage that makes up small patches will give the student three days for correction and three days supervisor feedback.

The student must be the active agent of development work together with the supervisor. It is observed today that students transfer for guiding the main responsibility for developing work. The culture will change, this time, by assigning grades to each one of the criteria which make the development of final course assignment - FCA.

The final score will be composed by adding the grades from the first to the fifth stage that can be marked from 0 to 10. Exceptions are: if for the sixth stage and the examination board where the student has the opportunity to restate assignment and the maximum score is 7.0.

Sant'Anna. (1995b, p 24) explains that: The evaluation presupposes offer the teacher opportunities to check continuously whether the activities, methods, procedures, objectives, resources, techniques that you use to work with students, are enabling the student to achieve the proposed objectives.

Table 4 shows the possible scores ranges for each one of the components of development process:

Table 4 Criteria for Grading

Activity	Criterion	Range banknotes
Lecture	Presence in all the lectures of at least one member of the pair. The frequency will be computed by biometrics or presence list.	0 to 0,5
Discussion with the supervisor	The pair should talk personally at least once a month with the supervisor. Registration will be done through the presence list.	0 to 0,5
1 ^a stage	The post should be sent with all requested items.	0 to 1,0
2 ^a stage	The post should be sent with all requested items of a stage more correction suggested by the supervisor in the previous stage.	0 to 1,0
3 ^a stage	The post should be sent with all requested items of a stage more correction suggested by the supervisor in the previous stage.	0 to 1,0
4 ^a stage	The post should be sent with all requested items of a stage more correction suggested by the supervisor in the previous stage.	0 to 1,0
5 ^a stage	The post should be sent with all requested items of a stage more correction suggested by the supervisor in the previous stage. At this stage, the supervisor may: assign a final note, indicate to the 6th stage, disapprove, or forward to the examination board.	0 to 5,0
6 ^a stage	Present the corrections indicated in the 5th stage.	0 to 2,0

Source: prepared by the authors in 2015.

At all stages we have the proposal of continuous adjustments and as emphasized by says Sacristan and Gómez (2000, p. 11) “the need to rethink the processes of teaching learning, in order to that the purpose of educating citizens to intervene so relatively autonomous and rational in social exchanges democratic society guide and configure the educational practices.”

Active methodologies provide a construction of knowledge, for this is indicated available online class methodology of scientific work in the student portal.

5 Conclusion

The study has not exhausted all the possibilities for improvement. It is hoped that the changes proposed engage students in the learning process and help them to be more active agents as a committed professional, connecting the academic world and the productive market.

By changing the development process of final course assignment - FCA for two semesters will help the student to bring the epistemological dimension of knowledge perspective; the pedagogical dimension in the context of the student's relationship with learning and social dimension in view of the extent of intervention in society, meeting community needs.

The period of one year for the development of FCA is an important factor, because the student can reflect and search deep into the subject of his interest and make meaningful knowledge. By limiting the number of students, the professor will be able to direct and monitor in depth the themes chosen.

The compensation is an important factor to consider, among others, the importance of investment in continuous development for the education quality in teaching-learning and furtherance research, as well as its projection in career of academic education institution.

Another goal is to bring the student to the research group of Eniac College, this group formed by specialists from several knowledge fields, to transform the final course assignment - FCA in an article referring to submission and presentation at scientific research seminar at Eniac College and publication in Kaleidoscope magazine.

The final course assignment is done for graduated and Technology courses. The FCA of graduated courses has another setting for achievement. The curriculum provides depth in scientific research methodology taught in classes. In addition, there are lessons monitoring FCA, another mentor of the study area.

But only for technological courses are being defined research lines. The research lines will be able to replicate to graduation courses in order to bring closer relations between these courses and the research group, contributing to development of new ideas to community, the institution and the individual.

As innovation indication, the next step is the refinement of research lines showing the seminal books to study.

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Reference Form (RF): A Comparative Analysis of Companies Level 1 and Level 2 Versus Code of Best Corporate Governance Practices

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Abstract: This article aims to assess the information provided in the Reference Form (FRE) by companies listed on Level I and II of the BM & FBovespa referring to the year 2012 and published throughout 2013 in order to investigate the compliance of management and governance processes to practices recommended by the IBGC (Brazilian Institute of Corporate Governance) based on the Code of Best Practice of Corporate Governance (IBGC, 2009).

Key words: Corporate governance; Reference form; Code of best corporate governance practices

1 Introduction

Several corporate scandals in recent decades become the actions of Corporate Governance (CG) more attractive and necessary as a control and management system for organizations that seek to minimize the costs of agency problem (Silveira, 2004) and protection for the minority shareholders. Regulators have also begun to establish new rules of conduct aimed at ensuring greater security to the markets, which forced organizations to adopt some KM practices. Experts in governance theme seeking out and spread the benefits of an excellent CG system, such as greater transparency in the management, better level of control, installed and standing committees, more security for shareholders and boards of directors and tax structured and active.

Silveira (2010) points out that the result obtained with a good KM strategy lacks any difficulty or cost of deployment. A governance system is beneficial, even if it entails costs, as there are beneficial aspects, such as improving cash flow perspective, ease access to capital and improvement of decision making in top management.

Moreover, in line with this approach it is possible to emphasize that the absence of a good CG system has led companies to failures resulting from abuse of power, errors in strategic decisions, lack of internal controls and fraud (DA SILVA, 2010).

Another positive point is that the practices of the GC protect and ensure the interests of investors, minimizing agency conflicts which in turn, prevents the destruction of corporate value because the company's control problems between groups of shareholders (Ribeiro et al, 2012).

In this context, in which the CG actions become more relevant and required by the market itself, this study aims to present a ranking of corporate governance practices based on the information disclosed by the organizations of the BM & FBovespa Level I and II in their form Reference (RF). The article presents the results of comparing the information on the governance process of the organizations with the recommendations made in the Code of Best Practice of Corporate Governance (IBGC, 2009). The study also deals with the profile of professionals working in the governance process (directors, board members and tax).

The choice is justified by its economic and social relevance, the little literature on the subject available for research, as in the non exhaustive survey of the literature, there was a lack of research directed specifically to the use of RES as a governance tool.

It is noteworthy, however, that this article aims to complement the study by KPMG (2014), entitled "Corporate Governance and Capital Markets", which portrays the landscape of open companies based on FRE 2013/2014. The KPMG study presents several indicators extracted from the RF and performs a comparison between the levels of governance: the New Market, Level I, Level II and Traditional.

IBGC, unlike a regulator, does not force companies to adopt its recommendations, however, governance practices suggested by the Institute seeks to enhance the value of organizations, facilitating their access to resources in the market and make them more transparent (Silveira, 2010). The study of the FRE of Level I and II of companies did not claim to interpret or validate the veracity of information provided by organizations, but allowed to generate a governance ranking based on published information and map the profile and professional qualifications of directors, advisors and tax advisors,

professionals responsible for the governance of organizations process.

2 Research Problem and Objective

For better management of companies BOVESPA established two different corporate governance levels of the Level 1 and Level 2. This differentiation aims to define the conduct to the company profile for both levels, aiming to value the shares and any company assets. ((BMF & BOVESPA, 2011. p.4 and Level 2 p.5)

Table 1 Minimum Conditions - Authorization for Securities Trading

Nível 1	Nível 2
Keep up to date with the BSC held company registration	Keep up to date with the BSC held company registration
Have record for trading of securities on the BM & FBOVESPA	Have record for trading of securities on the BM & FBOVESPA
Sign together with the shareholding agreement Level 1	Sign together with the shareholding agreement Level 2
Participate in Level 1	Participate in Level 2
Protocol on BMF & BOVESPA Terms of Consent of the Directors (signed)	Protocol on BMF & BOVESPA Terms of Consent of the Directors and Terms of Consent of the Members of the Supervisory Board (signed)
Adaptation to social status	Adaptation to social status
Have a minimum percentage of outstanding shares, even after a Change of control transaction with conducting public offering of shares according to current corporate law, with recovery of (06) months following the public offering. In case of capital increase verify right of first refusal regarding the subscription	Have minimum percentage of outstanding shares
If the Company's Control should carry out the Purchaser subscription to the Statement of Consent from Controlling, and while not subscribe is set to: a) shareholder may not perform any tip share transfer b) the company may not register any transfer of shares to the Acquirer or who have the Power of Control, The term should be delivered to BM & FBOVESPA within fifteen (15) days from the date of signature;	No information
Have no Beneficiary	Have no Beneficiary
Observe legal and regulatory rules applicable there NI.	Observe legal and regulatory rules applicable there NI.

Source: Adapted by the author, Regulamento de Listagem do Nível 1. (BMF&BOVESPA, 2011. p.4 e Nível 2 p.5)

Considering the importance of corporate governance levels and aspects demonstrated. We can research question: Companies Level II have better governance practices in relation to the Tier I companies, or even companies with older registration with the CVM have more adherents governance practices to IBGC's recommendations?

It aims to compare the Tier I companies and Bovespa Level II in their respective FRE and Code recommendations of Best Practice of Corporate Governance (IBGC, 2009).

There were evaluated RF of the New Market organizations, given that the companies listed in this segment have differentiated corporate governance practices in compliance with CVM determinations. the IBGC's recommendations?

3 Literature Review

3.1 Importance of corporate governance and its evolution

The CG has become an important agenda for discussion in academic forums and executive meetings in recent years. Increasingly, the issue is no longer just academic subject and happens to be treated and applied in practice by companies, so that their results are perceived and measured by the market, adopting, including specific indices such as the IGC - Corporate Governance Index and the IGCT - Corporate Governance Trade Index, both accompanied on the Stock Exchange of São Paulo

(BM & FBovespa, 2013).

Most investors prefer to invest in companies that have more robust governance processes. According to Da Silva (2010 p.219), “between 70% and 80% of investors are willing to pay a greater value in the stock market by the organizations involved in governance.” One of the facts demonstrating the relevance of GC nowadays is the growing number of studies and academic publications in recent years. Ribeiro et al (2012, p.89) showed in a bibliometric study from the late 80 there was a considerable increase in resources on “corporate governance”, including associated with the subject “strategy.” It found a substantial increase on the themes from 2003, with an approximate percentage increase of 200% from 2003 to 2010.

Despite the wide debate on the subject, the concept of KM is not dichotomous among authors, as in general GC is a set of practices that aims to make corporate decisions are always taken with focus on generating and / or maximizing long-term value to the business (Silveira, 2010, p.2). The implementation of a KM system can improve the company's performance, protect investors, employees and creditors and facilitate access to capital. (DA SILVA, 2010, p.18).

The Code of Best Practice of Corporate Governance (IBGC, 2009, p.19) provides a complementary setting for GC, highlighting it as a system by which organizations are directed and monitored, involving the relationships between owners, managers, Board of Directors and control bodies.

One of the relevant facts which led the scientific community, businessmen, politicians and society in general to argue with more dedication this subject in recent decades, as well as seek regulations and practices that encourage the generation of a more transparent and reliable market, was the volume of corporate scandals in Brazil and the world from the 90s, such as Barings Bank in 1995 (BERGAMINI JR, 2013), National Bank in 1995, Worldcom and Eron in 2001, Xerox in 2002, Banco Santos in 2004 (DA SILVA, 2010), Shell and Parmalat in 2003, Siemens in 2008, Société Générale in 2008 (Silveira, 2010). These cases certainly encouraged shareholders and controllers to structure control mechanisms, with a view to avoiding financial losses, increase market credibility regarding management models and therefore value companies to submit more compliant practices to governance models.

In the US, in response to corporate financial scandals, the Sarbanes-Oxley Act was created in order to prevent the flight of investment due to insecurity generated market.

The law promoted a series of changes in governance practices. To Da Silva (2010, p.192) the introduction of American law has created numerous and significant duties and responsibilities to be observed by the directors of public companies listed on the US stock market (whether American or not) and promoted the regulation of corporate life, based on good governance practices.

In Brazil, among the main improvement initiatives on the level of corporate governance, cites the creation of the Brazilian Institute of Corporate Governance - IBGC founded in 1995 (IBGC, 2006 p.21), which was officially established as the Brazilian Institute of Directors IBCA of Directors and subsequently renamed the IBGC. Another important step was the publication in 1999 of the Code of Best Practice for Corporate Governance (IBGC, 2009), focusing primarily on issues related to the Board of Directors, which in later editions now covers recommendations for other governance agents such as partners , managers, audit committee and audit committee etc.

Seeking greater clarity to investors and greater confidence in the Brazilian market, Bovespa created different levels of governance of companies (Level I and II) according to the degree of commitment of the company in relation to some corporate practices (Silveira, 2004, p. 58) launching in 2000 the so-called Novo Mercado, which established a pattern of differentiated governance.

In the way of greater transparency to information on public companies, the SEC launched in December 2009 Normative Instruction 480 which, among other obligations, provides that companies report annually on the Reference Form (RF), which includes information demonstrations financial, profit distribution policy, investment policy, and information on the overall remuneration for members of the Board of Directors, Statutory Board and the Supervisory Board and the largest and the smallest individual remuneration of each of these organs. In short, the IN 480 is intended to expand the governance of view of companies and provide investors with greater amount of information and more quality, so they can analyze the performance of the administration in a more transparent way company (BM & FBovespa, 2013).

3.2 Reference Form - RF

The Reference Form (RF) was created by the Brazilian Securities Commission (BSC) on December 7, 2009 by BSC Instruction # 480 in order to be one of the leading journals company documents, since the file brings together information relevant to the evaluation of the organization and securities issued by it. The creation of the RES also aimed to facilitate the work of issuing securities

companies, which now only deal with a standardized set of information (SON SOURCES; LEAL, 2010, p.154). For this reason, they are filled in this form very comprehensive information, which originate in various areas of the organization. It is the Chief Executive Officer and Director of Investor Relations for the company to take care to structure a suitable internal process for drafting and revising the document before its delivery and dissemination to the market, since they are ultimately responsible for the content of information provided on the form.

The RF as well as the Form 20-F that is filed with the SEC aims to establish itself as a permanent and reliable information document, in which the data provided by the companies are standardized, requiring a rigorous preparation, dissemination and updating of its content. The update, when necessary, requires the maximum attention from listed companies, as non-compliance with restatement of rules can lead to the opening of administrative proceedings by the BSC, as well as result in punitive fine, according to the terms set forth in own BSC Instruction 480.

Crafts published after the BSC 480 reinforced the need for integrity and transparency in the disclosure of information, as noted in Circular Letter BSC SEP No. 007/2011, p.8:

[...] the issuer must disclose true, complete, consistent and does not induce the investor to mistake; [...] All the information disclosed by the issuer must be written in simple, clear, objective and concise language. [...] If an information requested in the Program is not applicable to the issuer in terms of its characteristics, it should leave expressed this fact in the form and include a justification explaining why the information requested is not applicable.

Filho and Leal's sources (2010, p.153) point out that the group in a single document relevant information about the issuer of securities the model features a wide convergence with the various codes of best corporate governance practices published in countries with a tradition in CG .

The creation of the RF is relatively recent and perhaps why there are so many detailed studies on its content, as well as its use as a governance tool by society and shareholders. However, KPMG (2014) released a study done specifically on the information disclosed in the RF of the companies listed in the four governance groups: Novo Mercado, Level 2, Level 1 and Traditional. The same study was ever conducted by KPMG own before 2009, but adopting as basis the Annual Reports. The result of the last report by KPMG (2014, p.2) pointed out that:

Over the years we have seen a clear trend by seeking the best corporate governance practices, including transparency, accountability, equity and corporate responsibility, is to comply with new regulatory requirements [...] or by perception 'own managers and investors of the benefits generated by the application of good governance practices [...].

The following items highlight the analysis of the information and results obtained by comparing data from 52 RF published in 2013 by companies in the Level I and Level II with the IBGC's recommendations.

4 Methodology

This research was classified as exploratory with qualitative, the information used were extracted from secondary data, according to Malhotra (2012), secondary data often be easily accessible channels, low cost.

Was used in this study the reference forms of public companies (Level I and Level II), available on the BSC website on the date of 10/28/2013, except the company HI SA, which the version not allowed downloading to perform the analysis. Moreover, it was adopted as base material the Code of Best Practice of Corporate Governance (IBGC, 2009) as well, the study authors as Silveira (2010), Rossetti and Andrade (2001), Da Silva (2010) dealing with property concepts and methods on GC, beyond the rules of the Brazilian Securities Commission (BSC) and the study carried out by KPMG in Brazil (2014).

The study proposed analyze the information provided by the organizations of the Level I and Level II of Bovespa in their respective FRE and compare them with Code recommendations of the Best Practices of Corporate Governance (IBGC, 2009). 52 FRE were analyzed, 31 companies in the Level I and Level II 21 companies. As companies have the possibility to disclose several versions of RES throughout the year, it was adopted as a criterion for study analysis of the latest version and available on the BSC website until 10.28.2013.

The information analyzed was based from the RF and treated in a database for evaluation in order to assign a score for each adherent ou partially adherent item. In addition to the information used to assign a score and generate governance ranking, other qualitative information on the professionals working in

the process of management and governance were extracted and consolidated to study.

4.1 Differences between corporate governance levels

In order to establish a trading environment that stimulates concomitantly, the valuation of companies and investor interest, the former São Paulo Stock Exchange (BOVESPA), created in December 2000 three classes of corporate governance: Level I, Level II and the Novo Mercado, with Tier I with lower requirements and the Novo Mercado, the highest degree of regulation. Through such levels of governance would be possible to classify the companies according to the number of additional obligations on the Brazilian legislation. In this way, organizations began to focus on actions and initiatives, which turn out to be recognized in the market as good corporate governance practices.

In this study we adopted for analysis only the organizations listed on Level I and Level II governance. Basically the Tier I companies are committed to improvements in providing information to the market. It is mandatory for this level disclosure of information in the Quarterly Information (ITR), the DFP (Standard Financial Statements) and the IANs (Annual Information), and the disclosure of other corporate information.

Companies listed on Level II undertake to fulfill the requirements for Level I and additionally adopt a broader set of rules of governance practices, prioritizing the rights of minority shareholders. Some additional requirements for participation at this level are: disclosure of financial statements in international standards, the board with minimum 05 members elected for two years, and 20% of them must be independent, voting rights to preferred shares in some materials, Tag Along 100% to holders of common shares and 80% for holders of preferred shares and adhesion to the Market Arbitration Panel for resolving corporate disputes (BM & FBOVESPA, 2013).

5 Analysis of Results

As the collecting the information in RF is finished and the compilation of data according to their score, the companies analyzed were classified according their score. In addition to creating the ranking, the study allowed us to analyze and highlight other observations about the data available on RES, such as the participation of audit firms in the analyzed organizations, the profile of professionals who work on the board, the boards of directors and fiscal and as the participation of women in these roles. To better organize the results, the following items were divided into (I) grip level of governance information of FRES the code of practice of Best Practice of Corporate Governance (IBGC, 2009); (II) the independent audit companies in the Tier I and Tier II organizations; (III) profile and remuneration of professionals working in the management and boards of directors and fiscal.

5.1 RF information versus code of best corporate governance practices (IBGC, 2009)

The study of **RF** was premised on the comparison of nine highlighted items from the **RF** and allowing compare with the best practices recommended by IBGC, so that the end of analysis has produced a ranking of consolidated adherence to businesses of Level I and II.

To perform the analysis of the items the following assertions were generated: (a) the organization practices assessment of its Board; (b) no variable remuneration for the Board of Directors; (c) the organization discloses the average annual compensation of its directors; (d) the organization discloses the average annual remuneration of directors (e) the organization has IR Director with unique function; (f) the organization practices gender diversity in the Board of Directors (minimum 20%); (g) the organization informed and practices Board Member of the mandate up to 2 years; (h) the organization held rotation of independent auditing firm in the past five years (i) the organization has Supervisory Board and permanent.

After the lifting of the RF extracted information from companies and completed the analysis of the statements, companies were classified based on the level of adherence to assertive. Da Silva (2010, p.107) points out that the new companies in the market has not shown any fear in sharing control of the company and fully open their numbers. In this sense, the first cross-checking has reinforced this statement when assessing that there is no relationship between the time of registration with the BSC and the level of adherence to IBGC's recommendations. Companies with registration in the 60's and 70 showed low level of adherence to the items evaluated and, on the other hand, of the 19 organizations that went public after 2000, 11 of them have higher level of adherence to 65%, and 04 were among the ten most members (up 77% adherence), namely: Taesa, CEEE-D, Banco Indusval and Panamericano.

Shows the final ranking of companies based on the percentage of grip and year of registration with the BSC. Companies with latest registration with the BSC were classified forward, given that there is an expectation that companies with earliest record have a more mature governance process, given the

experience.

5.2 Evaluation of 52 companies (Level I and Level II)

Observing the entire study sample (52 companies), the item with lower overall grip is diversity in the Board of Directors (BD), as only 13% of companies have evaluated the BD composition of a minimum of 20% women. Another item that showed low adherence to best practices IBGC was the implementation of the evaluation process of the board. Of the 52 organizations selected for the study, only 33% reported in their respective FRE having structured process. This result considered as "non-stick" companies that did not report the FRE to have this process. In the KPMG report (2014, p.12), which adopted different criteria, the result for this item was 18% of companies in the Level II and 31% of Level I.

The item with the highest level of adherence was related to the rotation of audit firms, (94% of the evaluated companies released in RF previous contract date to 2008.). Another positive item, in which 90% are adherents was the tenure of the directors up to two years.

5.3 Results of the most Adherent Companies

Among the ten best companies evaluated (grip index greater than 77%), only 03 belong to Level II, recognized segment as more robust than I level in terms of corporate governance. The item with lower adherence in this group was also "gender diversity", according to RF no organization has the participation of women on the board with the sitting member function. It is noteworthy that were not considered the positions of alternates. When evaluated together the functions of director and counselor of administration and fiscal, women's participation improves these ten companies, but is also very small, as only 6% of the seats with those roles are held by women. This point is also observed in the study released by KPMG (2014), which highlights that women have a share of only 7% of board of directors in the companies of Level II and 5% in Level I. The KPMG companies not quoted the study the alternate positions were considered.

Regarding the Fiscal Council (FC), among the top ten, only Banco Indusval reported do not have a Fiscal Council with permanent. The participation of women in CF reaches 15% in this group, but only five companies have women working in this council. It can be seen therefore, that even in organizations with more compliant practices of the Code of Best Practice of Corporate Governance (IBGC, 2009), women's participation is still low in corporate governance functions.

Importantly, the application of methods aimed controls for a more robust management and an effective governance system can mitigate the risk of events that devalue the actions of the organizations, but does not mean, however, that the most adherents to these companies practices are totally free of wrong decisions, failures in the management process or problems that cause financial and image losses. Moreover, it is not possible to say through this study that the information disclosed by organizations in RES are actually practiced in the management process.

An example of this is the company Forges Taurus, which in this study is among the most adherent organizations to the valued items (88.9% of adherence to IBGC's recommendations) and even then, since 2012 has been undergoing investigations and changes in the Board of administration because of problems detected by Ernst & Young external audit on the sale of subsidiary Taurus Machinery - Tools. The case reflected in the media and has generated discussion of the possibility of action for damages against the directors and officers. According to an article published in Valor Econômico (09.22.2014), the price of the company's preferred shares had fallen 80% and was trading in Sep / 14 in the house cents.

5.4 Assessment of less adherent companies

The less adherent organizations also did not reach the minimum of 20% women on the board, however, unlike the ten acceding where women's participation in the AC is still zero, among the ten organizations with less grip, the participation of women in AC as member is 5%. When evaluated together the functions of director and advisor of fiscal management and the participation of women in governance roles in these organizations remains at 5%, but one percentage point lower than the ten most adherents. Regarding the Fiscal Council the participation of women is much lower than the ten most adherents, and a share of only 4%, compared with 15% of the members.

Despite the low level of adherence of these organizations, it is noted however, good management practices, such as the evaluation of the board, played by two of the ten organizations; presentation of the average annual remuneration of directors and officers disclosed by other organizations 2; besides the existence of relations director with exclusive Investors, practiced by a third group of two companies. What is observed in these organizations is that the nine items measured on average only three are practiced in these organizations, which reduced the level of grip on the practices recommended by the

IBGC. Another point with low grip is the “evaluation of the Board of Directors.” Ten less adherent organizations, only half has this practice in its management and governance process.

5.5 Independent audit firms

The item RF presenting information on independent audits contracted by companies listed on the exchange. They were observed in this item the name of the audit firm which acted for the year 2012 and the date of the transaction. The result of this analysis identified that 94% of companies in the Level I and Level II acted with four independent audit companies: PwC, KPMG, Deloitte and Ernst & Young. PwC has 29% of the total market and strong presence in the Tier I segment with presence in 39% of companies of this level of governance. The Level II segment is led by KPMG and Deloitte, each having 33% of companies in this segment.

Despite the best governance practices recommend turnover of the independent audit firm every five years, according to the analysis of contraction dates of audit firms observed in Fresno, 02 companies in the Level II and Level 01 I have the same auditing firm for over 05 years. The other organizations both segments opted for exchange of audit firm in the range of less than 05 years.

However, it highlights the difficulty in assessing this information, since not all companies are properly applying the information in the “period of service”. It was observed that some companies have chosen to maintain the same audit but it effected the rotation of responsible professionals, as recommended by the IBGC (2009), but not make clear that information. Usually the "period of service" is filled with the date of the last contract, and it is unclear whether there has been a renewal, and what is the first signing date. Although the aforementioned rotation of observation in another field, for some companies, it is ideal that were stated in the field “period of service” the actual date of the 1st contract. This can be a point of improvement to be considered by companies in the Level I and Level II that have not yet adopted this practice.

5.6 Profile and remuneration of professionals working in the management and boards of directors and fiscal

All professions of the people who work in the governance process (board, board of directors and supervisory board) were cataloged from the item 12.6 of the FRE of each organization. However, before submitting the results of this analysis, there is a caveat in relation to the profession "bank", since, mainly Banco Bradesco SA, reported on its FRE this profession for most professionals cited in the field 12.6, failing to specify real profession training. This also occurs in other companies, including who are not in the financial sector, but less frequently. Thus, it is emphasized that the study looked at the professions and age of the professionals who make up the governance functions of organizations Level I and Level II always extracting the data submitted by companies in item 12.6, not taking into account whether the information was presented in order different in another form field.

The average age of all professionals working in the governance process of the companies Level I and Level II is 54 years. The youngest professional in office in 2012 was 26 (Tax Advisor Bannisul and Inepar Board Member) and the oldest 87 years (CEMIG's Board Member). The highest average age is in the AC's chairman (Chairman) 63 years, and the youngest was 42 years old (Renova Energia SA) and the oldest in office in 2012 was 86 years (BIC Banco, Banco Bradesco, Bradespar, Klabin SA). On the other hand the lowest average age is in the director's role with 50 years of age, with the youngest 29 years (Banco PINE SA) and the oldest with 81 in (Marcopolo SA).

As for the profession there is a clear preference for companies to hire engineer and administrator to act in governance processes, as they occupy 47% of positions in these functions in the segments Level I and Level II. In addition, 51% of CEOs of these companies are engineers and 35% managers. Another highlight is that 38% of the Presidents Council (Chairman) are also engineers or managers.

Analyzing the Board of Directors (BA) and the Audit Committee (AC), collegiate important to have a proper process of governance in any company, it observed that on average companies operate with seven members in the AC and virtually no differences between segments Level I (mean 7.2 members) and Level II (average of 6.6 members). Only one company (CEMIG) has a woman as Chairman of the Board.

Another point evaluated against the BA was the profession of each member that compose it. The analysis showed that some organizations maintains a technical diversity, but in general there is a concentration of engineers, economists and lawyers composing this important collegial body.

Regarding the CF, the 52 assessed organizations, 40 of them have CF installed, having an average composition of 4.3 members in each company. Proportionally, women's participation is higher in CF than in the AC, as in CF there is a participation of 10% women, being more evident in the Level I with 11% against 7% level II. The occupation with the highest rate of participation in CF is Counter. The

dynamics of action of this collegiate requires its members great knowledge in accounting, since, according to the actual description of the goals of your installation in accordance with the Code of Best Practice of Corporate Governance (IBGC, 2009, p.62) a its functions is “to analyze, at least quarterly the balance sheet and other financial statements prepared periodically by the company and; examine the financial statements of the fiscal year and opine about them”.

In relation to the director’s role, the rule is no different than identified in the professions of the AC, as to isolate the “banking” profession, understood in this study was informed improperly, the most identified professions in the director's function is to engineer and administrator, adding 46% of all professionals working in the function. Specifically this role women’s participation is also low, as between CEO and Director women occupy only 6.5% of the positions.

In general, it is observed that the participation of women in governance functions is still small. In companies of Level I and Level II segment on the base date of RF (year 2012) there were no women in the CEO role.

In assessing the item 13.11 of the RES, which is the average annual remuneration paid to professionals working in the director's role, counselor of administration and tax advisor, it was observed that 32.7% organizations have disclosed the information, taking as a justification decision court that provides legal support for the non-fulfillment of the obligation. Therefore, average earnings were analyzed only the companies that provided the data in that field. In short, the average annual compensation paid by the companies of II level is higher than the remuneration paid by companies in the Level I. For as Officer of Tier II companies pay on average \$ 1.777 million, the largest annual average of Banco Daycoval SA with an average salary of R \$ 3.22 million in 2012. The highest average annual compensation paid to directors of companies II level is of Parana Banco SA R \$ 1.086 million in 2012.

When observed average annual remuneration paid to Board members, companies Level II paid on average \$ 553,000, with the highest average annual compensation also Banco Daycoval (R \$ 2.936 million in 2012). At Level I segment the company with the highest average annual compensation in 2012 was Klabin SA Klabin SA is also the company with the highest annual average for the remuneration of the Supervisory Board. The company reported an average annual salary of £ 347,000 in 2012, compared to R \$ 180 thousand from Marcopolo SA highest average compensation tax advisor Level II on the same date base.

6 Conclusion

The study collected data from 52 level organizations I and II of the BM & FBovespa directly from their respective reference forms (RF) for the year 2012 and compared to nine extracted IBGC the recommendations of the Code of Best Corporate Governance Practices (IBGC, 2009) , generating a ranking of organizations by level of grip, this is a secondary, exploratory study result indicated that even among organizations that had higher adherence to IBGC's recommendations referenced in this study, there are still opportunities for improvement in the governance process as, for example, the practice of board evaluation. Only five of the ten most adherents have that practice.

The work has strengthened the participation of women is still small in management positions and in governance processes in organizations of Level I and II.

It was also found that companies listed on Governance Level II are not necessarily more adherent to IBGC's recommendations in their entirety or follow the best governance practices, as among the ten most adherents in this study only three belong to the segment Level II . Another important point of the search result is that the record date with the BSC is not an advantage for the organization to have a better structured corporate governance, ie the independent governance stage of the company's operating time in the stock market.

The analysis of the respective RF showed that the average annual remuneration of directors and officers is not disclosed by all organizations. Approximately 33% of the evaluated companies did not disclose this fact in 2012, and the Tier I segment had a lower percentage of companies that reported this information, even if a good governance practice and requirement established in BSC Instruction n.480. However, looking at the data of the companies that have reported average annual compensation of its officers and directors it was established that the companies I level has an average annual salary less than the Tier II companies.

As for the profile analysis of professionals working in governance processes of the evaluated companies, it became clear that engineering professionals, business, law and accounting prevail in the

management process compared to other professions. On the average age of governance professionals, it was observed that the average age of Board members is greater than the average age of officers and professionals of the Supervisory Board.

The study identified that the exclusive use of the information disclosed in the RF is not a perfect indicator to conclude that the organization practices, effectively, governance actions. The case of the company Forges Taurus, which figured in the ranking of this study among organizations with higher levels of adherence to IBGC's recommendations, is an example of the practices disclosed in RF are not enough to complete the governance level of the company. The Taurus Forges reached in the study 88.9% of grip, but since 2012 has been undergoing research in management and decisions adopted by the Board of Directors in the fiscal year just used to search the FRE. Thus, the information disclosed by organizations in RES can be used for evaluation, but not as exclusive source to conclude that the company has better or worse corporate governance process.

As limitation of the study, it points out that the information disclosed in RES are not fully standardized which reduced the number of items eligible for the comparison with the IBGC's recommendations. Ideally, businesses, together with the BSC, discuss improvements in RF so that records follow more standard models, including the items that are recognized as "text field."

It is suggested for further study and research, the analysis of other items RF as well as an intersection of financial results versus the level of adherence of companies to IBGC's recommendations, so that you can verify that the governance actions generate financial results more consistent.

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Research on Contractual Incompleteness and Contractual Governance in Franchise System*

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Abstract: Management in franchise system is full of chaos. This has been proved by the increasing negative events in franchise system. Lots of scholars have done the research on how to promote franchise system to operate effectively, but few of them analyzed the problems from the perspective of contractual governance. The innovation of this article is to apply the theories of contract to dealing with opportunistic behavior in franchise system. The author uses literature method and comparison method to identify that contractual incompleteness is the primary reason of opportunistic behavior in franchise system. It is believed that contractual governance is an effective way to deal with opportunism.

Key words: Opportunistic behavior; Franchise; Contractual incompleteness; Contractual governance

1 Introduction

Franchise is a kind of special organizational form existing between market and firm, in which franchisors and franchisees are combined together through contracts. From internal perspective, franchise takes market form due to property right difference between franchisors and franchisees; from external perspective, franchise takes firm form due to franchisors and franchisees' sharing of the same trademarks and business modes. Franchise, as a special organizational form, helps to reduce the agency cost and supervision cost, saving the transaction cost.

There have been three main theoretical schools during the development of contract theories: classical contract theory, neoclassical contract theory and modern contract theory.

Classical contract theory attempts to facilitate exchange with the emphasis on discreteness and present in place or time. In classical contract theory, parties involved in a transaction are irrelevant and are ignorant of sustaining mutual relationship. The contract terms and clauses are supposed to be defined carefully. From the beginning, all contingencies are relatively predictable and remedies are narrowly prescribed accordingly. Additionally, third-party participation is discouraged. Classical contract theory endeavors to implement "ideal" contractual relationship.

Neoclassical contract theory is based on the assumption of perfect rationality, symmetry of information and zero transaction costs, regarding contract as complete. Neoclassical notion of contract presents the idea of complete contract. The complete contract theory supposes that the agents involved are perfectly rational and can completely predict all possible events which may happen in future in the term of contract. In the case of the complete contract, agents are willing to comply with signed articles, and the third party such as court can verify and enforce the contract when the signed articles are disputed by the agents. According to the theory of complete contract, the renegotiation will not take place during the performing phase, so the optimal investment can be achieved.

Modern contract theory relaxes the assumption of neoclassical contract theory. R. H. Coase (1937) realized the incompleteness of contract. In the article "The Nature of the Firm", Coase pointed out that "owing to the difficulty of forecasting, the longer the period of the contract is for the supply of the commodity or service, the less possible, and indeed, the less desirable it is for the person purchasing to specify what the other contracting party is expected to do".^[1]

Williamson (1979, 1985), Klein et al (1978) considered that the contract is incomplete with the bounded rationality of agents.

Stiglitz (1999), Schwartz (1999) pointed out that perfect rationality should be replaced by bounded rationality, symmetry of information should be replaced by dissymmetry of information and zero transaction costs should be replaced by positive transaction costs. Modern contract theory firstly distinguishes complete contract and incomplete contract.

Jensen and Meckling (1976) regarded principal-agent relationship as contractual relationship. Mirrlees (1974) classified principal-agent problems to asymmetry information problems. Arrow (1985) believed principal-agent problems consisting of adverse selection problem and moral hazard problem.

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Sun Shulei (2008) supposed double moral hazard problem existing in franchise system of China.

Gaining enlightenment from Williamson's analysis, Grossman and Hart (1986), Hart and Moore (1990) designed GHM model. GHM model demonstrates that vertical integration can alleviate but not eliminate the hold-up problem induced by incomplete contracts and imports the renegotiation mechanism to eliminate it.

Klein (1992) believed self-enforcement of contract superior to court enforcement. Reputation plays vital importance in self-enforcement. Kaufman and Lafontaine (1994) analyzed quasi-rent arrangement between franchisors and franchisees of McDonald. It was found that quasi-rent appropriation did not appear even though special investment of human capital and material capital was involved and quasi-rent arrangement between franchisors and franchisees was negotiable. Huang Qunhui and Li Chunqi (2001) considered reputation mechanism playing the role of long-term incentives.

In incomplete contract theory, due to individual's bounded rationality, information dissymmetry and positive transaction costs, agents concerned and the third party cannot confirm or observe everything, which leads to the incomplete contract articles.

Jean Tirole (1999) attributed the incompleteness of contract to three factors: 1) the agents' rationality is bounded so as not to foresee all future contingencies; 2) even the agents can foresee all future contingencies, but the cost of writing them in the contract is high; 3) some information can be observed by agents, but it cannot be verified by the third party, such as court.^[2]

For the contract, the information of which is neither observable nor verifiable, the economic theorists call it "unavoidable incomplete contract". There are two key factors leading to "unavoidable incomplete contract": information incompleteness and specific investment. Franchise contract belongs to "unavoidable incomplete contract".

In recent years, the problems of franchising are increasing. These problems indicate that the management in China's franchise system is chaotic and various opportunistic and default behaviors between franchisors and franchisees are not uncommon. For better understanding and regulating franchisors and franchisees' behavior, this article explores franchising from the perspective of contract incompleteness and contract governance. 5 main parts are included in this article: Part 2 discusses the incompleteness of franchise contracts, Part 3 analyses performance barriers of franchise contracts, Part 4 gives some suggestions on contractual governance of franchising, and Part 5 makes a conclusion.

2 Unavoidable Incompleteness of Franchise Contract

In the mode of franchising, franchisees operate under a business format structured entirely by the franchisor. Franchisors provide the following items to franchisees: market concept, products ideas and design, operating manuals, quality standards, procedures for delivering products and so on. Franchisees are under the control of the franchisors and must follow the franchisors' guide. Franchisors and franchisees are connected together mainly through franchise contracts. Franchise contracts create neither an employment relation nor an independent contractual relationship.

2.1 Information incompleteness in franchising

The term "incomplete" suggests that term gaps exist in a contract and these term gaps will leave some contract content undefined unless the law supplements it with some gap-filling rules, such as a default rule or a maxim of interpretation.

The incompleteness of contracts does not signal inefficiency; rather often contracts are necessarily and intentionally made incomplete. Agents prefer incomplete contract to complete contract because of the transaction costs of contracting. Among various categories of transaction costs of contracting, the most salient one is information costs. Contracting is separated into two stages: front-end stage and back-end stage. At the front-end stage, ex ante transaction costs are incurred, including the costs of anticipating future contingencies and writing a contract which specifies the outcomes for these contingencies. At the back-end stage, ex post enforcement costs are incurred, including the costs of observing and verifying the relevant facts after uncertainty has been resolved. Both ex ante and ex post contracting costs make it impossible for the agents to write complete contracts. Meanwhile, franchisors and franchisees have to face the problems aroused by incomplete contracts.

In franchise system, such a fact must be recognized that franchisees are incapable of considering all relevant information before signing a franchise contract and making a well-informed choice. Two reasons can be used to explain the fact. Firstly, new franchisees joining a franchise system normally lack prior business ownership experience. It is not surprising that they know little about how to manage franchise unit ownership. The new franchisees are attracted to the franchise business format because the

franchisors provide them with the following: 1) an opportunity to join an already established business system; 2) site selection assistance; 3) initial and ongoing training; 4) detailed operational manuals.^[3] What the franchisors provide gives lots of confidence to the new franchisees whose business ownership experience is limited. What's more, when selecting new franchisees, many franchisors tend to prefer those who lack prior business experience. After all, comparing with experienced franchisees, inexperienced ones are easier to be controlled. Inexperienced franchisees are typically unaware of all the business and legal risks involved in owning a franchise unit. Furthermore, inexperienced franchisees may be unaware of where to look for the most accurate and qualified information on franchise business format. In addition to the awareness problem, franchisees may find it challenging to comprehend and evaluate the complicated legal and business data available for signing franchise contract. Owing to their inexperience, new franchisees generally lack adequate knowledge of franchise ownership terminology, the attributes of a franchise owned unit, criteria for evaluating a franchise system, and criteria for comparing different franchise systems. Secondly, novice franchisees have to deal with the difficulty of screening information. Optimal franchise investment decision requires franchisees to examine an overwhelming amount of complex information before signing franchise contracts. In details, the following screening tasks should be involved at a preliminary stage: reading complex franchise directories, reading articles in franchise business publications, attending business trade shows and expositions, and conducting related research on the internet. Following the preliminary stage, franchisees should acquire detailed business and legal information from franchisors. Then a massive amount of material will be received and this material will include lengthy promotional items, operational items, and complex legal items. Upon receiving this material, franchisees may take the following steps: interview potential franchisors and existing franchisees, examine lengthy and complex franchise contracts, review audited financial statements, and conduct trade-area surveys. It is challenging, to some extent impossible, for franchisees to fulfill all above-mentioned tasks.

Given the unawareness, comprehension limitation and screening difficulty faced by novice franchisees at the pre-contractual stage, they frequently discount important information, eliminate data and make decision based on the information obtained easily and quickly. For franchisors, the same situation exists as well. All of franchisors desire to find the most qualified franchisees, but it is very hard for them to get the complete information disclosing franchisees' exact truth of experience, identity, qualification and so on. All these lead franchise contract unavoidably incomplete.

2.2 Asset specificity in franchising

Four specialized forms are involved in asset specificity: specialized physical assets, specialized human assets, specialized site specificity and dedicated assets. All of these four specialized assets can be found in franchise system.

Franchisees have to make a large investment in physical assets, including constructing specialized building, purchasing special-purpose equipment and so on. In franchise system, investment in specialized human assets occurs as well. The way of investing in specialized human assets is less obvious than that in specialized physical assets. Through special investment in human assets, franchisees provide their employees specialized training and opportunities of learning-by-doing. As a result, employees' personal knowledge and specialized language are advanced. Personal knowledge helps to analyze scientifically the established industrial arts. In modern industry, personal knowledge is the essential part of technology. Specialized language composed of specialized code words or expressions leads to employees' further understanding and communication in the same industry.^[4]

In franchise system, though it is very necessary for franchisees to do special investments in physical assets, human assets and so on, these investments also give franchisors the chance to threaten the franchisees. After all, the value of specialized assets in their next-best alternative use is much lower, and this information is symmetrical to both franchisors and franchisees. Generally speaking, with special investment, franchisees can be effectively "locked into" the transaction to a significant degree. In turn, franchisees may reduce, sometimes significantly, their special investment, and the optimal investment cannot be achieved.

3 Performance Barriers of Franchise Contracts

3.1 Moral hazard problem in franchise system

As there exist such a fact in corporate world that an agent's effort level may not be fully observable, and consequently moral hazard problem arises. In principal-agent theory, moral hazard is one-sided problem. The principal is fixed and the agents are variable. For the moral hazard problem, only the

agents' actions matter. Take a firm and its manager as an example. The firm is fixed and its shareholders do not have to take efforts, so the firm is regarded as the principal. Meanwhile, the manager is variable and should do contribution to the firm's performance. The manager is regarded as the agent. Such a fact should be aware that the manager's self-interest is not always in accordance with the interest of the firm and sometimes the manager's effort does not benefit the firm's performance. As the manager's efforts cannot be fully observable by the firm, the manager is the subject of the moral hazard problem in principal-agent theory.

Double moral hazard is a little different from moral hazard. In a moral hazard problem, only one side matters, but in a double moral hazard problem, both sides matter because both sides need to take efforts for the value proposition of the relationship. Take an entrepreneur borrowing funds as an example. If an entrepreneur borrows funds from a traditional bank, only the entrepreneur may be involved in a moral hazard problem as the traditional bank need to do nothing after the loan is dispersed. The situation is different if an entrepreneur borrows funds from a venture capitalist. Double moral hazard problems may be unavoided because both entrepreneur and venture capitalist need to take efforts for maximizing the combined value.

The success of franchise system depends on the joint efforts of franchisors and franchisees. For franchisors, they treasure their reputation and brand value. For maintaining and improving their reputation and brand value, franchisors need to exert efforts in diminishing the learning curve of franchisees by providing detailed guidance and assistance of production. Meanwhile, franchisees also need to exert effort in maintaining and improving the reputation and brand value of franchise system, which in turn meet the franchisees' requirement of self-interest. In franchise system, joint efforts from franchisors and franchisees are critical. Therefore, double moral hazard problems are very prevalent in franchise system.

In franchise system, double moral hazard problems are classified into two categories: hidden behavior and hidden information.

3.2 Adverse selection problem in franchise system

In agency theory, adverse selection problem is aroused because the principal does not know well the agent's ability.^[5] Adverse selection problem seems to be unavoided under the condition that the principal cannot ascertain if the agent is capable of doing the work deserving his pay. It is accepted that the agent with higher level of competence should be paid more than that with lower level of competence. In franchise system, the franchisees' ability of operating business is not perfectly known by the franchisors. Though the franchisees' prior experience and the interview between two parties can present the franchisees' ability to some extent, it is still hard for the franchisors to thoroughly observe the franchisees' real ability. In summary, in franchise system, franchisees know better their ability of operating business comparing with franchisors. As a result, franchisors may take the risks of choosing some incompetent franchisees instead of competent ones, and the performance of franchise system will be affected. Similarly, the truth of franchisors' qualification of running business cannot be totally grasped by franchisees. Under the conditions of incomplete information and uncertainty, adverse selection is the problem which has to be faced by franchisors and franchisees.

3.3 Hold-up problem in franchise system

It is known that franchisees in franchise system need to make relationship-specific investment. Relationship-specific investment, combined with incompleteness of franchise contract, gives franchisors the opportunity to expropriate franchisees' investment revenue. Because of the expropriation franchisees are short of incentive of investing and optimal investment cannot be achieved. In Klein's opinions, after the relationship-specific investment, appropriate specialized quasi rents will take place and the opportunistic behavior will come into being. Generally speaking, in franchise system hold-up problem arises under these circumstances: firstly franchisees make high special investment, then special investment produces appropriate specialized quasi rents, and finally appropriate specialized quasi rents can be expropriated by franchisors with opportunistic behavior.

It should be aware that the reasons of hold up problem are not the same with those of moral hazard and adverse selection problems. For the moral hazard and adverse selection problems, it is asymmetric information that leads to opportunistic behavior. Yet for hold up problem, the information is symmetric to both franchisors and franchisees. It is contractual incompleteness that leads to ex post opportunistic behavior. In addition, in moral hazard and adverse selection models, franchisors are believed risk neutral and franchisees are believed risk adverse. In hold up model, the assumption is different. Both franchisors and franchisees are supposed to be risk neutral in hold up model.

How to motivate franchisees to achieve optimal investment is the topic attracting scholars to

consider for dealing with hold up problems. It is accepted that optimal investment cannot be achieved only depending on market and some other mechanism should be adopted.

4 Contractual Governance in Franchise System

In franchise system, franchisors and franchisees have to cope with the problems of moral hazard, adverse selection and hold-up. Because of bounded rationality, asymmetric information and high transaction costs, it is impossible for the parties in franchise system to create complete and legally enforceable contracts. Self-enforcing contracts are the considerable substitutes. There are three reasons: first, legally enforceable contracts are more costly than self-enforcing contracts. Second, for increasing joint surplus, franchisors and franchisees in franchise system tend to make credible promise over performance which is usually nonverifiable. Third, self-enforcing contracts helps to solve the multitasking problems in franchise system when verifiable and nonverifiable tasks exist simultaneously. In self-enforcing contracts, various self-enforcing mechanisms can be found, such as incentives, repeated interactions, reciprocity and so on.

4.1 Ensuring incentives in franchise contracts

In franchise system, the principle goal of franchisors is to induce more effort of franchisees. Two ways are generally used - monitoring and incentives. Monitoring entails keeping watch on franchisees and making sure that franchisees are exerting their full effort. However, high transaction cost is needed in the process of monitoring. Therefore, designing an incentive mechanism is a better choice.

What kinds of contracts may create incentives for reducing the common problems in franchise system? Fixed revenue contract is not the optimal way of dealing with the problems of moral hazard and adverse selection in franchise system. On the contrary, fixed revenue contract might motivate franchisees to shirk because the revenue will be the same regardless of work quality and levels of effort.

When franchisees have the tendency of shirking, fixed revenue contract should be replaced with the contract allowing residual claimancy on the profit of franchise system. A number of scholars have shown that the contracts including the provision of residual claimancy on the profits give the franchisees a strong motivation not to engage in the problems of moral hazard and adverse selection.

For turning franchisees into residual claimants on the profit of franchise system, franchisees should be owner-operators. Ownership is one of important incentives in franchise system.^[6] If the franchisees do not have ownership, they only take the roles of managers. Then franchisors must impose more cost of managing the agency relationship. Moreover, if the franchised unit is operated by franchisees who have not ownership, moral hazard and adverse selection will be the problems hard to avoid.

When designing incentive franchise contracts, a royalty rate is often the critical element. The role of royalty rate in motivating franchisees is shown in the literature. The franchisors should consider a royalty rate carefully. The size of royalty rate gives totally different effects on franchisors and franchisees. For the franchisors, the higher is the royalty rate, the greater is the franchisors' contribution to franchise system. But for the franchisees, the lower is the royalty rate, the greater is the franchisees' level of efforts. For motivating both franchisors and franchisees and then enhancing attractiveness of franchise system, an appropriate royalty rate should be adopted.

4.2 Extending contract duration

Longer contract duration plays a role in reducing opportunistic problems in franchise system.^[7] Longer contract duration induces more efforts of both parties in franchise system for three reasons. First, with longer contract duration, franchisors are provided with more incentives to engage in collecting more information of franchisees' operation. The increased information shows more details about the franchisees' identity and ability, and thereby reduces the adverse selection problems in franchise system. What's more, the increased information demotivates franchisees to shirk. Second, with longer contract duration, franchisors are able to differentiate precisely the effect of exogenous environment on performance from that of franchisees' shirking behavior. Therefore, moral hazard problems might be reduced. Third, with longer contract duration, what the franchisors gain by proper behavior may exceed what they get by opportunistic behavior. The problems of moral hazard and hold up in franchise system might be solved. Moreover, longer contract duration might make franchisees believe that the net present value of future earnings from not shirking exceeds any gains from shirking. Moral hazard problems could be reduced as well. Generally speaking, longer contract duration encourages franchisees to cooperate better with franchisors, the process of which is shown in Figure 1.

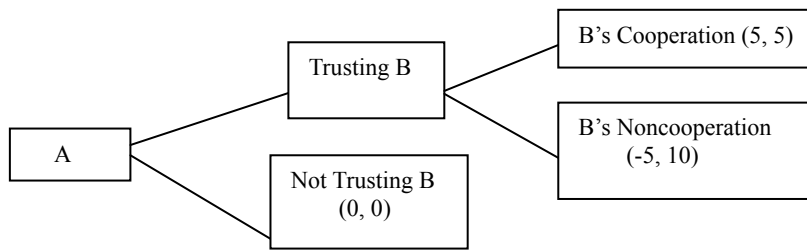


Figure 1 Game Tree of Franchisors and Franchisees

In Figure 1, A represents franchisors and B represents franchisees. At the first stage, if franchisors do not trust franchisees, the game will be over and the revenue of both sides is zero. If franchisors trust franchisees, the game will enter the second stage. At the second stage, franchisees might have two opposite choice. If franchisees choose to cooperate with franchisors, franchisors and franchisees will get 5-unit revenue respectively; if franchisees do not choose to cooperate with franchisors, franchisors will lose 5-unit revenue, but franchisees will get 10-unit revenue. With rationality economic participant assumption, franchisees will not cooperate with franchisors in the statistic and short-term environment in which one-time-only transaction happens. In such an environment, rational franchisors are able to predict franchisees' behavior in advance, so franchisors do not trust franchisees at the beginning. However, in the dynamic and long-term environment in which repetitive transaction happens, the behavior of franchisors and franchisees is different. Assume that every game structure is the same and the possibility for both franchisors and franchisees to enter next game is r , namely franchisees have the possibility of r to get 5-unit revenue in the next game process, and have the possibility of r^2 to get 5-unit revenue in next next game process. The expected total revenue of franchisees can be shown in this formula:

$$5 + 5r + 5r^2 + 5r^3 \dots = 5 / (1 - r) \tag{1}$$

When $5 / (1 - r) > 10$, $r > 0.5$, franchisees' optimal choice is to cooperate with franchisors.

4.3 Showing signals in franchise contracts

For dealing with opportunism in franchise system, some signals should be assigned positive weight in contracts.^[8] Performance measure can be contained in franchise contracts as an effective signal. Some other factors such as ability, private information and self-identity can play the part of effective signals in franchise contracts as well. There are two reasons explaining why signals should be assigned positive weight in franchise contracts. First, some sensitive and precise signals help franchisors to better evaluate the level of franchisees' effort. When noticing these signals, franchisees are encouraged to exert more effort. Thus, the moral hazard problem in franchise system might be eased. Second, with some signals in franchise contracts, such as performance measure and rewards based on ability, franchisees are provided with the incentive to disclose their hidden information and hidden behavior. More truth about franchisees will be discovered. As a result, the adverse selection problem in franchise system might be resolved. To summarize, signals in franchise contracts deliver more information about franchisors and franchisees, which help to cope with moral hazard and adverse selection problems.

4.4 Constituting implicit bonding in franchise contracts

Besides the problems of moral hazard and adverse selection, hold-up problem is also one of common problems in franchise system. We have known that hold-up problem appears due to contradiction involved in contracts. In franchise system, one side, franchisees need to do necessary specific investment for preparing for the future business and it is better to make the investment contractible for ensuring the revenue of investment; another side, because of bounded rationality and high transaction cost, parties in franchise system cannot regulate all possible contingencies in contracts. These two sides are contrary. The first side indicates that franchise contracts should be rigid for protecting ex ante specific investment. The second side indicates that franchise contracts should be flexible for finding the best business fashion after the states are confirmed.

According to the above analysis, both written items and unwritten items should be included in franchise contracts. Written items and unwritten items are also called explicit bonding and implicit bonding. Written items eliminate the incompleteness of franchise contracts and strengthen their rigidity. It is the third party, such as court, that is responsible for enforcing written items or explicit bonding. And it is parties themselves that are responsible for enforce unwritten items or implicit bonding.

Implicit bonding plays an important role in promoting self-enforcement of franchise contracts.^[9] In resolving hold-up problem, implicit bonding is more effective than explicit bonding. Implicit bonding stimulates parties of franchise system to compare the revenue of hold up with the loss of private sanction. When the loss of private sanction is more than the revenue of hold up, hold up problem will not happen even the franchise contracts are incomplete. Effective implicit bonding makes the owners of specific assets be clearly aware that they will be terminated from franchise system if their performance is poor. As going out of business, the specific assets will be sold off at a loss. The threat of termination for poor performance forces the owners of specific assets to give more contribution to franchise system. From this perspective, implicit bonding acts as incentive mechanism and reduces the chance of hold up. The more specific are franchise assets, the higher is the implicit bonding and thus the greater is franchise efforts.

5 Conclusion

Franchise activities started in the USA in the 1850s, and now have expanded world-widely. In 1987, it landed China with the opening of KFC's first franchise store in Beijing. By 2011, the franchise system of China has exceeded 5,000, and the total number of franchise stores has reached to more than 1,000,000, covering over 70 industries.^[10]

In China, franchise is developing rapidly and violently, but meanwhile many related problems cannot be ignored. Although Chinese government has promulgated a series of laws and regulations of franchising, the legislation in franchise protection is still a bit lagging. There exist various fraud behaviors between franchisors and franchisees. On the one hand, franchisors may be involved in squeezing franchise fee, free riding in advertising and so on; on the other hand, franchisees may be involved in divulging business secret, reducing product or service quality and so on.

With the rapid development of franchising in China, various problems in franchise system have aroused people's attention. In 2012, some of U.B.C. Coffee's franchisees decided to close down their stores, which resulted in their consumers losing the remaining money in consumer cards. Confronted with these issues, U.B.C. Coffee's franchisors announced that these franchise stores are independently owned by franchisees and their behavior has nothing to do with the franchisors. The U.B.C. Coffee's franchisors refused to take the responsibilities for these franchisees and the consumers did not retrieve their money finally. The case of U.B.C Coffee is not exceptional in franchise system of China, indicating that reasons of opportunistic behavior must be explored and various governance mechanisms must be found out.

In theories of contract, contractual incompleteness is the primary cause of opportunistic behavior in franchise system. There are several factors leading to incompleteness of franchise contracts: bounded rationality, asymmetry information and asset specificity. Because of these factors, both franchisors and franchisees are encountered with performance barriers during the period of fulfilling contracts. The common performance barriers of franchise contracts are moral hazard, adverse selection and hold up, which finally result in the occurrence of the following unexpected behavior: (1) neither franchisors nor franchisees exert the most effort in maintaining and improving the reputation and brand value of franchise system; (2) franchisors cannot find the most qualified franchisees and vice versa; (3) optimal investment cannot be achieved. It is worthy of considering this question: what governance mechanisms should be adopted to reduce the opportunistic behavior in franchise system? Contractual governance is a new but potential research area. This article analyses the positive function of incentives, contract duration, signals and implicit bonding in motivating contractual performance of franchisors and franchisees. In today's academia, research on contractual governance of franchising is still very limited. The author of this article is engaged in applying the existing achievement of contract theories to the resolution of opportunistic behavior in franchise system. The shortcomings of this article are that the author only focuses on the theoretical discussion, lacking necessary support of empirical research method. The future research on this area will try to make up for this deficiency. Based on the current theories, the research will be continued to explore such a series of questions: (1) among the variables promoting contractual performance in franchise system, what are the ones play the most important roles? (2) what's the relationship like between the most effective variables and the performance of franchise contracts? (3) Implicit bonding is an area worthy of doing more research. What is the essence of implicit bonding? Further research on these questions requires comprehensive application of qualitative and quantitative methods.

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On Human Resource Management Innovation in Chinese Transnational Enterprises under the New Norm

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Abstract: China's economy has stepped into the New Norm, which will inevitably have a profound influence on the operation of the transnational enterprises. From mistakes exist in correct cognition of the concept of human resource management, scientific and rational employment system, incentive mechanism and measures of the talents and in enterprise culture management, this paper analyzes problems exist in human resource management in Chinese transnational enterprises under the New Normal, and put forward corresponding countermeasures in human resource management innovation under the New Normal: formulating human resource development strategies and constructing an internationalized human resource system; completing talent introduction mechanism in enterprises and deepening human resource management reform; establishing an people-oriented innovative talents incentive mechanism; respecting cultural differences and achieving an cross-cultural talent integrating management; respecting the value of knowledge and setting up learning organization.

Key words: The new norm; Transnational enterprises; Human resource management

1 Introduction

So far, researches on human resource development and management in transnational enterprises in western countries mainly focus on various modes, for example the American mode, the Japanese mode, the German mode and the British-Holland mode. Human resource management is influenced by different cultural and legal backgrounds, values, and education and training systems, and formed in the practice of transnational enterprises in different countries in operation. For these reasons, human resource management entails certain degree of regionalism, and thus is not entirely applicable in China's transnational enterprises.

Researches in our country on human resource management have a rather late start and are still premature. According to related researches in our country, most researches on human resource management in transnational enterprises are based on the perspectives of culture, economy and organization, which are, to some extent, unrealistic. Even if there are researches on the nature of human resource management, they can hardly be in line with the international management modes due to traditional management modes in our country. At present, with our economy development steps into the New Normal, the production and operation of the transnational enterprises are faced with another new economical situation. Thus, human resource management which is closely related to the economical benefit output must be adjusted and optimized. Therefore, the research in this paper on human resource management in transnational enterprises under the New Normal has certain theoretical and practical significance.

2 Features of Human Resource Management in Transnational Enterprises under the New Norm

The Central Economic Working Conference has made the judgment that our country has stepped into the New Normal, and the transnational operation will be faced with a more complex environment. According to current situation of human resource management in western transnational enterprises, human resource management in transnational enterprises present five features as follows.

The first feature is the globalization of human resource distribution. With the intensified competition between economic globalization and internationalization, human resource distribution in transnational enterprises has developed from the original colonization to localization, regionalization and globalization. And globalization strategy is the most fundamental and common strategy for transnational enterprises to select talents in the whole world. The second feature is the strategic human resource management. The so-called strategic human resource management is to treat human resource as a kind of strategic resource which is in coordination with the total strategy of the company development, and to raise the level of human resource management from an accessory and businesslike tactic level to the strategic height concerning the strength and competitive edge of the company. The third feature is

human resource management cross-culture. A stubborn challenge confronting the development of transnational enterprise is the cultural differences of human resources and the management of different cultures. On the basis of acknowledging, understanding and respecting such cultural differences and cultural diversity, human resource management in transnational enterprise conducts cultural exchanges, communications, penetration and blending to reach the integration of diverse cultures so as to achieve innovations in the culture and human resource management of transnational enterprises. The fourth feature is the diversification of incentive of human resource. As peoples' needs are transforming from the rather lower level to a higher level, the incentive mechanism or incentive measures must be changed too. The fifth feature is the flattening of human resource management organizations. In order to cut down the process of information communication, to reduce the information distortion, to ensure the effective use of information, and to achieve scientification of human resource management in transnational enterprises, they flatten their organizations by cutting down vertical organizations while reinforcing contact, communication, coordination and cooperation of horizontal organizations.

3 Problems in Human Resource Management in Chinese Transnational Enterprises under the New Norm

3.1 Lack of correct cognition of the concept of human resource management

The development and management of human resource is centered on people. It pursues the integration of people and work, and organically connect the development of people with that of the enterprises. The returning of humanity in management is one of the most prominent features of modernized personal management. But for a long time, there is no human resource management in Chinese transnational enterprises, there is only personal management which is centered on work. It requires people to adapt to works. The working performance assessments depend on the work requirements, and the salary allocation criterions depend on work characteristics, such as duty and level. By doing so, it restrains the initiation and creativity of people and severely influences the improvement of work quality and efficiency.

Chinese transnational enterprises do not have a long time learning of the concept of human resource management, and still there are many cases of work-centered human resource management. And even if there is such a concept, it usually ends up with no one include human resource management in the range of enterprise strategic management. Such kind of human resource management does not have a uniform plan of staffs including managers according to the needs of enterprise's development strategy, nor does it have a plan for regulations that confirm to the national policies concerning selection, employment and incentive, to make full use of people's creativity to increase the wealth of the enterprise and society. As a result, the personal management usually focuses on transactional operations while ignoring the development of people's potential. The misunderstandings in the concept directly lead to the misplacing of the position management system, which is the basis of the human resource management system. Other human resource managements such as recruitment, salary management and performance management are all formed on the basis of a sound position management system. The misplacing of the system further leads to the contradiction between the common position management system and the indefinable positions.

3.2 Lack of scientific and rational employment system and mechanism

Mistakes exist in talent introduction. At present, talent introduction in most transnational enterprises are biased. Some put great emphasis on education backgrounds while despising abilities, and worship higher education background. They pay much attention to education backgrounds while ignoring the qualities and practical abilities of the candidates when selecting talents, which causes a waste of talents. Some emphasize abilities and neglect cultivations. They only attach importance to technical abilities and management abilities while overlooking the moral cultivation of the talents, which results in disorders in operation management and losses in economy. Still, others value management and despise development. Human resource development in western countries gives priority to the development of managers, and then the development of staffs. While in our country, it is just the reversed case. Trainings on professional and technical personnel are insufficient.

Mistakes exist in talent appointment. In appointing talents, transnational enterprises emphasize grade differential and unified leadership and focus on internal training while ignoring work efficiency. And in performance assessment, they emphasize harmony. The group assessment tends to be empirical and the assessment process is not aboveboard. They do not have a sufficient acknowledgement of individual contribution, and this will affect the working enthusiasm and can easily lead to tremendous

talents outflows. Some enterprises do not have a balanced evaluation of talents. They attach great importance to the contributions of talents while neglecting the needs of individual development, which discourages their enthusiasms. Investment in talent development is insufficient, and staff trainings as well as daily training systems are far from enough. Even if there are related trainings, investment in the training and education of transnational talents is still low. Obstacles in talent flow will enormously reduce the attraction and vitality of enterprises, which in turn, would lead to greater talent overflow.

Mistakes exist in incentive mechanism and measures of the talents. Transnational enterprise is faced with international market. Driven by international market economy, staffs are not likely to offer their labor forces and auto excitation without gaining economic benefits. What's more, many enterprises do not allocate and distribute human as resources, and they do not have effective incentive measures. Due to lack of human resources and mature human resource development policies and laws, most transnational enterprises adopt the salary management mechanism in our country, that is, salary is closely related to staffs' education backgrounds and working ages, and in bonus allocation, the primary bonus is the group bonus. Not being related to the practices of other countries, such a mechanism will cause staff's salary to be below local standard, and result in overflow of expatriates. Usually, enterprises give staffs material rewards by raising salary and improving welfares, which will take effects in a short term. But no salary is too high to make people satisfied.

Mistakes exist in cultural management. A transnational enterprise will inevitably meet different faiths, concepts, values, working styles, working atmospheres and behavioral habits of other countries. Therefore, they must pay attention to cross-cultural and multi-cultural management, and gradually integrate their enterprise cultures with the local cultures. But since the managers hired in the operation sites have different management methods and skills, it is difficult for them to reach an agreement in management. Cultures in transnational enterprises present a conflict between the local culture and the enterprise culture. The enterprise lacks its own unique culture, and its culture construction is out of pace with human resource management. At present, most enterprises lay great emphasis on economic benefits with little emphasis on culture construction. Some even depart their cultures from human resource management for economic benefits. As a consequence, they end up calling on blind and useless slogans and it is hard for them to stimulate the sense of belongings and positive initiatives of their staffs.

4 Countermeasures for Human Resource Management Innovation under the New Norm

4.1 Formulating human resource development strategies and constructing an internationalized human resource system

The importance of human resource management is gradually showing in the daily management in transnational enterprises, and the overall significance and functions of human resource strategies have been highlighted. Our enterprises should shift their values as soon as possible and have a clear idea about the strategic positions of human resource, of human resource management and of human resource management departments. On the basis of a sufficient research on problems in enterprise management, enterprises need to set up their development strategies and operation objectives for the coming years, and then determine the corresponding organization frameworks and functional modes to formulate human resource development strategies. Meanwhile, they have to develop rapidly and take over the commanding heights in international competitions. They must study the globalized concepts of talents, basing upon our country and recruit, select and employ talents at the range of the whole world, especially those highly qualified research and development talents in science and technology and those top-ranking decision-making talents in the world, to construct the internationalized human resource system of world first class.

Taking Petroleum Group A, the listed state-owned enterprises, as an example, parts of its core business are enforced in overseas operation bases. Thus, it is a need to cultivate internationalized employees as well as to invite local employees to support operations. Company A insists on treating internationalization of talents as one of its development strategies, focusing on training skills in various aspects like language communication skills and abilities of translating technical materials. It was highly applauded by its owners for selecting mariners with prominent integrated ability and top level drilling engineers to engage in oversea operations, which in turn give a strong impetus to company's internationalized progress.

4.2 Completing talent introduction mechanism and deepening human resource management reform

Whether the staffs are valued and respected, the salary level, and whether the human resource management is humanized are all the information related to the reputation of an enterprise, and will eventually affect the recruitment. To truly solve the problems in human resource management, the enterprise have to be guided by the modern human resource management concept, based on sufficient study of the features, scales, organization structures, staff structures and development strategies of the enterprise operation and major problems in human resource management according to the principles of opening, marketizing and internationalizing and the characteristics of human resource management, to redesign the human resource management system on the whole, to achieve the essential revolution of human resource management mode and to establish the position management system, performance management system and salary management system according to the development strategies. It is also important to set up a scientific and fair selection mechanism, value the principle of allocation according to ability, gradually introduce and enhance competition system and implement the institution of competition, performance and employment; at the same time, lay emphasis on a proper proportion of person in technology, management and comprehensive aspects, and a proper structure of abilities; the age structure should be a mixture of the old, the middle aged and the young, bring in talents to optimize the structure and promote competition inside the enterprise.

Mariner is an important force in tens of thousands of staffs in Company A and is responsible for operating hundreds of offshore support vessels of the company. According to regulations and training rules of IMO (International Maritime Organization), it normally spends a substantial amount of time, usually three to over eight years, on training executive mariner (like the Second Engineer), which apparently fails to meet the growing business requirements. Therefore, Company A treat the strategy of talent introduction as a supplement. Business development requirements of the company are fully satisfied by establishing sound salary system and recruiting experienced and mature talents from other companies. The technical management team of the company is also strengthened which further enhanced the competitiveness of the company.

4.3 Establishing an people-oriented innovative talents incentive mechanism

One of the basic standpoints of human resource management in transnational enterprises is emphasizing and enhancing the people-oriented concept in order to further improve the incentive mechanism. The enterprises should value the careers of their staffs and strengthen the training of staffs. They should insist on putting training at an important place that concerns the survivor and development of the enterprise; put emphasis on completing regulations and building up training organizations, and make out a complete training plan, content, capital and system to build up a comprehensive training system and promote the carrying out of training. One of the characteristics of human resource management in transnational enterprises is emphasizing the career design of the staffs of different levels and types, and reinforcing the trainings and development of staffs. In the age of knowledge economy, staffs pay more attention to self-development and the promotion of self-value. Human resource management in our country should follow this trend and value the career design of the staffs, and make it scientific and feasible. When increasing investment, the enterprises also have to make full use of the training resources they have, and strictly regulate management, increase the efficiency of training expenditure, set up scientific and formal training expenditure management system, reinforce supervision over the use of education expenditure, regulate training expenditure and increase the efficiency of the expenditures. In doing so, it not only helps the staffs to achieve certain self-development and certain promotion of self-value, but it also exploits the staffs as a kind of resource, making them increase in value, and make effective use of such resource.

There are a number of junior staffs introduced by agents in Company A, the promotion and salary systems of whom existing distinct differences with that of senior staffs. To constantly motivate the growth of staffs in junior rank, Company A innovate human resource system by opening green promotion channel for excellent employees. To those junior employees who successively win the municipal prizes of Tianjin, the company will open up special promotional channels and help staff settle down in Tianjin. The system highly encourage junior staffs to be dedicate and responsible for their works.

4.4 Respecting cultural differences and achieving an cross-cultural talent integrating management

Management of human resource culture in transnational enterprises so far has become an important method. Respecting and acknowledging the objective cultural differences in cultural management, and extending the range of human resource management by implementing trans-cultural management. Transnational enterprises in our country are also faced with differences in humanities and cultures. Thus, it is required that they enhance effective analysis on these objective differences, and reinforce the effects

of cross-cultural management by creatively adopting various human resource management methods and by taking advantages of mainstream cultures on the basis of respecting cultural differences. More effectively promoting cohesion of the staffs thought efficient trans-cultural management. Strengthening cultural exchanges, penetrations and integrations by establishing unified values to realize the harmonious situation cross culture; hiding the special cultures of different countries and regions, and seeking similarity in specials to enable staffs from different cultures to get along with each other thought trans-cultural human resource management.

For this purpose, Company A regularly organizes cross-culture saloon, questionnaire survey, cross-cultural interviews, sporting competitions and the like. And it also actively builds up long-term mechanism and form big family of integrated culture, so as to foster friendly atmosphere for performing their abilities.

4.5 Respecting the value of knowledge and setting up learning organization

In the age of knowledge economy, innovation of knowledge is the start point or origin of economic growth. Talents working on knowledge innovation, especially talents in science and technology are the leading forces in knowledge economic growth. Therefore, in contemporary, human resource management in our country, on the one hand, should form the concept of respecting knowledge, respecting knowledge innovation, respecting talents working on knowledge innovation and respecting their roles in economic growth. On the other hand, they should emphasize and enhance knowledge management, make knowledge innovation, storage and application as well as its evaluation and stimulation an important part of human resource management, and realize the sharing of knowledge resources, and in so doing, turning the enterprise into a real learning organization.

Technical capability is the core competitiveness of Company A. The company launches activities like selecting academic papers and engaging in research projects of scientific innovation. It sets up coordination mechanism with Tianjin Association for Science and Technology, encouraging constructing study group to steadily strengthen employee's consciousness of business learning and on-the-job training, with the aim of further improving talent competitiveness.

5 Conclusion

Thought summarizing the current situation of human resource management in transnational enterprises in our country, the paper finds out that human resource management in contemporary transnational enterprises presents the characteristics of globalization, being strategic, diversification and flattening. And by analyzing the New Normal of our economy, the paper notices that there are mistakes in correct cognition of the concept of human resource management, scientific and rational employment system, incentive mechanism and measures of the talents and in enterprise culture management.

On this basis, the paper puts forward corresponding countermeasures for human resource management innovation under the New Normal: formulating human resource development strategies and constructing an internationalized human resource system; completing talent introduction mechanism in enterprises and deepening human resource management reform; establishing an people-oriented innovative talents incentive mechanism; respecting cultural differences and achieving an cross-cultural talent integrating management; respecting the value of knowledge and setting up learning organization.

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A Study of the Relationship Between the Performance Appraisal Purposes and Employee's Anti-Ethical Behavior*

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Abstract: The influence factors of employee's anti-ethical behavior have always been the hot spot of the academic attention and discussion. The related researches paid little attention on the influence factors at organizational level, but mostly focused on the individual factors. Therefore, in view of this, the present paper explored effects of performance appraisal purposes and organizational ethical climate on employee's anti-ethical behavior. The result of empirical analysis from a sample of 245 employees indicated that, the evaluative performance appraisal purpose has significant positive influence on it; the developmental appraisal purpose has a significant negative effect on it.

Key words: Performance appraisal purposes; Employee's Anti-ethical behavior; Regression analysis

1 Introduction

With the economic globalization and market competition intensifying, managers increase employees' performance appraisal in intensity and frequency, but the results managers expected did not appear, on the contrary without reason absenteeism, cynicism's ethical behaviors have been happening. Research and practice show that employee's anti-ethical behavior would be a negative impact on organization, which hinder the organization development. Therefore, how to avoid the employees' anti-ethical behavior become one of the focuses of the researchers and practitioners. Based on this, the scholars began to explore the factors that influence the anti-ethical behavior of employees, expecting to clear the important reasons of staff's anti-ethical behavior through the related study, which can reduce and control the loss to organizations caused by the ethical behavior of employees through the corresponding measures. Previous research suggests that individual employee characteristics and cognitive have significant influence on the anti-ethical behavior of employees, but ignores the influence factors of organizational level. Therefore, this paper discusses influence of different types of performance appraisal purpose on employee's ethical behavior, to enrich the study of the theory of the employees' anti-ethical behavior influence factors, and in practice for managers to reduce and avoid the ethical conduct staff for reference.

2 Definition and Theoretical Assumptions

2.1 Employee's anti-ethical behavior

Employees' anti-ethical behavior is based on the will of employees' own, or a kind of ethical behavior that cause the recessive or dominant loss to the lawful rights and interests of the organization and other members. Robinson and Bennett (1995) study have shown that the staff's being late, absenteeism such negative work behaviors in the working process are employees' anti-ethical behaviors^[1]. Bordia (2008), and other studies suggest that with the progress of information technology, employees' anti-ethical behavior has become more secluded and make managers difficult to detect in time, the consequences are harder to predict and measure, but their behaviors still exist the following common characteristics: the first is the behavior obviously does not meet the organizational expectations and ethical behavior norm; The second is its behavior is intended, not employees' unintentional mistakes; The third is the result of its behavior is difficult to use financial data for quantitative assessment, but to organization a lasting and negative effect^[2]. Chinese scholars Liu Yuxin (2011) and Zhang Yongjun (2012) study found that the employee's anti-ethical behavior is from the employee's intention, but at the same time, the influence factors of the outside world also cannot be ignored, and this kind of behavior in the organization's rules and regulations is not banned, managers can't make convincing punishment basis^[3-4].

2.2 Performance appraisal purposes

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On the basis of Cleveland (1989) and others, the definition of performance appraisal purpose refers to the ways and methods organization used for performance appraisal information^[5]. The purpose of performance appraisal can be subdivided into different types. As Douglas (1959) the purpose of performance appraisal is divided into three categories: management and incentive purpose, information purposes^[6]. Subsequently, Meyer (1965) through field investigation, found that there are two main types of organization performance appraisal purpose: one is evaluative performance appraisal purpose, namely the performance appraisal as an employee compensation, promotion and punishment basis; Secondly, developmental performance appraisal purpose, that is, performance appraisal mainly to feedback the defects of employees at work, and accordingly put forward the improvement opinion or suggestion. Performance appraisal becomes a kind of important employee incentive methods for organization^[7]. Kuvaas (2007) study also pointed out that the performance appraisal is not only the means of measuring the level of employee performance, is also a potential means and way to motivate employees^[8]. On the basis of the dichotomy that widely adopted by many scholars, this paper divides the purpose of performance appraisal purpose into evaluative and developmental performance appraisal purpose, and then discusses effect of the two different types of performance appraisal purpose on employee's anti-ethical behavior.

2.3 Research hypothesis

2.3.1 Evaluative performance appraisal purpose affects on employee's anti-ethical behavior

According to social exchange theory, the staff and organization in essence is a kind of exchange relationship. When employees are rewarded by organization, employees will show the positive initiative at work; when employees in an organization get unjust punishment, or employees feel pressure from organizations more than their bearing ability, the employees will appear negative emotions, and may produce malicious revenge towards the organization. The main effect of evaluative performance appraisal is intended to reflect the work level of employees, but as the intensity and frequency of assessment increase, employees may largely show resistance and negative emotions. Boswell and Boudreau (2002) research indicates that when organizations take administrative measures to control employees' behavior, only focusing on employees' behavior results through human resource management, the professional training and professional development the employee get is the least, the staff's work enthusiasm will be greatly reduced, the negative emotion is easy to appear in the work, and the possibility of employees' anti-ethical behavior will increase^[9]. This suggests that the evaluative performance appraisal purpose which views performance information as evaluation tool of employees' behavior results may play a positive role in promoting employees' anti-ethical behavior. Based on the above analysis, this paper puts forward the following hypothesis:

Hypothesis 1: Evaluative performance appraisal purpose and employees' anti-ethical behavior is positively related.

2.3.2 Developmental performance appraisal purpose affects on employee's anti-ethical behavior

Although very few scholars in the existing empirical research directly explore the relationship between developmental purpose of performance appraisal and employees' anti-ethical behavior, there are still some research indirectly prove the relationship between the two. Spector and Fox (2005) in its pressure source -- emotion theory, points out that employees' anti-ethical behavior is mainly transformed by their emotions, and the generation of emotions may be affected by environmental pressure^[10]. Purpose of performance appraisal, as an important source of organizational environment pressure, may affect employees' emotions, which may affect employees' behavior. Subsequently, the bank staff as the research object, Kuvaas (2007) study found that developmental performance appraisal purpose has a certain degree of influence on employees' job performance level^[8]. The staff in the hotel industry in Hong Kong as the research object, Andrew (1998) study results confirmed that high performance human resource management practices has a positive effect on reducing staff turnover intention and increasing their job satisfaction^[11]. Human resource management of high performance on the contents includes the developmental performance appraisal purpose, which means that the developmental performance appraisal has a certain effect for the employee satisfaction and turnover intention. Under the condition of high employee satisfaction and low turnover intention, the possibility of employees' anti-ethical behavior is reduced, which from the side reflects the developmental performance appraisal purpose may have a reverse effect on employees' anti-ethical behavior. Based on the above analysis, this paper puts forward the following hypothesis:

Hypothesis 2: Developmental performance appraisal purpose is negatively related to the employees' anti-ethical behavior.

3 The Empirical Analysis

3.1 Sample and data collection

Domestic enterprises in our country as the background, this study uses the existing mature scale questionnaire as prediction. On-the-job graduate students of enterprise management in a university in southwest chosen as the pre-test study object, 50 effective questionnaires are obtained. According to the principle of exploratory factor analysis, the data is analyzed and processed, and a formal questionnaire is formed. To conduct a formal investigation, we mainly choose private manufacturing industry where the employees' ethical behavior phenomenon is outstanding, more than 10 representative home scale manufacturing companies in central and southern China areas as the research object, enterprise grass-roots employees as the research sample. The formal questionnaire takes paper and Internet questionnaires two forms. A total of 300 questionnaires are distributed, 267 questionnaires recycled, recovery rate 89%, effective questionnaires 245, effective questionnaire recovery rate 92%. Questionnaire recovery time is February 2015 to May 2015. The demographic characteristics of the sample is as follows: gender, men accounted for 43.7%, women accounted for 56.3%; Age, under the age of 25 (33.9%), 25 to 30 years old (50.2%), 31-40 accounted for 13.9%, over 40 accounted for 2.0%; Education background, high school, technical secondary school and the following accounted for 7.8%, college accounted for 45.7%, all bachelor degree and above accounted for 46.5%.

3.2 Variable measurement

This questionnaire has three parts, the independent variable performance appraisal purpose, the dependent variable employees' anti-ethical behavior, and control variables. The five point scale of likert evaluation is adopted.

Boswell and Boudreau (2000) study found that the staff individual perception can more effectively reflect the organization's performance appraisal purpose^[12]. In view of this, we used the Cleveland scale (1995), the performance evaluation purpose, and we has made the exploratory factor analysis on the basis of our country enterprise situation, further testing whether scale item meets the experiment requirement. Eventually scale of performance appraisal purpose which contains nine items is formed^[5]. In this study, in the scale of evaluative and developmental performance appraisal purpose, the Cronbach coefficients of internal consistency are 0.83 and 0.81.

Fox (2007) study found that the colleague's anti-ethical behavior description can reflect in a certain extent the real situation of anti-ethical behavior of employees tested^[13]. Cole (2008) study also confirmed that colleagues' anti-ethical behavior will affect other employees' anti-ethical behavior^[14]. Stewart (2009) and O'Boyle (2011) on the basis of the projection theory, adopted the form of reference point shift, asking the tested employees to answer the anti-ethical behavior of colleagues, which indirectly reflected their own anti-ethical behavior^[15-16]. We used Stewart (2009) scale for reference, and combined with the situation in our country; deleted entries such as racial discrimination which obviously didn't according with the reality of our country, then made an exploratory factor analysis, and finally formed the employees' anti-ethical behavior of the six items^[15]. In this study, in the employees' anti-ethical behavior scale the Cronbach internal consistency coefficient is 0.79.

3.3 Empirical results analysis

3.3.1 The reliability analysis of scale

This research adopts the mature scale, in order to ensure the reliability of questionnaire we estimate its reliability through Cronbach's Alpha coefficient and factor load. The results show that Cronbach's Alpha coefficients of each scale are all between 0.70 and 0.85, each factor loading above 0.5, which shows good reliability of the scale.

3.3.2 Correction analysis

Correlation analysis results from employee's anti-ethical behavior with evaluative and developmental performance appraisal purpose show that the coefficient correlation: 0.401 and -0.197, the significance level is less than 0.001, shows that employee's anti-ethical behavior and developmental performance appraisal purpose negative correlation, and the evaluative performance appraisal purpose has significantly positive correlation.

Table 1 Hierarchical Linear Regression Analysis

Steps/Variable	Model 1 β	Model 2 β	Co linearity Statistics			
			Model 1		Model 2	
			Tolerance	VIF	Tolerance	VIF
Control variable						
1 Gender	0.041	0.084	0.992	1.004	0.981	1.013
2 Age	0.059	0.071 ⁺	0.928	1.042	0.907	1.068
3 Degree	0.253	-0.047	0.928	1.042	0.902	1.135
Main effect						
4 Evaluative		0.403***			0.931	1.069
5 Developmental		-0.202***			0.872	1.131
6 R ²	0.089	0.847				
7 F	0.916	117.334				

Note: +p<0.10, *p<0.05, **p<0.01, ***p<0.001, N=245

3.3.3 Regression analysis

The multiple regression model analysis results of the independent variable on the dependent variable are shown in table 1. The data in the table shows that VIF values of evaluative and developmental performance appraisal purpose and the employees' anti-ethical behavior are all less than 5, which shows no co linearity problem between the two. In model 2, the regression coefficient of evaluative and developmental performance appraisal purpose and the dependent variable are respectively, 0.403 and -0.202, significant at a 0.001 significant level, the evaluative performance appraisal purpose has significant positive effects on employees' anti-ethical behavior, and developmental performance appraisal purpose has significant negative impact. This study of H1 and H2 hypothesis is verified.

4 Conclusion

Although this study provides an important theoretical promotion and practice reference to promote the management of employees' anti-ethical behavior, there is no denying that this research also has certain shortcomings. Limitations of this study are mainly manifested in the following aspects: first, this study explores the influence factors of employees' anti-ethical behavior from performance appraisal purpose in organizational level and organizational ethical climate the two aspects by cross-sectional study design. Due to the limitation of cross-sectional design, causality is difficult to determine. Therefore, a longitudinal study design in the future can be used, namely after a certain period of time in measuring organizational performance appraisal purpose and organizational ethical atmosphere, to measure employees' anti-ethical behavior to more clear causal relationship between them. Second, this study data is from the employee's individual presentation, although the statistical tests do not exist significant homology error, the future research can try to collect data from multiple sources, to further test research conclusion of this article; Third, this research only discusses the effect of the performance appraisal purpose on employees' anti-ethical behavior. It helps to expand the defects of the previous studies which only explore employees' individual factors, and contributes to a more comprehensive understanding of the influence factors of employees' anti-ethical behavior. However, other factors in organizational level, as well as the mechanism of the organization level and individual level factors in affecting employees' anti-ethical behavior, are not clear.

The future research can further discuss this area. In general, how to effectively avoid employees' anti-ethical behavior is a long-term and arduous theoretical and practical subject. In the future, under the background of China's enterprises, this subject should be explored, to provide a more comprehensive understanding of employees' anti-ethical behavior, so as to help further promote the theory research of employees' anti-ethical behavior, and provide more valuable guidance and reference for the organization and management practices.

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Enterprise's Operating Performance, Nature of Property Rights and Government Subsidies: A Empirical Study

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Abstract: This paper examines that enterprise business performance as well as nature of property right influence on government subsidies with method of multivariate regression analysis, by using data of listed companies in Chinese textile industry in 2007-2012. The conclusion shows that the better enterprise performance is, the greater possibility of the enterprise to obtain government subsidy is and the higher degree of the enterprise to get government subsidies is. Compared with the non state-owned enterprises, state-owned enterprises obtain higher degree of government subsidies, and state-owned enterprises operating performance and the degree of government subsidies obtained by enterprises have the stronger positive relationship.

Key words: Object of government subsidies; Level of government subsidies; Business performance; Nature of property rights

1 Introduction

China is the world's largest producer and exporter of textile and garment, textile industry's growth plays a vital role in Chinese foreign exchange reserves, the balance of international payments, the RMB exchange rate stability, the solution of the social employment and the textile industry's sustainable development. In recent years, the textile industry is facing with rising prices for raw materials, labor costs rising, the pressure of RMB appreciation, technical barriers of international trade, trade friction and other real pressure. Government subsidies to textile enterprises can not only reflect the government's behavior motivation, but also can reflect the relationship between the government and textile enterprises. For the motivation of government subsidies is to support the strong or protect the weak, academic circles don't reach an agreement now. Tang Qingquan and Luo Danglun (2007)^[1] find that the public company which is at the edge of keeping the honor "Listed Company" and rationing shares will get more government subsidies. Shao Min (2011)^[2] points out that local government prefer to choose export company or the company with strong new product development or the company with higher total factor productivity as subsidy object, the subsidy object's decision of local government reflect "support the strong". But the subsidies' degree decision of local government reflects "protect the weak". Geng Qiang and Hu Ruixin (2013)^[3] show, the probability and degree that enterprises obtain subsidies is not only influenced by own endowment and the nature, and are closely related with facing the unfavorable situation in the process of production and operation. The enterprises which are facing loss and are at the low degree of financing constraints are more likely to receive government subsidies, the degree of its subsidies is relatively high, namely whether government subsidy object or the degree of government subsidies, embodying the characteristics of "protect the weak".

This paper use data of government subsidies of textile listed companies in 2007-2012, to discuss the influence of enterprise business performance as well as the nature of the property right on objects and degree of enterprise's government subsidies. The innovation of this paper is, based on the China's traditional textile industry, discussing the motivation of government subsidy object and the influence factors of government subsidies, which is not only added to relevant literature about government subsidies, also provide a certain basis for regulators about how to develop the textile industry policies.

2 Theory Analyses and Research Hypothesis

From the perspective of government subsidy policy in China, the connotation given by China's government subsidies are "support the strong" and industry guiding principles, which is, government subsidies have priority to support enterprises to exploit market, expand exports, support enterprise technology innovation, equipment updating and industrial upgrading. From this perspective, the textile industry as the traditional important industry in China, whether government subsidy object or degree of government subsidies, seems that should reflect the characteristics of "support the strong". for this, this paper proposes two groups opposing assumptions:

H1a: textile enterprises which have worse operating conditions are more likely to receive

government subsidies and the higher degree to get government subsidies.

H1b: textile enterprises which have better operating conditions are more likely to receive government subsidies and the higher degree to get government subsidies.

Yifu Lin, Zhiyun Li (2004)^[4] point out that state-owned enterprises maintain local employment, providing local public goods and other social burden, so the government provide subsidies and policy loans, etc., thus enterprise is facing soft constraint of budget. Shleifer et al (2012)^[5] prove that low efficiency of state-owned enterprises is for the reason that politicians encourage to hire redundant workers, and the government will grant subsidies to state-owned enterprises for the inefficiency caused by employment burden. On the other hand, State-owned enterprises may be a pillar and dominant industry in some regions, enterprise's contribution to the local total output is larger, the ability to absorb employment is also strong, which influences on the local economy. Local government is to maintain regional economic image and to improve its performance, which is often in different cases that enterprise oneself have circumstance differences, the state-owned enterprises may enjoy more government subsidies than non-state-owned enterprises or give more degree subsidies to state-owned enterprises. for this, this paper puts forward hypothesis 2:

H2: Compared with non-state-owned textile enterprises, state-owned textile enterprises are more likely to receive government subsidies, getting higher degree of government subsidies.

From the angle of enterprise property rights, China's capital markets germinates in state-owned enterprises reform, the original intention of establishment is for state-owned enterprises to bail out and solve financing problem. So far, the listed companies still have a large part of the enterprise which is composed of state-owned enterprise restructuring, while China has basically completed shareholding reform, the state-owned enterprises and private enterprises still may be treated differently in the securities market, when facing business performance, state-owned enterprises are often more likely to get more government subsidies than private enterprises. For this, this paper puts forward hypothesis 3:

H3: Compared with the non state-owned enterprises, corporate performance of state-owned enterprises and the possibility of government subsidies as well as the relationship between the degree of government subsidies significantly strengthened.

3 Research Design

3.1 Sample selection and data sources

To examine the research hypothesis, this paper choose data of A-share listed company in Chinese textile industry from 2007 to 2012, the sample distribution is: 53 in 2007, 56 in 2008, 58 in 2009, 61 in 2010, 70 in 2011, 73 in 2012, A total of 371 samples, which have been rejecting the data of missing samples. The data of government subsidies is collected in the annual report which is in hand, other data from CSMAR database. The data processing use Excel and stata11.0 for processing.

3.2 The definition of research variables

3.2.1 Explained variable

Explained Variable we study is the government subsidies, that is, a member of the government or any public institutions provide some enterprise financial donations as well as the price or income support for some enterprises to directly or indirectly increase the output of a product or reduce the input of a product within its territory, or the government measures which will damage other member's interest. Government subsidies should contain object and degree of subsidies, explained variable includes the subsidy object and the level of subsidy in this paper. Subsidy object is set to the dummy variable, if receiving the government subsidies is 1 and not receiving is 0. In order to eliminate the influence of the enterprise's scale, the degree of government subsidies choose the amount of government subsidies divided by the final total assets.

3.2.2 Explanatory variables

Explanatory Variables are enterprise performance and nature of property rights. Due to the amount of government subsidies accounted for as non-operating income, which will affect the total profits. In order to eliminate the influence, the business performance of enterprise is represented in the operating profit divided by the final total assets, the nature of property rights is set as the dummy variable, enterprises which belongs to state-owned property is set to 1, otherwise it is 0.

3.2.3 Control variables

Reference to previous research, this paper will also take enterprise scale, enterprise growth, asset-liability ratio, and the year as control variables. The main variables and their connotation can be summarized as shown in Table 1.

Table 1 Variables Defined Table

Variable name	The definition of a variable
zfbt1	object of Government subsidy , dummy variable, 1 represent the obtaining of the government subsidies, otherwise it is 0
zfbt2	The degree of government subsidies, the government subsidy amount / total assets
yeji	Enterprise performance, operating profit / total assets
state	The nature of property right, dummy variables, 1 represents state-owned enterprises; 0 represents the non state owned enterprises
Size	Scale of the enterprise, at the end of the logarithm of the total amount of assets
Lev	Asset liability ratio, total debt / total assets at the end of the end of the year
Growth	Company growth, the growth rate of sales income relative to the previous year

3.3 The design of research model

In the study of practical problems, the change of the dependent variable is often influenced by several important factors; multivariate regression is the method that two or more than two factors explain the changes of independent variables as dependent variables. When there is a linear relationship between multiple independent variables and dependent variable, regression analysis is a multiple regression method. In order to test the hypothesis in this paper, this paper uses multivariate regression method, and the basic model of the empirical test is set to:

$$X \in R_{+}^{m \times n} \tag{1}$$

4 Empirical Tests and Analysis

4.1 Descriptive statistical analysis

Table 2 Variable Descriptive Statistics Table

Variable	Obs	Mean	Std. Dev.	Min	Max
zfbt1	371	.9057	.2927	0	1
yeji	371	0.0579	0.3595	-0.3192	3.4240
state	371	0.531	0.4997	0	1
size	371	20.9714	3.3053	-9.2103	24.4594
growth	371	0.2107	1.1122	-0.8889	10.2176
lev	371	0.4572	0.2209	0.0535	1.1412
zfbt2	336	178.5714	1884.173	1.34e-09	20000

Note: the continuous variables in the table on the top and bottom 1% points have been winsorized shrinkage end processing.

Table 2 is descriptive statistical analysis of the main variables of textile listed companies in 2007-2012. Table 2 can be found: 90.57% of the sample companies receive government subsidies, which shows that the textile industry is one of which the government subsidies is main. The average government subsidies of sample companies are 178.5714 times of its total assets. The minimum value for the government subsidies is 1.34e-09 times of its total assets, the maximum for government subsidies is 20000 times of its total assets, which proves Chinese listed companies of textile industry generally receive more government subsidies , but there is a big gap in the government subsidies among different listed companies, the government subsidies that some enterprises have obtained is almost negligible, but some enterprises get 20000 times government subsidies than its total assets . The average of the profit margin of total assets is 0.057937, the minimum value is -0.31919, the maximum value is 3.424017, which shows that the textile industry’s business performance are not very good overall, the minimum of profit margin of total assets is -0.31919, the maximum of profit margin of total assets is 3.424017, the gap of the company operating conditions are not particularly large. In addition, the state-owned enterprises accounted for 53%, the average asset-liability ratio is 45.72%, and the average asset’s growth rate is 21%, which belongs to the situation of high debts and low growth. Overall, the distribution of the main variables of the sample is uniform, so we can carry out regression analysis.

4.2 Correlation analysis

To test object and degree of government subsidies, and the relationship between the other control

variables and corporate performance, the nature of property rights, we carry out the correlation coefficient analysis to main variables, as shown in table 3.

Table 3 Variables with Correlation Coefficient Table

Var.	zfbt2	zfbt1	yeji	state	size	growth	lev
zfbt2	-	0.46 ***	-0.06	-0.09 *	-0.48 ***	-0.07	-0.06
zfbt1	-0.06	-	0.07	0.01	0.19 ***	0.15 ***	0.1*
yeji	0.71 ***	0.06	-	0.16***	0.23 ***	0.33 ***	-0.36***
state	0.1*	0.01	0.07	-	0.12**	0.09*	0.04
size	-0.96***	0.13**	-0.66***	-0.04	-	0.24***	0.22***
growth	-0.02	-0.02	0.24 ***	0.03	0.02	-	0.04
lev	0.26 ***	0.07	0.1*	0.07	-0.17***	0.01	-

Note: the upper part is the Spearman test, the lower part is the Pearson inspection - statistics in parentheses ($p < 0.01$, *** $p < 0.05$, $p < 0.1$).

It can be seen from Table 3, the object and the degree of government subsidies have a significant correlation with corporate performance, the nature of property rights, which shows the object and the degree of government subsidies are affected by corporate performance and the nature of property rights, but whether the effect is stable still need regression test, in addition, the most of correlation coefficient between the other explanatory variables is below 0.5, we can preliminary estimate that there is no co linearity of research.

4.3 Regression test and analysis

Through stata11.0 it has carried on the regression analysis to type 1, regression results are shown in Table 4.

Table 4 Regression Analysis Table of Government Subsidy

VARIABLES	Panel A	Panel B	Panel C	Panel D
Constant	-8.957 ***	-5.846	8,649.532 ***	3,278.251 ***
	(-2.717)	(-1.392)	(5.714)	(10.966)
yeji	4.653 ***	9.323 ***	1,497.051 **	101.812 **
	(3.424)	(2.762)	(2.083)	(2.132)
state	-0.2780	-0.2657	135.093**	-75.656***
	(-0.728)	(-0.686)	(2.434)	(-2.913)
Yeji*state		-6.034		4,078.324***
		(-1.426)		(25.289)
size	0.551***	0.405 **	-429.86***	-167.567***
	(3.596)	(2.112)	(-5.960)	(-11.568)
growth	-0.106	-0.087	-163.249*	-30.16**
	(-0.400)	(-0.341)	(-1.774)	(-2.563)
lev	1.36	1.259	860.243***	676.264***
	(1.458)	(1.306)	(6.674)	(11.555)
Year	control	control	control	control
Robust	control	control	control	control
Observations	371	371	336	336
Adj R2 / Pseudo R2	0.1362	0.1444	0.942	0.988

Note: Robust t-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In the Table 4, Panel A and Panel B report the results of regression testing of the object of government subsidies. From Panel A we can see, the performance of enterprises was positively related to the possibility of access to government subsidies (coefficient is 4.6527), which is significant

in the 1% conditions, namely, the better enterprise operating performance is, the bigger possibility of the enterprise to obtain government subsidy is, so the results of test partially confirm the H1b. The results show that China's local governments choose subsidies object according to characteristics of "support the strong". the nature of property right of enterprises is negatively related to the possibility of obtaining government subsidies (the coefficient is -0.278), but which is not significant, so the results of test failed to confirm the H2. The results show that China's local governments choose subsidy object, mainly based on operating performance, whether state-owned enterprise or not. The interaction term coefficients of the nature of property rights and corporate performance is -6.0337, which is also not significant in the statistics. Therefore it also failed to confirm partly H3. Panel C and Panel D report the results of regression testing of the degree of government subsidies. From Panel C we can see, enterprise's performance and the degree of obtaining government subsidies are positively correlated (the coefficient is 1497051), which is significant under the condition of 5%, namely, the better the enterprise business performance is, the higher the degree of government subsidies to be obtained, so the results confirm the H1b. The nature of property right and the degree of obtaining government subsidies are positively correlated (coefficient is 135.0930), which is significant under the condition of 5%, that is, compared with state-owned enterprises, the degree of government subsidies for state-owned enterprises is greater, so the result confirm part H2. From Panel D we can see, after models are added in the nature of property rights and corporate performance's interaction, the coefficient of nature of property right is 75.6558 which is significant under the condition of 1%. Putting the two influence together, it shows that compared with state-owned enterprises, there is a stronger positive correlation between operating performance and the degree of obtaining government subsidies in state-owned enterprises, and therefore the result confirmed part the H3. Although when China's local governments choose subsidize object there is no significant difference for state-owned enterprise and non-state-owned enterprise, however, when considering the intensity of subsidies there is significant difference for state-owned enterprise and non-state-owned enterprise. In addition, the scale of enterprise and the possibility of obtaining government subsidies have significantly positive correlation, which shows that the bigger the scale of enterprises is, the more likely the enterprises to receive government subsidies, the scale of enterprise and the degree of obtaining government subsidies has significantly negative correlation, that is, on the contrary, in the enterprises of obtaining government subsidies, the larger the scale of enterprises is, the smaller of the degree of obtaining government subsidies is. Asset-liability ratio and the degree of government subsidies have significant positive correlation, namely, the greater the asset-liability ratio is, the higher the degree of obtaining government subsidies is.

4.4 Robustness test

In order to test the robustness of conclusions, this paper use Qiang Geng and Ruixin Hu (2013)^[3] approach for reference, using the ratio of amount of government subsidies and the average government subsidies level in those year as alternative variable of the degree of government subsidies, using the difference between gross profits of enterprises and subsidies as the alternative variables of business performance, the test's results are basically same with the original results.

5 Conclusion

This paper is based on this unique angle view of textile industry, using Chinese textile listed companies' government subsidies of sample data from 2007 to 2012, discussing enterprise operating performance as well as the nature of property right of enterprise influencing the objects and degree of government subsidies. Results show that: Firstly, the better enterprise business performance is, the greater the chance of government subsidies is, the higher the degree of obtaining government subsidies is, which shows the characteristics of "support the strong". Secondly, compared with non-state-owned enterprises, state-owned enterprises get more government subsidies. However, different nature of property rights of enterprises was no significant difference in statistic on the possibility of receiving government subsidies. Thirdly, compared with non-state-owned enterprises, operating performance of state-owned enterprises has stronger positive correlation with the degree of receiving government subsidies, but the strengthening effect did not reflect on the possibility of receiving government subsidies. In addition, the scale of enterprise has significantly positively relation to the possibility of receiving government subsidies, showing that the bigger scale of enterprise more likely to receive government subsidies, the scale of enterprise has negative correlation with the degree of receiving government subsidies, proving that among the enterprises that obtain the government subsidies, the larger the scale is, the smaller extent to get government subsidies is. Asset-liability ratio

has significantly positively relation with the degree of receiving government subsidies, namely the higher the asset-liability ratio is, the higher degree to receive government subsidies is.

We can learn that, to a great extent, the government subsidies of textile industry shows the effect of “support the strong”, which conforms to the “winners” connotation and industry oriented principle of China's government subsidies. In addition, government subsidies do exist state-owned preference and scale preference, but the state preference only exists on the degree of government subsidies, and don't reflected on the object of government subsidies. The existence of this preference also means that these enterprises have more policy burden, such as the maintenance of employment, these practices are unfavorable to improve the enterprise's own efficiency of resource allocation and competitiveness, so in the process of government intervention in the economy, government should use market mechanism as the principle to promote enterprises independent development and fully competitive.

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Analysis on the Relationship among Relative Leader-Member Exchange, Organizational Citizenship Behavior and Social Comparison Orientation*

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Abstract: Existing research shows that the employee's relative position in the team is an important factor to influence employees' organizational citizenship behavior. This research investigates the relationship between relative leader-member exchange (RLMX) and organizational citizenship behavior (OCB) in sample of 533 employees from 79 groups. By using the multi-layer linear regression method, the results show that RLMX has a significant and positive impact on OCB. Moreover, high social comparison orientation (SCO) has a negative influence on this relationship. Under the moderating effect of SCO, the impacts of RLMX on OCBO are greater than that on OCBI.

Key words: Relative leader-member exchange (RLMX); Relative position; Organizational citizenship behavior (OCB); Social comparison orientation (SCO)

1 Introduction

Due to the team leader keeps different quality of exchange relationship with different members, the differentiation is likely to cause social comparison between staff, thus everyone in team will form their own relative leader-member exchange (RLMX), and this impact will be reflected in the employee behavior. Therefore, discussing how to balance the relationship between RLMX and employee performance has a realistic significance.

In terms of the present empirical study, RLMX closely linked with organizational citizenship behavior (OCB) has received theoretical and empirical supports, but these conclusions have some contradictions. Vidyarthi et al. (2010) showed there is a positive correlation between RLMX and OCB; While Li et al. (2014) found that the correlation between RLMX and OCB is not significant. Therefore, this paper believes that it is necessary to dig deeper into the possible boundary conditions, to explore the circumstance when high RLMX will bring more/less OCB.

Employees always evaluate their relative positions after a series of social comparison, and in the process of comparison, the level of individual social comparison orientation (SCO) have a major impact on people's perception and behavior. As a result, the question that different SCO will moderate the effect of RLMX on OCB or not is the main problem the paper trying to discuss.

2 Literature Review

2.1 RLMX and OCB

RLMX refers to the value that the individual LMX minus the team average of LMX, reflects a employee' relative position in the team, and thus may affect his/her behavior and performance in the workplace (Vidyarthi, 2010).

RLMX derived from the social comparison theory, and thus how individuals respond to RLMX based on how they understand the social comparison process. Tse (2012) put forward that high RLMX may make employees feel a higher social status than other members feel. When employees think that they are important members in the team, the success of the team will be regarded as their own personal success, and are willing to make more efforts benefit to the organization. Based on the principle of reciprocity, when keep a relatively high quality of exchange relationship with leader, employees will feel it is necessary to show valuable behavior for leaders. In addition, High RLMX means the target members can be received with special care and trust, these benefits will promote employees to better identify them. Having confidence in their ability, individuals are more likely to participate in those behavior beyond the formal contract, such as OCB (McAllister et al,2007).In addition, the related empirical studies have shown that RLMX not only has direct positive effect on job performance and OCB(Vidyarthi et al,2010; Tse et al, 2012), but also indirectly encourage employees to make more OCB by influencing the employees' job satisfaction, LMXSC. Therefore, this paper puts forward the

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following hypothesis:

Hypothesis 1: Relative leader-member exchange (RLMX) has a positive influence on organizational citizenship behavior (OCB).

2.2 The moderating effect of SCO

RLMX reflects the objective quality of exchange relationship between leader and employee, and employee compares with others according to the objective reality or not depends on individual difference—the level of social comparison orientation (SCO), the difference in social comparison process may bring awareness deviation, so as to produce a significant influence on behavior (Gibbons & Buunk, 1999), and therefore need to pay more attention to.

Gibbons and Buunk(1999) indicated that high SCO individuals was sensitive to others, had large uncertainty to oneself, and was eager to reduce the uncertainty by comparison. Given the high SCO employees with these characteristics, they are more likely to make an extensive social comparison than people in self-affirmation. When making an upward comparison, high SCO employees will be very sensitive to detect others' better relative position even if their own RLMX quality is higher. Due to lacking confidence, high SCO individuals easy to feel the better position is out of their reach in the process of upward comparison. Therefore, they may make up the inner balance through reducing OCB. On the contrary, the low SCO employees don't have too much uncertainty, and tend to make comparison with those who have similar views and in similar condition, and provide deterministic information for self assessment. Therefore, no matter the RLMX quality is high or not, low SCO employees are less affected by social comparison, so are less likely to change their behavior.

In addition, Wu and Wu (2005) also believe that OCB can be seen as a kind of employee's behavior based on reciprocity. But traditional reciprocity only involves the current returns, namely employee's effort is a return for leader's special favors in the past and currently. Actually reciprocity is also likely to involve a return for their future evaluation. Studies have found that high SCO employees are different from other individuals; they will get empathy with other members among the bad situation in the process of downward comparison, then expect their future and exchange relationship may become very bad(Buunk et al., 2001), therefore, have a low assessment for future returns. That may inhibit employees' will to contribute to the organization, which further leads to reduction of OCB. Therefore, this paper puts forward the following hypothesis:

Hypothesis 2: High social comparison orientation (SCO) has a negative moderating effect on the positive relationship between relative leader-member exchange (RLMX) and organizational citizenship behavior (OCB).

3 Data and Methodology

3.1 The sample

Research objects of this study are from Beijing, Shanghai, Hunan, and other places. Work areas involve research, production, sales and development, etc. We recycled 533 valid questionnaires come from 79 groups; the effective questionnaire recovery rate was 85.24%.

3.2 Measuring tools

3.2.1 Relative leader-member exchange (RLMX)

This study adopts the scale of LMX compiled by Graen and Uhl-bien (1995), which includes seven projects, such as "How would you characterize your working relationship with your leader". In the study, its Cronbach's α value is 0.837.

3.2.2 Organizational citizenship behavior (OCB)

This study adopts the scale compiled by Lee and Allen (2002), the scale divided into two parts--OCB that benefit specific individuals (OCBI) and OCB that benefit the organization (OCBO), respectively includes eight projects. In the study, their Cronbach's α value are 0.892 and 0.911.

3.2.3 Social comparison orientation (SCO)

This study adopts the scale compiled by Gibbons and Buunk(1999), which includes eleven projects, such as "I often like to talk with others about mutual opinions and experiences". In the study, its Cronbach's α value is 0.762.

4 Results

4.1 Confirmatory factor analysis

By using Amos22.0, this paper does confirmatory factor analysis on measurement data, to compare the four factors model (LMX, OCBI, OCBO and SCO) with the three factors model (OCBI and OCBO

belong to one factor), the double factors model (LMX and SCO belong to one factor) and the single factor model (all belong to one factor). Results show that all fit indexes of the four factors model have reached the standard, CFI, IFI, NFI are higher than 0.90, the ratio of chi-square and degrees of freedom is less than 4, and RMSEA below 0.08. Therefore, the questionnaire has good structure validity and the next analysis can be performed.

4.2 Descriptive statistical analysis

Table 1 The Mean, Standard Deviation and Correlation of Variables (N = 533)

Variables	Mean	SD	1	2	3	4
1 RLMX	0.002	0.548	(0.837)			
2 OCBI	3.727	0.647	0.368**	(0.892)		
3 OCBO	3.772	0.705	0.384**	0.708**	(0.911)	
4 SCO	3.279	0.539	0.225**	0.379**	0.409**	(0.762)

Note: * p < 0. 05, ** p < 0. 01, ***p<0.001, the same below. The consistency coefficients are shown in brackets.

The mean, standard deviation (SD), coefficient of internal consistency and correlation coefficient of variables in the study are shown in table 1. RLMX and OCBI, OCBO have significant correlation. Among them, there is significantly positive correlation ($r=0.368, p<0.01$) between RLMX and OCBI , and also a kind of positive correlation ($r=0.384, p<0.01$) between RLMX and OCBO, which lay the foundations for subsequent inspection.

4.3 Hypothesis test

The direct effect is first inspected. Regression analysis results (see table 2) show that there is a significant positive correlation relationship between RLMX and OCBI ($\beta=0.367, p<0.001$); in addition, the regression between RLMX and OCBO shows that there is also significant correlation between them ($\beta=0.382, p<0.001$).Therefore, hypothesis 1 is supported.

Then, the moderating effect is tested. Results show that the interaction of SCO and RLMX exerts negative influences on OCBI and OCBO, whose coefficients are -0.093 and -0.111 respectively, and their significant below the level of 0.01.

Table 2 Regression Analysis (N =533)

Variables	OCBI			OCBO		
	Model1	Model2	Model3	Model4	Model5	Model6
Gender	-0.012	-0.053	-0.058	0.070	0.027	0.021
Age	0.117**	0.107**	0.102**	0.095*	0.085*	0.079*
RLMX	0.367***	0.295***	0.276***	0.382***	0.305***	0.282***
SCO		0.321***	0.318***		0.343***	0.341***
RLMX×SCO			-0.093**			-0.111**
R^2	0.149	0.244	0.252	0.159	0.268	0.279
ΔR^2	0.134***	0.095***	0.008**	0.145***	0.109***	0.012**

In order to better explain the effect of SCO, this paper draws the interaction chart between RLMX and SCO (see figure 1). When SCO is low, employees' RLMX tend to have no significant relationship with OCB; while it is high, the positive relationship between RLMX and OCB become negative correlation.

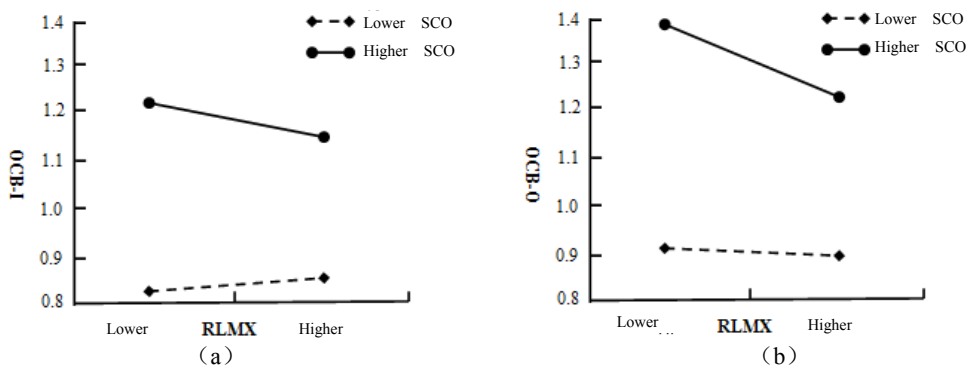


Figure 1 The Moderating Effect of SCO

Comparing the figure (a) and (b) can be found that the impacts of RLMX on OCBO are greater than that on OCBI when the impacts under the moderating effect of SCO. In other words, comparing with the low SCO, the high SCO's negative moderating effect on relationship between RLMX and OCB is more apparent. In summary, hypothesis 2 is supported.

5 Conclusion

Previous research on RLMX always regarded OCB as a whole. Staw (1983) proposed that only consider OCBI and OCBO at the same time can get a comprehensive understanding of OCB. This research focused on the different influences of relative leader-member exchange (RLMX) on organizational citizenship behavior that benefit specific individuals (OCBI) and that benefit the organization (OCBO), was a supplement of past researches.

In addition, the study found that higher relative position in team did not necessarily lead to more OCB. As a kind of temperament, SCO plays an important negative regulatory role in the influence of RLMX on OCB, namely the stronger the employees' SCO is, high RLMX employees show less OCB. It stems mainly from high SCO employees make extensive comparison and have uncertainty characteristics, they will think of others' high RLMX is out of their reach in the upward comparison, and in the downward comparison, high RLMX employee easy to get an empathy with people in poor exchange relationship. Therefore, in the process of upward and downward comparison, employees are prone to negative emotions, weakening its own higher advantage brought by the relative position.

Finally, there are certain limitations in this paper due to limited conditions: 1) this study mainly discusses the moderating effect of SCO effect on the relationships between RLMX and OCB; future research can explore the influence of other variables. 2) Questionnaires were filled out by employees themselves, although the inspection showed that the results did not contain too much homologous deviation, but subsequent research can consider taking supervisor matched data, and using the longitudinal data analysis to improve the defects of the present study.

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Theoretical Analysis and Path Exploration on Standardization System Reform from the View of Supply and Demand Relation*

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Abstract: The standardization system reform is an important part of China's political and economic reform, and the linkage level between the macro and micro management. At present, a core problem of China's standardization system reform is the supply system of standards. China's current government-based standard supply mode cannot well meet the needs of the rapid economic and social development. We should make full use of social and market resources, give play to social and market vitality, widen the channel of the standard supply. Starting from the problems of China standardization system reform, this paper puts forward framework and basic path of standardization system reform based on the supply and demand theory of economics. This study provides the theoretical support and reference for China standardization system reform.

Keywords: Standardization system Reform; Analysis of supply and demand; Government standards; Organization standards

1 Introduction

The standardization system is the collective name of organization mode, management mode and operation mode for standardization activity implementation (Luo Hailin, Yang Xiuqing, 2010). The core problem of the standardization system is orientation of the developing and publishing body of standards. On the whole, standardization system is divided into two types by developing and publishing body of the standards internationally. The first type is the direct management pattern of the government, in which the government directly develops and publishes standards. The second type is a non-governmental institution mode pattern under authorization of the government or laws, in which the government does not develop and publish standards and the non-governmental organizations prepare and publish standards. The developed countries mainly adopt the second pattern. Most developing countries adopt the first pattern. The developed countries in Asia such as Japan and Korea also adopt the first pattern, which is closely associated with the after-war economy development pattern and development path of these countries.

The American scholar Ernst thinks that the market-guided decentralized and autonomous system is the highlighted feature of the standardization management system in America. This system can make the American standardization system consider interests of all parties in standardization and protect competition to most extent, so it becomes the important source for successful business innovation in America (Dieter Ernst, 2012). Blind, K. and Gauch, S. (2005) think that the most highlighted change in the standardization system is growth of informal standardization process, especially ICT industry, private associate, club and union have become very important compared to the formal standardization process. Quick growth of the associates has led to great change of the governance schedule for the standards. Some "fixed organizations" will not accept new members. Some "village clubs" accept qualified new members. more open "health club" pattern is also available, namely non-arbitrary member qualification is permitted (West, Joel, 2007). Dong Geun Choi introduces in detail the standardization management institution in Korea (Dong Geun Choi, 2013). The national standards in Korea include voluntary standard and mandatory technical standards. In order to transferring standard development from governments to the non-governmental organizations, Korean government formulated the regulations on the non-governmental standards and strengthened finance support. Voluntary standard system, government-supported standardization activities, committee standardization administration

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organization and standard “commodity management” pattern are the features of the standardization management system in market economy countries (Zhao Chaoyi, 2004).

In fact, the “government-dominated” standardization management system cannot adapt the requirements of the market economy in China due to pattern under the planned economic system (Xu Jingyue, 2001). Now the technology regulations and standard systems have many problems to solve (Wei Mian, 2003). Although standardization advances much in China from 21st century, the standardization cannot better meet the requirements of quick development in economy and society compared to pressure from the foreign and domestic environment change. Standardization cannot better meet quick development requirements of the economy and society, e.g. standard deficiency, ageing and lag are severe and the standard supply channel is singular. These problems stem from the standardization system.

2 Re-Understanding on Standard Essence

2.1 Standard is a technical regime

Besides distinct technology nature, the regime nature of standards is very highlighted. In a word, the standard is a technology regime. The concept of the technology regime is defined and use via different modes in the systematic method of the department innovation. Nelson and Winter defines the technology regime as the industry technology environment in enterprise operation (Nelson, Winter, 1982). Rip and Kemp define the technology regime as the rules embedded in a complicated engineering practice, production process technology, product feature, skills and programs, the modes for processing related productions and persons, and the method for identifying problems. They are embedded into the institution and infrastructure (Rip A, Kemp R, 1998). In fact, the technology regime is a system to reflect technology essence feature (He Mao, Li Fei, 2005). Malerba and Orsenigo think that the technology regimes combine the opportunity condition, appropriability condition, cumulateness condition and knowledge feature (sometimes knowledge base features are included). Three elements compose the basic framework of the technology regime theory (Malerba, F., Orsenigo, L., 1993, 1996). The technology regime is not only support the country economy and society in the technology field, but also supplement the political regime and economic regime, even replace them (Zheng Weihua, 2005).

As the technology regime, the standard includes technology meaning and regime meaning. The technology nature is highlighted in the past, but the institution nature of the standard is not fully recognized. With increasing development of the economy, society, technology and international trade, the “rule and regulation” role of the standard is increasing. The standard becomes one more important “governance” means.

2.2 The standard is a public product

From the essence, the public products meet the common requirements of the society, namely the public products are from the common requirements of the social public. Endler thinks that the essential nature of the public products is “society and individual living and possibility conditions for pursuing economy activities”^[15]. The non-competition and non-exclusiveness are two most important features of the public products, so Marmolo thinks that the public products should be supplied by the government and the private products are supplied by the market (Marmolo, E, 1999).

Use of standards has the feature of non-competitiveness and non-exclusiveness, namely when one person uses standard, it will not reduce supply to others. One person is not excluded from use of the standard. It meets the classical definition of the public products in the economy. From the view of the cost and benefit analysis, the developing cost of one standard is limited. After the standard is developed, the maintenance cost in a cycle is limited. Although the standards are extensively used and the experiences, knowledge and technologies in the standards are extensively propagated, copied and shared, the users pay the cost close to zero. Compared to other development and maintenance cost, the brought benefits can not be precisely computed, but it is limitless in theory. When one user is added, his marginal cost is close to zero.

3 Research on Basic Theory of Supply and Demand

3.1 Standard demand—supply concept model

Based on the history track and future trend of standardization development in China, we propose a standard demand—supply concept model (see the figure 1). The key points are defined as follows in the figure:

- The vertical axis I_{std} represents the development level of standardization and should include comprehensive indexes such as standard quantity, coverage degree, quality and technology level and implementation benefits. For feasibility, the development level can be roughly represented by the standard quantity temporarily.
- The transverse axis I_d represents the development level of the economy and society and can be temporarily represented by the time sequence or GDP level in different periods.
- D is the standard requirement curve and S is the standard supply curve.
- Point P: the socialist planning economic system was established in 1952.
- Point C: the planned commodity economy was identified in Third Plenary Session of the Twelfth Central Committee.
- Point M: the socialist market economy was identified in Fourteenth Party Congress in 1992.
- Point L: Standardization law was issued in 1988.
- L: Before *standardization law* was issued, all standards are mandatory in China.
- LR: After *Standardization law* is issued, the standards are divided into the mandatory and recommended standards in China.

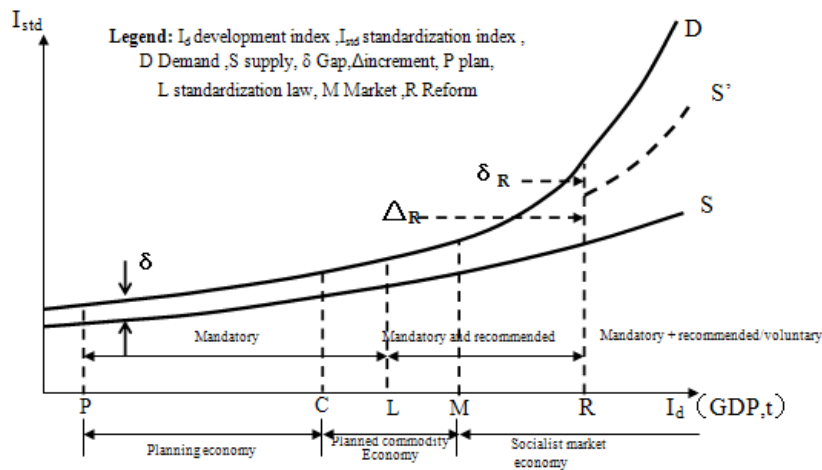


Figure 1 Demand and Supply Concept Model of Standard

3.2 Analysis on transition history of standard demand and supply relation in China

The standards are the summary of the practice experiences and technology achievements. On the whole, the standards lag behind development of the economy, society and technology. It is difficult for the standard supply to fully meet the society requirements for standards, namely the standard supply lags behind the standard requirements on the whole. The figure 1 shows that the supply curve S is under the curve D. A gap exists between two curves, which is represented with δ .

From 1952 to 1984 (PC interval in the figure 1), China is in the planning economy period in which the industrialization development level is low, GDP is small and the directive planning economic system restricts economy development. On the whole, the standard demand and supply is under the low level and slow growth status (D and S curve is relatively slow and the slope is very small in the figure 1). The standard supply relation mainly meets the Say's Law in the economy in the planning economy period, namely supply determines the demand. The gap between standard supply and demand is small (δ is smaller in the figure 1).

From 1984 to 1992 (CM interval in the figure 1), China enters the socialist planned commodity economy period. After reform and openness, the society demand for standards increases obviously (The slope of the curve D becomes large in the figure 1). The standardization law was issued in 1988 (point L in the figure 1), singular mandatory standard system changes to the mandatory standard and recommended standard system in China. The standard supply capability increases (the slope of the supply curve S increases in the figure 1), but it can not meet the quick

growth demand of the society for standards on the whole (δ becomes big in the figure 1). Certainly this gap is within the acceptable scope.

Since Fourteenth Party Congress of the party in 1992 (right area of the point M in the figure 1), the socialist market economic system was established in China. The society demand for the standards increase quickly under the market economy conditions (the slope of the curve D increases obviously in the figure 1) and the standard deficiency, ageing and lag problems are highlighted. To meet quick growth of the standard requirement and solve standard deficiency, ageing and lag problem under the government-dominated standard supply institution, the supply capability should be further improved. The government increases the investment to the technology standard system construction during “10th five-year plan” and “11th five-year plan” in China. Total investment is 1 billion during 2006-2008. The quantity of standardization technology committees increases from 664 in 2006 to 1148 in 2010. Massive new technology standards are developed in a short period (the slope of the curve S obviously becomes big in the figure 1), so the standard supply and demand confliction is alleviated to some extent. The standard supply is dominated by the government and is restrained by the government capability due to quick growth of the standard demand. On the whole, the slope growth of the supply curve S lags behind it of the demand curve D. The gap between standard supply and demand will expand (δ will become big in the figure 1). E.g. The doubts on standard deficiency, especially standard lagging and low quality in the society become more and more, which objectively reflect this problem.

3.3 Selection of opportunity and key points of standardization system reform

Now China is at the key reform time (point R in the figure 1). In theory, the standard supply and demand conflictions can be alleviated in two manners. The first manner is to restraint the standard demand (δ becomes small). However, the standard demand exists objectively, so this mode is not feasible. The second manner is to increase the standard supply to most extent (the supply curve S moves up to S' to get the supply increment ΔR in the figure 1). To get supply increment ΔR , if the standard supply mode is not reformed and existing standardization system is still kept, namely government-dominated or monopolized standard supply, the government will further increase investment and supply capability, but the government's rationality, capability and resources are limited, the supply increment ΔR , which is obtained by changing the constraint conditions of the government supply standard to some extent, is very limited.

First, the governmental rationality is limited. E.g. the government is not qualified to recognize and grasp different standard requirements and determine standards to be set and published due to complicated economy and society, quick technology development, instantaneous change of market demand, complicated standard competitions.

Secondly, the governmental capability is limited. E.g. the governmental standardization management persons can not deeply know and grasp standardization problems in different field and industries and make correct decisions due to limited professional knowledge when facing to development diversity, change and uncertainty.

Thirdly, the governmental resources are limited. The government continuously increases fund to standard developing, e.g. the revisal fee for the national standards is 73 million yuan in 2010, is 77 million yuan in 2011 and is 85 million yuan in 2012. However, the average fee of each standard is only about 50000 yuan. The effect of appropriately increasing investment is not obvious.

In a word, the government-dominated or monopolized standard supply system can not meet quick growth of the actual standard demand. The standardization system must be reformed. The key is to reform the standard supply mode, change the standard supply curve from current S to S', get the bigger supply increment ΔR , shorten the standard supply and demand gap to δR and keep within the acceptable scope.

4 Basic Path of Standard System Reform in China

4.1 Basic idea

Perform politics simplification and power re-assignment, management innovation, common governance, exert strengths of governments, society and market and cooperate with each other in standardization. The governments should focus on institution, plan whole situation, manage macro

situation, control great events, gradually discards functions which can be undertaken and adjusted by the society and market, excite innovation vitality of the social organization and market body, further arrange relations between standards, laws and regulations, concept system and orientations of mandatory standards, recommended standards and voluntary standards, and adjust and optimize standard setup, strengthen uniform management of the government to the mandatory standards, integrate the mandatory national standards and industry standards into the mandatory national standard, improve the level of publishing body, adjust scope, structure, contents and form, compress quantity much, improve authority and seriousness and “ensure bottom line” via the mandatory standards. Reserve, adjust and optimize current national, industry and local recommended standard system, mainly develop commonweal, foundational, general, common and strategic standards, reinforce coordination and fitting mechanism with the mandatory standards, reinforce standardization public service responsibilities of the government and “ensure foundation” via the recommendation standard. Gradually develop the organization recommended standards (called as organization standards), focus on development of production and service standards, reflect change and requirement of the market and technology in time, establish competition and cooperation, incentive and restraint tolerance mechanism, fully exert the foundational role of the market in the resource configuration and “promote development” by using the organization standards. Process the relation of above three standards, establish inherent association mechanism, form the China characteristic standard system to meet the development demand of economy and society, and enhance whole function of the standardization system in China.

4.2 Reform key

In the above idea, it is the kernel contents of “minimal whole reform scheme” to reform and perfect mandatory standard and cultivate and develop the organization standards. The innovation and key points of this reform scheme is to establish the organization standards. The organization standards should be developed by public organizations such as non-profit organizations to keep consistent with the public product nature of standards. e.g. association, industry union and technology organization. Any organization can develop the organization standard, realize full autonomy, independently perform development, issuing, publishing, implementation and certification of the organization standards, fully utilize society and market resources, exert the society and market vitality and increase standard supply much. The standards of different organization compete with each other. An enterprise can voluntarily select them and the standards will be eliminated and reserved via market, which meets the trend for the state to reform the social organization management regulations, explore multiple societies for one industry and introduce the competition mechanism. The government will perform macro management and supervise law enforcement for the organization standards. E.g. the Standardization Administration of P.R. China develops the good behavior specification for standardization organizations and authorizes third-party organizations to evaluate, certify and publicize standards. The organization standards developed by the certified and correct behavior standardization organizations can be transformed or adopted as the recommended national standards. The Standardization Administration of P.R. China can assign the recommended national standards to the organizations with good standardization behaviors for preparation via trust and purchase, so it can establish the incentive and restraint mechanism for the standard developing organizations(SDOs) .

The governments should encourage social organizations to offset the blank points which are not covered by the governmental standards or develop the organization standards superior to the governmental standards in the highly competitive technology fields. When the social organizations develop and become enough powerful and orderly, the governments will exit from the left area of the transverse axis, fully “assign power” to the market, and exert the vitality and strengths of the market competition.

4.3 Basic path--- progressive reform

The key for successful reform and so-called “China pattern” in China is that one progressive reform path is explored, instead of “shock treatment method”. It is obvious that the progressive reform should be taken in the standardization system reform under the restraint of reform development idea, pattern and path. First, focus on “minimal whole” reform, seize those extensively involving, highly global, highly associated, complicated and crossing key problems.

E.g. reform and perfect mandatory standard, cultivate and develop the organization standards, centrally and fully tackle key problems, and do not focus on all problems. Secondly, focus on the increment instead of the stock reform, comply with “Pareto improvement” and finally drive stock adjustment change via increment. E.g. when the industry recommended standards are not cancelled, cultivate and develop the organization standards, integrate the mandatory industry standards, ensure that the departments have enough speaking right in preparation of future mandatory national standards, and get understanding and support of related parties. Thirdly, stick the progressive reform, comply with “inductive transition” instead of “mandatory transition”, first try and explore and then stably and progressively transit. E.g. cultivate and develop the organization standards in the fields, which are not covered by the existing industry recommended standards or do not conflict with them. For some qualified national or local industry association, first try and explore and realize differential mutual supplementary and development. Their development and growth will progressively lead to adjustment and transition of existing recommended standards.

During research and discussion of standards, especially the mandatory standard management system and mechanism reform in the past, review the standard system reasonability, crossing and repetition confusions at different levels, standard implementation and insufficient supervision and analyze reform necessity and measures from the view of technology regulation nature of the mandatory standard. On the whole, research and analysis focus on micro and phenomena. The reasonability and persuasiveness are not sufficient. We focus regime nature of the standards and answer why the standardization system should be reformed and what should be reformed from the history evolution of the standard demand and supply relation as the macro and essence level.

5 Conclusion

In a word, the reform can remarkably improve the capability of standard supply compliance to the standard demand. First, solve the quantity problem. Fully utilize social resources and market mechanism. Different standard organizations for development, certification and technology service will surely develop quickly, which can offset the insufficient standard supply capability of the government, especially alleviate the insufficient standardization public service for the medium-size and small-size enterprises. Secondly, solve speed problem. The organization standards are close to the actual industry conditions, can track the technology advance, and quickly reflect market demand in the rising industry field, especially high-tech field. Thirdly, solve quality problem. The organization standards can accurately grasp the market demand in time, improve capability of the SDOs via the market elimination mechanism, and enhance the quality level of the standard. Fourthly, solve efficiency problem. Reasonable identification of the boundary among government, society and market can effectively call and fully utilize the society and market resources, massively save and effectively use public resources, consider and prevent against “market failure” and “government failure” and prevent “lease” caused by monopoly.

The main risk of the reform is to impact the existing interests, so the reform can not get powerful support from the related parties. Impact to standard system and occurrence of organization standards will surely lead to crossing, repetition and conflict between multiple standards for one product and standards. If it is not well controlled, it will lead to chaos, especially impact to the standardization management department, especially rejection from industry and local standardization authority. The applicable standardization law system will be impacted. Over 40 laws, 70 administrative regulations and hundreds of department and local governments give regulations on standardization. They will be changed and adjusted and the task is very huge. On the whole, this reform idea complies with direction, rule and requirements of the national institution reform and functionality transformation, which is consistent with the radical interests of whole society, including the government standardization management department, so the reform will be supported by a majority. The reform should be promoted actively, stably and progressive to realize the gradual and stable transition under the scientific and reasonable top design.

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Improve the Communication Quality by Understanding Switching Behavior

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Abstract: Instant paper aims to analyze telecom customer relationship by delving into customer switching behavior and identifying preferred communication type to help companies in designing appropriate communication in order to prevent the customer switching and enhancing customer loyalty. Two staged qualitative research has been conducted by interviewing 13 telecom customers who had experienced telecom service provider switching and data is analyzed by coding technique. Findings reveal that telecom customers chose distinctive sources of information while making switching decision. Active customers chose newsletter based on rich content including innovative services information whereas passive customers chose newsletter primarily based on competitive prices. Managers can communicate active and passive customers according to the respective communication preferences. Moreover, marketers can study switching determinants, triggers and sources of information in order to design the customized communication so as to prevent triggers from happening in the first place, thereby enhancing customer loyalty. This paper synthesizes insights from the extant literature on relationship marketing, customer switching behavior and contemporary communication channels to develop comprehensive customer-driven loyalty enhancing communication.

Key words: Customer switching behavior; Telecom customer loyalty and relationship marketing communication; Newsletters; Situational; Influential and reactional triggers; Switching determinants

1 Introduction

Telecom companies world over are striving to build, maintain and improve the relationships with profitable customers in order to optimize their profits (Ferguson and Brohaugh, 2008). Communications are integral part of this whole process from beginning till the end and onwards. Customers are increasingly getting aware of the service offers and consequently it has become significant for the companies to effectively communicate their offers to the different types of customers in customized fashion simultaneously using the available written communication resources. It has already been proved that communication efficacy is thought to be imperative in the customer clubs because it can clearly impact the telecom customer understandings' key elements such as price and experience. (Gustafsson et al., 2004) Duncan and Moriarty (1998) portray that the most crucial catalyst of the customers' perception regarding their rapport with the service provider was the communication lucidity such as employing flawless sentences, without repetition, and genuine tendency. Ball et al. (2004) advanced this concept even further by arguing that well-structured and valuable communication massively impacts the customer perception regarding loyalty, trust and satisfaction.

In instant paper, researchers have focused on exploring two different types of telecom customers which have already been discovered in prior research; moreover their switching behavior from one service provider to other has also been researched with the aim to identify preferred communication types by both types of customers so as to help companies design customized communications that could influence customers' respective behavior in order to stay with the same service provider for longer span of time. Furthermore, a company can positively influence customers' switching behavior through effective written communication using various mechanisms. One challenge that lies in this approach is that when it comes to perceiving company's promotional communication, two types of customers have been identified based on their respective characteristics. According to Roos and Gustafsson (2011), these two types are active and passive customers. Therefore, companies need to overcome the challenge. Nowadays consumer is moving away from the old-fashioned means of advertising for instance television, radio, magazines, and newspapers, for the reason that they demand improved mechanism beyond their media consumption, (Rashtchy et al., 2007; Vollmer and Precourt, 2008). Lempert (2006) supported this opinion that customers are switching more often to numerous types of social media to pursue required information and determine their purchasing choices. Primarily, the written communication has proven to be the most important facet of the overall communication for customers as

currently, customers are typically communicated via emails, postal mails and social network updates. Communications in relationship marketing have been transformed due to the innovative revolutions in information technology (Honeycutt et al., 1998; Duncan and Moriarty, 1998).

The telecom industry has matured, along with the continuing expansion of the scope of its market and a rapid growth in the number of customers. High brand assets define the success rate of the operating companies in this sector. Due to the augmented demand for communication facilities in emerging markets such as China, Africa, Latin America, South Asia, and the Middle East, opportunities thrive to grow the business more than ever (Wallsten, 2001). In the past, telecom service providers' brands could depend on strong brand assets and loyal customers. However, the entrance of numerous telecom brands into the market, followed by fierce competition, has made the companies' survival difficult without taking necessary measures. They must concentrate on improving quality, value, and reliable customer relationships in order to succeed. That is exactly where this study would help companies in detecting the customer switching behavior by testing on any of the three triggers i.e., influential, situational and reactional triggers and later on designing the customized communication for each of the two customer groups, namely, active and passive customers, according to their respective attitude and behavior.

2 Literature Review

2.1 Customer switching behavior

Roos and Gustafsson (2011) discussed that customers experience a deliberate decision-making process when buying a service/product from a service provider. This notion has been illustrated in the "theory of reasoned action" (Fishbein and Ajzen, 1975) which describes that if a customer intends to act in a certain way then it signifies that he eventually will act in that specific planned manner. Ajzen and Fishbein (2000) explained it further in the "expectancy-value model" which claimed that customers normally perform on the basis of their subconscious memories and events to decide about the future purchases as opposed to considering only the currently offered information; which could further be segregated as active (conscious decision making by customer) or passive (any outside company influences particular customer reaction). Misinformation, prejudice and misjudgment are inextricably interlinked concepts that could bring about grave consequences for telecom companies' customer relationship management department. Prejudice was characterized by Vickery and Morris (1948) as "misjudgment" which is said to be stimulated against companies and/or their offerings. It works as when customer, lacking the substantial amount of information to make right decision, resultantly evaluates the service on the basis of incomplete information already construed by his mind, it ensues in misjudgment. (Roos and Gustafsson, 2007) Latent or hidden factors can also sway customers' thought process by contributing towards the prejudice and thus lead to switching behavior. For instance, according to Danes and Lindsey-Mullikin (2012), consumer's price expectation and willingness to pay could be changed on the basis of offering's value expectation.

Switching decision is made on the basis of incomplete information already based in the subconscious of the customer's mind, and this misjudgment coupled with any of the three triggers causes the switch. In this article, communication design is focused so that companies could overcome the problem of customer's decision-making process based on the prejudice or misjudgment. Misjudgment associated with trigger acts decisive for current service provider as Roos (1999) illustrated that triggers can shift customers' insight concerning relationship between customer and service provider and this thought process causes service provider switch in the future (Roos and Gustafsson, 2011). These triggers are buttressed by critical incidents (Keaveney, 1995).

2.2 Two different types of telecom customers

Consumer behavior can predict their future actions (Roos et al., 2011). There are two types of customers: active customers and passive customers. Active customers proactively seek information about service provider's offerings. This is the reason why the service providers could easily communicate active customers. On the contrary, passive customers are lethargic in terms of proactively seeking the information about various offering by service providers. Cioffi and Garner (1996) illustrated that the primary pretext of such behavior from passive customer is paucity of the capacity to deliberate in quantifiable modus and deficiency of the capability to choose among different available service providers by prudently comparing the competitors' attractive promotions. In such circumstances, prejudice overcomes the conscientiousness of the passive customer's decision-making adeptness.

2.3 Communication in contemporary telecom customer relationships

Duncan and Moriarty (1998) and Andersen (2001) characterized the communication as the social action of conveying a message to others and building its awareness in a meaningful manner. Anderson and Narus (1990) emphasized on meaningfulness in communication design due to its high potential impact on the customer perception. For instance key customers are persuaded more effectively by communication styles and proclaim higher hopes vis-à-vis communication from service providers (Sun et al., 2008). In the earlier literature, customer switching behavior has been applied so as to design appropriate communication. Such as in a relationship mapping technique SPAT (Roos, 1999), customers' expressions in the relationships are found to be linked with customer's tangible behavior. As Morris and Jeanne (1988) indicated that basis of customer loyalty must be trailed to induce the genuine progress. Sharma and Patterson (1999) acknowledged that coherent communication can produce a sense of warmness along with cultivating customer-to-business ties. It could benefit the service providers in instituting unwavering relationships with customers through growing marketing proficiency, dwindled proportion of customer defection and guaranteeing delivery of customer desires which sequentially can upsurge the customer satisfaction and loyalty (Tohidinia and Haghighi, 2011).

2.4 Written communication

Raciti and Dagger (2010) describe that aesthetical aspects of written communication should be contemplated while designing written communication such as writing style, paper quality, color, font, selection of the font style and use of the bold and italics. To enhance customer loyalty, company can effectively employ these aesthetical factors of written communication into the instruments as letters, brochures, newsletters and emails and successfully demonstrate the perceived customer positioning through company's written communication.

2.5 Newsletters

Merisavo and Raulas (2004) elucidate that newsletter communication has the basic objective to stimulate brand loyalty and it has already been employed in direct marketing for long time to foster strong brand image. In this regard, newsletters, consumer magazines and brand website are the tools which could help companies by showcasing its offerings to customerson monthly, weekly as well as on daily basis. (Muller et al., 2008) Newsletters are primarily the communicating instruments that enable companies to design tremendously customized information including updates and entertainment (Brondmo, 2000). Merisavo and Raulas (2004) described that email is prevailing mode for communication in modern era. Primary uses for email in marketing are to circulate promotional information regarding brands, products and services and to increase website traffic. Furthermore consistent email communication underpins customer loyalty.

3 Data and Methodolog

3.1 Research design

In this study, researchers have used explorative research design with qualitative approach. As described by Aaker et al. (2004)explorative research probes such a problem that has not been previously investigated in detail therefore the hypothesis is inadequately defined; moreover this research is extremely flexible and qualitative in approach.Creswell (2009) elucidates that qualitative method enables researcher to primarily gather qualitative data via interviews in the form of words instead of numerical data.Patton (1991) validates that qualitative methods construct an exhaustive data set based on modest number of entities. In addition, qualitative approach helps researcher in finding the answers of essential how, why and which phenomenon (Bryman and Bell, 2007).

3.2 Research process

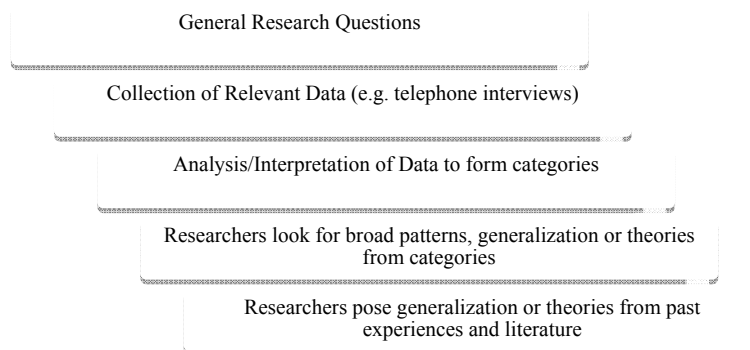


Figure 1 Research Process (Drawn from Creswell (2009) and Bryman and Bell (2007))

Researchers designed broad-spectrum research questions by means of a resourceful and well formulated interview guide in Roos (1999) that was revised rendering to the specific requirements. Subsequently data was gathered via interviews, primarily conducted face to face as well as through phone. After data collection, various categories were formed by interpreting and analyzing the data, in order to locate the broad patterns of generalizations, so that researchers could analyze the data in the light of relevant literature in the final step.

Research process is divided into two parts: primary research and secondary research.

Primary research is further divided into three separate stages:

Stage 1: Through interviewing 13 telecom customers, researchers observed the ways in which customers relate their relationship to the actual behavior.

Stage 2: On the basis of these observations, researchers designed two distinct types of communications for active and passive customers; mainly comprising newsletters.

Stage 3: These two types of newsletters were then presented to the same 13 customers as stage 1 and their choices were recorded.

While in secondary research, researchers related the conclusions from primary research to the literature framework and consequently discovered the patterns of effective communication for active and passive customers according to their respective switching behavior and communication preference.

3.3 Data collection

As per specific requirements of this exploratory qualitative study, an apposite instrument of qualitative interviews was adopted in order to map and identify customer switching behavior and relative communication preferences. Question guides were made alike (Jacobsen, 1993). Interviews via face to face and telephone were conducted with 13 students, who had experienced at least one switch of telecom service provider. Reason for conducting face to face and telephone interviews was that according to Creswell (2009), this method can enable interviewee to give comprehensive answers and follow up question could also be posed which are not the options in survey via email.

These 3 stages comprised two separate interviews with each customer. In first part, general customer switching behavior was inquired through open-end questions from interviewees whereas in the second part, two types of communication were presented to customers and their choices were recorded. Open-ended qualitative questioning process included spontaneous questions as well and resulted in unimagined yet valuable information from interviewees (Bryman and Bell, 2007). Aaker et al. (2004) rightly illustrated that some of the practical problems of explorative research also include that preplanned questions in the questionnaire lose their significance in the course of interview as researcher's priorities shift. All interviews were recorded with the prior permission of interviewees as various studies have preferred recording of interviews on note taking due to advantages such as less time consumption, more time to think for follow up questions (Kvale, 2009), and possibility to verify the answers (Jacobsen, 2002). Respondents' anonymity was ensured. Interviews were conducted at the convenience of the respondents as the time chosen was after two o'clock in the afternoon in the weekdays and on weekends due to easy accessibility. All interviews were transcribed before analysis.

3.4 Coding

Hague et al. (2004) described coding as creating code frame which comprises categories of information grouped together under separate heads; in order to analyze the information fetched via interviews. Categories in the code frame were created by delineating significant aspects from theory and also by information gathered through interviews for instance switching determinants were ranked before the relevant trigger distribution.

3.5 Reliability and validity

Reliability of the current research means that even if data collection method is repeated, same results would be generated, thereby ensuring its long-term trustworthiness (Jacobsen, 2002). Data correctness was also confirmed by fetching the originally intended information from respondents, in this regard, if any respondent found some part of the interview difficult to answer, then question were rephrased in more conceivable manner. A standard questionnaire was used in order to conduct all the interviews. Interviews were recorded and transcribed in order to document and analyze the data by ensuring complete reliability (Shenton, 2004). Only willing and qualified respondents were chosen for the interviews as those students who had switched telecom service at least once in their life, and qualified the research criteria were interviewed, moreover interviewer also asked respondents to be candid.

4 Findings

4.1 Stage 1: switching behavior study and analysis

Table 1 contains the empirical data collected through interviews. Through coding, each interview and response was assigned to the applicable category. Qualitative analysis has been done hereunder through comprehensively discussing the customers’ responses in the light of literature framework. As already mentioned, results are presented in 3 stages following the 3 respective stages of primary research process.

Table 1 Empirical Data from Interviews

Industry	Sample size	Competitive situation		Trigger Distribution		Switching determinants		Source of information		Switching behavior		Attitude towards previous operator	
Telecom	13	Comviq	5	Influential	12	Price	11	Advertisement	5	Passive	9	Already switched back	0
		Telia	3			Suggested	4					Friends & Family	8
		Halebop	2			Competitor action	1	Own Activity	2				
		Parlino	1	Situational	1	Other or Better Service	2			Will consider to switch back	2		
		Telenor	1			Reactional	0	Unfeasible treatment	2				
		Tre	1	Total	13			Total	20	Total	15	Total	13
		Total number of competitors	13										

In this table, switching determinants are shown as 20 in number instead of being equivalent to the total number of interviews that were 13, owing to possibility of customers mentioning more than one switching determinant in each interview irrespective of the relevant trigger distribution or switching behavior. 2 out of 13 are active customers while other 11 are passive customers.

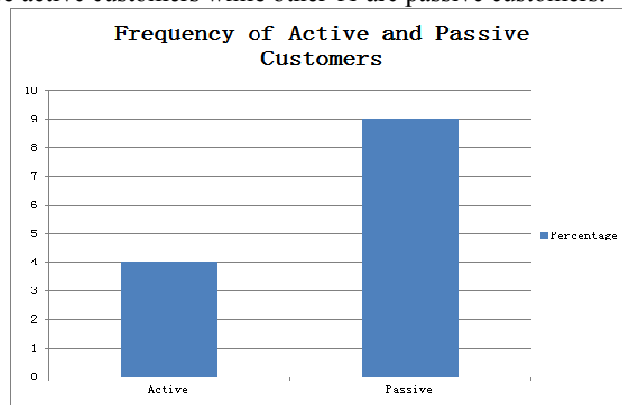


Figure 2 Frequency of Active and Passive Customers

Total companies, from which customers switched, were 4. Active and passive customers were 4 and 9 in numbers respectively. Furthermore, 12 influential, 1 situational and no reactional trigger were observed. 3 types of triggers and 5 types of switching determinants altogether drive customers towards switching process therefore it is essential to analyze these two factors in connection with each other. Following are the classifications of the active and passive triggers found in interviews:

4.1.1 Influential Triggers

Active

- 1)The customer’s increased demand to talk to friends and family.
- 2)Customer desired to get free phone along with possible shift in payment method from billing system to account recharge.
- 3)Customers’ friends convinced him to switch the company.
- 4)Customer desired to exploit the opportunity of acquiring a handset with contract.
- 5)Customer switched to avail the low-priced option in response to the increased need of calling abroad.

Passive

- 6)Customer could no more afford the current provider and friends also owned different operator.

7)Customer’s friends observed that it was more expensive to call to previous operator.

4.1.2 Situational Triggers

Active

1)Previous service provider’s poor signal strength caused customer to switch

4.1.3 Switching Determinants

Most significantly influencing element towards switching was discovered as “price” as 11 customers mentioned it as decisive factor due to lower purchasing power thus it is featured as influential passive trigger.

“My need to talk often and higher cost made me think about switching.”

“Suggested” switching determinant caused by friends and family was noticed to be outstanding as well due to the higher conversation frequency among social circle; 4 customers considered it as the most influential aspect. This determinant is part of influential active trigger because customer actively researched various available alternatives after getting suggestion from social circle.

“Main reason for my switching was an inexpensive package for friends and family including free texts.”

Promotional marketing activities of competitors influenced 1 customer who were swayed by influential passive trigger owing to their lack of active research involvement and immediate switching action based on promotional activities of competitor.

Inappropriate response from company personnel and inconvenience caused while calling to customer service desk influenced 2 customers to switch.

Other/better services attracted 2 customers’ attention that encompassed a switching determinant of sole functioning service in the workplace area that is situational active trigger owing to customer’s active search for the alternatives.

“I switched to Telia due to unavailability of other companies’ services at my remote work site.”

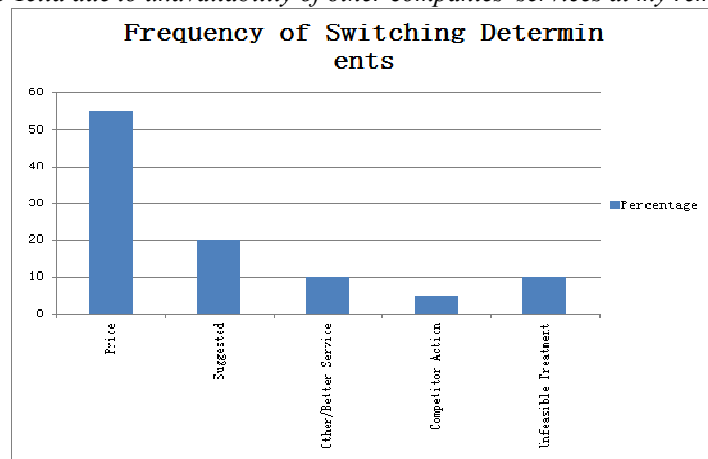


Figure 3 Frequency of Switching Determinants

Source of information describes customer’s path towards switching in the process of trigger happening thereby increasing its importance in the switching behavior. Customers have found to get the information primarily by advertisement, friends & family and/or own activity.

Eight customers received the information underpinning the switching through family and friends.

“I did not consider price while switching because my friends had Telia which they used while communicating with each other and it was main reason of influence.”

On the other hand, advertisement caused triggers in 5 customers’ minds.

“I saw the commercial which provided me with necessary information and influenced my switching decision.”

Just two customers mentioned the reason of trigger as their own activity.

“I conducted my own research before switching, which resulted in choosing cheaper price option regarding free texts.”

One important aspect of the questionnaire obtained information from customers if they compared different available alternatives or not because it signifies their behavior as active and passive. During the interviews, majority of customers negated the practice of comparative analysis before decision-making. For instance one customer responded:

“My switch was based on the decision made by my parents, who chose Comviq Amigos for me as I was abroad and I had to make international calls frequently.”

In the interview part regarding reflections about present service provider, two types of responses were recorded. First type of customers declared their satisfaction after switching mainly due to better value proposition such as:

“Better services and relatively inexpensive services convinced me and for now, I am satisfied.”

Second type of customers did not seem contented with current company due to reasons like bad reception, for instance:

“Bad signal coverage and expensive services have lessened my attraction towards current company.”

Moreover, both these kinds of customers replied differently about conducting comparative analysis of various service providers available in the market in the present situation. Most of the satisfied customers said that they currently do not engage in the said practice owing to higher satisfaction level with current service provider.

“I do not think about switching the company because Comviq is providing satisfactory services until now, however if in future this does not remain the case then I would think about switching the company.”

Relative fewer respondents said that they currently compare different alternatives regularly, either due to dissatisfaction with current company or desire for better value proposition.

“I have planned to switch back to Halebop in beginning of the coming year, due to the availability of prepaid services which suit my low money consumption needs in order to call and use internet rather economically.”

When asked about potential future prospects of switching back to the previous or other service provider then as many as nine customers replied that they will not switch back, two customers said that they have already decided to switch back, two customers said that they will think about it only in case of better services being offered whereas no customer had already switched back.

4.2 Stage 2: communication design

In this step, researchers designed two types of newsletters based on the results found in first stage of primary research (switching determinants and triggers) coupled with the concepts mentioned in the theoretical framework (active and passive customers). These switching determinants and triggers constitute the active and passive behavior of customers, which are in turn used in this section to design active and passive newsletters in order to woo the respective types of customers. Roos and Gustafsson (2011) describe that communicating effectively to both of these types of customers was made possible only after the discovery of the relative differences between active and passive customers. According to Ajzen and Fishbein (2000), customers, who normally base their decisions on the subconscious memory, are either active (those customers who decide after thorough deliberation process) or passive (those customers whose decision is mainly influenced by outside company).

4.2.1 Active newsletters

As theory (Roos et al., 2011; Cioffi and Garner, 1996) suggests that active customers actively seek detailed and up-to-date information regarding various offerings, and later on as proved in the interviews that these customers are more attracted to rich information, comprising price as well as better quality service plus several additional services to choose from, coupled with basic services. Consequently, “Active newsletter” was conceived based on the characteristics of active customers, containing information about price and rich services. Hereunder is a selection from the “Active Newsletter”:

“Telia Mobile Small Flex is an innovative adaptable payments bundle that gives you the option to modify your payment plan at your convenience. You have the option to consume the entire months’ package for call, SMS / MMS and internet browsing (plus 0.5 GB limit). Similarly, you can also avail access to super-fast internet browsing areas without any extra cost. And if you would also like, you could expand the package throughout the tenure by one or more of the options Talk (M) (L), Send (M) (L) and internet browsing (M) (L). If you decide to discontinue the package at any time, you could always return to your regular monthly plan. At present also contains Spotify Premium.”

An additional communication statement is exhibited below:

“A cutting edge; Music System. Play and control your music in complete area of your house with your smartphone or smart pad.”

4.2.2 Passive newsletters

Passive newsletter is designed based on the demonstration in theory regarding price’ significance in passive customer’s perception of service’s value proposition, coupled with results generated by interviews. Roos et al. (2009) describe price as potential driving factor of customer’s anger resulting in switching

decision. Cioffi and Garner (1996) portray on customer's inability to base their switching decision on the measureable criteria of judiciously weighing the competitors' attractive promotions. Passive customers neither actively search information nor they pay attention when specific communication is directed towards them by companies (Roos et al., 2011). Gustafsson et al. (2004) declare that communication has proved significant to positively influence customer's perception regarding price and experience. Moreover, data gathered through interviews also depicts almost the same findings that most of the customers are laid back and do not conduct active research, they also prefer price far more than the rich information about various interesting service offerings. Hence "Passive newsletter" was concocted, all-inclusive call and SMS packages centered on competitive prices. For illustration one extract is mentioned in the following:

"If you decide to purchase Tele 2 Kompis, Kompis internet browsing, Kompis International or Kompis Pott for 24 months then you can avail the facility of first 6 months only for half of the regular monthly fee. You could also call routinely for 0 kr per minute and send free SMS / MMS to 3.5 million Tele 2 - and Comviq consumers. Free stands for up to 3000 SMS / MMS per month in Tele 2 Comviq networks."

4.3 Stage 3: communication testing

In this stage, communication designed in stage 2 is presented to the same customers, which were interviewed in stage 1 of the primary research phase. Results are shown are in the table below.

Table 2 Influenced Triggers

Interview number	Trigger	Reasons for changing	Communication Pattern
1	Influential (Passive)	Higher cost and advertisements influenced.	Passive
2	Influential (Active)	Higher cost and friends & family influenced. But actively compared various offers before switching.	Passive
3	Influential (Passive)	Enticed by the deal in advertisement to get free smart phone.	Passive
4	Influential (Passive)	Commercial influenced.	Passive
5	Influential (Passive)	Higher cost and friends & family influenced.	Passive
6	Influential (Passive)	Previous service provider was not up to mark and family influenced to switch.	Passive
7	Situational (Active)	Due to the coverage problem and friends influenced to switch.	Passive
8	Influential (Active)	Friends & family influenced but actively compared various offers before switching.	Passive
9	Influential (Passive)	Higher cost and friends & family influenced.	Passive
10	Influential (Active)	Higher cost and friends & family influenced but actively compared various offers before switching.	Passive
11	Influential (Passive)	Higher cost and friends & family influenced.	Active
12	Influential (Passive)	Higher cost, commercials and friends & family influenced.	Active
13	Influential (Passive)	Higher cost and friends & family influenced.	Active

Column number two and three contain the information regarding triggers and reasons for changing previous service provider (switching determinants) respectively, this information was already available in stage one. Column number four presents the results of third stage, i.e., the respective communication preferences of the same customers from stage number one interviews. Results of stage three reveal that 10 customers found passive newsletter more attractive whereas the other 3 customers chose active newsletters. Pattern of customers' respective choices is especially important in this context as these two types of communications were mainly designed according to these customers' earlier revelations about switching behavior.

Total 12 influential triggers (9 passive and 3 active), 1 situational active trigger whereas no reactional trigger are realized in this research. (Gustafsson et al., 2004) support these results by highlighting the tendency of telecom customers to demonstrate passive behavior by preferring price as a result of increasing competitive marketing strategies. Four active customers from stage one chose passive newsletter in stage three, because despite of their desire to stay informed about latest updates of diverse service offerings through active research, their main focus was on the price factor. Three influential passive customers from stage one chose active newsletter in stage three, because although their leading choice was the price factor along with friends & family, they also preferred to remain informed about latest updates of diverse quality service offerings.

5 Discussion

Following are five, not mutually exclusive and collectively exhaustive reasons, for why customers

preferred passive newsletter and the factors prompting their switching decision. On the top of the list are cheaper offerings that attracted most of the telecom customers, inasmuch as eleven customers considered price the leading influencing factor for switching decision therefore eight out of these eleven customers picked passive newsletter. Santos and Basso (2012) revealed that higher prices in comparison to the competitors' offerings contribute to customers' unfairness perception and lead to negative behavioral consequences. Second most important switching factor was discovered as suggestions by family and friends, cumulatively referred to as social circle interaction, out of total four customers mentioning this influence, three actually chose passive newsletter. Third reason for choosing passive newsletter described by total of four customers has been identified as primary focus only on the basic services such as inexpensive calling and texting instead of rich service offerings. Fourth reason disclosed by four customers is that they felt convenient while browsing through the passive newsletter due to the availability of the prices accompanied by brief detail of service offerings at same place. Fifth reason mentioned by customer choosing passive newsletter was articulated as competitor's persuasive advertisements. Lack of previous service provider's complete range of services including price information was indicated in the interviews as basic point of concern.

Those customers who encountered following switching determinants primarily chose active newsletter. In order to benefit from better service quality, one customer switched the telecom company membership, and subsequently chose active newsletter when asked to choose between active and passive newsletters. Second customer preferred active newsletter because he intended to evaluate several services advertised by various operators. Third customer was perturbed by the time taking procedure of calling to customer service representative in order to get the issues addressed.

As Roos and Gustafsson (2011) described that passive customers do not pay attention to the promotional information directed towards them by their current telecom service providers and they need to be frequently communicated, furthermore this is also supported by the findings of present study as passive customers responded that they were mainly influenced by price factor and suggestion by friends and family to make switching decision; therefore in order to successfully manage relationship with passive customers, companies need to include price related promotional information that should be frequently communicated through customers' social circle, reference group and community, in most appropriate manner. As in the stage 3 of the primary research i.e. communication testing, four customers were initially found active but they chose passive newsletter because they preferred to have the knowledge about different prices because they only wanted to focus on the prices instead of the rich information about other services and better quality therefore their focus was on the feature of lower price depending on their basic need. Roos and Gustafsson (2011) identified that influential trigger with price as switching determinant could herald unstable future customer relationship with current company whereas situational trigger with price as switching determinant would mean a strong future customer relationship. Consumer's price expectation and subsequent inclination to pay could be directly related to the offering's value expectation (Danes and Lindsey-Mullikin, 2012). In addition, for price conscious customers, companies should offer money back guarantees (Voss et al., 1998). Price promotion strategies including price deals can help companies in promoting brand equity as well (Villarejo-Ramos and Sanchez-Franco, 2005). As (Day, 2000) mentions that company pursuing strengthened customer relationship, needs comprehensive knowledge of customer base, thus telecom companies should take above-mentioned information into account while designing communication strategies.

As Kim and Ko (2011) identified that each customer is worth more than what he spends initially because he spreads word of mouth among his social circle therefore as we have witnessed in this study that most of the switches occurred due to family and friends' influence on the customer's decision so a service provider could actually communicate intensively to that specific customer regarding his specific needs and wants and in the process that customer could also spread positive word of mouth and could also potentially bring his friends and family in as new customers.

Active customers have chosen communication based on rich information, including company's numerous innovative and up to date offering and packages, irrespective of high or low prices. They mostly searched for detailed information proactively by themselves, instead of just getting influenced by social circle's opinions or competitors' promotional strategies. Their main reasons for switching were identified as availability of better services and unfeasible treatment by the company's personnel. Therefore, companies need to communicate active customers regarding latest offerings, and ensure best treatment and service.

6 Conclusion

Implications of this study impart the procedure to prevent the triggers from happening in the first place. Secondly, this study gives the opportunity to the telecom companies of increasing the long-term customer loyalty by communicating appropriately after identifying the active and passive customers. Cognitive process of customer switching behavior, based on triggers (Roos and Gustafsson, 2011), bears ominous consequences for telecom customer relationships. In order to control this switching process, telecom companies need to monitor and put a check on the switching determinants discovered through this research, by scrutinizing and exploiting the various sources of information, which are also shown in this study as used by customers to obtain the required information in order to base their switching decision, through customized written communication as chosen by active and passive customers in the third stage of primary research phase. For the first part, companies could use this study to identify the specific factors that particularly influence active and passive customers respectively, thereby controlling those specific factors through appropriate communication. Those factors are as follows: for active customers, most influential aspects are situational and reactional triggers in addition to the switching determinants of other/better service availability, unfeasible treatment by their previous company and availability of opportunity to evaluate several services advertised by various operators whereas for passive customers, most influential factors are influential trigger along with switching determinants of price, suggestion by family and friends, competitor's promotional actions, primary focus only on the basic services and availability of brief offerings details comprising prices as well. Customers switch service operators basing their decision on either active or passive communication through following information sources: advertisement, friends and family, and their own proactive research.

7 Limitations and Future Research

As an initial effort to link triggers and switching determinants with the right type of written communication, researchers faced difficulties in designing research instrument therefore future research should develop refined research instrument to measure the effective communication types and features. Further research also needs to determine the ratio of active and passive customers in order to decide upon directing the respective communication frequency. Moreover research is also required in the domain of specific social media features, which could successfully address the issues of preventing switching determinants from happening. Price factor and friends & family are two outstanding factors identified in this research that also need to be further explored in order to successfully cater the customers' need. And also, research should specify what procedure should be adopted after the trigger has happened to get customer back on track.

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Research on the Mechanism of Business Model Innovation and Enterprises Competitive Advantages*

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Abstract: By breaking the existing rules and make new value added operation, business model innovation leads enterprises to the strategic achievements. Aiming to explore the mechanism of business model innovation and enterprises competitive advantages, this paper summarizes what positive influence exert from business model innovation on enterprises resources and discusses how business model innovation help enterprises to seek sustainable competitive advantages based on both the Michael Porter's value chain model and five forces model.

Key words: Business model innovation; Enterprises' competitive advantages; Resource base value; Michael Porter's value chain; Five forces model

1 Introduction

Innovation is becoming more and more significant to enterprises of all sizes, in all areas and in all industries, since the changes of business environment are accelerating the generation of challenges and opportunities. Innovation in nature can be divided into two major categories: one is scientific and technological innovation which can be call original or source innovation referring to the new findings in the nature, and the other is business model innovation which can be called flow innovation referring to new value creation with the source.

As a type of discontinuous innovation, the main effort of business model innovation is not the creation of new technology, new product or new service, but to create new value, namely through the implementation of the new idea into the valuable activities to meet the customers actual needs and improve the quality of the people daily life and work. Sprouted in the internet industry, business model innovation has helped and supported a series of small and medium-sized enterprises in emerging industries to grow up as the potential business giant in the word, taking Alibaba, Paypal for example, moreover, it is extending to traditional industry and making enterprises striving to achieve the new transformation and many shopping malls have started their sell online is the obvious evidence for the changes. Therefore, investors usually regard business model innovation as one of the most economic potential index in the technology homogeneity competition period of this era. Business model innovation connotation and how business model innovation brings advantages to enterprises in the fierce market competition become the focus of attention, which attaches with great research value.

2 Overview of Business Model Innovation

In the 1980s, the concept of business model first began to appear in the reference texts of the IT industry dynamics, and until the Internet formed and became the enterprise electronic commerce platform in the middle of 1990s, business model soon gained attention in the business corporation word and gradually enjoys popularity in the scholars' field of economy and management. Theory research of business model innovation is the period of its infancy, although many aspects of business model innovation including its definition, influencing factors, realization path and the relative aspects such as the way of technological innovation synergy have been widely discussed by scholars at home and abroad, which means that the scientific theoretical system of business model innovation is not established. When it comes to the relationship between business model innovation and enterprise competitive advantage, the theoretical foundation can be summarized from there perspectives of enterprise strategy, business and market rule and value chain innovation.

2.1 Enterprise strategy perspective

Business model innovation is a kind of strategic innovation, through the whole or partial subversion of the nature of the competition in certain field to reconstruct enterprise existing business model and market, while greatly enhancing customer value and to achieve rapid growth of the enterprise

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itself ultimately, which leads to an achievement of the enterprise's strategy both in market and of its growth (Schlegelmilch et al, 2003)^[1]. Consisting of enterprise strategy elements analysis, innovation elements utility and income pattern design, business model innovation plays an important role in the investment pattern as a key connection and linkage among the three parts especially guarantee the income of the innovation elements and enterprise strategy (Diao Yuzhu, 2012)^[2]. In addition, from the Business model innovation including enterprise strategy analysis elements using the income pattern design three modules, and points out that the investment model of the important factors to guarantee the sustainable innovation of the enterprise business model, is connected to the revenue model and important link of enterprise strategic innovation elements, business model innovation can bring substantial advantages to an incumbent, which make it prefer to operate in a duopoly market rather than to remain a monopolist (Casadesus Masanell, 2013)^[3].

2.2 Business and market rule perspective

Business model innovation is to introduce profitable business model and break the existing rules of market, that is to say business model innovation upsets the existing business rules, and introduces new rules, through redefining customer segmentation criteria and customer demand, exploring the new way to production and delivery, and developing the new method to realize the new profit (Markides, 1998)^[4]. Starting from the concept of innovation, Tidd & Bessant (2012) proposed that innovation activities can be classified into four types: product innovation, process innovation, position innovation and paradigm innovation^[5]. Unlike other traditional types of innovation of product or process, business model innovation is a new paradigm of innovation, reflecting the impact of enterprise business potential change of thinking mode, from new entrants redefining and refactoring the rules of the business game and the unsolved problems of the market.

2.3 Value chain innovation perspective

From the perspective of value chain innovation, enterprise business model is a function of the value chain, and it can be regarded as a kind of innovation of enterprise value based on value chain activities and the integration to optimize all the stakeholders involved in order to realize enterprise excess profits of the set of institutional arrangements, therefore based on the theory of value chain innovation five basic types of business model and innovation methods: extension type of the value chain, split type of the value chain, extension and splitting type of the value chain and innovative mixed type of the value chain were put forward. Additionally, business model innovation can be regarded as a kind of different form of organizational innovation with the new reform process, which means the process of a new opportunity of development and utilization of enterprise level, and that once the gradual change and product innovation lags behind the exogenous discontinuity, organization management will be the use of business model innovation to face the higher level for a longer challenge (Book, 2010)^[6]. Value is often relates with time-consuming cost, considerable upfront investment, the research and development activities cost and the prize to obtain specialized resources, new plants and equipment and the uncertain future returns, enterprises now choose to implement business model innovation to escape the big bets in the product or process innovation to ensure the profit at a more certain level (Amit & Zott, 2012)^[7].

Business model innovation is based on the traditional innovation and beyond the traditional innovation and redefining and reconstructing the rules of the throughout procedure of the enterprise research and development, resources development, manufacturing, marketing system circulation system as a kind of new paradigm innovation, with the ultimate goal of improving the enterprise long-term competitive advantage and enhancing the long-term profitability of enterprises to make achievement of enterprise strategy in its growth on the basis of optimizing value chain inside and outside the enterprise.

3 Business Model Innovation's Impact from Resource Base View

In the face of new economic development, business model innovation has become a new and powerful weapon for the enterprise to cultivate its own core competencies, reduce cost and obtain sustained competitiveness in complex environment. As a mean of creating sustainable value, business model innovation impact on the enterprise competitiveness advantages are different in the short and long range of opportunities and challenges (Aagaard & Lindgren, 2015)^[8]. However, since the ability and performance is based on the resource in the enterprise, the resource base view can be adopted reasonably to conduct the analysis. In Schumpeter's view, innovation is the result of factor combination, and therefore, the resource is the foundation of the innovation value chain. The innovation of the enterprise business model should take the customer as the center, to adjust the optimize allocation of resources, with the concept of win-win cooperation to build all kinds of contact, constantly thinking of

its own business model system, adopt the appropriate way to adjust the business model innovation, in order to obtain sustainable competitive advantage. The sustainable advantages brought by business model innovation embodies in three dimensions in the resource base view.

3.1 Improvement of the efficiency of resource utilization

A great number of business model innovation are inspired by technology innovation, through interaction with technology innovation, improving the efficiency such as Google's myth is based on internet search technology innovation to build a new business model. Retail business model innovation and technology innovation interaction model of Wal-Mart by means of radio frequency identification (RFID) technology makes the goods out of stock rate was reduced by 16% and added speed is three times faster than with the bar code besides its store artificial order also decreased by 10%, stocks overall declining, thus greatly reducing the cost. On the other hand, through the integration of the value chain, business model innovation improve the utilization efficiency of the resources of the company

3.2 Full use of the idle resources in the enterprise by digging the implicit requirements

For startups or new undertaking startups, business model innovation comes from the grasp of the entrepreneurial opportunities and market opportunities. Through creative resources combination, business model innovation can help enterprises to transmit the possibility of a higher value to meet the market demand, which means opportunity refers to the potential market demand or not by use of the resources or capabilities. Work together with the new market paradigm, enterprises can dig out the dominant factors influencing the potential consumption from aspects of the external environment condition cognition and motivation consumers cultural factors, social factors and redefine the most leading factors to cultivate the different levels of potential demand, promote the potential demand gradually to become explicit, until finally activate the potential demand, which brings the opportunities of new profit margin and the idle resource allocation.

3.3 Positive feedback effect on enterprise resource integration ability

The appearance of business model innovation sometimes results from the promotion of resource integration capability, and through business model innovation strength enhancement, it further improves the ability of resource integration. Built in 1994, relying first on OEM and net fishing, franchise chain operation strategy knocking on the door to the market, Metersbonwe in China is the classical example of how business model innovation exerts positive feedback impact on the ability of resource allocation. Within five years, its assets from millions of rapid expansion to hundreds of millions of yuan, thus it further improves its ability to integrate resource.

4 Mechanism Analysis Based on Michael Porter's Framework

The success of business model innovation lies in the value it created for the customers and internal sources of innovation integrates well for business model innovation to generate sustainable competitive advantages (Souto, 2015)^[9], which establishes a solid foundation for introducing the framework of Michael Porter's value chain model to explore logic system to explain the mechanism of the role of business model innovation in enterprise competitive advantage.

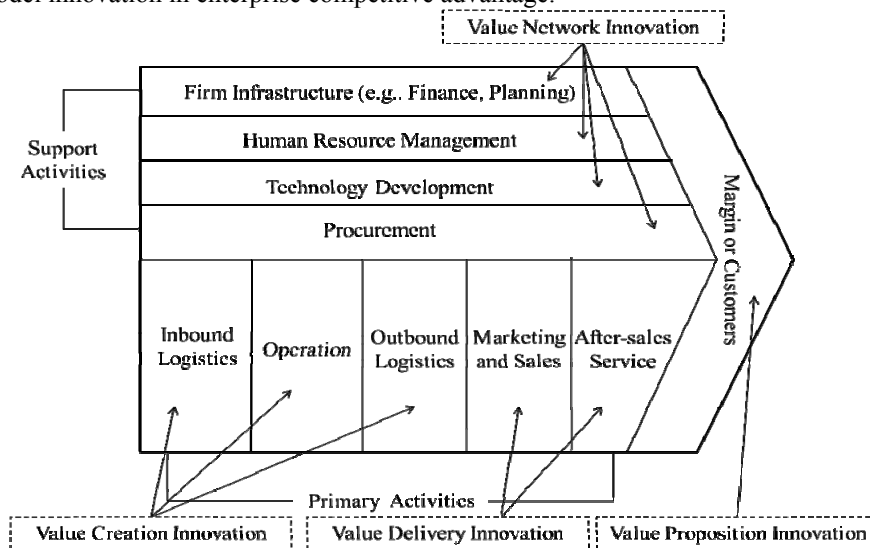


Figure 1 Business Model Innovation Mode under the Value Chain Framework

Based on the logic of primary activities and support activities in the value chain inside the enterprise, setting the meet of customers' demand as the core target and taking the three strategies including cost leadership strategy, differentiation strategy and centralization strategy into account, the business model innovation mode can be divided into four types, including value proposition innovation, value creation innovation, value delivery innovation and value network innovation (see Figure 1). Value proposition innovation mainly focus on the margin and customer and sales links and with the function of defining target customers need and digging the potential and valuable need. Value creation innovation mainly relates with inbound logistics, operations and outbound logistics links and with the function of innovating operation or cooperation mode with upstream and downstream firms and redesigning the cost structure. Value delivery innovation mainly occurs in the marketing and sales and after-sale service links and with the function of innovating distribution channel and service mode. Value network innovation is as the connection and bound inside the enterprise, mainly influencing on support activities links and with the function of defining partnership to innovate the network configuration.

In a more macro point of view, Michael Porter's five forces framework is adopted to make a further discussion of the mechanism of business model innovation and enterprises competitive advantages. Shown as figure 2, value proposition innovation mainly exerts effort on customer value chain from the demand force, value creation innovation mainly exerts effort on suppliers value chain from the supply force and enterprise inner value chain from the competitor force in the same industry, value delivery innovation mainly exerts effort on the sales channel value chain and customers value chain from both the demand force and the competitor force in the same industry, and value network innovation exerts effort on the whole system including the forces of potential entrants and substitutes manufacturers.

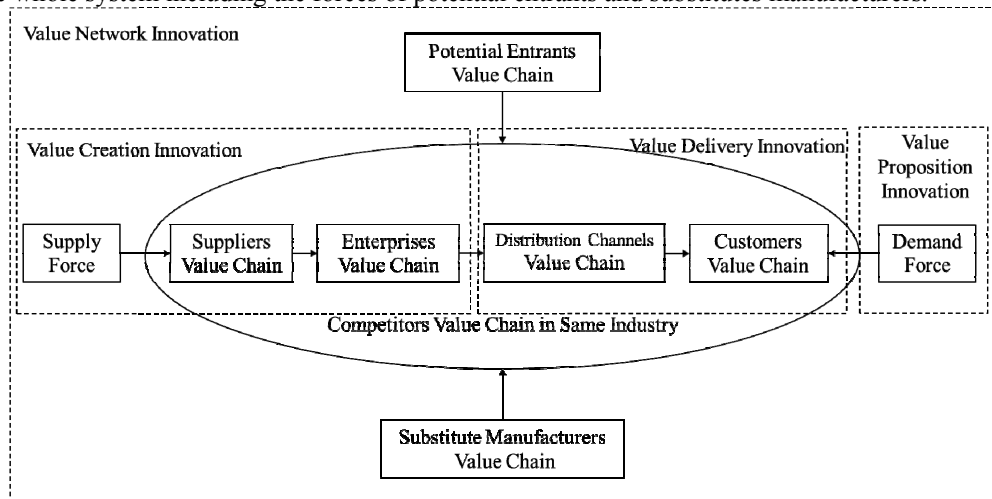


Figure 2 Business Model Innovation Mode under the Five Forces Framework

4.1 Value proposition innovation and advantages

Clear, unique and consistent value proposition is the key to the success of business model innovation, of which the unique value of products and services for consumers is the sum of a series of vested interests customers can perceive. Based on the customers' value chain, enterprises are encouraged to develop strategies on their own core competence and strategic resources, continuously strengthen and maintenance to cultivate and to effectively communicate their core identity and values to customers, which helps to obtain competitive advantages from the demand forces since they regard customer value as the center and create the most enduring value for customers.

4.2 Value creation innovation and advantages

To sustain enterprises advantages in both supply forces and competitors in the same industry, enterprises are supposed to make good and smooth performance in the links of inbound logistics, operations and outbound logistics by value creation innovation mode. Namely, it promotes the activities of business process reengineering, but also to the enterprise external activities to create value for reconstruction. In this part, it reflects the introduction of strategic approach to the history of enterprise strategy and economic interests of the basic value chain positioning play a key role in value creation. Combing with the technical innovation results, cost leadership and differentiation competitive advantage are more likely to cultivate in the value creation innovation process.

4.3 Value delivery innovation and advantages

The 'last mile' logistics is a fishable terms in e-commerce competition, which put the emphasis on the customers value perception. Value delivery innovation is the enterprise product and service innovation patterns of distribution and passed to the target customers' communication activity, the purpose of it is to facilitate the target customer easily to buy and to understand the enterprises' products or services. While the value creation reflects the enterprises' specific value-added ability, the value delivery is the ability to measure enterprise value output, determining the value finally perceived by customers from enterprises. Additionally, it can decrease delivery cost by cutting up the sales chain and increase the customers' perceived value by creating enjoyable utilization experience and after-sales service in order to obtain enterprises advantages.

4.4 Value network innovation and advantages

In the view of value network, the inner value network innovation means to seek a better way to implement all of the support activities from financing management, organization structure, human resource management, IT operation system and so on and the outer value network innovation needs to find a win-win profit mechanism and design a suitable and inclusive partnership mode to guarantee the different enterprises to implement three-dimensional cooperation and multi-dimensional innovation. The network connection provides a dynamic organic system of value breaking the stereotype of competition, but based on win-win idea of close cooperation to achieve complementary advantages, core competence and risks and costs, market share and revenue in the open economic environment, market competition by the enterprise value of direct confrontation to the network's overall.

5 Conclusion

In this fast changeable and competitive era, business model innovation is a suitable way for all kinds of enterprises in all areas to seek sustainable advantages in competition. Based on the resource base view, business model innovation can improve the efficiency of resource utilization, help to make full use of the idle resources in the enterprise by digging the implicit requirements and exert positive feedback effect on enterprise resource integration ability. Through introducing the value chain inside the enterprise and taking the three strategies including cost leadership strategy, differentiation strategy and centralization strategy into account, the business model innovation mode can be divided into four types: value proposition innovation, value creation innovation, value delivery innovation and value network innovation and in the five forces framework the mechanism of business model innovation and enterprise competitive advantages is discussed, which reveals business model is more like a bridge that crosses from the core competence and enterprise competitive advantage. The competitive advantages at the same time bring the achievement of goals of enterprise strategy, enterprise development, in turn, through the adjustment of business model will further speed up the core competence of enterprises.

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The Mediating Effect of Technological Innovation Capability on the Relationship Between Organization Learning Capability and Firm Performance

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Abstract: Several researchers contemplate that technological innovation capability is the key for building sustained competitive advantages and improving firm performance in the globalized and dynamic business arena. Thus organizations attempt to improve their learning capability to enhance their technological innovativeness. Many prior research findings also reflected that organizational learning capability is the direct determinant of firm performance. However, the significance of technological innovation capability as the mediating variable to improve firm performance is not well investigated. Hence, this paper aims to fill the gap by explaining the mediating role of technological innovation capability on the relationship between organizational learning capability and firm performance. The paper represents a step up in linking organizational learning capability and firm performance by proposing a conceptual model.

Key words: Technological innovation capability; Organizational learning; Firm performance

1 Introduction

While the new competitive landscape's uncertainty, dynamism and volatility is scary environment to some firms, it is bestowed with multiple product-market mix growth opportunities for firms with high degrees of learning and technological innovation capabilities (Barringer & Bluedorn, 1999). The survival and prosperity of firms in this dynamic and complex era thus depends on building capabilities that minimize the negative effects of discontinuities, uncertainty, and ambiguity and simultaneously creating dynamic core competencies to exploit the opportunities (Hitt et al 2000).

When markets shift, technologies proliferate, competitors multiply and products become obsolete almost overnight, successful companies are those that consistently create new knowledge (Hitt et al., 2000) and renew their technological innovativeness (Barney et al., 2001). In line to this point, previous studies showed that both organizational learning capability (Jerez-Gomez et al., 2005; Chiva et al., 2007; Alegre & Chiva, 2008; Kocoglu et al., 2011; Onag et al., 2014) and technological innovation capability (Jonker et al., 2006; Wang et al., 2006; Ortega, 2010; Camison & Villar-Lopez, 2014) have positive effect on firm's performance.

Generally, in literature the organizational learning capability and (Martinez-Costa & Jimenez-Jimenez, 2009) and technological innovation capabilities (Barney et al., 2001) are accepted as the bases to gain sustainable competitive advantages and better firm performance. However, the significance of technological innovation capability as the mediating variable to improve firm performance is not well investigated. Hence, this paper aims to fill the gap by explaining the mediating effect of technological innovation capability on the relationship between organizational learning capability and firm performance.

2 Theoretical Background

2.1 Organizational learning capability

Organizational learning capability (OLC) is defined as the organizational and managerial characteristics, practices, skills or factors that facilitate the learning processes. The processes include generating, acquiring, disseminating and integrating of information/knowledge and modifying its behavior to reflect the new cognitive situation in view of improving its performance (Jerez-Gomez et al., 2005). It is also the ability to assimilate new ideas from others and from past experience and translate these ideas into viable action faster than competitors (Yeung et al., 1999).

Some scholars believe that competition is becoming more knowledge-based and argue that the sources of competitive advantage are shifting from the physical assets view to the intellectual capabilities (Subramaniam & Venkatraman, 1999). Consequently, the ability to develop, nurture and exploit competitive advantages depend on the firm's ability to create, diffuse and utilize knowledge throughout the company (Hitt et al, 2000). Thus learning capability enables firms to develop, maintain

and exploit dynamic core competencies (Hitt et al., 2000).

2.2 Organizational learning capability and technological innovation

In literature the idea that innovation is a competitive instrument for firms' long-term success and survival is widely recognized (Santos-Vijande & Alvarez-Gonzalez, 2007). Organizations fit to the changing conditions of the technology and the market by diversifying, adapting, and even rejuvenating or reinventing through innovation (Santos-Vijande & Alvarez-Gonzalez, 2007). Technological learning provides a base of knowledge upon which innovations can be developed (Zahra et al., 2000).

Furthermore, learning promotes the accumulation of knowledge and its applications (Weihong et al., 2008), creates a medium of communication and interaction for knowledge sharing within the organization (Jerez-Gomez et al., 2005), and enables the collection of timely and accurate information from external sources (Akgun et al., 2013). The organizational learning capability is also considered as an asset that aids firms to transform and exploit their resources towards technological innovations (Amara et al., 2008). Besides, the breadth, depth and speed of technological learning leverage the ability to integrate organization specific technologies and technological skills that equip the firms in the technological learning process to adapt quickly to the changing environment (Lin, 2003).

Additionally, a comprehensive investigation on the relationship between learning and technological innovation capability confirmed that commitment to learning pays a lot. It enhances dedication to innovation, gives the opportunity to own state-of-the-art technology, improves the knowledge and ability to understand and anticipate customer needs, and builds the capability of learning from their success, failure and competitors (Calantone et al., 2002). Studies by (Alegre & Chiva, 2008; Onag et al, 2014) also stated that organizational learning capabilities has a positive impact on firm's technological innovation capability.

2.3 Technological innovation capability and firm performance

The commonly accepted innovation classification by OECD (2005) distinguishes innovation in to product, process, marketing, and organizational innovations. It further groups the product and process innovations under technological innovation and marketing and organizational innovations under non-technological innovation. Product innovation is pertained with the introduction of a new or significantly improved product (Damanpour & Gopalakrishnan, 2001; Wang & Ahmed, 2004; OECD, 2005). On the other hand process innovation involves the introduction of new production methods, new management approaches, and new technology that can be used to improve the production and management processes (Wang & Ahmed, 2004; OECD, 2005; Onag et al 2014). In view of this, technological innovation capability is described as the ability to perform any relevant technical function or volume activity within the firm, including the ability to develop new products and processes, and to operate facilities effectively (Teece et al., 1997).

The objective of product innovativeness is to respond to customers' demand for new products or executives' desire to capture new markets (OECD, 2005; Damanpour, 2010). Inherently, it enables the organization to differentiate its products (Porter, 1985) and modify the offers to the outside world (Bessant et al., 2005) which is difficult to be imitated by other organizations (Gonzalez-Alvarez & Nieto-Antolin, 2005). On the contrary, process innovation is internally focused (Martinez-Ros, 2000) and orientated towards efficiency and reduction of the delivery lead-time and operational costs (Damanpour, 2010). It facilitates firms to follow cost leadership strategies (Porter, 1985). The synergistic interrelationship between these innovation capabilities allows firms to achieve competitive advantage both from differentiation and cost leadership strategy perspectives. Therefore the technological innovation capabilities are core resources to create and sustain the competitive advantages of the firm (Barney, et al., 2001). This in turn results in superior firm performance (Camison & Villar-Lopez, 2014). Research results (Jonker et al., 2006; Wang et al., 2006; Ortega, 2010) furthermore confirmed the positive effect of technological innovation capability on firm performance.

2.4 Organizational learning capability and firm performance

Organizational learning, as the source of knowledge creation and knowledge as the unique, inimitable and infinite resource, is emphasized as an important factor in the achievement of competitive advantage (Kocoglu et al., 2011). In literature the organizational learning is accepted as a base for gaining a sustainable competitive advantage and improved firm performance (Martinez-Costa & Jimenez-Jimenez, 2009). Ellinger et al. (2002) examined the effects of factors like continuous learning, inquiry and dialogue, collaboration and team learning, empowerment of people towards collective vision, connection of organization to its environment and the leadership support on the financial measures of performance. Their research result illustrated a positive association between organizational learning practices and firm's financial performance.

Baker and Sinkula, (1999) stated that knowledge creation through generative learning to create core competency, developing flexible strategy by questioning of ineffective strategy, realization of innovative disruptions as customer satisfaction maximization tool rather than customer feedback are some of direct and positive influences of learning. The positive influence of organizational learning on firm performance is further stated by (Martinez-Costa & Jimenez-Jimenez, 2009). They argued that Organizations better at learning get a better chance of sensing events and trends in marketplace which will in turn lead to better sales and increased market share, build more flexible and responsive structure to respond to new challenges faster than the competitors, and gain fast improvement of market information processing activities. In line with this Chaveerug & Ussahawanitchakit (2008) claimed that the greater commitment to learning, the more likely that firms will achieve higher organizational performance. Moreover studies by (Jerez-Gomez et al., 2005; Chiva et al., 2007; Kocoglu et al., 2011; Onag et al., 2014) showed a strong positive influence of organizational learning on firm performance.

3 Conceptual Model Development

Based on the above discussion, a conceptual framework is developed to show the relationship between Organizational learning capability and firm performance using technological innovation capability as its mediating variable.

Technological innovation capability enables firms to develop inimitable new product (Gonzalez-Alvarez & Nieto-Antolin, 2005) at low cost (Damanpour, 2010) leading to the differentiation and cost leadership strategies. Similarly Organizational learning capability is the source of unique, inimitable and infinite knowledge creation(Kocoglu et al., 2011) enabling firms to develop, maintain and exploit dynamic core competencies (Hitt et al., 2000). Based on the Resource Based view theory both organizational learning capabilities (Hitt et al., 2000) and technological innovation capabilities (Barney et al., 2001) are core resources for sustainable competitive advantages which lead to superior firm performance. On the other hand, Organizational learning capability provides a base of knowledge upon which technological innovations can be developed (Zahra et al., 2000; Calantone et al., 2002; Lin, 2003; Amara et al., 2008). Therefore, organizational learning capability has both direct and indirect effect through the enhancement of technological innovation capability to improve firm performance. Thus considering the concepts that we have analyzed in this paper, the possible relationships between them and the need for further research, we propose the following conceptual model (figure1).

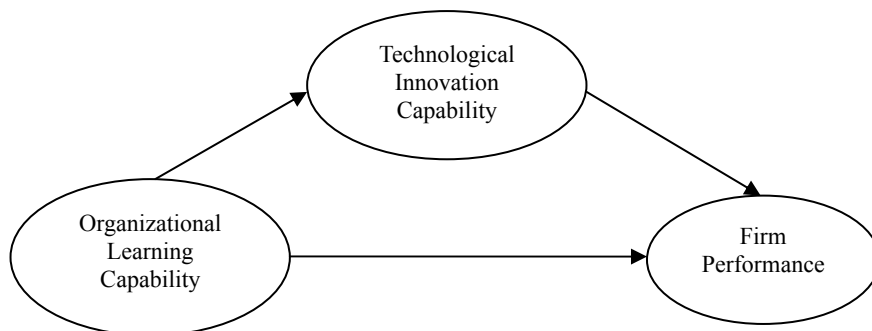


Figure 1 The Mediating Effect of Technological Innovation Capability between Organization Learning Capability and Firm Performance

Based on the description above, the concept develops the relationship between organizational learning capability and firm performance by using technological innovation capability as its mediating variable. Hence our assumption, the direct influence of organizational learning capability towards firm performance can be enhanced through technological innovation capability.

4 Conclusion

Both Organizational learning and technological innovativeness are concepts that are treated extensively in the literature and also concepts over which many different perspectives have been proposed. Through the conceptual model that we have proposed in this paper, we aim to test, through further research and hypotheses regarding the mediating role of technological innovation capability on the relationship between organizational learning capability and firm performance.

Firms create and/or acquire knowledge from both internal and external sources through

organizational learning. Furthermore, Organizational learning capability provides a base of knowledge upon which technological innovations can be developed. It in turn enables firms to develop unique product at reasonable cost. Therefore, based on the resource based view theory organization learning capability is, directly and indirectly by enhancing technological innovation capability, a source of core competencies and ultimately sustained firm's competitive advantages.

Although the relationship between organizational learning capability and firm performance has been developed in this conceptual model, it has some limitations. First, it should be tested to see whether it is valid or not. Second other factors that affect the technological innovation capability need to be also explored. These limitations besides constitute directions for further research.

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Reform and Construction of Corporate Governance of Broadcasting Organizations in China: Based on Hunan's and Shanghai's Experiences*

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Abstract: Based on cases studies on the GBS/HBS in Hunan and the SMEG/SMG in Shanghai, this article analyzes two different reform models of corporate governance of broadcasting organizations in China under the circumstance of the separation reform of production and broadcasting since 2009, and points out that the choose of reform model is closely related to the development level and resources condition of broadcasting organization. However, after the formal separation reform, broadcasting organizations have not construct modern corporate governance until now, and there still exists no distinction between enterprise management and public institution administration, unclear responsibilities, lack of checks and balances mechanisms, and weak market governance mechanisms. Therefore, this article proposes some solutions of corporate governance problems in broadcasting organizations, including improving state-owned broadcasting assets management system, clearly defining rights and responsibilities among internal governance agencies, developing election, incentive and restraint mechanisms of managers, and establishing healthy market governance mechanisms.

Key words: Separation of production and broadcasting; Broadcasting organization; Corporate governance; Reform model

1 Introduction

Although broadcasting organizations had implemented “public institution, enterprise management” from 1978 to the beginning of the 21st century and have been operated in market economy since the reform and opening up started in 1978 in China, they had been trapped by administrative system because of their identity of public institutions and strong ideological attribute for a long time. As a result of long-time combination of governments, public institutions and enterprises in broadcasting, corporate governance of broadcasting organizations had shown obvious administrative governance features, such as “administrative resources allocation, administrative operation objectives and administrative personnel arrangement”(Li Weian & Wu Lidong,2002), and administrative intervention of governments instead of the internal governance mechanisms in broadcasting organizations. Those are the reasons why broadcasting organizations cannot participate in market competition as independent subjects.

The status has been changed since 2009. In August 2009, the State Administration of Radio, Film, and Television issued “Opinions on promoting the reform of separation of production and broadcasting”. Since then, separation reform was officially launched in China, and broadcasting in China has entered into a new stage.

Actually, “Separation of production and broadcasting” has attracted great attentions since the late 1990s in China, and has been closely related to broadcasting system and mechanisms reform(Zhu Hong & Li Gang,2009), broadcasting industry development (Zeng Xiangmin & He Qin, 2009; Lu Han, 2010) and broadcasting regulation (Gu Yifan,2009). The majority of literatures on separation of production and broadcasting hold a positive and supportive attitude. However, there are still some scholars have queried the prospect of separation of production and broadcasting (Yin Hong,2010; Lu Di,2000). Based on clarifying the connotation and conditions of separation of production and broadcasting (Lu Di, 2000; Gu Yifan,2008) and summarizing some current reform models, these scholars have believed there were numbers of theoretical and practical problems needed to be solved, and then they have proposed some solution ways, such as establishing relevant regulations, developing broadcasting program market and promoting pay TV and specialty channels. Because the separation of production and broadcasting has still stay in the exploratory stage, numbers of articles are mainly focused on industry and policy issues at

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macro level, ignoring individual practices and internal mechanisms of broadcasting organizations.

One important goal of current reform of separation of production and broadcasting is “(broadcasting organizations’) transformation to enterprises, and cultivation of market subjects”. Therefore, as the core content of modern enterprise system, corporate governance of broadcasting is critical to the separation reform. Under the background of separation reform, broadcasting organization needs to integrate the broadcasting platforms and propaganda departments to the broadcasting station, and peel program production, advertising and other operating assets to the media companies, and then media companies can participate in market competition as market players. In the process of separation reform, broadcasting organizations in Shanghai, Hunan, Zhejiang, Jiangsu and other provinces have been transformed to media enterprises as well as established corporate governance according to the basic framework of modern enterprise system, and it presents two different reform models of corporate governance.

Based on what discussed above, this article will analyze the processes, reasons and problems of two reform models of corporate governance of broadcasting organizations under the background of separation of production and broadcasting by studying two representative cases as GBS/HBS in Hunan and SMEG/SMG in Shanghai, and expect to put forward some counter-measures.

2 GBS/HBS: Extensive Reform of Corporate Governance

Influenced by the media conglomeration began in 1999, the Golden Eagle Broadcasting System (GBS) was found as the first provincial broadcasting group in China. GBS is located in Changsha, the capital of Hunan province, and was launched on December 27, 2000. Hunan Satellite TV, Hunan Economic TV, Hunan people’s radio station and a number of film and television production companies are all GBS’s branches and subsidiaries.

The corporate governance of GBS under the current separation reform is constructed mainly through extrinsic capital operation. Since 2009, GBS has frequently collaborated with SNDA, Taobao and Qinghai Satellite TV, setting up subsidiary companies by joint contribution to do some cross-media and cross-regional capital operation. While realizing the convergence of traditional media and new media and extending the industrial chain, this reform has also improved ownership structure, financing functions and internal governance structure of GBS through extrinsic capital operation and joint venture companies. Obviously, this reform model is formed through activating the internal mechanisms by external market.

In January 2010, the Hunan Broadcasting System (HBS) was separated from the Radio, Film & TV Bureau of Hunan Province, and GBS which took both broadcasting operation and administrative functions was revoked. Then, in June 2010, the HBS and the Mango Media Ltd. were officially established. HBS is a department-level public institution, managing Hunan Satellite TV, Hunan Economic TV and other provincial radio and television stations which was belong to the former GBS according to “unifying propaganda, unifying personnel arrangement, unifying financial assets, unifying marketing, and unifying technology”. Mango Media which is the wholly-owned enterprise of HBS has independent legal personality, and the operating assets from more than 60 companies which were belong to the former GBS, such as Huaxia Film, Happy Sunshine, EE-Media, Happigo and Mango TV, will enter into Mango Media. However, this round of reform did not show an effective performance, and Mango Media did not enter into substantive stage of operation for a long period as well as did not set up modern corporate governance structure.

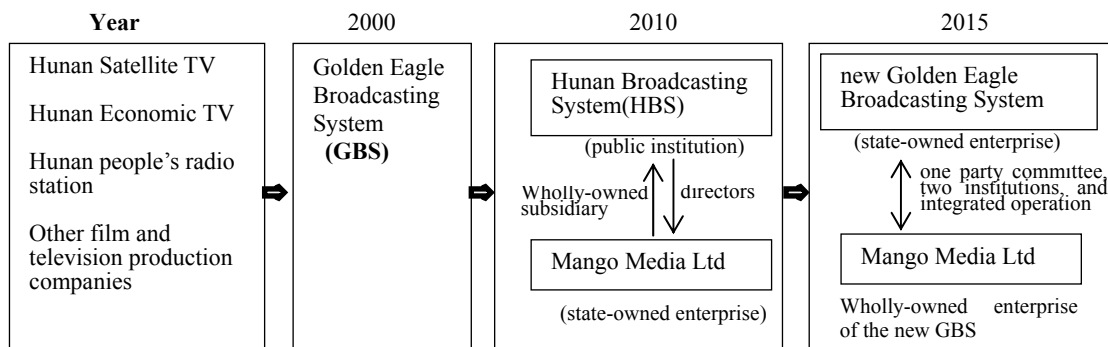


Figure 1 Reform and Construction of Corporate Governance of the GBS/HBS since 2000

Since 2015, HBS has embarked on the road of a new round of reform. In April 2015, HBS announced it completed the transformation to enterprise, and it will be integrated with the Mango Media to establish a new Golden Eagle Broadcasting System, and the new GBS will be listed on June 30, 2015. After the listing, the new GBS will adopt the model of “one party committee, two institutions, and integrated operation”. In this context, how does the new GBS build its corporate governance still remains to be seen.

3 SMEG/ SMG: Self-dependent Reform of Corporate Governance

The Shanghai Media & Entertainment Group (SMEG) was established by integrating Shanghai People’s Broadcasting Station, Shanghai Dongfang Radio Station, Shanghai Television, Dongfang TV, Shanghai Cable Television Station, and other institutions in August 2001. Since then, SMEG has experienced several rounds of reform, and it has become a representative sample of broadcasting reform in China.

In October 2009, approved by the State Administration of Radio, film and Television, SMEG firstly started separation reform in Chinese broadcasting groups, and split the group to two parts: one is the Radio and Television Shanghai, the other is the Shanghai Media Group (SMG). In the reform process, the broadcasting channels and news departments of SMEG had been put into Radio and Television Shanghai which is a public institution led by the Propaganda Department of Shanghai Municipal Party Committee and managed by the Shanghai Municipal Administration of Culture, Radio, Film & TV, and separated operating assets from the public institution and then transfer these assets to SMG which is owned by Radio and Television Shanghai. Therefore, the build of corporate governance of SMEG in the separation reform is realized through internal split.

As a wholly-owned enterprise of the Radio and Television Shanghai, SMG initially construct a corporate governance structure including party committee, board of directors, board of supervisors and managers. Firstly, as the owner of SMG, Radio and Television Shanghai holds decision-making rights on major issues, control rights of assets allocation, appointment and removal rights of managers, editing rights, censorship rights and broadcasting rights of SMG. Secondly, the managers and party committee leaders in SMG and its subsidiaries should be approved and observed by Radio and Television Shanghai and the higher authorities to implement the principle of party’s management of cadres. Thirdly, as to the content management, Radio and Television Shanghai set up a program editorial committee to exercise final censorship to SMG and its subsidiaries, and as the owner and the controlling shareholder of SMG, Radio and Television Shanghai has veto power to major decisions of SMG related to propaganda and cultural security.

In March 2014, the SMG started a new round of system reform. On March 31, 2014, the new Shanghai Media Group(SMG) was established through integrating the former SMEG, Radio and Television Shanghai and the former SMG.

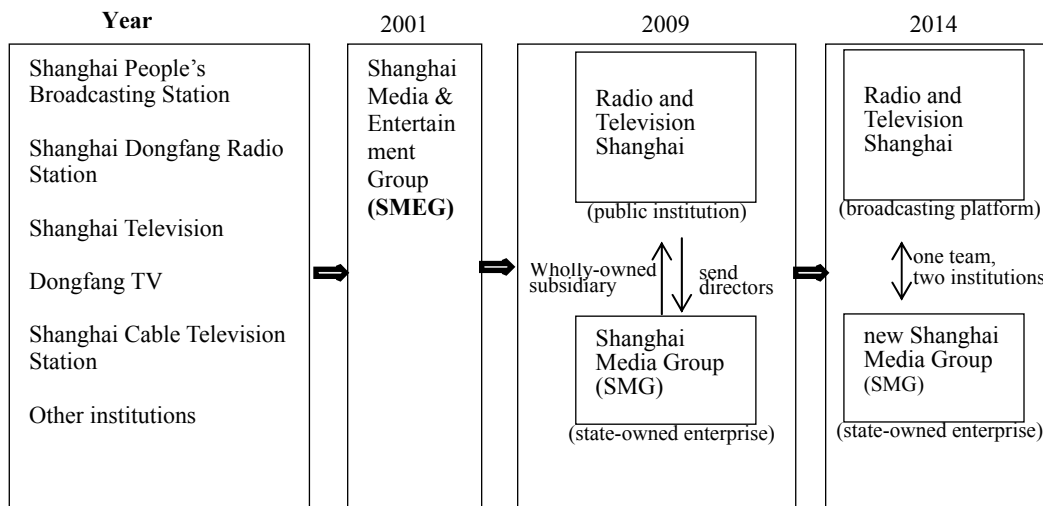


Figure 2 Reform and Construction of Corporate Governance of the SMEG/SMG since 2001

The public institution of the Former SMEG had been revoked and transferred into the state-owned

enterprise SMG. In this process, the corporate governance structure of SMG also needs to be reformed. On the one hand, the most important content in corporate governance reform in SMG is the secretary of the party committee holds a concurrent post of the chairman of the board of Radio and Television Shanghai and the chairman of the new SMG in order to realize the combination of the public opinion's leading and board building; On the other hand, the new SMG has tried to improve corporate governance and promote market-oriented selection and appointment mechanisms of managers, checks and balances mechanisms and incentive mechanisms through the reorganization of its subsidiary listed companies.

4 Reasons and Problems of Corporate Governance Reform Models of Broadcasting Organizations

The formation of two different reform models of SMEG/SMG and GBS/HBS is closely related to the development level and resources condition of these two groups.

For the SMEG/SMG is concerned, it had already completed separation of administrative bureau from the organization, and established an unified management platform for the Group and integrated different departments such as TV drama, news, radio, entertainment, sports before 2005. Therefore, it is an easier way for SMEG/SMG to make an internal split.

As to the GBS/HBS, it had formally completed separating of broadcasting stations from administrative bureau until early 2010. As a result, GBS/HBS was influenced by the Radio, Film & TV Bureau of Hunan Province at the beginning of the separation reform. Moreover, Hunan television stations had launched decentralization reform to increase decision-making autonomy of channels directors in the early years, which brought rapid development as well as serious internal frictions because long-term decentralization had created a new pattern of interests. Although Hunan television stations tried to realize integration in recent years, the effect was not obvious. Therefore, it is more feasible for GBS/HBS to rely on external market forces to realize the separation reform and construct modern corporate governance.

Overall, after the completion of separation of production and broadcasting, either extensive reform model or self-dependent reform model did not build an ideal or good corporate governance structure. One important reason is that the administrative governance tradition still remains strong influence, and lots of broadcasting organizations have encountered many difficulties in their construction of modern corporate governance.

From the perspective of internal organization, the popular and mainstream way of separation reform is to put news departments and broadcasting channels into public institution which is usually called "broadcasting station", and split operating assets to media companies, and "broadcasting station" acts as owner and sponsor of media companies ingenerally. As a result, "broadcasting station" and media company usually have been operated together although looks like separately, and cross-holding, related transactions, cross-use of public facilities happens often, which leads to the concentration of power and the weakening of supervision.

From the perspective of external governance mechanisms, the broadcasting market has usually been administrative monopoly market and reflected in the closed product market, capital market and manager market. More importantly, directors and managers of broadcasting organizations are usually directly appointed by the government but not through market. Therefore, from the practical status of current corporate governance of broadcasting organizations, it is difficult to form constraints and incentives mechanisms to managers in broadcasting organizations through market competition, and the external market governance mechanism seems harder to play a role in corporate governance of broadcasting organizations than the internal governance mechanisms.

5 Conclusion

This article makes a detailed analysis on two reform models of corporate governance of broadcasting organizations in China based on cases studies on the GBS/HBS and the SMEG/SMG. One is GBS/HBS, its corporate governance reform has been constructed through external capital operation; the other one is SMEG/SMG, it tried to promote corporate governance reform through internal split of public institution and enterprise. Nevertheless, there still exists no distinction between public institution and enterprise, lack of checks and balances mechanisms and weak market governance mechanism. This is mainly due to the strong influence from political and administrative system to institutional arrangement of corporate governance of broadcasting organizations in a long time.

In order to resolve these problems, we must explore reform path from both system and mechanisms

dimensions. Firstly, in order to adapt to the socialist market economic system and promotion of the transformation of broadcasting organizations to enterprises, state-owned broadcasting assets management system with clear responsibilities and independent to governments should be established. Secondly, media companies should get rid of the influence from the traditional administrative governance structure, and the party committee, workers' congress, labor union, board of directors, board of supervisors and managers of media companies should perform their own functions and responsibilities in order to make the decision-making agency and the executive agency independent to each other, and make checks and balances mechanisms more effective. Thirdly, media companies should combine party's management of cadres with manager market according to Company Law and State-owned Assets Law, and establish reasonable incentives and punishment mechanisms. Last but not the least, for the sake of getting out of the locking traditional administrative governance, internal reform is not enough and the external forces is necessary to the construction of corporate governance of broadcasting organizations. Therefore, as the basic resource allocation method in the market economy, market mechanisms should receive more attention.

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Research on Marketing Channel Choice for Offline Physical Stores of Panasonic Based on Customer Resources

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Abstract: The appliance industry, one of pillar industries in national economy, plays an important role in the economic development. As to find key impact factors of marketing channel choice on retail stores of Panasonic and effect degree and put forward countermeasure finally, the paper shows an investigation regarding Panasonic customers for the influence of marketing channel choice for offline physical stores, with data statistics by SPSS and model construction regarding Panasonic customers for the influence of marketing channel choice based on multiple linear regressive model as well as correlation test.

Key words: Household appliances; Electrical appliances; Panasonic customer resources; Marketing channel choice model

1 Introduction

As an important industry of China's second industrial manufacturing industry, the household appliance industry plays an important role in China's socialist market economy. To construct and maintain the efficient marketing channel system is the key to have the sustainable competitive advantage in the current fierce competition and product homogeneity market environment. And these factors during purchasing process, such as the performance of the education level, the purchase frequency and purchase time and habits, are more and more obvious for the channel selection. The behaviors based on customer resources of marketing channel choice behavior of the enterprise entity, can provide guidance for enterprises with developing multi-channel marketing strategy and help enterprises to increase channel coverage, enhance customer satisfaction and maintain a long-term customer relationship. In this paper, Panasonic electric appliances as the research object, in order to build a selection model with suiting the entity marketing channel of Panasonic electric appliances, through the quantitative research on the relationship between the entity marketing channel and the customer resource.

Formarketing channel choice at home and abroad, there is no combination with the household appliance industry, no distinction for the household appliance industry under different scale and marketing environment as well as no research on marketing channel selectionwithout combining with the key factors of custom resources, which are the main point of this article.

2 Model Construction Principle

In this paper, we analyze the influence of customer resources (customer age, gender, income, occupation, purchase performance, etc.) of Panasonic electric appliances for shopping place selection by using multiple linear regression model. A linear regression model will be established following the impact factors of the selection of shopping place, which are customer gender, age, occupation, educational level, family income, purchase frequency, purchase time and consumption expenses: Y said the store selection, X_1 said customer gender, X_2 said customer age, X_3 said the customer occupation X_7 said the customer purchase time and X_8 said customer consumption costs, where $b_1b_2b_3 \dots b_7$ and b_8 said unknown coefficient, a said post fit residuals and $E(a) = 0$,which is independent on the three independent variables.So, establish the model:

$$Y = a + X_1 * b_1 + X_2 * b_2 + X_3 * b_3 + X_4 * b_4 \dots X_8 * b_8$$

3 Data Test

3.1 Reliability test

The greater coefficient of reliability is, the higher internal consistency is, the more reliable test scores, and vice versa. The reliability analysis method of the data of this investigation is the Cronbach's α method. After the questionnaire data were tested for SPSS reliability and draw the following table:

From the above table, we can conclude that the reliability of the questionnaire data is 0.732, which

is more than 0.6. One of the ages, occupations, consumption cost of Cronbach's α is more than 0.6 of the value of the system, the other items of the Cronbach's α are also between 0.4-0.6, which indicates that the internal consistency of data is good.

Table 1 Reliability Statistic

Cronbach's Alpha	Cronbachs Alpha based on standard terms	Number of terms
.614	.732	9

Table 2 Cronbach's

Item	Deleted Cronbach's Alpha values
Gender	.624
Age	.744
Occupation	.734
Educational status	.589
Family income	.519
Purchase frequency	.476
Purchase time	.685
Consumption cost	.870
The store choice	.614

3.2 Validity test

Validity is the ability to reflect the intent of designer---by expressing the intention with the specific problem, and the relevant issues to be expressed by the form of a module---of the questionnaire to be understood by the investigators, that is, whether the questionnaire can effectively measure the variables (as the purpose of identification, evaluation and forecast), and the extent of the problem is accord with the concept of the actual problem to be researched. The validity mainly includes the surface validity, discriminant validity and construct validity.

Table 3 The Test of KMO and Bartlett

Kaiser-Meyer-Olkin measure of sampling		.789
Spherical degree test of Bartlett	Approximate chi square	368.749
	df	36
	Sig.	.000

From the above table, we can see that coefficient is more than 0.7, which indicates that the validity of the questionnaire is good and is suitable for the analysis of the factors.

4 Results

4.1 Preliminary build model

The 8 impact factors were set as independent variables, using $X_1, X_2, X_3, \dots, X_7, X_8$ and the store choice were set Y as dependent variable. A multiple linear regression model was fitted by the least square method, and the regression coefficient was calculated by the mathematical software SPSS.

Table 4 Table of Regression Coefficient

Model	Non standardized coefficient		Standard coefficient	t	Sig.
	B	Standard error	Trial version		
(constant)	6.348	1.045		6.075	.000
Gender	.061	.267	.017	.230	.818
Age	-.096	.125	-.085	-.773	.441
Occupation	.042	.069	.065	.599	.023
1 Educational status	-.378	.160	-.212	-2.364	.020
Family income	.384	.171	.227	2.251	.027
Purchase frequency	-.922	.224	-.565	-4.122	.000
Purchase time	-.342	.231	-.143	-1.479	.143
Consumption Cost	.294	.135	-.262	-2.183	.032

Dependent variable: the store choice

So the Y to the variable equation of the independent variable is obtained.

$$Y = 6.348 + 0.061X_1 - 0.096X_2 + 0.042X_3 - 0.378X_4 + 0.384X_5 - 0.922X_6 - 0.342X_7 + 0.294X_8$$

4.2 Goodness of fit test

The fitting degree of the model is tested by the mathematical software SPSS to calculate the coefficient of determination *R* square and the adjusted coefficient of samples can be determined.

Table 5 Model Summary

Model	<i>R</i>	<i>R</i> party	Adjust <i>R</i> party	The standard estimate error
1	.725 ^a	.526	.484	1.247

Prediction variable: (constant), consumption cost, age, gender, educational status, purchase time, family income, occupation and purchase frequency.

Dependent variable: the store choice

From the above table, we can determine coefficient *R* square is 0.526, adjust *R* party 0.484, which explain its goodness of fit is good.

4.3 The equation of significance test

The model was analyzed with the *F* test.

Table 6 Analysis of Variance table

Model		Square sum	df	Mean square	<i>F</i>	Sig.
1	Regression	156.997	8	19.625	12.612	.000 ^a
	Residual	141.593	91	1.556		
	Total	298.590	99			

Predictive variable: (constant), consumption cost, age, gender, educational status, purchase time, family income, occupation and purchase frequency.

Dependent variable: the store choice

The Sig. in table 4.3 is a significant *P* value. As the value *P* is 0.000 (approximate value), the *P* value is less than 0.05. So the regression equation is significant.

4.4 Regression coefficient significance test

For the significant test of regression coefficient of the model, from table 4.1, we can find that the model not all *X* has significant effect on the dependent variable *Y*. This shows that although the regression equation has passed the significance test, it also appears that some individual variable *X* is not significant on *Y*. Since some of the variables are not significant, the paper adopts the backward method to eliminate the redundant variables. Because of the interaction between the variables, we can not eliminate all the insignificant variables once, so the order is removed in turn. First remove *P* value maximum of a variable, then regression coefficient significance test, if there is insignificant variables, then remove it until the all variables retained has significant effect on *Y*. We first remove *X*₁, and with the remaining variables and *Y* regression coefficient of the significant test.

Table 7 Table of Regression Coefficient

Model	Non standardized coefficient		Standard coefficient	t	Sig.
	B	Standard error	Trial version		
(constant)	6.464	.911		7.093	.000
age	-.097	.124	-.085	-.781	.437
occupation	.041	.069	.064	.589	.026
Educational status	-.378	.159	-.212	-2.379	.019
Family income	.380	.169	.225	2.251	.027
Purchase frequency	-.916	.221	-.561	-4.146	.000
Purchase time	-.340	.230	-.142	-1.480	.142
Consumption cost	-.295	.134	-.263	-2.201	.030

Dependent variable: the store choice

The significance of the remaining variables have changed after excluding *X*₁. There are still some insignificant variables, so continue to remove (due to the culling process is more complicated, only a list

of reserved for the final variables). The final variables are X_3, X_4, X_5, X_6 and X_7 . Regression analysis for the remaining variables and Y , SPSS running results are as follows:

Table 8 Table of Regression Coefficient

Model	Non standardized coefficient		Standard coefficient	t	Sig.
	B	Standard error	Trial version		
1 (constant)	6.248	.866		7.211	.000
Occupation	.016	.061	.025	.261	.794
Educational status	-.413	.152	-.231	-2.707	.008
Family income	.410	.164	.242	2.500	.014
Purchase frequency	-.977	.206	-.599	-4.737	.000
Purchase time	-.357	.228	-.149	-1.564	.121
Consumption cost	-.281	.132	-.251	-2.123	.036

Dependent variable: the store choice

A multiple linear regression model is established by table 4.5:

$$Y = 6.248 + 0.061X_3 - 0.413X_4 + 0.41X_5 - 0.977X_6 - 0.357X_7 + 0.281X_8$$

The fitting degree of the model is tested by using the mathematical software SPSS to calculate the coefficient of determination R square and the adjusted coefficient of samples can be determined.

Table 9 Model Summary

Model	R	R party	Adjust R party	The standard estimate error
1	.723 ^a	.522	.492	1.238

Prediction variable: (constant), consumption cost, occupation, educational status, family income, purchase time and purchase frequency.

From the above table, we can determine coefficient R square is 0.522, adjust R party 0.492, which explain its goodness of fit is better. The model was analyzed with the F test.

Table 10 Analysis of variance table

Model	Square sum	df	Mean square	F	Sig.
1 Regression	155.976	6	25.996	16.952	.000 ^a
Residual	142.614	93	1.533		
Total	298.590	99			

Predictive variable: (constant), consumption cost, occupation, educational status, family income, purchase time and purchase frequency. Conversely, Dependent variable: the store choice

The Sig. in table 4.7 is a significant P value. As the P is 0.000 value (approximate value), the P value is less than 0.05. So the regression equation is significant.

After the above algorithm steps, the new model has been established through the significance test, and the store choice has a positive correlation with the occupation, family income and consumption cost, and a negative correlation with educational status, purchase frequency and purchase time. It has better passed the relevant inspection. It can be seen that the multiple linear regression equation of this paper is good, so the final establishment of the multiple linear regression model is as follows:

$$Y = 6.248 + 0.061X_3 - 0.413X_4 + 0.41X_5 - 0.977X_6 - 0.357X_7 + 0.281X_8$$

5 Conclusion

The situations of customer resource have obvious influence on the construction of offline marketing channel through the analysis. By the research on the offline marketing channel of Panasonic electric appliance, we find customer occupation, family income and expense amount have positive correlation effect on the choice of offline marketing channel. Conversely, education, purchase frequency and purchase time have negative correlation on the choice of offline marketing channel. On basis of the above research, we want to give some inspiration to household electrical appliance enterprises, provide

new ideas on the choice of marketing channel and think more about relevant customer resource factors when we establish effective offline marketing channel.

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Aggressive Customer Handling-Antecedents and Outcomes, Implications for Service Professionals

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Abstract: This paper highlights the important factors which are critical in studying and managing aggressive behavior of customers. The winning strategy is not only to deliver excellent services to customers but also to retain aggressive or deviant customers through various techniques which delight them in process. Qualitative analysis with Content Analysis method has been applied to conduct this study. Our research discusses various antecedents and outcomes of handling aggressive customer behavior and derives the relationship of emotional labor with service quality and customer loyalty. Results show the significance of emotional labor in handling dysfunctional customer behavior.

Keywords: Aggressive customers; Emotional labor

1 Introduction

In service organizations, the major theme of business is to sell performance. The outcome of good or bad performance is mostly depending upon service employees. So there is significant role of personal factors other than in services marketing^[1]. In past, services organization focused too much in providing basic standardized services and little focus in designing customized journey of customer. But, now with the changing needs, wants and demand of customers these organizations differentiate themselves on the basis of the response of frontline employee to customers during service encounter. These courteous and friendly responses provide competitive advantage to the organizations which result in retaining customers for a longer period of time.

The purpose of this paper to highlight some core antecedents and outcomes of handling aggressive customer behavior during service encounter. This aggressive behavior occurs by using offensive language, spreading rumor, verbal threat or intense anger shown by customer during service encounter^[2]. So, by understanding and resolving core reason of anger help organization not only in satisfying customers but also making them loyal^[3]. Although all antecedents play vital role in controlling the aggressiveness of customer, but role of emotional labor is significant. It is defined as the form of emotional regulation that creates publicity visible with the support of both facial and bodily display^[4]. Further, this emotional labor is classified as surface acting (Fake feeling) and deep acting (modifying internal feelings). Business dealing in service industry demand sincere behavior more than superficial emotional behavior in dealing face to face with customers in order to provide better service. So, basic theme of emotional labor is all about managing emotional behavior of employee towards customers in providing quality service.

This paper will address the following research questions

- 1: What are the main antecedents and outcomes of handling aggressive customer behavior?
- 2: What is the relationship of emotional labor with service quality and customer loyalty?

To answer these questions this study review literature which highlight different stages of aggressive customer behavior, then we will shed light on antecedents and outcomes of handling aggressive customer behavior. After that we will see how emotional labor impact on service quality and customer loyalty. Then we elaborate our core findings in discussion section. In the last section we will come up with conclusion, limitations and implications for manager in order to deal with these customer behaviors.

2 Literature Review

Organizations need to take care of its customer very well for the sake of their survival. This knowhow of customer will help organization in setting different strategies to fulfill needs and wants of customers. In Service Industry service excellence is determined by customer-frontline employee relationship. This frequent interaction sometimes leads to dissatisfaction when things go wrong. So, it is necessary to dig our certain reasons of such negative emotions so that various measures must be taken to

convert this behavior.

Barron classified three different stages of aggression from customer end with frontline employee. The initial level includes using offensive language and spreading rumor from customer end. During the second stage this offensive language shapes the form of verbal threat and intense arguments. In the third and extreme level physical fights and intense anger is shown up by customer linked with verbal aggression.

So, understanding the root causes of aggression help to manage the negative emotions of customers. Aggressive customer behavior is controlled by number of factors like positive surprise; speed of service, Confidentiality, recognition of customer wants ect. Bacal and Hailu *et.al* argue that customer aggression is the result of lack of assistance from the frontline employee, noisy atmosphere and lack of punctuality^[5]. The major consequences and outcome of Aggressive behavior of customers towards employees results in emotional exhaustion and absences^[6].

There are various terms related to customer aggressive behavior due to increasing interest for both academic and practitioners. Dysfunctional customers damage the goodwill of company by negative word of mouth and harmful to company^[7]. Another term “Aberrant consumer behavior” is a behavior which violates the ethics and conduct. These customers have abusive behavior towards service employees as well as physically and psychologically victimize the service employees^[8]. Jay customer is another related term which is defined as one who acts in abusive way, creates hurdles for company, employee and other customers. These customers are also known as rule breakers, shouts angrily, insults and give threat to service providers^[9]. Another interrelated term is uncooperative customers which place their needs and demands all above other customers, becomes loud and crude to service employees, also shows their superiority to all personals^[10]. Based on these definitions aggressive customers is defined as the customers who shows rudeness towards service employee and use harsh, unethical and abusive language

Muhammad Rizwan *et.al* illustrate that customer complaining behavior helps the company to make its product^[11] and service more customized and it eventually results in customer loyalty. Ray *et.al* demonstrates that there are few positive consequences of aggressive behavior of customers one is manifest function other is latent function. Manifest function is that aggressive behavior of customers creates new positions for employees like security guards, Electronic system ie. CC TV^[12]. On the other side one important latent function help organizations to set certain boundaries of ethical norms, set company core values. Another latent function is it foster positive image of those customers who act calmly during service encounter and improve their self image.

3 Key Antecedents of Handling Aggressive Customers

3.1 Emotional labor

There is common believe that in today’s rational and task oriented environment there is very little role of emotions. S. Mann Points out that in various organizations emotional are managed by number of formal and informal way, we may call as display rules in which some emotions are expressed while majority of them are suppressed^[13]. The first major concept of emotional labor is introduced by renowned sociologist Arlie Hochschild back in 1983. According to (A.R Hochschild, 1983) emotional labor is the form of emotional regulation that creates publicity visible with the support of both facial and bodily display.

The slogan for employees in hospitality industry is “Service with a smile” need to perform emotional labor to achieve organizational goals^[14]. Even when dealing with aggressive and deviant customers employees need to be polite, courteous, and down to earth and must deliver good service. This action increases customer loyalty and satisfaction but at the same time decrease job satisfaction up to some extent. According to (A.R Hochschild, 1983) there are two techniques for managing one’s emotions one is “surface acting” and other is “deep acting”. Observable expressions are managed by surface acting while feelings are managed by deep acting. We can also say that feelings are changed from “outside in” in surface acting (Fake feelings) while feeling are changed from “inside out” in deep acting (modifying inner feelings)^[15].

Watt concluded that jobs of frontline staff in hotel industry (reception, housekeeping, bell desk, reservation) is highly demanding and even selection of service employees depend on their capability to deal with difficult customer with the highly use of emotional labor by using both surface acting and deep acting^[16].

3.2 Altering personal speech

It refers to efforts made by employee to alter or amend his verbal accent and repertoire, with motive to socially bring themselves closer to aggressive customer [17]. It means you have to talk to them in nice way and alter yourself to their level which will make them calm. Organizations need to select right people for that job, provide extensive training of difficult customer handling and provide give good compensation that will motivate employee to perform well during difficult customer handling [18].

3.3 Bribing customers

“It refers as value added offering by employee while handling Aggressive customer in order to get rid of harsh arguments from customers and make customer quite. Bribe may be in the form of offering free good and services during service encounter, or it may be complimentary up gradation of rooms in hotels and the highest level of bribe is refunding all the money to customer in order to avoid any inconvenience

3.4 Observing patrons of customers

This practice is generally used by service employees in pre analyzing and identifying potentially deviant customers. In this scenario they make list of all deviant customers and develop pre plan strategy to handle their irrational behavior by offering more customized services. In the world where service offering creates little difference other factors like studying customer behavior, giving special attention to customers and understanding how to delight them creates competitive edge [19].

4 Outcomes of Handling Aggressive Customer

4.1 Service quality

The most common definition of service quality is the comparison that customers make between their expectations and perceptions of the received service [20]. Sureshchander and Anantharaman define service quality as difference between customer normative expectations of the service and actual perception of the service performance [21]. Both definitions illustrates that the service quality perceived by the customer might be different from the actual service delivered by service people. It also states that critical experience of service quality in cognition of customer not service providers. Afshan *et.al* concluded that service quality creates competitive edge especially in hotel industry and the key element of service quality is courtesy, empathy and element of customized services towards customer and guest [22]. So, even when customer behave rudely and aggressively these three elements can make that customer loyal

4.2 Customer loyalty

Loyalty is the indicator used to evaluate the performance of an organization. Khan defines customer loyalty as preference and demand of customer to repurchase same product and make healthy and profitable relationship with company. In other words we can say continuous buying of customer the same brand and recommend other referral group by positive word of mouth [23]. In customer loyalty there are some attractions in brand which urge customer to buy that product or service again. Guillen *et.al* determine two aspects of customer loyalty one is rational while other is emotional. Mostly loyalty factor depend upon rational analysis [24].

5 Conceptual Model

Following conceptual model has been developed from the literature mentioned above.

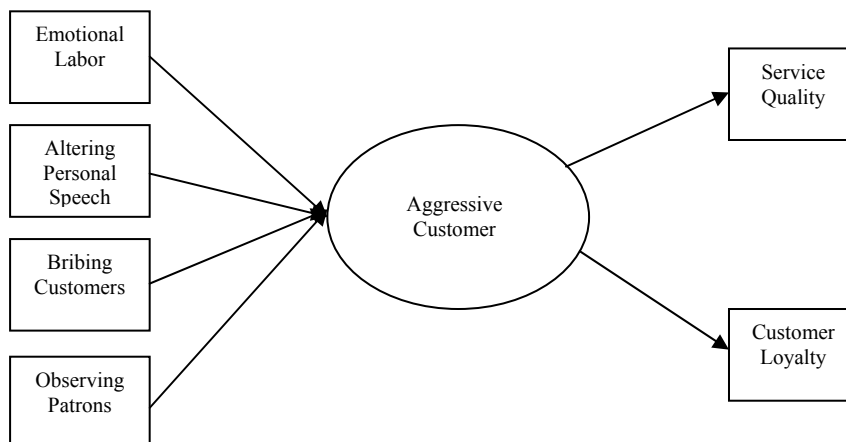


Figure 1 Aggressive Customer Handling-Antecedents and Outcomes

5.1 Proposition 1

There is a positive relationship between Emotional Labor and Service Quality.

There is strong link between the emotion labor and service quality. According to Chaoying *et. al* employee surface acting strategy negatively relates to customer purchase decision and perception about quality because in surface action employee satisfying requirement of his job instead of company and customer need ^[25]. On the other hand deep action positively influences customer purchase decision and its perception about service quality because customer expects real emotions from employee to do something for themselves. Aziz illustrate positive link between service emotion labor and service quality but strongly emphasize that employee empowerment plays a vital role in order to strengthen the relationship. Empowered and motivated employee show positive emotions towards customer which will eventually results in improving service quality ^[26]. In service sectors especially in education institutes emotional labor is significant element that is key which leads towards better service quality, it is considered as the symbol of professionalism ^[27].

5.2 Proposition 2

There is positive relationship between Emotional Labor and Customer Loyalty.

There is a significant relationship between Emotional Labor and Customer Loyalty. In most service sectors “service with a smile” is a basis standards set by most of the organization. Markus *et.al* find that deep acting positively influences customer orientation and service quality which results in customer loyalty and satisfaction ^[28]. On the other hand surface acting do not have positive effect but no negative effects on customers. Secondly, when customer detects employee strategy then surface acting impact is negative and in this case customer appreciates deep acting. The emotional labor is more effective and leads to customer loyalty and satisfaction when employee empowerment plays the mediating role between them. The more empowered the employee, it is easier to handle aggressive customer by the use of emotional labor.

6 Discussions

The current study examined simultaneously both the antecedents and consequences of handling aggressive and irrational customer behavior during service encounter. It extends the literature by adding (1) Key antecedents of handling aggressive customers: (2): Major outcomes derive by handling aggressive customers: (3): Examine the relationship of emotional labor with service quality and customer loyalty.

In the first part we discuss several antecedents of handling difficult and aggressive customers which are emotional labor, altering personal speech, bribing customers, observing patrons of customers. So these pre-requisite helps a lot especially in service sector to calm down challenging and painstaking customers.(Hailu Tekeher Getnet, MD. Rizwan Malik, 2012) comment on it that customer aggression is due to lack of attention from frontline employee especially during service encounter. On the other hand customer aggressive behavior helps organization (with the help of these antecedents) to set new standards, give more customized services to all prestigious customers and eventually improving service quality and customer retention.(Muhammad Rizwan, Syed Hassan Ali,Sonia Akhtar, 2013). Vary from situation to situation service employee use different tactics (collectively and individually) to calm down aggressive and harsh customers which are in the shape of Emotional labor(A.R Hochchild, 1983), Altering personal speech, bribing customers, observing patrons of customers(Kate.L. Reynolds & Lloyd. C. Harris, 2006).

Secondly, there are some major outcomes which we achieve from these outcomes are improving service quality and customer loyalty. It’s mean if the organization knows the art of handling difficult customers then customer becomes more loyal than before. It means moving from one extreme to other.(Ang. L & Buttle.F., 2006)Illustrate that it is ten times more difficult to win new customer than retaining the existing customer. So, organizations must have tools to retain existing one either by hook or by Croke. Service quality one of the outcomes of this study creates competitive edge when dealing with such deviant customers.(Afshan Naseem, Sadia Ejaz & Prof Khusro P. Malik, 2011).Second outcome of handling aggressive customer is customer loyalty, which means customers will utilize the same services again and again and recommend other referral group by positive word of mouth (Khan, 2012).

Finally we find the impact of emotional labor on service quality and customer loyalty. In service sector where employee-customer frequently interact with each other and customer demand service accuracy then and there, emotional labor play major role. There are two categories of emotional labor

and both were having adverse impact on service quality and customer loyalty. (Chaoying Tang, Craig R.Seal,Stefanie E. Naumann, Krystal Miguel, 2013)Emphasize that deep acting (feeling are coming from inside) strengthen the relationship in employee-customer relationship which results in expected service quality and customer loyalty because in crucial situation satisfying and delighting customer results in developing life time relationship with customer. Whereas on the other hand, There is negative impact of surface acting (Based on fake feeling) on service quality and customer loyalty , because in that scenario employees are only protecting their own job and have minimum interest of their organization and customers.

7 Conclusion

The intention of current paper is to present critical evaluation of existing research in handling aggressive behavior of customers. In reviewing literature we found certain pre-requisite which are necessary in handling irrational behavior of customer during service encounter which ultimately results in customer loyalty and service quality. The role and significance of emotional labor also highlighted in this paper. The customer always expects courteous behavior especially from frontline employees and patronizes those organizations which proved them special take care. So employees which use deep acting instead of surface acting create positive impact on customer retention, satisfaction and loyalty.

7.1 Limitations

Although this research expand body of knowledge regarding handling customer aggressiveness during service delivery, but it has certain limitations. First, we need to take employee empowerment as an antecedent and also check the relationship of emotional labor on service quality and customer loyalty taking empowerment as mediator. Secondly, this research is limited to hospitality industry; we need to consider other industries as well to get more generalized result.

7.2 Implication for services manager

(Berry, L.L. and Seiders,K., 2008) suggest that organization must acknowledge the irrational behavior of their customers and manager them efficiently. First of all, service manager's must gives attention to the point of service delivery personally and make physical liaison with challenging customers. This action will certainly remove uncertainly in many aggressive customers and become loyal. In addition to that, service managers must learn the art of using emotional labor effectively at the right time with good results. They need to provide regular trainings to their staff about the effective and efficient use of emotional labor during customer handling.

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Study on the Influence of Family Friendly Practice and Employees' Organizational Citizenship Behavior

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Abstract: The study on the relationship between work and family experience the development from the work-family conflict theory to work-family boundary, and to work-family promotion. The scholars began to attach importance to the study of work-family promotion, and the academic community's attention was led to the family friendly practice. "the influence to family friendly practices on employee's organizational citizenship behavior" was taken as the research subject. By issuing questionnaires and using professional software for statistical analysis, this paper explore the relationship between family friendly practices and organizational citizenship behavior. The results show that: in China, the flexible working arrangements in family friendly practice can improve the organizational citizenship behavior of its organizational level.

Key words: Work family promotion; Family friendly practice; Organizational citizenship behavior; Statistical analysis

1 Introduction

1.1 Work-Family relationships become important social issues

Work and family are two important parts of our life. In Chinese traditional ideas for thousands of years, men assume the main work, while women assume the main family responsibilities. But with the economic development and social change, women gradually take the initiative to assume the work and walking on the job, while men need help women share the responsibility of the family, so the double worker family has become the mainstream of the current society. The family structure, the task of both husband and wife in the family and family values are gradually changing. At the same time, the market competition is becoming increasingly fierce. And in order to deal with these increasingly fierce competition, the expectations of the company are also increasing which led the internal competition of enterprises to intense. In order to gain a competitive advantage, it is necessary for employees to consume more energy and time in the work. The increase of working pressure and the extension of working hours will gradually make the work-family conflict intensified in these double worker families, and it's very easy for the staff to bring the contradictions in the family to work, which makes them gradually lose their enthusiasm in work.

1.2 Family friendly practice was put forward

The study on the relationship between work and family experience the development from the work-family conflict theory to work-family boundary, and to work-family promotion. However, in the previous research, the more is about work-family conflict, and for work-family promotion is relatively less. Therefore, scholars gradually began to focus on this aspect. The research on the work-family promotion has also raised the concern of some advanced enterprises and organizations in the family friendly practice. These enterprises and organizations actively implement the work including flexible working hours, flexible office locations, reimbursement part education expenses of staff and children and other family friendly practice to help their employees to ease the work-family conflict and realize work-family promotion. Family friendly practice can create a supportive organizational climate, employees can be full of spirit to fulfill responsibilities as members of the organization and help employees better integration of their time and resources.

1.3 Organizational citizenship behavior can improve organizational effectiveness

Employee's organizational citizenship behavior was defined as a spontaneous behavior of employees and which is not directly contact with the company's assessment system but can improve the organization efficiency on the whole, every manager wants their employees with this behavior. In theory, the promotion of employee's organizational citizenship behavior can improve the enterprise's system specification, in order to achieve the goal, and promote the development of enterprises. And in the past 20 years, some western countries have made more significant results on organizational citizenship behavior research, they proved employees' organizational citizenship behavior can effectively improve

the operation performance of the whole organization in some ways.

This paper is to explore the influence between family friendly practice and the organizational citizenship behavior. However, there are some problems in the research of family friendly practice at this stage.

2 Present Situation

2.1 The number of related studies is small

In foreign academic circles, the scholars' study on the relationship between work and family mainly experience the development from 70s of 20th century the scholar Greenhouse proposed work-family conflict theory (negative conflict view) to 90s of 20th century the American scholar Clark proposed work-family boundary theory (balance view), and to early years of the 21st century Grzywacz proposed that there was some kind of promotion between work and family (positive effects view), work-family promotion theory came into being and thus enriched the research field of work-family relationship, left a vast space for the follow-up study. And put forward by Neal and other scholars in 1993, as family friendly practice can be used as an important measure to ease the work family conflict, to achieve the work-family promotion. However, in 2005 Eby et al comprehensive analysis of the work-family relationship over the past 20 years of research, the results show that family friendly practice research only accounted for less than three percent of work-family research.

In Chinese academic circles, because of the influence of work-family relationship, the research on this aspect is increasing gradually. But in the previous studies, the most study is still about work-family conflict, and the study of the work-family promotion is still relatively small. And there are few studies focused on family friendly practice in the Chinese research on the work-family promotion.

2.2 Foreign research results are not necessarily applicable to China

Magnus had proposed that family friendly practice can be used to ease the employees' work-family conflict, and Allen divided family friendly practice into two aspects for flexible plans and family caring plans according to the work-family relationship in 2001. But due to the differences in Chinese and western culture, family friendly work practice of the western countries may does not apply to the actual situation of China, such as providing support to the staff to provide work place to take care of their children may not make those employees feel practical.

Professor Farth has pointed out, due to the differences of eastern and western culture values, the Chinese employees' organizational citizenship behavior may different from the west, it should include five aspects such as responsibility consciousness, interpersonal harmony, organizational identification and protecting company resources. To sum up, there is a urgent need for this study to help organizations optimize the allocation of resources, and to achieve the work-family promotion.

3 Data and Methodology

Due to the less relevant research and foreign research conclusion does not necessarily apply in China, this study proposed its own conception model shown in Figure 1, assumed that family friendly practices have a direct impact on the employee's organizational citizenship behavior. Then collect data from Chinese enterprise staff through questionnaire survey and use SPSS software to analyze data, and finally revised the model and came to the conclusion applicable to Chinese enterprises.

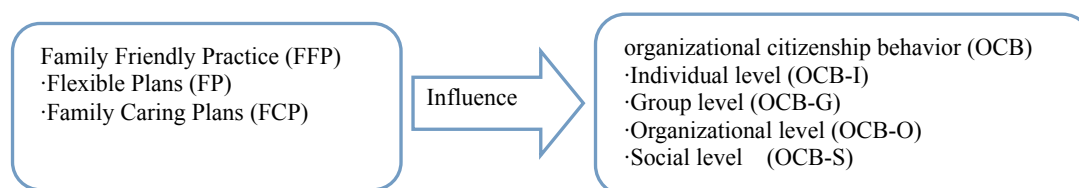


Figure 1 Family Friendly Practice Influence Employee's Organizational Citizenship Behavior Model

The questionnaire used in this study with reference to the Allen family friendly work practice scale, and family friendly practice was divided for two sub dimensions as flexible plans and family caring plans. And the questionnaire took the four factors concentric circle model of the Professor Farth, dividing organize citizenship behavior into four sub dimensions of individual level, group level, organizational level and social level.

Sample collection object mainly selected in Hubei Province of China from employees of different types of enterprises, questionnaire survey conducted mainly through the network by Questionnaire Star, based on random sampling and convenient sampling combining principles, issued a total of the 125

electronic questionnaires and recovered a total of 125 copies of questionnaires, 123 effective questionnaires among them. It's very high of the questionnaire recovery rate. There is no limit to the industry and region because of the purpose of this study for searching on the effect of family friendly practice on the Chinese enterprises stuff.

3.1 Reliability and validity of questionnaire

Before data analysis, the reliability and validity of the two scales in questionnaire should be tested separately to ensure that the results of the questionnaire survey were true and reliable.

Analysis by importing data into SPSS software, it is found that the family friendly work practice scale has good reliability, and the coefficient $\alpha=0.834$. The coefficients α of each dimension in the scale are bigger than 0.8, and the specific values are shown in Table 1.

Table 1 Reliability Analysis of Family Friendly Practice Scale

Cronbach's Alpha	Cronbachs Alpha based on standard terms	Number of items
.834	.831	15

Then exploratory factor analysis for its construct validity, selected two main factors, using the maximum variance method of rotation, it shows that family friendly practice scale with good construct validity.

Similarly, the software analysis results show that the organization citizenship behavior scale has good reliability, and the coefficient $\alpha=0.914$. The coefficient α of each dimension in the scale is bigger than 0.9, and the specific values are shown in Table 2.

Table 2 Reliability Analysis of Organization Citizenship Behavior Scale

Cronbach's Alpha	Cronbachs Alpha based on standard terms	Number of items
.914	.928	20

Then exploratory factor analysis for its construct validity, selected four main factors, using the maximum variance method of rotation, the results were satisfactory. Therefore, the questionnaire has good reliability and validity on the whole.

3.2 Data analysis

In this study, factor analysis was used to reduce dimension through the SPSS software. The family friendly practice scale was reduced to two dimensions and the organizational citizenship behavior scale was reduced to four dimensions, taking them as flexible plans, family caring plans, individual level, group level, organizational level and social level these six variables, then this study did the correlation analysis of the six variables, shown in Table 3.

Table 3 Correlation Analysis among Main Variables

		flexible plans	family caring plans	individual level	group level	organizational level	Social level
Flexible plans	Pearson correlation	1					
	Significant (bilateral)						
	N	123					
family caring plans	Pearson correlation	.162	1				
	Significant (bilateral)	.073					
	N	123	123				
individual level	Pearson correlation	.082	.177	1			
	Significant (bilateral)	.366	.050				
	N	123	123	123			
group level	Pearson correlation	.154	.071	.579**	1		
	Significant (bilateral)	.090	.436	.000			
	N	123	123	123	123		
organizational level	Pearson correlation	.181*	.117	.532**	.721**	1	
	Significant (bilateral)	.045	.199	.000	.000		
	N	123	123	123	123	123	
social level	Pearson correlation	.073	.106	.519**	.712**	.832**	1
	Significant (bilateral)	.425	.242	.000	.000	.000	
	N	123	123	123	123	123	123

*. Significant correlation at the 0.05 level (bilateral).

**.. Significant correlation at the 0.01 level (bilateral).

It can be seen from the Table 3 that, the correlation coefficient between the and the organizational level is 0.181, there is a significant positive correlation in it. And other aspects exist certain correlation but not significant, so it can be concluded that, the flexible plans in family friendly practice can improve the organizational level of organizational citizenship behavior.

4 Results

According to the data analysis, this paper draws the research results: (in China), the flexible plans influence the organizational level of organizational citizenship behavior more intuitively. That is to say, flexible work arrangement is advantageous to let the staff have the organizational level of organizational citizenship behavior such as protecting and saving the company resources initiatively, participating in group activities, expressing their own views, etc.

The results of this study have some similarities with the research of Allen, Allen thought that the effect of family friendly practice is different, and the correlation between family caring plans and work-family promotion should be lower than that between flexible plans and work-family promotion. On this analysis, this study argues that in Chinese traditional cognition, filial piety is the obligation of children, taking care of the family is a personal thing, so that staff would rather have the flexible work arrangements given by enterprises to do family activities than enterprise take care of their families.

By the research conclusion, enterprises can according to its actual situation, based on the needs of staff and adopt some system such as flextime, telecommuting, compressed work week, work shift to make employees feel the care, so that employees would produce positive emotions at work and feedback to the enterprises with the organizational level of organization citizenship behavior, so as to realize the work-family promotion.

5 Conclusion

This paper took “family friendly practice influence on employees’ organizational citizenship behavior” as the core research content, using the methods of deduction, questionnaire survey and statistical analysis to study the relationship between family friendly practice and organizational citizenship behavior. Study found that: in China, flexible plans in family friendly practice can improve the organizational level of organizational citizenship behavior.

In practical application significance, this study expected to provide a reference when enterprises implement the family friendly practice, help enterprises develop welfare policy with more suitable for the actual situation of the employees’ work-family relationships. So as to achieve the purpose of promoting actual effect on family friendly practice, promoting employees’ organizational citizenship behaviors, and optimizing the enterprises resource allocation.

In the theoretical sense, this study aims to explore the theory and expand the research field of human resources.

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Marketing Innovation Strategies for Improving Economic Development in Africa: Case Study M-Pesa Vodacom Tanzania

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Abstract: An innovation process can be triggered in many ways and not always by a deliberate formulation of a scientific research programme in a laboratory. Bottlenecks in production within a firm, changes in technology, competitive conditions, international rules or domestic regulations, environmental or health crises and even wars have been known to stimulate a process of innovation. Every organization needs clear marketing objectives, and the major route to achieving organizational goals will depend on strategy. Tanzania has four major telecommunications operators - Vodacom, CELTEL, TIGO and Zantel. Vodacom won in the market and it is one which is currently nominating the market in providing mobile telephone services. Therefore, the research seeks to examine the Marketing Innovation Strategies used by Vodacom Tanzania for Improving Economic Development in Africa and compete successfully in a connected world.

Key words: Marketing innovation strategies (MIS); Economic development; M-Pesa vodacom tanzania

1 Introduction

M-pesa (**M** for mobile, **Pesa** is Swahili for Money) is a mobile - phone based money transfer and microfinancing service, launched in 2007 by Vodafone for Safaricom and Vodacom, the largest mobile network operators in Tanzania and Kenya. It has since expanded to Afghanistan, South Africa, India and in 2014 to Eastern Europe. M-Pesa allows users to deposit, withdraw, transfer money and pay for goods and services (Lipa na M-Pesa) easily with a mobile device.

Users are charged a small fee for sending and withdrawing money using the service. M-Pesa is a branchless banking service; M-Pesa customers can deposit and withdraw money from a network of agents that includes airtime resellers and retail outlets acting as banking agents. M-Pesa has spread quickly, and by 2010 had become the most successful mobile phone based financial service in the developing world.

Vodacom has made a number of strategic changes that have resulted in increased subscriber registrations and has enabled a more rapid roll out of the agent network in Tanzania. The changes include a simpler pricing model, a more targeted education-based marketing campaign, and the introduction of an aggregator model to better manage and support its distribution network. Recently the company announced that M-PESA now has more than a million customers transferring USD 12.8 million per month at about 2,000 agent locations since launching in April 2008. Vodacom uses a trust structure that is similar to the operation in Kenya to protect deposits in the service. A holding company has been registered in Tanzania, with independent directors, to act as a trustee of all funds from the M-PESA business.

This paper discusses the original strategic tactics that Vodacom Tanzania employed during the launch of M-PESA in April 2008 and describes how those tactics have evolved since to improve delivery and penetration of the system in Tanzania.

2 Methodology

This study is mainly concerned with exploring the facts behind the success of M-Pesa Vodacom Tanzania. Therefore, the data were classified into two category, primary and secondary data. Primary data were collected by using questionnaires, direct from Vodacom customer care in Arusha district Tanzania. Secondary data were obtained from library, internet, and journals, as well as the Tanzania Communications Regulatory Authority (TCRA)

The study review some theoretical marketing concepts based on telephone service operation in Tanzania, and analysis carried out through critically examining the marketing innovation strategies that Vodacom Company adopts in contrast with its competitors. PR Smith's SOSTAC® Model applied in this study. The data presented in statements and in some few cases tables and figures to enable a quick grasping of the specifics. The comparative approach applied throughout the study in order to establish the reasons for Vodacom's success in the market.

3 Literature Review

3.1 Concepts and definitions

To understand marketing innovation, it would be useful first to establish the meaning of marketing. Marketing is everywhere. It is embedded in everything we do from the clothes we wear, to the websites we click on, to the ads we see. It profoundly affects our day-to-day lives. Hence Kotler and Armstrong define marketing “as the process by which companies create value for its customers and build strong customer relationships in order to capture value from customers in return” (Kotler and Armstrong, 2004, p.5). “Marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing”, (OECD, 2005).

3.2 Marketing innovation strategies based on customer satisfaction

As the context of this study is the overall performance of the firm, it is natural to focus on customer satisfaction as an overall evaluation of a firm’s product, rather than a particular individual’s evaluation of a specific transaction (Boulding et al. 1993; Johnson and Fornell 1991, Fornell et al 1996). Overall customer satisfaction should be a more fundamental indicator of the firm’s performance due to its links to behavioral and economic consequences to the firm (Anderson et al. 1994). Therefore the service quality is necessary for the implementation of a new marketing method within the firm to win the possession of the highest profit. But in order to win the possession of the highest profit the company needs to create marketing plans.

Marketing plans can implement the Economic development that is generally understood to mean an increase in national production that result in an increase in average per capita gross national product (GNP). An increase in average per capita GNP alone however is not sufficient to denote the implied or expected meaning of economic development. Besides an increase in average per capita GNP, most interpretations of the concept imply a widespread distribution of income as well. Economic development as commonly defined today, according to Kenen (2000) also tends to mean rapid growth improvement achieved “in decades rather than centuries”. The strategies of economic development among others include industrialization which incidentally, is the fundamental objective of most developing countries. Certainly, most countries see in “economic growth”: the achievement of social as well as economic goals which among others include the following: satisfaction of such non material needs as better education for all, better and more effective government, the elimination of social inequalities; as well as improvements in moral and ethical responsibilities of both the public and private sectors of the economy. In order to achieve the above objectives, naturally, one should be concerned with the basic institutions of industrial society in general and with the management of business enterprise in particular. Definitely, one cannot successfully accomplish such activities without direct concern with marketing.

3.3 Creating marketing innovation strategies for improving economic development in tanzania

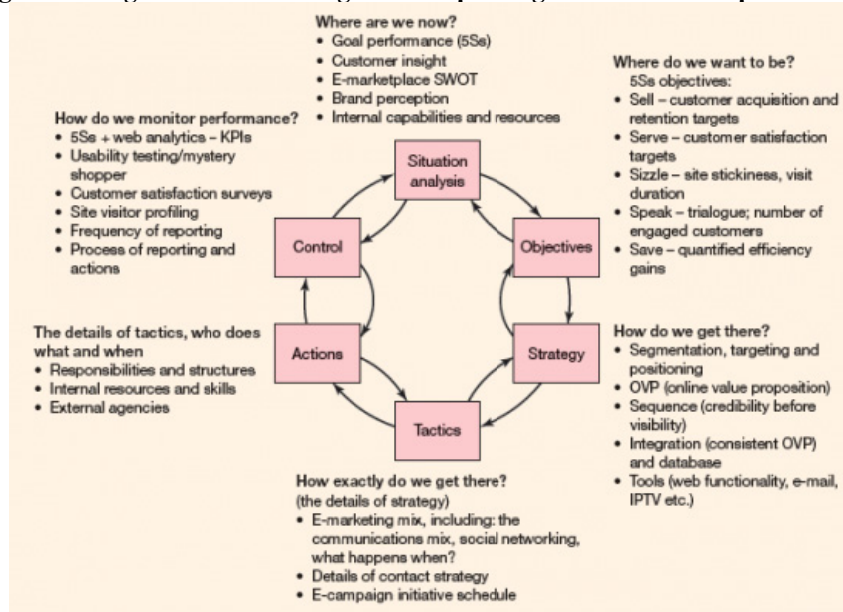


Figure 1 PR Smith's SOSTAC® Model

Marketing innovative strategy model are models focused on strategic marketing problems. The

main purpose of a marketing innovative strategy model is to develop tools and insights for the formulation of marketing strategies. The SOSTAC acronym which stands for Situation, Objectives, Strategy, Tactics, Actions, and Control is a framework used when creating marketing plans according to the competitor’s forces, (see Figure 1).

4 Mobile Foundation Services, Marketing Innovation Strategy and Development in Africa

Vodacom is Tanzania’s leading cellular network and our success comes the responsibility of giving back to our society in a meaningful and sustainable fashion. The Vodacom Foundation was created in July 2006, for this purpose, the Foundation focuses Vodacom’s corporate social investment efforts with the aim of improving the lives of Tanzanians through poverty alleviation and promoting economic development.

The Foundation looks at four key areas namely, Education, Health, Economic empowerment and **Social welfare** which are in line with Tanzania’s National Development priorities. Of late, the foundation has instituted Vodafone Red Alert with the aim of assisting victims of natural disasters in the country. To date the Foundation has carried out over 100 projects in all the regions of the country. These projects have reached and have a direct impact on the lives of thousands of Tanzanians from all walks of life.

Education, the Foundation aims to support development in the education sector by improving physical infrastructure by contributing towards schools, eg building classrooms, dormitories, laboratories etc. improving students access to information and technology resources by providing facilities such as computer centers. Providing educational resources for effective learning such as computers, books and school desks. Health, the Foundation supports initiatives that aims to improve the health care system in Tanzania by providing or improving physical infrastructure, for example by building or renovating wards; providing ICT Resources to improve access to health services eg supplying hospitals or health care centers with computers; facilitating for corrective surgery; supporting community initiative that remedy health problems.

Social Economic Empowerment, the foundation supports initiatives that target the improvement and empowering communities by providing resources and the appropriate technology needed to alleviate poverty; supporting sustainable income generating activities; contributing towards improving the social wellbeing of vulnerable groups; empowering communities by providing resources that relieve hardships; providing communities with sustainable infrastructure that will promote self-reliance.

Table 1

	Vodacom	Airtel	Tigo	Zantel	TTCL	Benson	Sasatel
Subscriber Base	12,317,029	7,664,413	5,613,330	2,347,179	1,048	1,050	1,221
Registered Subscribers	12,301,415	7,289,209	5,509,337	1,203,391	1,048	1,050	1,221
% registered by June 2012	99.87	95	98	51	100	100	100

(Source: TCRA June 2013)

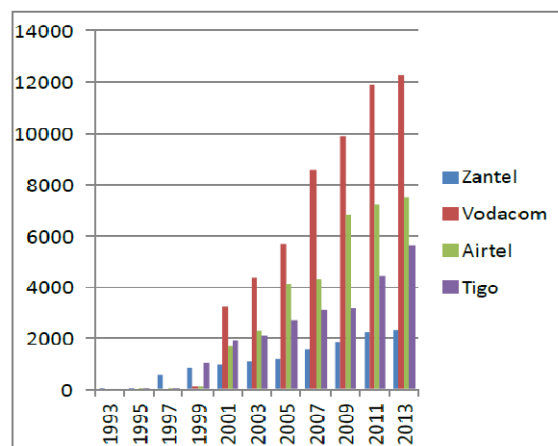


Figure 2 Tanzania Mobile Phone Subscribers by ‘000 (TCRA 2013)

According to Tanzania Communication Regulatory Authority the number of Tanzania phone

subscribers has reached more than 28 million out of 44 million of populations in 2013. Beyond, the four strongest mobile providers leading in Tanzania (Zantel, Tigo, Airtel and Vodacom), there are other three mobile companies namely TTCL, Beason and Sasatel, together they share less than 1% of all subscribers in Tanzania.

M-PESA in Tanzania now uses a pricing scheme that is similar to M-PESA Kenya where a flat fee is charged for person-to-person transfers to registered customers and tiered fees are charged for money transfers to unregistered customers. Cash deposits are free along with cash withdrawals by unregistered users. Registered users pay a withdrawal fee that ranges according to the amount they wish to withdraw. Customers are charged a small fee for balance enquiries and when they wish to change their PIN. A detailed fee structure can be found in Figure 3.

Value Transaction	Value (\$)		Charge (\$)
	From	To	
Cash Deposit	3.70	370.00	Free
Send Money To Registered Customer	0.74	370.00	0.15
Send Money To Unregistered Customer	0.74	7.40	0.74
	7.41	14.80	1.11
	14.81	37.00	1.85
	37.01	74.00	2.96
	74.01	148.00	4.44
	148.01	222.06	5.92
	222.07	370.00	8.14
Withdraw Money - Registered Customer	3.70	7.40	0.26
	7.41	14.80	0.37
	14.81	37.00	0.74
	37.01	74.00	1.11
	74.01	148.00	1.85
	148.01	222.06	2.96
	222.07	370.00	5.18
Withdraw Money - Unregistered Customer	0.74	370.00	Free
Additional Transactions			
Balance Enquiry		0.04	
Change PIN		0.04	

Figure 3 SOURCE: Company Information, 2010

5 Findings and Analysis

5.1 Application of the model

Marketing Innovative Strategy is the art of working out how you will win in business and in life. The company implements its different strategies through well planned marketing strategies which help in creating value and retaining good reputation. The marketing plans set by Vodacom Tanzania are creating value to the company since company is still the leading in the market despite adapting different strategies which seem to have highest returns when adapted. The uniqueness of these marketing strategies is what gives the company better way to perform in its overall strategy.

5.2 Tanzania: general mobile phone access and use among adults

Figure 1 present a demand-side view of mobile ownership and use (as well as m-money use) based on the AudienceScapes survey. These numbers cover only the adult population. The data indicate fairly high rates of Africa Development Research mobile phone ownership and use (particularly in urban areas), which bode well for the potential m-money market. That said Tanzanians only need a SIM card, not a handset, to use m-money services.

Tanzania: General Mobile Phone Access and Use Among Adults

Percent of sample who either have that level of access or perform that mobile function

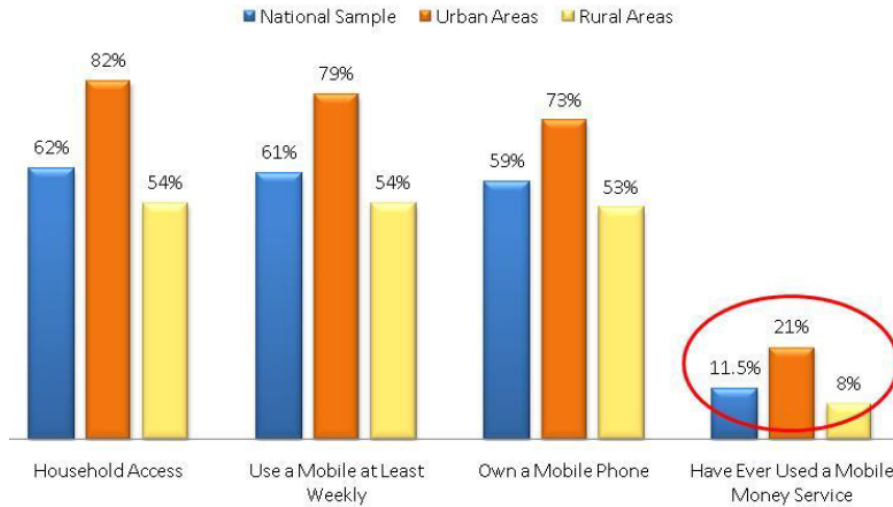


Figure 4 AudienceScapes National Survey of Tanzania 2010: survey of adults (15+) n=2003

5.3 Tanzania: mobile adoption shifts towards the less privileged

Tanzania: Mobile Adoption Shifts Towards the Less Privileged

Daily Income Profile of Mobile Adopters and Sample Population
Percent of that adoption group with that daily income

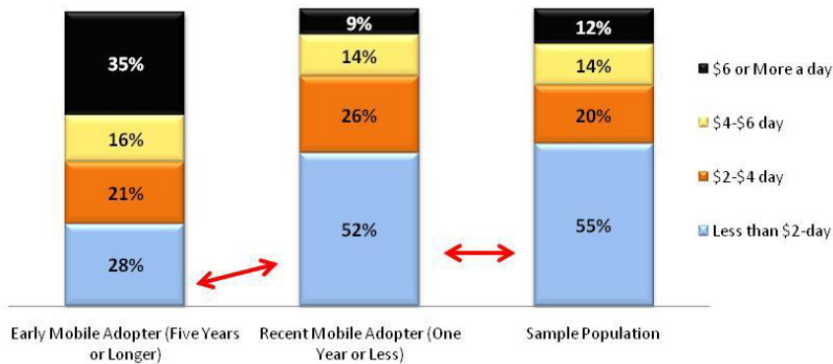


Figure 5 AudienceScapes National Survey of Tanzania 2010: Survey of Adults (15+) n=2003; Resent Adopted, first acquired mobile phone in past year n=339; Early Adopter first acquired mobile phone five years or longer n=222

The AudienceScapes data also corroborate supply-side statistics showing that Tanzania’s mobile market has seen its strongest growth over the past two years. Twenty-eight percent of mobile phone owners in the survey said they purchased their first phone in just the past year (“recent adopters”). In fact, about 62 percent of owners said they purchased their phone in the past two years.

Parallel to this strong market growth, **there are indications that Tanzania’s disadvantaged populations are increasingly active in the mobile market** (Figure 5). Fifty-two percent of recent mobile adopters reported having a daily household income of less than \$2 (fairly close to this segment’s representation in the general population), compared to only 28 percent of early adopters. Recent adopters also were more likely than early adopters to be women, rural dwellers and unbanked.

5.4 Tanzania: M-PESA leading the way

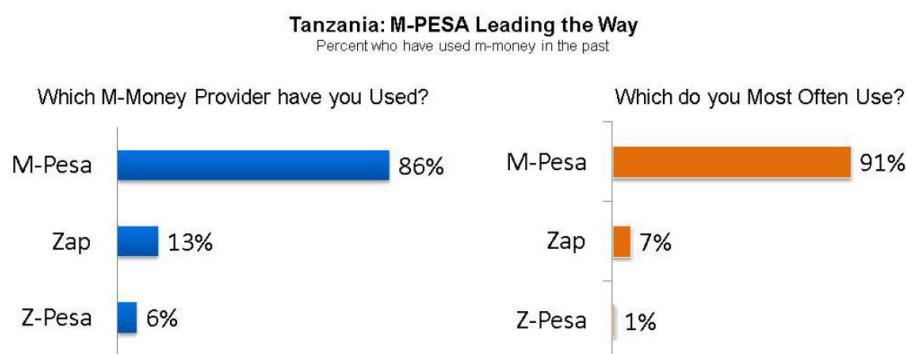


Figure 6 AudienceScope Tanzania 2010 National Survey Of Adult (5+) Who Use a M-Money Service n=250

Vodacom has deployed an innovative new program within its agent network that allows so-called “masteragents” to provide credit to other agents so that they can maintain the proper liquidity to operate effectively. The piloting of this program was partially funded by the GSMA’s Mobile Money for the Unbanked Program. Among M-PESA users in the AudienceScapes Tanzania survey, 75% said they considered the service to be very trustworthy, and another 17% said it is somewhat trustworthy.

The Zap m-money service (rebranded as Airtel Money in November 2010) has chosen to focus less on customer to customer transactions (C2C) and instead leverage its position in what the company sees as a future cash-free “ecosystem”. This includes enabling users to link their e-wallets to bank accounts, eliminating the need to “cash in or cash out” money transfers or bill payments. This strategy is seen as more complex and expensive compared to the efforts of their competitors, who have focused upon C2C and consumer to business (C2B) transactions. From a development perspective, it also may not have the same level of short-term impact among less privileged communities who do not have access to a bank account.

5.5 Tanzania: most popular mobile - based financial transactions

Conventional thinking regarding m-money transfers is that they are often conducted primarily in one direction, with the sender sharing his or her disposable income with a recipient who is in need. In Kenya, there is a dominant urban-rural remittance corridor where senders typically reside in urban areas and “Send Money Home” (an M-PESA slogan) to a rural friend or relative. In Tanzania, while most money transfers originate in urban areas, more than three quarters of both urban and rural recipients reported receiving a transfer from an urban sender. In addition, 57 percent of urban money senders also receive money transfers from others, primarily from other urban senders.

The complexity of Tanzania’s money transfer market has the ability to make marketing m-money products difficult. As a recent GSMA publication highlighted, Vodacom began using M-Pesa Kenya’s slogan “Send Money Home” to advertise its services, but with little effect. Reportedly, Tanzanians were aware of the Vodacom M-PESA brand but not how the service could be used. The main difficulty was Vodacom’s inability to connect their advertising with the sporadic money transfer habits of Tanzanians. By the second half of 2009, coinciding with the SIM card registration period, Vodacom had shifted its marketing strategy towards the presentation of different use cases, explaining to customers how the service works and how to sign up. Despite this shift in strategy, it seems there is still a lack of knowledge among the general population about how m-money services function.

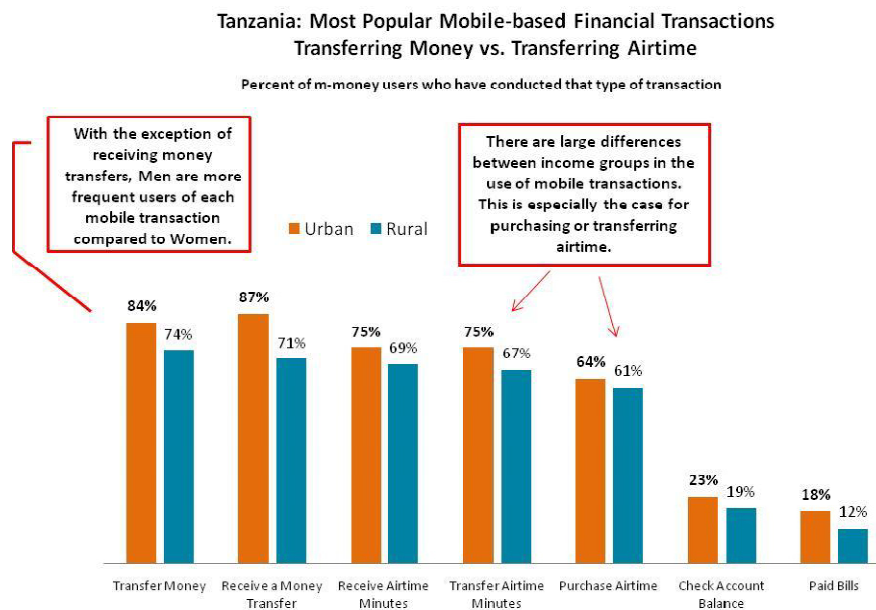


Figure 7 AudienceScapes National Survey of Zambia April 2010: Survey of Adults (15+) Who Have Used M-Money in the Past n=250

6 Conclusion

In view of the above discussion, it is quite clear that as a nation develops, its capacity to produce develops pressure, typically in the distribution structure. Vodacom Tanzania is a leading provider of converged communication solutions that are customer-centric, technology-driven, cost-effective, and innovative but also able to generate sustainable value. Vodacom customers can now access all their desired telecommunication service packages, from mobile telephony through internet access to hosted applications, within a single service provider. Vodacom Tanzania has been a leader in the market for a myriad of reasons. Vodacom stands out for habitually introducing new products and services for the first time in the country.

Even though there are many things that Vodacom Tanzania can celebrate about its accomplishments still a lot of adjustment need to be made. The success that Vodacom has achieved should not blind company to see the future. The company by this time should focus on its pricing strategy and local expert involvement. Since its inception Vodacom Tanzania has been headed by a foreign managing director who has been making the strategic decisions. This concept should be looked at for company to have a balanced pool of ideas for decision making processes. This will help in targeting potential customers especially those who are currently not subscribed to any one telecommunications operator. In future research we will see how M-PESA works and the challenges it brought to the banks' operational activities.

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Analysis of University Personnel Management Innovation in the Era of Big Data

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Abstract: With the advent of the global information age, “big data” concept is gradually integrated into all aspects of society. In the wave of “big data”, how to manage better and make good use of “big data” will undoubtedly become the opportunities and challenges facing the University Personnel Management. From the moment Personnel Management Discussion main problems of starting a profound analysis of the importance of personnel management, information technology and urgency, and made from the changing concepts, improve platform, strengthening cooperation between departments and improve the quality of personnel management and other aspects of strengthening Related University Personnel management information Construction.

Key word: The era of “big data”; Personnel management; Information technology

1 Introduction

With the growing popularity of network information, the mobile Internet, social networking, e-commerce greatly expand the frontiers and applications of the Internet, we are in an era of "Big Data" with explosive growth of data, Big data have a profound impact on social, economic, political, cultural, and life, big data era of human put forward the ability to control data presents to face new challenges and opportunities. In the current personnel management in universities, big data to improve the status of current university personnel management has a good role in the promotion, based on big data, application of modern science and information technology, establish and improve personnel management, information technology and personnel management mechanisms conducive to innovation in the university, enhance the level of university personnel management ^[1].

2 Problems of the University Personnel Management in the Era of Big Data

Currently, the college personnel working in the information age gradually change from the traditional manual office into a paperless office. The main job of personnel management as also by the talent management system, records management system, labor management systems, teacher management system, the year-end appraisal systems and other related electronic systems to achieve. These systems are used in personnel management in the sub-sector to reduce the work of mistakes, improve work efficiency; however, because the data can not be associated with each system and can not be shared, each sub-sector will be repeated some statistics, resulting in data redundancy, greatly reducing efficiency.

2.1 Personnel management concept outdated understanding of information technology is not in place

With the advent of the information age, university personnel management are ongoing reform, but many universities still do not get rid of management under the planned economy, backward management system, management philosophy is obsolete. Many leaders and personnel manager for the university personnel management understanding of information technology is not in place, the information simply understood as the traditional personnel management computer instead, from the purchase of hardware equipment, the purchase of software and databases to establish. They have shown a lot of enthusiasm. But in practice, they rarely used the software, only when they think of the end to make a report or request information management, and not to implement personnel management information, not really play a role ^[2].

2.2 Personnel information management systems are imperfect, information exchange channel is not smooth

The current personnel management system in colleges and universities has been widely used a wide variety of personnel management system. But limited in funds and technology, many systems are developed by an external company to design, in function does not really meet the actual needs of the university personnel management. In addition, a complete set of personnel management system is generally made up of many subsystems, each subsystem almost all relevant sector-specific functions

tailored, with a separate database resources, poor correlation between each other, resource sharing can not be realized^[3]. Moreover, in view of the strong transactional personnel work, frequently updated data, which requires each sub-sector must update their database information. However, the update data between subsystems often can not achieve synchronization update, resulting in repeated the same data in different databases, data redundancy and data generated asymmetric situation, efficiency and impact of the statistical results of personnel work to a certain extent accuracy.

2.3 Personnel management staff lack of capacity information technology, the overall quality have to be improve

To implement personnel management information, the basic quality of staff is demanding. Not only require staff to have knowledge of personnel management side of the business, more skilled master operations information management system. However, the current university personnel managers generally low level of information, mainly in two aspects: First, the old concept, the lack of information literacy, only basic operations, can not do data analysis and management scientifically; Second, in the actual work is not well use of information technology to handle daily affairs, can not maintain information systems and management, resulting in a waste of hardware and software resources, resulting in the operational phase of information systems at a low level, can not be fully functional^[4].

3 The Role of Information Technology in the University Personnel Management

Personnel management, information technology to modernize the help of modern network technology, standardization and network personnel management, making already seemingly isolated useless information through a variety of data integration and analysis of regenerated into a useful source of information will play a very important role in University Personnel Management.

3.1 Easy and fast operation to improve the efficiency of personnel management

College Personnel management is an important and complicated work, which involves a variety of information management faculty, staff, such as changes in wages and benefits, job title changes, staff mobility, recruitment, employee assessment and other. Personnel management must be timely, record information collection accurately, and to promptly update. With the development of university personnel work, the workload increased, the traditional management methods can not meet the needs of modern personnel work. College Personnel Management information by means of the use of science and technology university personnel information data, information processing and handling, will be complicated by the daily affairs of the network, more convenient, more standardized, while saving a lot of time and energy, streamline the personnel work; on the other hand all kinds of information can be easily and quickly statistical analysis, reducing operating costs and improve the efficiency of personnel management^[4].

3.2 Strengthen the unity and cooperation between departments, to achieve a high degree of resource sharing

Traditional personnel management work, although all departments use computers for data processing, but also to establish some simple database, but because of different concepts, scope, and data can not use in a wide range, with a very strong limitations, generally are "fighting each other", sharing of information resources can not be achieved. Strengthen personnel management, information technology, can establish a standardized management system and database, so that information linking the various departments, we operate in an internal system to strengthen the unity and cooperation of various departments, in effectively enhance the personnel department on the basis of cohesion, the ability to collect and update the university faculty personnel information, in order to maintain consistency, standardization and integrity of data in order to achieve a high degree of sharing of resources^[5].

3.3 The information more transparent and open, conducive to deepening service concept of the "people-oriented"

Previous university personnel management system mainly as a fundamental thing, specific to the behavior of personnel management process point of view, often biased the people and ignored to emphasize something. With the continuous development and progress of society, the personnel management system should also follow the development trend, break the shackles, according to people present innovative ideas Personnel Management System. Personnel department is an important part of college, the work is related to the vital interests of the staff, to strengthen information technology personnel management process, you can achieve transparency in faculty-related information, standardization, sharing of resources, improve efficiency^[2]. Meanwhile, the advance of information

technology and digital platforms universities build, one can make of information between departments smooth flow, enhancing the information of openness, transparency, facilitate staff always focus on important information that their closely related, better stimulate their potential; On the other hand it can make development more talent understanding of the school to improve the visibility and competitiveness of the school, in order to attract more talent to join school teachers, promote the healthy development of the school.

4 Concrete Measures to Strengthen the College Personnel Management Information Construction in the Big Data Era

College Personnel management involves a wide range of personnel, with the advent of the era of big data, the amount of data to be processed is more and more, in this context, innovative personnel management, strengthen personnel management, information technology, has been become an important issue of common concern to the university.

4.1 Change of personnel management philosophy, the establishment of large data awareness, attention to information technology

First, to strengthen the emphasis on personnel management, will be "people-centered" philosophy throughout the course of Personnel Management. The traditional personnel management put too much emphasis on work, monotonous and boring, therefore, whether it is leading or the general staff, should strengthen the reflection on personnel management, pay attention to reflect the talent of the dominant position, the coordination of talent personal feelings, self-esteem and value, establish a sense of service, serve personnel work earnestly [6];Second, cultivate awareness of large data, focusing on information technology. As information technology is sweeping all areas of society, universities should fully recognize the importance of personnel management, information technology, combined with the actual school policy and financial support in all aspects of human and financial resources, the establishment of personal electronic records and personnel information management system, give full play to the important role of personnel management, provide quality services to faculty and university departments.

4.2 Establish and improve personnel information management system, build the information management based on platform in big data

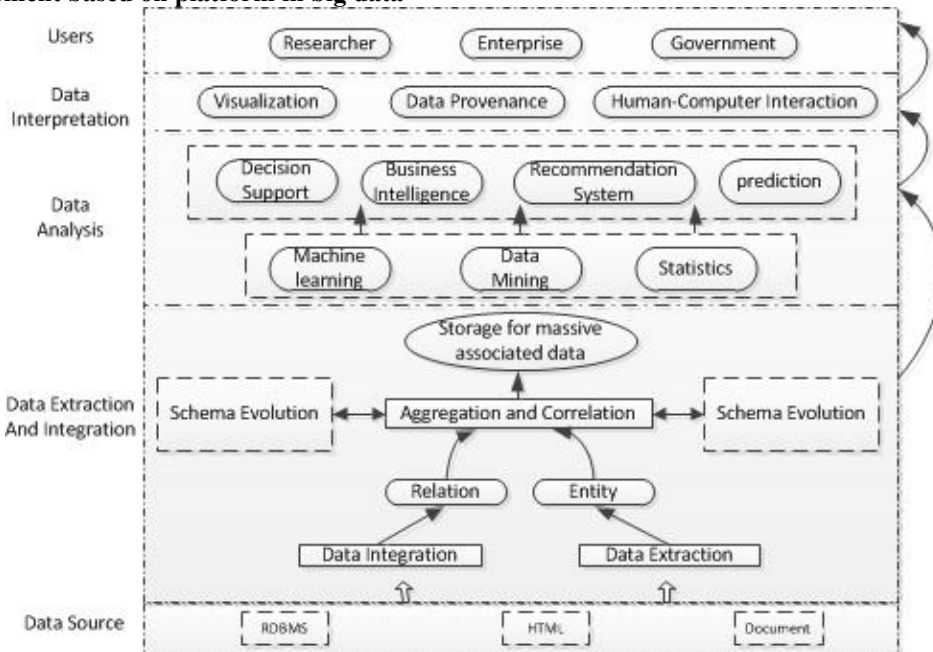


Figure 1 Block Diagram of the Information Management System

Sound personnel information management system needs to integrate data resources of various departments to complete the data collection, analysis, consolidation and application of the work to achieve a unified and standardized management, as figure 1. First, the campus network as a medium to build personnel information management system platform. School campus network is an important platform for information technology, the school may be personnel changes, compensation management,

recruitment information and other personnel information available campus online ,Grading use authority to publish relevant personnel, query, management, etc., enables the exchange and sharing of information resources; secondly, to work to standardize personnel information management: That is in accordance with uniform data standards data, reduce data interface, to establish a unified information platform to standardize management, personnel information and timely updates, regular maintenance of information systems, combined with the actual school personnel information on a unified standardization and institutionalization of management, truly be rules to ensure the authenticity and effectiveness of information resources^[7].

4.3 To strengthen exchanges and cooperation between departments to ensure the smooth flow of information transmission channels

Inter-departmental can enhance working experience through exchange seminars, business salon, forums and other forms of innovative communication and cooperation, continue to strengthen the overall concept, the completion of the work in this sector, based on strengthening awareness of resource sharing. Making information to achieve vertical and horizontal multi-level multi-dimensional sharing to reduce data redundancy and asymmetry, in ensuring the smooth transmission of information under the premise of ensuring the timeliness and accuracy of data.

4.4 To improve personnel management information capabilities, the establishment of high-quality personnel management team

First, to strengthen the business learning and vocational skills training personnel managers, so that they learn the relevant technical knowledge and understanding of relevant national policies and laws, proficiency in information systems, use modern means to handle daily affairs, the real role of information technology efficiency implement; Secondly, personnel training and the introduction of high-quality information system for routine maintenance and management, combined with the actual school system for regular maintenance, upgrading, So that someone special post system maintenance administrator at work to have a pragmatic spirit, keen to discover the problem, and through rigorous investigation to solve the problem; Then, to strengthen ideological education personnel managers and professional ethics education. Managers should possess professional conduct and security awareness, for the more sensitive personnel information to ensure their safety, to protect the confidentiality of personnel management^[8].

5 Conclusion

Information Construction of Personnel Management, Personnel Administration allows colleges and universities to improve efficiency and make the greatest degree of shared resources, which can simplify administrative level, to promote the development of universities. Therefore, we must pay attention to information technology to improve the quality of information management to achieve standardization management, personnel management has leapt to a new level.

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Government Management Innovation in the Age of Big Data

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Abstract: “Big data” is a word to be increasingly mentioned, which is used to describe the coming of information explosion. It also defines the related technology development and innovation. Big data triggers a great revolution. This seems to herald the inescapable process of quantization for all professions including academia, business or government. The trend of big data obviously outdated the conventional means of government administration, hence making its innovation the theme of this age. The innovation faces both opportunities and challenges. Opportunities are that it promotes information transparency and policy making based on population subdivision. For challenges, it may increase the risk of “data dictatorship”, privacy, once being abused, may also lead to preemptive punishment; it is also possible to deepen “the digital divide”. Based on pioneering research, this paper puts forward a new mode of government administrative innovation.

Key words: Big data; Government management; Data dictatorship; Information

1 Introduction

With Internet developing; a variety of terminal equipment produced prodigious amounts of data; which means the age of big data coming. International Data Corporation (IDC) research reports: in 2011; the number of global data created and copied is 1.8ZB. IDC predicts; in 2020; the number of data around the world will be 35ZB^[1]; however the edition "Encyclopedia Britannica" printed in 2010 is less than 4G. Wall Street journal treats big data; intelligent manufacturing and wireless network revolution as three grand technological transformations; which may be enough to match the change of last century^[2].

There is no standard definition of big data now. As is usually considered; it is non-structured data in large and diverse forms. Big data is usually associated with Hadoop; NoSQL; data analysis and data mining; data warehouse; business intelligence and cloud computing together. Gaertner's research report suggests large data is information asset of large capacity; high speed and diversification. They need a new approach to improve the decision-making ability; insight and process optimization^[3]. The definition of IBM and IDC is more representative; both of which think big data should meet the "4V"; three of which are Volume; Variety and Velocity. IBM identified the Fourth "V" is Veracity^[4]; but IDC identified the Fourth "V" is Value. Net-App thinks big data include three elements "ABC"; namely Analytic; Bandwidth and Content^[5]. Of course; regardless of various definitions; big data inevitably subverts the traditional way of data management; which brings revolutionary change in the data source; processing method and thinking. Computer Turing Award winner Jim Gray puts forward the fourth model of science research whose main characters are collaboration; networking and data intensive^[8]. Maier Schoen Berg and Kukye think that big data relates to three major changes in thinking and interaction each other: analyze all the data associated with something rather than a small number of data samples; be willing to accept complicated data instead of the pursuit of accuracy; regardless of causality but search for the relationship between things^[7]; big data reshapes our lives; work and the ways of thinking; meaning the "information society" finally be worthy of its name^[8]. Big data indicates that the mankind society is stepping from the information age into the era of intelligence.

Government management innovation in the age of big data has emerged. The data analyzing team behind President Obama plays a crucial role in his re-election campaign; highlighting the new rules of electoral politics in the age of big data. In 2012 March; the federal government announced the launch of American “big data development project”; which is located as an important national strategic. The United Nations launched “Global Pulse” project using big data to promote global economic development. They make "sentiment analysis" for data of social networking sites and text information through natural language decryption software; which helps an area forecast unemployment; spending cuts and disease outbreaks.^[9] In 2010 July; the British Cameron government launched a new agenda in the foundation of the open data movement; which advocated more rights from the central to local; from the local to the community; from politicians to the public so as to establish a bigger; stronger; better society^[10]. Big data will ensure public information open and transparent. At the same time; open data inevitably affects the government management innovation.

2 Three Perspectives on the Study of Government Network Management

2.1 The anarchism in government network management: the utopia of freedom

Restricted by the times; the early Internet researchers pay more attention to the advantages of network. The Internet makes the cultural; politics out of the “center”. The network society is always associated with open; freedom; equality and sharing together; in which the traditional discourse hegemony and centralization are subverted. In the study of bureaucratic rule; Berson and Yazawa Shujiro think that the development of computer technology deepens people for freedom and democracy; making the mass energy burst out^[11]. As a representative of the scholars on the network management; Barlow thinks cyberspace makes a society that is of difference from the reality—freedom but without confusion; management but without government; consensus but without privilege^[12]. Negroponte points out: neither legal nor bomb can make politicians control the network. The message can be sent out by one way or the other^[13]. Yuan Feng also thinks: the Internet gives people the rights of equal communication and expressions; which makes the social culture of a diversified development. Providing free interactive political hegemony; economic benefits for the public; Internet becomes a challenge to the social mainstream culture authority^[14].

2.2 Levitan in social network management

This perspective thinks information filtering; network database; electronic monitoring; site blocked technology can strengthen the control of power so as to create a Levitan of social network management. Both government and large enterprise groups intend to control the internet. As Hiller points out; the Internet is not a new kingdom detached from the real world. On the contrary; the Internet is close to the real world. The Internet in fact is the most wonderful political tool in the age of globalization^[15]. Post believes that; any communication between people and people; people and institutions will leave traces in the database in the age of big data. Private activity becomes a kind of public activities. The database can revise us without eyes but through the cyber space more accurately^[16]. In Fantine’s opinion; in the authoritarian regimes; the Internet is a contradictory existence; which not only threatens but also strengthens government’s control of information and society^[17].

2.3 The interaction between the government behavior in the network society and real social management

The research views the Internet as a neutral tool. Internet is embedded in the concrete structure of the society and the political culture; in which government behavior pattern is strengthened. As Robert Keohane and Nye think; the classical political issues who rules; how to rule and whose benefits not only relates with the traditional physical space but also relates with network space. Information does not flow in a vacuum; but in political space^[18]. Sheldon discussed the meaning of internet political ecological system and the components. He thinks that the internet political ecosystem is an ecological system treating information as the core. Members in the system generate information; through which they communicate each other; ultimately complex self-organizing and self-adjustment function made. The electronic government plays guiding role^[19]. Xiao Bin thinks information technology not only breeds a great opportunity to digital democracy but also face realistic risks sliding into “digital Leviathan”. Only by the way of citizens; civil society and constitutional democracy system can inhibit the single state monitoring system expansion to overcome “digital Leviathan”^[20]. The rise of the network society management is not sudden. But it has accumulated profound theoretical accumulation and practice such as multicenter governance theory; deliberative democratic theory and public governance theory.

The three perspectives above reflect different sides between network technology and public power; which provide the basis for our next research.

3 The mode and Challenge of Realizing Government Management Innovation in the Age of Big Data

3.1 The mode of realizing government management innovation in the age of big data

3.1.1 The transparency of information

Revolution of information creates a new political trust; in which the transparency of information is becoming a kind of right assets^[21]. The data will be a good opportunity for the government to achieve the transparency of information. The data of government departments are easy to get; which can improve their work efficiency. In 2009 March; Obama appointed the first Chief Information Officer in history. Then the federal government open data portal Data. gov appears on line. A “planning the digital future” report in 2010 said “every agency and department of the federal government need to make a data strategy to establish an open and transparent government; in which citizens can participate and

cooperation can be possible^[22].

3.1.2 Forecast public demands

It is the core of big data to apply the mathematical algorithm to the data to predict the possibility of things. The government can analyze the data to response to the public timely. Farrel points out: if the individual activity on the Internet can be systematically captured; we can infer for the first time in history informal communication and opinions between people in the Internet^[23]. Big data reflects the public opinions. Mass data on the Internet record thoughts; behaviors and emotions of the public; which is the combination of the reality and network space; containing rich regular information^[24].

3.1.3 The policy based on population subdivision

The public department should provide equal services for all citizens. But if there is not enough data to understand public demands; the equalization of the service supply would not be possible. The McKinsey study found that; service can be supplied according to the data of individual or a certain group; which can improve the efficiency; effectiveness and citizen satisfaction. Fortunately big data provides an opportunity to realize it^[25]. For example; through analysis of massive historical; the German Labor Bureau adjusts government's welfare for the unemployed; reducing government spending and improving user's satisfaction^[26].

3.2 The challenge of realizing government management innovation in the age of big data

3.2.1 Data dictatorship

Using big data; Amazon checks our shopping habits; Google checks our webpage browsing habits; Twitter hacks our information and Facebook seems to know all; including our social relationship. Government uses big data not less than private enterprises. Washington Post disclosures; in 2010; the number of e-mails; phones and other communication records intercepted by USA NSA every day is up to 1.7 billion^[27]. Big data threatens our privacy and freedom; which are the foundation of modern society. It also aggravated an old threat that we rely too much on data; but the data is not reliable as what we imagine. Digital memory created by big data not only supports the control of hierarchical organization and society but also seeks for their own support so as to consolidate and deepen unequal information power distribution^[28]. In a word; big data may produce "data dictatorship".

3.2.2 Privacy was abused to preemptive punishment

Value of Big data is no longer simple basic use; but is more used twice. A lot of data is not intended for other uses when in the collection; but eventually many innovative uses occur. Big data makes the community lose the ability to forget; and perfect memory instead. Our past as a tattoo inscribed on our digital skin^[29]. In fact; American Department of homeland security is developing a set of future behavior detection technology (FAST) security technology. They can find potential terrorists by monitoring personal characteristic and individual behavior^[30]. In particular; in the transition from small data to big data; data quality may be poor; not objective; misleading or not quantified. We don't have idea inaccurate forecast will damage social system order.

3.2.3 Digital divide

Digital memory deepens the divide between the information rich and the information poor; which further enhances the power tilt. Digital memory has three characteristics: accessibility; persistence; comprehensive. Business or government might use the information to achieve information superiority. We can't see reciprocity information; but the information power from powerless to the power^[31]. The reason of digital divide is the differences among information collection; search and analysis; which will form an accumulative difference.

3.2.4 Institution

In the age of big data; the institution with purpose of protecting privacy policy will fail. It can be seen as a proof of Austrian's word "culture lag"; scientific discovery or invention first; the backward adaptation culture can be often the social organization and ideology^[32]. Risk society theorists Rush thinks: the institution using technology to avoid risks and dangers may involve new risk and lead to a larger scale degree of disorder even complete collapse^[33]. So social risks big data brings are huge.

4 The Ways of Government Management Innovation in the Age of Big Data

4.1 Management based on data: provide the wise public service

In the age of big data; the government will focus on data management; as shown in Figure 1.

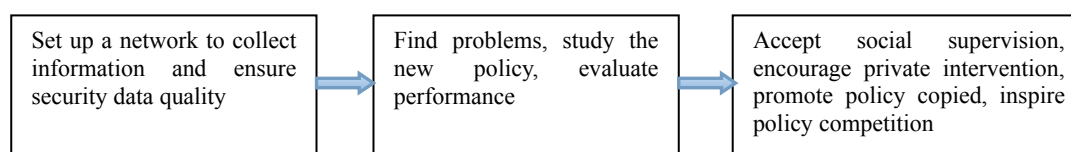


Figure 1 Government Management Based on Data

4.1.1 Change from information collector to information analysts

In the age of big data; the collection; management and analysis of data has become the most important. Though data of one year; one area does not see too many tricks; with the cross-regional and year; more and more groups' behavior characteristics will present order; correlation and stability and more rules will appear^[34]. Through the analysis of massive data; government can timely understand the public demands to improve the policy response so as to supply good public services.

4.1.2 Change from information claimants to information offer

In the age of big data; data can be automatically integrated on the internet. Using data technology tools to analyze the public browsing preference; service application; online reviews; the government provides personalized service for the public. The main target of data open website "data.gov" set up by Obama government is to open information to inspire more innovations^[35]. Similarly; in 2010; British Prime Minister Cameron proposed a concept "Right to Data"; which thinks right to data is a basic right in the age of big data. He also promised every citizen had the right. The labor department and business department in Britain announced a new project to implement the data right; My Data; which ensured personal right to data.

4.1.3 The government decision is from the prediction to real and accurate record

First; social management information is published in time. For example; the data pulsation of United Nations emphasizes the real-time data. It makes the prediction by analyzing the real-time data to force the government decision changes from the prediction to real and accurate record. Secondly; more accurate information for decision making is needed. Big data is not random data analysis; but the full data; namely "sample = populations"^[36]. In state of New Jersey; the introduction of INRIX data traffic management system; which is of accuracy and of broad coverage can reduce travel time and cost^[37].

4.2 Construction of the responsible and freed information management system

In the age of big data; it needs to take more responsibility for privacy data management institutions to protect privacy information. Maier Schoen Berg puts forward three strategies; including privacy preserving transformation from individual permission to data users. When using prediction analysis; individual motivation is needed to consider. Fighting against the data monopoly will be the basic of data management effectively^[38]. At the same time; he also puts forward the concept of "Internet forgotten movement" in order to protect the right of privacy and data security^[39]. These measures all emphasis on both responsibility and freedom; which are also social network management development direction in the age of big data.

4.3 Rebalance public power: network citizen society and citizen rights

Since the birth of the network society; there always existed balance-imbalance-balance interaction among public power; network citizen society and citizen rights. Balance between civil society and state is the ideal harmonious society. Civil society is not only an important bridge between the government and the citizen; but also a powerful source and an important factor of influencing the government decision-making and government reform^[40]. Information technology is a kind of social right tools; which reduces the influence of population pressure on the individual. Through interaction; users will choose important problems they think rather than the media think important to become a part of the public agenda^[41]. The collective movements on the internet contributes to overcoming control by the public power. For example; open data movement has penetrated into political; cultural; social and other aspects; creating the motions and the slogans of open political; open government; open media; open city and so on. As a result; 50 governments participate in the "open government union"; whose slogan is "Using format can be reused to publish high quality information; including the original data timely to the whole society"^[42]; which reflects rebalance public power; network citizen society and citizen rights.

5 Conclusion

Based on the theory of government behavior and big data theory; this paper analyzes the mode and

challenge of realizing government management innovation in the age of big data. In the age of big data, the following measures benefit to realize the government administrative innovation: applying the “management based on data” method; constructing the information management system on a responsible and liberal basis; rebalancing the public power; internet civil society and citizen rights. As an exploratory research, it helps us to understand the significance of government management innovation in the age of big data. But what needs to point out are: First, big data technology itself is not mature. The relevant technology and application in the field of social management is relatively less. So the conclusion of the paper needs further inspection and correction. Second, for China, it will be a gradual process to realize government management innovation in the age of big data. It requires government, industry and academia work together, which is our next research direction.

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Innovation Through Channels of Human Resources Management: Designing of Creative Organizational Culture

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Abstract: In today's fast-paced volatile Business environment Innovation has been viewed as competitive advantage for successful firms. Innovation can be achieved in an interactive process of creativity, knowledge generation and application. Developing a creative and innovation friendly culture to foster creativity, generate knowledge can facilitate the employees to be more creative sharing of knowledge, and apply the knowledge so that innovation is promoted. The role of Human Resource department has evolved as a strategic player in promoting innovation culture. Many HR practices have positive impact on innovation process. This paper aims to highlight the importance of Designing of Creative Organizational Culture through various HR practices for unleashing the talent of employees to achieve strategic goal of promoting innovation in the organization.

Key words: Innovation; Creativity; HRM practices; Organizational culture; Knowledge sharing

1 Introduction

In today's knowledge based global arena the importance of innovation can hardly be denied. The ever changing business and organizational environment calls for creativity, innovation in all spheres of functional areas in organizational setting. Intensifying global competition has increasingly challenged domestic and multi-national firms to respond to continuous changes in products, markets and technology and best strategy to cope this challenge is to swiftly respond to changing technology and markets through creativity and innovation by establishing creative organizational environment to ensure that employee's creative talent could be managed effectively. For innovative company, the ideas and insights of their employees are of crucial importance (Tang, 1998)^[1]. Not only because innovations start with the initiatives of creative people but also because the commitment of these people is essential to turn an idea into a concrete improvement. There is growing evidence available in the literature to suggest that HR department is an important contributor and predictor to promote organizational innovation. Many studies results indicated that most employees are creative and consider creativity as important in pursuing their performance. If employees are provided the sufficient space for the creativity better performed and adds to innovation.

Innovation can be defined in different ways. According to West and Farr, (1990)^[2] "It is the intentional introduction and application of ideas, processes, products or procedures within an organization, designed to significantly benefit the organization or wider society". Roper and Love (2004)^[3] view innovation as "A continuous, evolutionary process, involving the application and re-application of existing as well as new scientific knowledge". There has been greater debate that how innovation could be achieved within organizational working environment? Paton; McCalman (2000)^[4] suggest that innovation can be achieved by all receptive and responsive members of the organization by ensuring that they have the necessary skills and actively to support the Components of the innovation in the organization. Hence it could be realized that not only R& D specialists but all employees at all levels of the business activity can play an important role in either initiating innovative suggestions for improvements themselves or supporting others who are engaged exclusively in innovation.

Studies investigating HRM and innovation relationships suggest that role of HR department is imperative in creation of innovation oriented organizational environment through specific HR practices, or combination of practices. Laursen and Foss, (2003)^[5] argue that HR practitioners are faced with the challenge of developing and implementing the practices necessary to facilitate innovation process. While there is as yet no commonly agreed frame of reference about exactly what constitutes an HR 'system (Wood, 1999)^[6]. Many scholars such as Dyer & Reeves(1995); Huselid, (1995); Macduffie,(1995); Bae & Lawler (2000); Hutchinson et al(2003), agree that a typical system encompasses HR Planning, training, appraisal/performance management and sophisticated selection and socialization as well as practices designed to promote participation and involvement, such as team-work and reward. Such combinations of sophisticated HR practices have potential to influence organizational innovation, the creation, sharing and implementation of knowledge commonly known as organizational

learning cycle.

2 How HRM Specifically Contributes to Innovation

Historically, there has been abundance of literature on innovation in HRM but shortage of the studies to know how HRM specifically contributes to Innovation? Many research conclude that “there exists a lack of theoretical and empirical understanding of how exactly HRM practices affect innovation performance”. However Recent attempts have been made to draw these two distinct fields together (for further see: Laursen and Foss (2003); de Leede & Looise, 2005; Jorgensen, Hyland, & Koefed, 2008; Jorgensen, Laugen, & Boer, 2007). This calls for enhanced understanding of HRM and successful innovation, to be engaged with in an integrated way. Different HRM practices are seen as valuable to stimulate and support creativity mainly through enable freedom among employees, which hence improve innovation processes (Jiang et al., 2012).^[7] The role of HRM in achieving critical business innovation and success could hardly be denied in variety of HR practices such as in recruiting and retaining skilled employees, increasing customer satisfaction, employing and developing leaders, sustaining a competitive advantage, managing risk, managing change and corporate culture and becoming more innovative. Indeed the single HR function cannot ensure success in innovation but bundle of HR functions and practices could be expected to affect innovation performance much more strongly.” Laursen and Foss (2003)^[5]. Each HR practice has its potential value in promoting innovation but designing of creative organizational environment has critical role in benefitting from employees talent and achieving innovation. In remainder section we discuss this in detail.

3 Designing of Creative Organizational Culture /Environment for Innovation

Creativity is essential factor of innovative capacity, competitiveness and enhancing performance of businesses and organizations. The creativity has its close link to innovation and is perceived as a determinant of socio-economic development of enterprises, cities, regions and countries (Ali Taha, et al (2014) ^[9]. It is commonly accepted that Innovative organizations use knowledge creatively. Creativity is the component that enhances the organizations’ ability to retain their competitive advantage as well as to stay ahead of their competitors.

The majority of the literature on creativity has focused on the individual, yet the organizational environment can influence both the level and frequency of creative behavior of employees. A creativity oriented organizational environment sets a conducive platform where individual creativity can be transformed into collective and collaborative manner that could be benefited in achieving strategic organizational innovation targets. Hence Human Resource function has a crucial duty in stimulating innovation processes by affecting creativity and knowledge sharing (Li, Zhao & Liu, 2006^[8]. HRM practices become crucial to how organizations influence and shape attitude, behavior and skills of individuals, of importance to whether organizations deliver innovations that corresponds with their goals.

3.1 The impact of knowledge sharing, job design, work autonomy, job security and training on creativity and innovation

Only developing ideas and products is insufficient but to move it forward to organizational level becomes necessary to capitalize it fully. Creativity and knowledge sharing combined with opportunity at the work place to be creative and to have an autonomous job design are agreed to be important prerequisites for innovations to occur in the organization. (Marks & Huzzard, 2008)^[9]. The support for knowledge sharing and exchange of ideas in the organization is therefore argued as important for promoting creativity. To support this, a work environment that is tolerant and welcome new ideas, which includes freedom and challenges at work, shared objectives and open relationships between colleagues and managers have been found to be important (Martens, 2001)^[10]. Formal knowledge sharing is institutionalized by management and includes all organized activities that aim to promote knowledge sharing and learning from each other. Knowledge sharing requires a willingness to collaborate with other employees in the organization. A positive relationship was found between HRM practices and knowledge sharing and hence innovation (Chen & Huang, 2009; Tan & Nasurdin, 2011)^[11]. Different studies by Al-Alawi et al; (2007); Casimir et al (2012); Taminiau et al (2009); Suppiah & Sandhu(2011) have concluded that the organizational culture has an important impact on knowledge sharing in the organization. An organizational culture that encourages trust between employees are facilitating knowledge sharing, facilitates a flow of communication, social networking and cross-functional interactions was positively associated with knowledge sharing (Casimir et al., 2012)^[12]. Additionally,

teamwork and a collaborative culture were also argued to affect knowledge sharing positively (Suppiah & Sandhu(2011)^[13]. Employment security and job design is argued to be important for knowledge sharing since it means stability, team orientated, autonomous and internal communication oriented job design, with a flexible organizational structure with broad defined jobs, knowledge sharing behavior was enhanced since it encourages experimentation (Jiménez-Jiménez & Sanz-Valle, 2013)^[14].

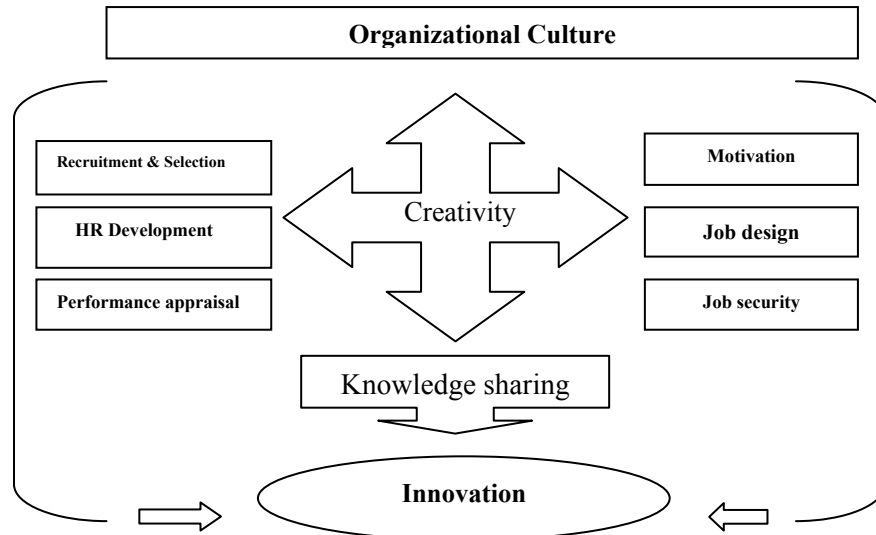


Figure 1 HR Practices Supporting Organizational Culture and Innovation Process

Some previous studies found support for the positive role of training for knowledge sharing, individual capabilities and a learning-oriented culture. By training, culture could be developed and maintained and employee skills could be translated into organizational routines Minbaeva (2005); Jimenez Jimenez & Sanz-Valle, 2013)^[15]. Performance appraisals combined with compensations are argued to potentially enhance employee motivation for knowledge sharing. Performance appraisal and rewards should reflect employees' contribution to knowledge creation and transfer. (ibid.).

4 Conclusion:

Organizations in pursuit of innovation look for HR department to play decisive role in providing creativity and innovation friendly environment through various HR functions. The paradigm shift of HR department from Pay and pay roll has been turned to strategic partner in all aspects of organization. Innovation must be created and sustained through new sets of HR practices. Innovative organizations possess a culture of creativity, engagement, desire to succeed, and empowerment at the employee level. Recruitment, training, performance appraisal, job design and reward system should be carried out in a way that leads to job security, freedom of generating creative ideas and timely sharing of such creative ideas to encourage innovation. Creative and innovative organizational culture can only ensure that talent of employees is transformed into innovation and for competitive advantage.

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Research on Management Innovation for College Students in Practice under the Background of Mobile Internet

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Abstract: with the rapid development of mobile Internet, the use rate of mobile network will be higher. This paper fully studies the new background of mobile Internet, and analyzes it according to authorized data recorded in “The 35th Statistics Report on Chinese Internet Development” and other official documents. The result shows that college students are the main force of the mobile Internet users; therefore, it brings new opportunities for the innovation of management of students in practice. The paper further has built a structure of “strengthening awareness of mobile network, improving mobile network skills and improving the effectiveness of the mobile platform” to expand the management path of college students in practice and make the management of students in practice more effective.

Key words: The background of mobile internet; College students in practice; Management; Innovation

1 Introduction

With the rapid development of mobile Internet, China has entered the era of mobile Internet. Among a large number of mobile phone users, college students are main force in the use of mobile Internet. Mobile Internet is gradually influencing and changing their lifestyles, behaviors and ways of thinking. The popularization and extensive use of the mobile Internet not only provides an opportunity for management of the college students in practice, but also brings challenges. We need to fully understand the dual role of mobile Internet in management of college students in practice, change our concepts of education, make full use of the advantages of mobile Internet, and continuously innovate in the contents and methods of management of college students in practice to improve work efficiency and management level. Chen Xiaobo, Teacher of China Nanjing University of Posts and Telecommunications, published an article of “Discussion on Innovation of Management of College Students under the Background of Internet” in 2012. He put forward that “the college student affairs administrators should know the situation clearly, update management philosophies, expand new ideas and actively explore new management methods and mechanisms in order to better meet the need of network era”.^[1] So far, there is no one to study “the innovation of management of college students in practice under the background of mobile internet”.

2 The Environment Analysis under Mobile Internet Mode

In order to make clear the innovation of management of college students in practice under mobile internet mode, most of data in this paper come from “35th Statistics Report of China Internet Development” issued by the China Internet Network Information Center (CNNIC) and other authorized official documents.

2.1 The scale of internet users and mobile phone internet users

According to “The 35th Statistics Report on China Internet Development” (hereinafter referred to as the “report”) issued by the China Internet Network Information Center (CNNIC), “by December 2014, the scale of China’s Internet users had reached 649 million. There are totally 31.17 million new Internet users in the year. The popularizing rate of Internet is 47.9%, increasing 2.1% compared with that at the end of 2013”. “As of December 2014, the scale of the mobile phone users in China has reached 557,000,000, with an increase of 56,720,000 people compared with that of 2013. The proportion of mobile phone internet users increases to 85.8%” from 81.0% in 2013.^[2]

2.2 The usage rate of mobile internet equipment and the quantity of mobile search users

As shown in Figure 1, by the end of 2014 the proportions of desktop and notebook computer access to the Internet were essentially the same with that in 2013, respectively maintaining at around 70% and 43%. However, the proportion of mobile phone access to the Internet increased by 4.8% compared with that at the end of 2013, up to 85.8%. In 2014, the use rate of desktops, notebooks and other traditional internet access devices remained steady, but the use rate of mobile Internet devices further grew. From

Figure 2 we can see, in 2014 and 2013 main device used by new Internet users is mobile phone, with respective use rate of 64.1% in 2013 and 73.3% in 2014, much higher than the use rate of desktop computers and laptops. From Figure 3 we can see that as of December 2014, China's mobile phone search users had reached 429,140,000, with a use rate of 77.1%. The user scale increased to 64,110,000 from 365,030,000 in 2013 with a growth rate of 17.6%.

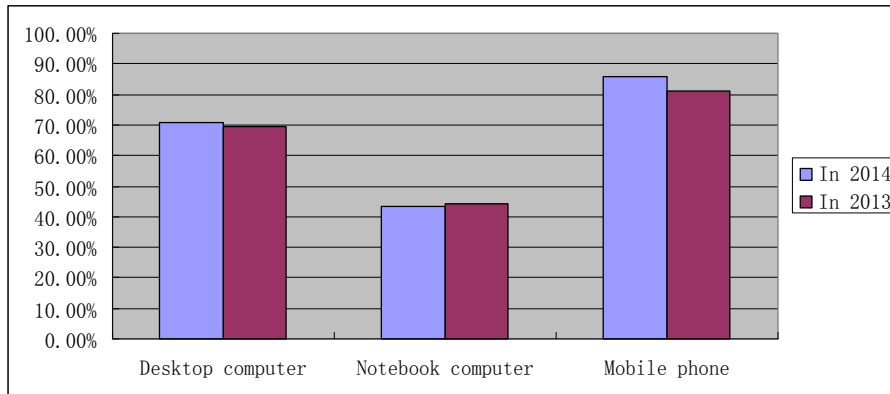


Figure 1 The Use Rate of Desktop Computer, Notebook Computer and Mobile Phone Access to the Internet

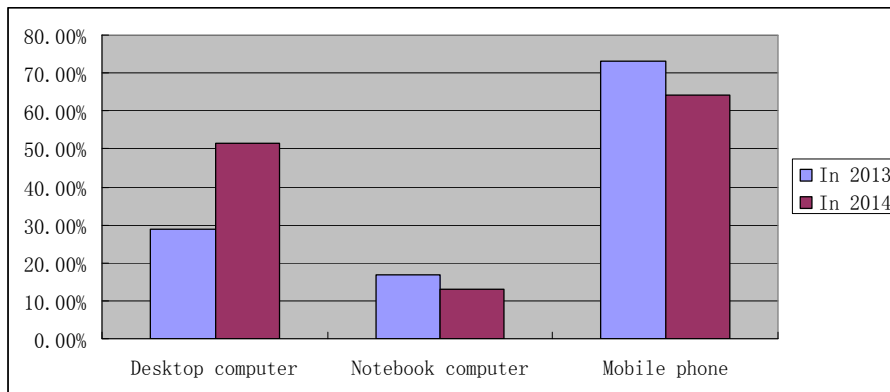


Figure 2 The Use Rate of Internet-Access Devices of New Internet Users

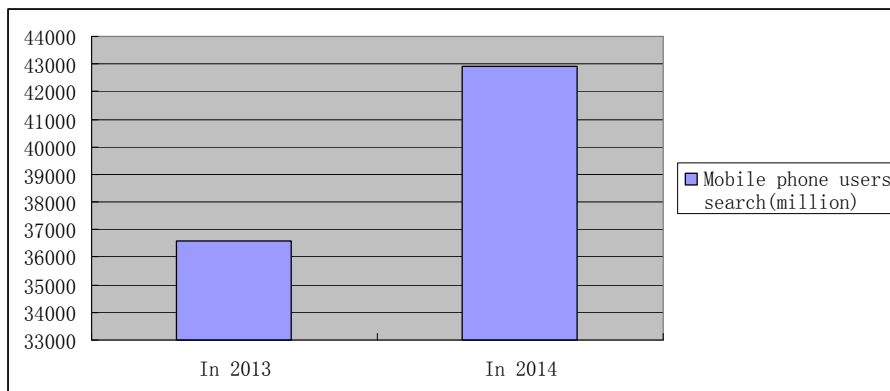


Figure 3 Mobile Phone Users Search

2.3 The age structure and education level of internet users

As of December 2014, “China's Internet users aged between 10 and 39 became the main group, with a total proportion of 78.1%. Among them, the proportion of Internet users aged between 20 and 29 was the highest, up to 31.5%”.^[3]As shown in Figure 4, the netizens aged between 10 and 39 was the most internet-dependent group. In the management of college students, counselors are the main force for students’ management. The author has made a survey about the age of counselors in colleges and universities. As shown in Figure 5, there are 131 counselors aged between 20 and 29, accounting for

59.28% of respondents. There are 74 counselors aged between 30 and 39, accounting for 33.48% of respondents. There are 8 counselors aged between 40 and 49, accounting for 3.62% of respondents. There are 8 counselors aged above 50, accounting for 3.62% of respondents. The instructors aged between 20 and 29 are the main group using mobile internet. “The proportion of netizens of bachelor degree or above reached 63.9%. The dependent ratio of netizens to Internet increased with the increase of education level. The proportion of students was 23.8% among netizens, ranking the highest.” [4] It indicates that Internet has become a "basic element" in the work and life of college students and counselors.

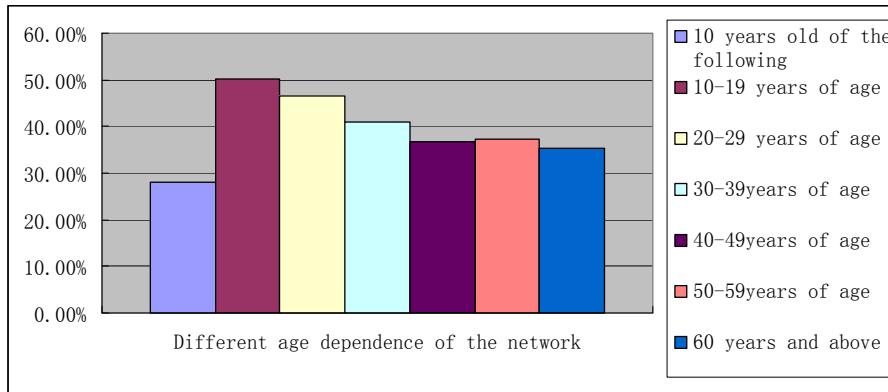


Figure 4 Dependence of the Network in Different Age

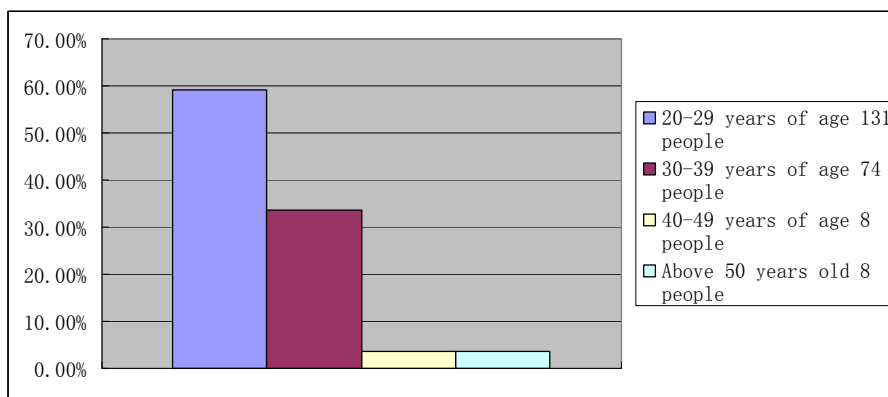


Figure 5 The Proportion of Counselors on Different Age

In short, through analysis of the above data, we can draw the following conclusions: 1) from the use of the mobile Internet in China, with the development of network technology, network use rate will be higher and higher. The mobile network environment in modern society requires the innovation of management of college students in practice; 2) from data analysis about the age structure and education level of Internet users, it can be seen that the age and education level of college students and counselors are all in this age group. At present, college students also belong to this group aged between 20 and 29. Therefore, both students and counselors are the main force of mobile Internet users and it brings new opportunities for the innovation of management of college students in practice.

3 The Practice Status of College Students

As we all know, practice is an indispensable key line in teaching. It is also a process for students going from theories learned in classroom to social practice. It provides opportunities to apply theoretical knowledge into practical life, realizing the qualitative leap of professional knowledge. It is undoubted that it can deepen and consolidate professional knowledge learned in class. Due to college expansion of enrollment, there are about 10,000 or 20,000 students in a college, even more in a comprehensive university. However, due to intense staffing quotas, colleges and universities are short of teachers. In addition, it requires students to enlarge the selection of practice, so colleges and universities begin to use the mode combining unified arrangement and independent choice. The school is only responsible for the guidance of practice. Students' practice units vary and are distributed in different places. With different

concepts in practice and employment, some students may change practice unit specially. In the practice process, counselors can not care about every student in dynamic management due to various reasons. For a long time, this large distribution but small concentration and strong flow-ability have greatly increased potential risks to students' safety and brought many difficulties to student management. The overall management ability of colleges and universities are therefore reduced. It is very difficult to resolve problems of student in practice in time. In addition, graduating classes often have a lot of things. It is even more difficult to communicate at times and meet together regularly. It is beyond the reach for school, so it is unable to carry out effective guidance and management. Even though there are supervisors appointed, the guidance often becomes empty. In fact, students are in un-control state. The practice results and achievements can not be evaluated objectively and scientifically, so the practice management is an empty talk.

4 The Innovation Path of Management of College Students in Practice under the Background of Mobile Internet

At present, China's mobile Internet has spread, and information network covers every corner. There is a close relationship between the students' work, study, daily life and network. Network also produces more and more influence on college students' thoughts and behavior. Regulations on Construction of College Counselor Team (hereinafter referred to as "the Regulation") requires counselors pay attention to application of a variety of new work carrier, especially networks and other modern technological means to develop working approach, close to reality, close to life, close to the students, and thus improve the work effectiveness and pertinence and enhance the attraction and appeal of the work". The Regulation stressed that "counselors are organizers, executors and guiders of students' ideological and political education and management". Students' parents and practice units are also the effective components of student practice management. Therefore, under the background of mobile network environment it is particularly important to convert awareness of mobile network of college counselors, parents of students and practice units, and to innovate in practice management by using mobile network.

4.1 Strengthening the awareness of college counselors, students' parents and practice units to use mobile internet

Counselor is the organizer, executor and instructor. Counselors, parents and practice units should be fully aware of the profound impact of mobile network on the educational environment of colleges and universities. It is suggested to "give full play to the network advantage to carry out practical and effective ideological and political education, and actively occupy the commanding heights of the network".^[5] The counselors, parents and practice units should not only keep pace with the times, but more importantly, continue to progress and walk at the forefront of the times. They could use Wechat, QQ, Fetion, Microblog and other mobile networks to obtain information, for they are "fast in speed, wide in domain". They should improve themselves in actual life, work and study by applying Marxist viewpoints, standpoints and methods to strengthen the application of public opinion and the guidance of consciousness. They should not only learn to use mobile network to deal with the daily affairs, but also can construct mobile network to deal with sudden events, master the information technology of mobile network, timely and quickly inform students the truth of the matter to prevent the emergence of blackmail events and avoid unnecessary trouble. In the future, mobile Internet will speed up the development, so counselors, parents of students and practice units should take the initiative to strengthen awareness of mobile network, understand transmission characteristics and rules of Wechat, QQ, Fetion, Microblog and other mobile network, know the profound impact of mobile network on education environment of college students and have the innovative awareness of college students management with mobile Internet.

4.2 Enhancing the skills of college counselors, students' parents and practice units to use mobile networks

Counselors, parents of students and practice units not only have the awareness of mobile network, and it is more important to keep learning, know new technology of mobile network, develop mobile network information literacy, master the operation skill of mobile network, be familiar with the current mobile network system and mobile network language popular in student groups, and constantly enhance the personal ability of information analysis and evaluation, so as to enhance their own mobile network skills. In addition to counselors' self-learning, schools also can carry out targeted training for counselors on the use of mobile network platform, regularly invite internet experts to carry out special lectures in combination with the characteristics of the students, and also can hold a number of mobile

communication network salons for teachers and students. It is suggested to combine information knowledge and mobile network technology and treat the mobile network training as an overall and regular affair to form a system or a kind of culture and thus improve counselors' proficiency in use of mobile network.

4.3 Improving the effectiveness of mobile network platform

Under the mobile network environment, the effectiveness of college counselors is the practical effect obtained in the process of educating, managing and serving students by the application of mobile network platform. [6] "The interactive information among students on the mobile network platform reflects the student's interest, hobbies, behavior characteristics and value orientation. Students' discussion on hot people and topics on mainstream network platform in different times could reflect their concern and ideological trends in certain stage. This information is first-hand data for counselors to understand students as well as the important basis to carry out management work among students". [7] At present, almost all students have their own Wechat, QQ, Fetion and other mobile network. They use these mobile networks to express their feelings, discuss hot topics and do other things, which provide a good opportunity for student management work. Counselors, parents of students and practice units can use Wechat, QQ and Fetion to establish mobile network groups. Wechat, QQ, Fetion and other mobile networks can ease this problem in a large extent, and help to build a communication and exchange bridge among students and counselors. Counselors can timely know students' ideological trends in practice through Wechat, QQ, Fetion and other mobile networks as well as practice units' management mode and operating mode. Counselors can communicate with practice units about the problems students meet to effectively reduce contradictions caused by misunderstanding among "schools, students, parents and practice units" and thus improve students' effectiveness in practice. At same time, through Wechat, QQ, Fetion and other mobile networks, counselors can know students' practice, participate in evaluation of students' practice quality and etc. In the holidays, they are also very good management platforms, for counselors can concern students' dynamics at any time by using them. As long as there is network, counselors can communicate with students through Wechat, QQ and Fetion at all times and places and care about students' study, life and ideological trends. In this way, counselors can master all aspects of the information about students and provide timely service to students.

5 Conclusion

The management of college students in practice is complex system engineering. The practice effectiveness depends not only on the application of mobile Internet, also depends on practice plan and practice content, practice methods and a series of supporting measures. It is recommended to combine school, society and family to care about the practice of students. The author will make unremitting efforts to study it further on the basis of this research, striving for make a breakthrough in the construction of college students practice work system.

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Relationship among the Chinese Government, the CDPF and the Civil Organizations for the Disabled*

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Abstract: The new social policies of 2013 break the “Dual Registration Management System” and further release the development of civil society organizations. In the disability field, a large number of civil organizations for the disabled will obtain legal identity and enjoy “Institutional Welfare”. As the intermediary between the state and the society, the CDPF needs to standardize its functions, simplify the organizations and make the work more transparent to keep up with the pace of policy development. The present “Endogenous dependent Relationship”, “Authority Relationship” and “Alienation Relationship” will transfer into the “Mutually Beneficial Relationship”, “Competition and Alliances” and “Subcontractors and Agents”, and eventually become an organizational relationship pattern dominated by the CDPF, in which a variety of relationships coexist.

Key words: Civil society organizations for the disabled; Authority relationship; Mutually beneficial relationship; Subcontractors and agents

1 Introduction

Developing civil society organizations can meet the public service demand effectively. Foreign scholars demonstrate the rationality and necessity of civil society organizations' involvement in providing public goods from the perspectives of market failure, government failure, contract failure, voluntary failure. Related theories have been emphasized by domestic scholars, and affect the continent officials' governance methods.

After the reform and opening up, the party gradually relaxed controls on social area, and civil organizations began to participate in society construction. But by the impact of the disorder revolution in the late 1980s, the official was afraid of the political risks derived from destabilization, therefore it began to take the "dual registration system", namely the civil organizations have to register in the management department and accept the leadership of the competent authorities. In this management mode, the civil organizations are supplementary parts of the government in public service areas, and their developments are extremely restricted. In the 21 century, with the acceleration of market economy and the increase of demand for public services, the shortcomings of the "dual registration system" appear gradually, therefore more and more people call on strengthening the social autonomy reform. In recent years, Guangdong, Shanghai and other places firstly conducted effective social reform, which had a great effect. The 12th National People's Congress Meeting firstly breaks down the identity barriers of the commercial, technological, charitable and urban social organizations on the national level.

Thanks to the adjustment and release of new social policy, social services will start a new period of development. As an important part in the social and public services field - Public Service for the disabled will also develop further. As the connection between the government and the folks, the CDPF plays an important role in safeguarding. However, founded on the basis of immature democracy and not-fully developed market economy, the CDPF with both administrative and service functions has its limitations, which make it becomes increasingly difficult to meet social service demands of the disabled". The civil society organizations for the disabled established by civil powers will play an important role in social security and public service.

With the introduction of a new social policy in 2013, the present service model for the disabled will be challenged, and the traditional pattern of social relationship is likely to change. As an important organization within the disability field, the CDPF also needs to make the appropriate adjustments in the situation. Therefore, this paper will sort out the past patterns of organizational relationships in the disability field based on the combination of new content and orientation of social policy and make reasonable analysis for the CDPF's reform direction and the organizational relationship in the future disability field.

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2 The Interpretation of the Relationship among Chinese Government, CDPF and Civil Society Organizations for the Disabled

2.1 The western “government- society” relationship theories and their local usage

The relationship between the government and the civil organizations has been a hot issue at home and abroad academia. Western scholars discuss the relationship between them mainly under the “state-society” dual framework. The typical theories are the pluralism theory and the corporatism theory. Pluralism insists that the society and the state should be separated into two areas. Social power is diverse and decentralized; different social groups express their interest demands and affect the country’s political decision-making through participating in electoral competition (Whyte, Martin K,1992). “Non-profit organization holding the Government” “non-profit organizations against the government” are some kinds of relationship pattern derived from this theory. Corporatism holds the view that the state and the society are not fully differentiated; the state should strengthen its participation and control on the civil society and be committed to building institutionalized channels of communication between the state and the society (Unger, Jonathan&Anita Chan,1995). Under the guidance of the theory, the ideas of “non-profit organizations and government coexist” and “non-profit organizations and government cooperate with each other” are proposed.

Domestic scholars use the western theories to analyze the relationship between the Chinese government and civil organizations after the reform and opening up. The supporters of Corporatism think that although China has emerged a large number of social organizations, the state still controls the establishment and operation of them and given some of them the monopoly position in the industry; there has not been any truly independent social spheres in China.

According to Corporatism theoretical model, China's "state-society" structure model had many features of the corporatism after the 1980's, First, strong state-led force. The state establishes some social groups or determines the monopoly position of some existed social groups and provides them with resources, such as the China Youth Development Foundation and Song Qingling Foundation. Second, restriction on the freedom and movement of interest groups. It means that needs expression, leadership selection and organizational support are controlled by the state. Third, interest groups are integrated as part of the national system. Associations or organizations have the obligation of passing public demand information to the national policy-making departments and assist the state with managing and implementing the allocated tasks (Adams, Paul S,2002). Fourth, limited number, non-competitive, structured, and system differentiated.

Obviously, Chinese social organizations are different from the western non-profit organizations in their nature and structures. The social relationship formed by the Chinese government and social organizations under the Chinese modes has typical characteristics of localization. These characteristics can not match with the theoretical paradigm of the Corporatism, especially in the interpretation of a particular social sphere.

2.2 The characteristics of the “government-society” relationship in the disability field and the limitations of the western theories

There are two vital time points in this paper; they are the establishment of the CDPF in 1988 and the introduction of the new social policy in 2013. The author mainly focuses on the relationship between the state and the society in this period and finds out that the characteristics of the disability field in this period cannot be interpreted by the Corporatism.

2.2.1 Excessive administration of the CDPF does not fully fit the characteristics of corporatism

Corporatism thinks that social organizations are different from the interest groups in the pluralism system and they exist in the corporatism system in the form of functional groups and then they are integrated into the national decision-making process and the state gives some of them the monopoly position. However, the CDPF is both official and public from the inception, and it is exempted from registration and it also has appropriate administrative level and party preparation. But in reality, the CDPF takes too many administrative tasks, and its administrative functions are far more than its service functions. Therefore, many people think that it is a government department. In addition, the CDPF enjoyed monopoly status and this monopoly is not limited to resources but also the administration of other civil organizations. The CDPF is a special unit which is free from registration and being administrated and has the power of controlling other organizations. It has been free from the dual registration system. These kinds of Chinese groups are different from the functional groups under the western Corporatism theory. Obviously, they can not fully fit the characteristics of corporatism tissues.

2.2.2 The country's pre-eminent or excessive integration has clear "national totalism" traces

In the Corporatism theory, there is a “cooperative” relationship based on the differentiation of rights between the state and society. Cooperation means assigning, delegating, exchanging and granting of rights. It is based on parallel relationship between two relatively independent subjects and then social organizations representing the interests of institutions should be incorporated into the institutional structure.

Formally, the relationship between the government and the community has the prototype of “national corporatism”. However, due to China’s social sphere is born out of the original “totalitarian state” control pattern, the social organizations’ development are affected by old ideas and institutional constraints, making it difficult to self-develop. The social organizations rely on the government, willing to become government subsidiaries and showing active-dependent features. These characteristics are clearly contrary to the “cooperative” spirit advocated by the corporatism theory. Some highly organized representatives of the state, such as the CDPF, becoming the true public administration department. Thus, the relationship pattern formed under the excessive consolidation and strong leadership of the state does not have the features of State Corporatism. On the contrary, it shows obvious features of Nationalism or Totalism.

2.2.3 The “both integration and differentiation” pattern in the disability field

In Corporatism, the state and society should be the integrated. And the corporations organizations formed during the integration should be the intermediary of running the society. But China’s social pattern is not a simple corporatist structure; it is a double pattern of “both integration and differentiation”.

In the organizational system of the disability field, there are central or local governments representing for the state and the CDPF possessing the functions of management and service on behalf of the disabled as well as registered civil organizations and unregistered grassroots organizations. The structure style in the disabled field is not a standard “state-society” dual mode; it is a “government-CDPF-civil organizations for the disabled” three-dimensional framework with clear Chinese characteristics. First, the author admits that the service system oriented by the CDPF is indeed the “integration of the state and the society”. Second, there is still an autonomous social field which neither be admitted nor denied by the state outside the so-called corporatism system. China’s social structure has never been a single corporatist structure system, nor is a “civil society” announced by the pluralist, but showing a “both integration and differentiation” dual relationship pattern.

2.3 Endogenous dependent relationship, authority relationship, alienation relationship

The double social relationship pattern of “both integration and differentiation”, is the result of multiple factors, like Chinese traditional culture and political system as well as the western civil society theory. Obviously, it can not be incorporated into the single research framework of corporatism or pluralism. Using the western theory to explain it is inappropriate. This paper introduces the “schema decomposition” method, which dismantles the complex Chinese social relationship structure into several secondary structures and summarizes some simplified and clear relationship portfolios.

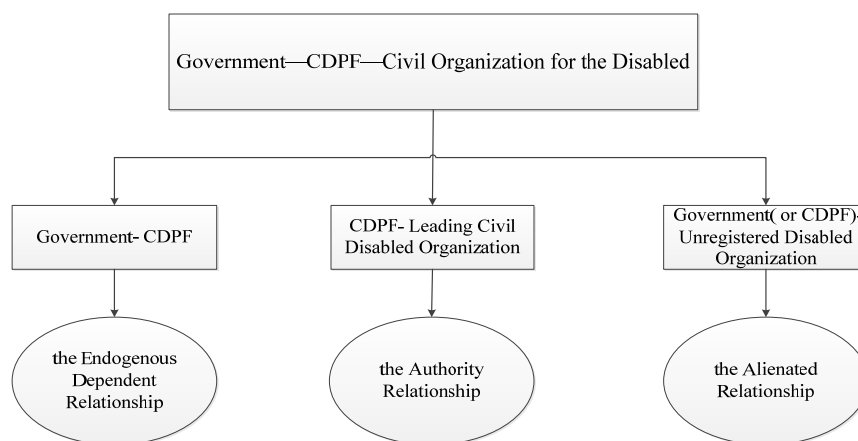


Figure 1 Endogenous Dependent Relationship, Authority Relationship, Alienation Relationship

The relationship between the government and social organizations are classified as “endogenous dependency relationship”, “authority relations” and “alienated relationship” by some scholars. In the three-dimension framework of “government- CDPF-civil organization for the disabled”, the authors

decomposed three relationship portfolios in line with china's national condition, which referred to "government- CDPF" (Portfolio A), "CDPF- Leading civil disabled organization"(Portfolio B) and "government(or CDPF)- unregistered disabled organization"(Portfolio C). And then combined them into the endogenous dependent relationship model (Portfolio A), authority relationship model (Portfolio B) as well as the alienated relationship model(Portfolio C), as shown in the figure1 below.

2.3.1 The endogenous dependent relationship: government and CDPF

The endogenous dependent relationship referred to an interdependent relationship established in the process of the government setting up and providing various resources required for normal operation of the social organizations ruled by it (LIU Chuanming, 2012).

The Endogenous Dependent Relationship between the government and the CDPF is mainly reflected in three aspects. First, the origin and status of the CDPF. The CDPF is a social organization established by the government as well as some associations. The national law endows it with the same political status, and has confirmed its dominance and representative status in the field of disability. Second, the organizational structure and human resource of the CDPF. The office departments of the CDPF are set up referring to the Chinese Communist Party, which includes functional departments and the party organization. Also, its main leaders are controlled by the government. Third, funding and operation mode. The fund of the CDPF is a part of the government budget. Its main responsibility is to manage the social organizations in the field of disability, provide public service to the disabled, give feedback to the government and implement government decisions.

Therefore, in the interaction between the government and the CDPF, the latter is not independent with all the resources controlled by the government, thus forming a typical endogenous relationship. Therefore, the CDPF can be considered as a part of the government.

2.3.2 The authority relationship: the CDPF and registered civil disabled organizations

The so-called authority relationship refers to someone has the right to control others' certain actions (James.S. Coleman, 1999). This "control" is relied on legal power and scarce resources owned. The authority relationship model belongs to "limited control", whose degree of control is weaker than the endogenous dependent relationship. "The authority relationship" originated from the theoretical interpretation of the new authoritarianism (or authority). It has also been involved in "the authority corporatism" proposed by Zhang Jing. As mentioned earlier, the organizational relationship pattern in the disability field is neither fully fit the characteristics of corporatism, but also shares the features of "nationalism" (or authoritarianism). Then integrate the essence of these two theories to interpret the relationship between the CDPF and the civil organizations for the disabled has more advantages over a single theoretical research and can be much easier to sort out the internal relationships.

The government does not involve in the specific activities in the disability field and the CDPF acts as the representative of the country to exercise the power of public administration. The CDPF administrates several registered civil society organizations. It can be concluded from the previous interactions between them that there is an authority relationship between them which has three characteristics, including the limited power, some resources by government monopoly, the two systems based on common values

2.3.3 The alienated relationship: government (or the CDPF) and unregistered civil organizations for the disabled

Due to limitations of the current system, some unregistered civil organizations or industrial and commercial registered institutions for the disabled are separated from the government or the CDPF. This kind of situation is named the Alienated Relationship. Since 1989, China passed a strict access system for social organizations, which made it even harder for the organizations to be registered. Therefore, they have to be engaged in public welfare activities outside the "system" with industrial and commercial registration or without being registered. The fact proved that the party and the government's tolerance and further exposes the drawbacks of the dual registration system. How to integrate these scattered social forces and make them better serve the community, become the major issue. And to some extent, it is a great test for the government's administrative ability.

3 Trend of the Relationship Between the Government, the CDPF and the Civil Organization for the Disabled

The current "both integration and differentiation" relationship pattern in the disability area shows three characters, which can be specified as "Endogenous dependent Relationship(Government-CDPF)", "Authority Relationship(CDPF-Registered Civil Society Organizations)"and "Alienation

Relationship(CDPF-Unregistered Civil Society Organizations)". The dual management system has many negative impacts, such as deficiencies of public service supply, inefficiency service and low degree of civil participation, which has been criticized by academics and the civil society. Accelerating the autonomy reform in the social sphere became a social consensus.

Given the successful experience of local government and the strong consensus between the officials and the folk, the central government has determined to accelerate the dual management system reform.

3.1 Interpretation of the new policies in 2013

On March 10th, 2013, the 12th National People's Congress Meeting, the third plenary meeting declared clearly: "focus on fostering and give priority to develop commercial, technological, charitable and urban social organizations. These organizations can apply for registration directly to the civil affairs department without the permission of administrative units." It means the dual management registration implemented for decades will be abolished conditionally and there will be a great adjustment in social policy. This significant political initiative reflects will certainly cause severe shocks to the old social form. The new social policy indicates that our social management thinking, governance level and citizenship are undergoing positive and beneficial changes, which will contribute to the "strong state and strong community" development model.

Firstly, the new social policy reflects the improvement of social management thinking. It means that the social management thinking has transferred from revolution thinking (1949-1978), mobilization thinking (1978-2003) and construction thinking (2003-2013) to democratic thinking and law governance thinking. The limited opening for civil organizations has two important meanings. On the one hand, it shows that the leaders begin to examine and reflect on the deficiencies of past social management pattern and start to absorb the civil forces to participate in social construction. On the other hand, it also shows that the national leaders are taking a more prudent, gradual and correspondent method. This stable social management method is contradicted with the adventurism, which helps to reduce the reform cost and prevent risks. It also contributes to the transition to the "strong state - strong society" model of development.

Secondly, the new social policy reflects that the level of governance has been improved. Good governance stresses that the state or government should give the rights back to the people, at the same time, they should also retain necessary powers and authority. "On one hand, they weaken the strength of national power, on the other hand they generate needs for another country power, which used to be weak or did not exist in the past" (Francis Fukuyama, 2007). Today, the government officially abolished institutional barriers faced by charitable organizations and greatly promoted the development of civil organizations in response to the officers and the common people. From the list of social policies in each period, we can see that the government is giving the rights back to the people step by step in a planned way. The governance has improved significantly and China's the degree of social autonomy will continue to deepen.

Finally, the new social policy reflects the civic consciousness. Civic consciousness is the citizens' awareness of their social status, rights and responsibilities (Lee Dakun, 2007). The new social policy which breaks the previous dual management system and is in line with the consensus of the whole society and adapts to the development requirements of marketization and socialization is conducive to create the "small government and big society" state mode proposed by the party and the government. Although China is in the primary stage of socialism, the market economy has not yet fully developed and the economic system and social system is not perfect, "strong state - weak society" model will be maintained for a long period of time. However, with the introduction of the new social policy and the amendments of related law as well as the implementation of specific measures, our country will gradually break the traditional mode and transferred to the "strong countries-strong society" target mode. Facing this favorable policy situation, whether the official or social groups or the civil society organizations need to do some adjustments accordingly to adapt to the social development situation and the relationship pattern in the social sphere may suffer from some changes.

Therefore, under the requirements of the new social policy, what kinds of adjustments should the relevant organizations in the disability field do? And what kinds of relationship pattern may occur in this field?

3.2 The reform strategy of the CDPF under the new policy

In the current disabled services system designed by the official, as a link between the state and society, the CDPF is in the core position and plays many important roles, such as interest representatives, the administration department and the service organizations. This kind of organizational form shares the features of historical necessity and practical rationality. In 2013 the introduction of the new social policy

means that the state will change the previous social management pattern, and the CDPF has to make some changes inevitably.

Many scholars have discussed the way of changing social management pattern and improving social management mechanism from the institutional perspective (such as Liu Jitong, 2002). There is no mature experience concerning about social group reform in China, therefore it is a long way to go. Then how does the CDPF carry out the reform under the new situation?

This paper argues that the reform of the CDPF should choose an evolutionary path in line with China's national conditions following the advanced reform experience at home or abroad and the modern management principles of "high efficiency and low consumption". Whether the official adopts the progressive restructuring strategy or the rough shock therapy, it is sure that as the intermediary between the state and the government, the CDPF will exist for a long time. Its reform should be directed toward "normalize function" "simplify institutions" and "work transparency". First, normalize functions. The CDPF need to increase evaluation functions and construct a scientific assessment system to evaluate qualification and effectiveness of social organizations regularly and create the "survival of the fittest" principle, thus regulating the industry and enhancing the public service standard. Second, simplify institutions. The new social policy gets rid of the "restriction of competition" principle, which provides a good chance for the civil organizations competing in the service market for the disabled, thus forming a benign repaying mechanism to improve the service standard continuously. Third, work transparency. In recent years, the frequent occurrence of corruption, dereliction of duty and other phenomena in the charity field causing great public criticisms. Make the work more transparent and improve public oversight system is the requirement of the new social policy. It also meets the expectation of the masses.

With the implementation of specific measures directed by the new social policy, the restructuring of "functional standardization", "institution simplicity" and "Work transparency" will finally become a success. This paper does not agree that the CDPF will be canceled in the future or become a "third-party independent body". China's social autonomy process should adapt to the development of market economy and political system as well as cultural traditions, which should adopt a progressive, conservative and the least risky development path.

3.3 Vision of a harmony relationship

The author believes that after a long time, the organizational relationship pattern in the disability field may be re-shuffled if the specific operational measures designed according to the new social policy can be fully implemented and the state can allocate the institutional resources to civil organizations and protect them by law. However, this "shuffle" is only a small change; it will not have a fundamental impact on the current pattern. Given the strong institutional inertia, the CDPF will exist for a long time and further strengthen its management functions and its monopoly stage. And the "endogenous dependent" relationship between the government and the CDPF will be strengthened in the coming period.

Therefore, the future picture of the society is that the past social structure cracks and three kinds of new relationship patterns which have features of "strong society" will derive from the retained "endogenous dependent" and the "authority relations". Thus form an organizational relationship pattern led by the CDPF. In this pattern, many kinds of relationship coexist together. And the three kinds of new relationship patterns are "Mutually Beneficial Relationship" "competition and alliances" and "Subcontractors and Agents", which will be discussed latter, as shown in the figure2 below.

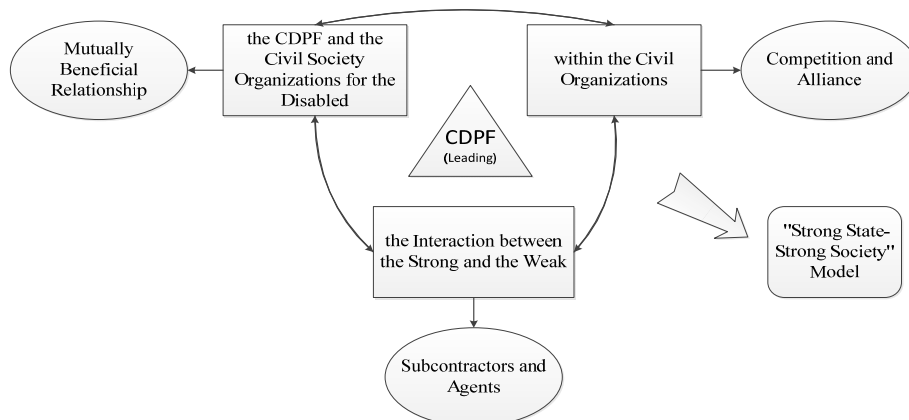


Figure 2 The Future Picture of the Society

3.3.1 Mutually beneficial relationship: the CDPF and the civil society organizations for the disabled

Undeniably, the “authority relationship” will exist for a long time between the CDPF and the majority of civil organizations. But in some areas where the CDPF can not provide service, there will be a “Mutually Beneficial Relationship” between them. This relationship is based on equality and market contract, in which the CDPF is in a dominant position by possessing the rights of resource distribution rather than by administrative affiliation. The Civil society organizations will have great autonomy in organizing human resources and project as well as using activity fund, they will cooperate with the CDPF according to the national service purchase programs and negotiate benefits distribution with each other to achieve maximum benefits.

3.3.2 Competition and alliance: within the civil organizations

Today, as more and more non-government organizations joining the disability service field, it will inevitably lead to a conflict of interest between civil organizations. There will be all-rounded competition in applying for government purchasing service, government incentives, public donations and social prestige, which may be exist between civil organizations serving the same group of people or between some institutions providing similar products or between different interest groups in the same area. On the other hand, in order to survive in the fierce competition, some relatively weak civil organizations may seek for alienation and consolidate with each other to gain official and civil support. The relatively strong non-government organizations may combine together forming a “trust union” to strengthen the project monopoly or increase their capital. Therefore, the “competition” and “Union” will likely be the dominant relationship in the disability field.

3.3.3 Subcontractors and agents: the interaction between the strong and the weak

At present, some grassroots organizations, which do not have the qualifications or are restricted by some attached official provisions, will still be free outside the system. Due to lack of national identity and their weak public influence, such organizations are difficult to raise enough funds and social support, thus facing huge dilemma. In order to survive, some of them may seek for help from those stronger government-run or civil organizations and become their secondary agents. And some social organizations may subcontract all of or part of their projects to those grassroots organizations to save manpower and material resources, and earn difference between profits. These phenomena are inevitable in the early stage. Outsourcing is clearly contrary to the “non-profit” principle and the CDPF must strengthen its supervision.

Therefore, the future relationship pattern in the Chinese disability field will have the features of “a strong society” and it is led by the CDPF with a variety of social relations coexist. With the implementation of the supporting measures of the new social policy and the active response of the civil organizations, the degree of autonomy will further deepen and the traditional development model will transit to the “strong state-strong society” model.

4 Conclusion

The new social policy is a political breakthrough of the past dual registration management system, which has freed up great space for development of civil organizations. In this paper, the promulgation of the new social policy in 2013 is a watershed. The author systematically combed the pattern of organizational relationships in the disability field at this stage (1988-2013), proposed certain strategies for the CDPF reform in the future (after 2013), and also reasonably analyzed the future changes in organizational relationships. The researches provide rational analysis data and new research perspectives for the future development and strategic consideration of social organizations for the disabled, and it is happy to see that the overview of China’s social sphere is given and the readers can think didactically.

The new leaders of China made a series of social policy adjustments, the policy effects of which are reflected not only in the cultivation of civil society organizations as well as the promotion of public service standard, but in the potential effect on China’s future development. First, with the growth of civil society organizations, the political and legal field is expected to open soon. Second, with the progress in social autonomy, the existing “authoritarian” nation governance model is expected to change.

In summary, the promulgation of the new social policy is a milestone after the founding of PRC, an important manifestation of the “scientific decision making” and the “Ruling the country by law” principle. Profound changes will certainly take place in China’s social structure.

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Political Skill and Career Success: A Review and Directions for Future Research

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Abstract: The determinants of career success have been widely investigated in the extant literature. This paper aims to review the empirical studies on the role of political skill in determining career success. Major data bases like science direct, emerald insight, sage and springer were searched for finding out the relevant studies. The findings of each empirical study along with the context and brief methodological information have been given. Through this review, it was surfaced that the underlying mechanisms in the political skill-career success relationship need to be explored further, and the dimensional analysis of political skill should be conducted.

Key words: Political skill; Career success; General review

1 Introduction

Mintzberg termed organizations as political arenas^[1] and thus opened a new window of political perspective to look at organizations and individuals' interactions with each other in the working environment. Keeping in view the political and inherently social nature of organizations^[2], it is a sine qua non for organizational members to be socially and politically skilled in order to influence others. Mintzberg had approached the political skill primarily from the perspective of formal power within organizations, however later on it was considered to be an effective influencing skill in informal settings^[3]. Behavioral scientists have defined political skill in different ways which almost convey the same concept. According to Ferris et al, political skill is "an interpersonal style construct that combines interpersonal perceptiveness and astute social awareness with the capacity to adjust one's behavior to different situational demands in a genuine and sincere manner, resulting in the building of social capital and in the effective influence and control of the responses of others"^[4]. The most widely used definition of political skill in the previous studies is "the ability to effectively understand others at work and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives"^[5,6]. Political skill is considered to be one of the most important social competencies which is reflected through cognitive, affective and behavioral manifestations, and has implications for both individual and group^[7]. Political skill has been investigated in association with stress management, leadership effectiveness, job performance and career success. This article focuses on reviewing the empirical studies on the relationship between political skill and career success, and directions for future research are highlighted.

2 Political Skill and Career Success

Career success is defined as "the positive psychological or work-related outcomes or achievements one accumulates as a result of work experiences"^[8]. Career success has been conceptualized and operationalized from two major perspectives i-e, objective career success and subjective career success. The objective career success concerns with an external perspective or reference point, like salary, promotion etc^[9,10], while subjective career success focuses on the overall reactions of individuals towards their careers. The role of organizational politics in determining career success has been argued in the extant literature^[11-13]. Career success can be perceived as a political campaign characterized by impression management, self-promotion, contact-hunting and reputation building^[14]. Politically skilled individuals are more likely to succeed in such campaigns through their social networks and strong interpersonal skills.

Social capital theory^[15] has been widely used to explain the role of political skill in determining career success. Coleman^[16] has defined social capital as "any aspect of social structure that creates value and facilitates the actions of individuals within that social structure". Social capital is the result of the changes in human relations in a way that leads to favorable outcomes. Borrowing support from social capital theory, Blickel et al^[17] conducted a survey on alumni of German business schools to examine the role of self-initiated mentoring and networking behavior in determining employees' career success. In this longitudinal survey spanning two years, they found that income and hierarchical position were

affected positively by mentoring through networking behavior which was operationalized as networking ability dimension of political skill. The findings also revealed that networking behavior was a strong predictor of career success as compared to mentoring. Similarly, Blickel et al.^[18] in their three year predictive field study found that networking proved to be a strong determinant of objective career success while mentoring proved to be a strong predictor of career satisfaction. Seibert et al.^[19] tested a social capital based model of career success in a sample of 448 employees from diverse organizations. They confirmed that network structure had a positive relationship with social resources, which in turn positively affected career success through access to resources, access to information and career sponsorship. Fugate et al.^[20] introduced the construct of employability and argued that social capital was an important dimension of this construct besides human capital, adaptability and career identity. They further elaborated that, social capital plays a vital role in identifying and realizing employment opportunities at every level of one's career. Wolff and Moser^[21] in their 3 years longitudinal study reported that networking was related to existing salary as well as with the growth rate in salary over time. They also found that networking was positively related to concurrent career satisfaction, thus the positive effect of networking on both objective and subjective career success was substantiated. Wei et al.^[22] probed into the role of political skill in the development and utilization of network resources on a sample of 281 supervisor-subordinate dyads. Their findings established that, political skill assists in improving performance and career growth potential. The moderating role of political skill between network resources and the two career-related outcomes (performance and career growth potential) was also confirmed.

Another theoretical base for explaining the political skill-career success relationship is provided by social exchange theory^[23]. Social exchange theory's main focus is the obligations and reciprocity among social entities. Politically skilled people tries to develop quality relationship with their supervisor and significant others in the workplace. The quality of these relationships and the benefits obtained by supervisors in the form of positive behaviors facilitates individuals in obtaining desirable career related outcomes. Wei et al.^[24] investigated the role of political skill in establishing *guanxi* (indigenous Chinese social effectiveness construct) with supervisors and its impact on career development. The results of the study confirmed that, the strength of subordinate-supervisor *guanxi* depends on subordinate's political skill and the strength of *guanxi* in turn influence supervisor rated career development potential. Sibunruang et al.^[25] in their 2-study investigation examined the moderating role of political skill in the relationship between ingratiation and promotability in a sample from diverse industries like banking, education and hospitality. It was reported that, supervisor rated promotability and ingratiation tactic were strongly related for politically skilled as compared to politically low-skilled. Similarly, shi et al.^[26] carried out a survey by utilizing a sample of 296 subordinates and 53 supervisors in a construction management company in southern china to examine the association between subordinate's political skill and supervisor's reward recommendation. They reported that political skill was positively associated with the frequency of interaction with supervisor, which in turn was strongly associated with supervisor's reward recommendation. Personal reputation is considered to be an important ingredient for career success. Laird et al.^[27] tested the direct and indirect relationship between political skill and personal reputation on sample of 145 triads in a manufacturing firm in Midwestern USA. They reported that political skill had direct positive influence on building reputation, as well as had an indirect influence through citizenship behavior and quality of relations. The main strength of their study was the others reported measure of personal reputation, as in previous studies self-reported measures were widely used.

Generally, the empirical studies have proven a positive relationship between political skill and career success. Based on social influence theory^[28] and model of personal control^[29] Todd et al.^[30], investigated the relationship of political skill with five career outcomes including, career satisfaction, life satisfaction, perceived external mobility, total promotions and total compensation. The findings of their study revealed that political skill was strongly associated with four of the career outcomes except total compensation. They also went for dimensional analysis of the political skill construct and found that, networking ability dimension of it was strongly related with the career outcomes as compared to social astuteness, interpersonal influence, and sincerity/genuineness. On the basis of Holland's theory of work environments^[31], Blickle et al.^[32], studied the relationship between work councilors' political skill and their career success. They found that politically skilled work councilors were ahead in having memberships at different levels of the councils than their politically unskilled counterparts. They mentioned further that, as the work of councilors is primarily political in nature, therefore political skill has much relevance in determining career success in such contexts. Two years later Blickle et al.^[33],

investigated the role of job type as a contextual moderator in the relationship between political skill and job performance. They proved that political skill was a strong determinant of career success in enterprising job context like insurance selling. Ferris et al,^[34] in their two-study investigation reported that political skill was positively associated with job satisfaction and hierarchical position, although the relationship between political skill and gross annual income was insignificant. Participants of a leadership development program were studied by Gentry et al^[35] in order to examine the impact of political skill on promotability assessments from multiple raters. They found that, political skill had a positive relationship on managers' promotability, but the magnitude of the relationship varied with the source of the assessment. The relationship was stronger for boss-rated and peer-rated promotability than self-reported promotability. Munyon et al^[36] in a recent meta-analysis on political skill and career outcomes confirmed the positive association between political skill and various outcomes like career satisfaction, hierarchical position, income and overall career success. Huang et al^[37] in their two-study investigation reported that the chances of managerial promotion were greater for politically skilled than politically unskilled. They also found that, funding for a new venture was positively associated with the fund seeker's political skill. Snell et al^[38] attempted to establish the incremental validity of political skill construct over other managerial skills. They also added impression management as another dimension to the political skill construct and found that, interpersonal influence and impression management were the most important determinants of managerial effectiveness. Drawing from self-determination and self-concept based theories sun et al,^[39] examined the role of political skill in determining subordinate's promotability in a sample of 330 subordinate-supervisor dyads. Their findings revealed that, political skill not only moderated the supervisory mentoring and promotability relationship directly, but as well as the indirect relationship through organizational based self-esteem and psychological empowerment was also moderated. Thus, high politically skilled were more likely to be promoted when provided with supervisory mentoring as compared to low politically skilled individuals. Moeller et al,^[40] in their conceptual study proposed that, in-patriate managers' political skill will mitigate the stigmatization experienced by them from the home country personnel, which will result in increase in the level of acceptance and integration in the headquarter. Liu et al,^[41] tested a model of political behavior through a sample of 283 subordinate-supervisor dyads. It was revealed that political behavior and political skill had interactive effect on career growth potential. Those who were involved in political behavior were having a high career growth potential through enhanced personal power provided, their political skill was also high. The positive relationship between high performance and increased personal power was also confirmed by treadway et al,^[42] for the politically skilled employees only.

Individual level moderators of the political skill-career success relationship have rarely been focused by empirical studies. Grounded in socio-emotional selectivity^[43] theory the study by treadway et al,^[44] examined the interactive effect of political skill and future time perspective on determining career-based and community-based networking behavior. It was revealed that, those politically skilled individuals who had a deep future time perspective were more likely to be involved in career-related networking. On the other hand, those who were politically skilled but had a shallow future time perspective were more likely to be involved in community-related networking. Thus, the political skill and career success relationship depends on the individual's perception about his/her career prospects.

3 Conclusion and Directions for Future Research

The existing studies on the impact of political skill on career success rely on signaling theory, social capital theory and social exchange theory. However, empirical evidences have been provided on the basis of these theories, but the underlying influencing mechanisms are yet to be confirmed. There is a dearth of dimensional and mediational analysis that can add to our comprehension of political skill and its impact on different outcomes like leadership effectiveness and career success. In order to address this issue, we suggest that a range of mediators need to be investigated that how political skill effect career related outcomes. Besides this, the dimensional analysis should be focused in future studies, as all the dimensions are not equally significant for different kinds of outcomes. The potential mediators in the political skill-career success relationship may include quality of relationship, network structure, access to information, high visibility, frequency of interaction with supervisor and reputation. Organizational and individual level moderators can also be explored in order to understand the boundary conditions. For example, future studies can look into the moderating role of career motivation in the relationship between political skill and career success. Most of the empirical studies on political skill-career success

nexus have relied on cross-sectional data, therefore it is suggested that longitudinal data should be used to confirm the causal relationships.

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A Study on Impact of Academic Entrepreneurship on Industrial Innovation and Moderating Effect of Organizational Support, Evidence from Pakistani Private Sector University

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Abstract: This paper presents a study on impact of entrepreneurship in academia on the Industrial Innovation. The moderating effect of organizational support was taken as a moderator and Pakistani private sector universities were taken as the research unit for this study. Recently academic entrepreneurship has succeeded to gain special attention from scholars and management decision makers. Whereas the major focus of research effort was to find out the causes and determinants of academic entrepreneurship but there is still an unattended query about the impact academic entrepreneurship exerts on innovative capabilities of various industries. The study examined the relationship of academic entrepreneurship and industrial innovation with moderating effect of organizational support in context of a Pakistani private sector university. Descriptive statistics, correlation analysis, regression analysis and Anova have been applied to test the relationship.

Key words: Academic entrepreneurship; Industrial innovation; Organizational support; Pakistani private sector university

1 Introduction

Industrial growth is of much importance for any nation, universities being institutions of higher education are nurseries for innovation and advancement of industrial growth. Academic entrepreneurship is of much importance. The role of universities in industrial innovation has been studied all over the world and many nations have shown tremendous results. Academic entrepreneurship is affected by many factors including organizational support and employees characteristics. Private sector universities are playing quite good role in research and academics in Pakistan. The role of researchers from private sector universities can't be ignored while assessing the impacts on industrial innovation. Organizations support is an important aspect that can moderate the relationship

2 Literature Review

2.1 Academic entrepreneurship:

The term academic entrepreneurship refers to revenue driven business development and creation of university startups ^[1]. In some other further elaborated studies, differentiation of organization was explored on the basis of whether those are created by university's research findings or from other sources, formerly known as general academic entrepreneurship and later termed as research based entrepreneurship ^[2]. Some other researchers in a study found the concept as an academic organization's arrangement for utilization of venture capital purpose ^[3], While some others refer to a business originated on premise of intellectual property owned by a university however the actual inventor of that particular IP may be the part of university or not ^[4]. According to another study by ^[5], the bases of academic entrepreneurship is authoritative creation and/or development that might occur either inside or outside the academia by any mean or method for research and innovation commercialization. Thus the Term academic entrepreneurship for the most part been utilized within a centered way to represent academics' engagement in the structuring of startup organizations ^[6-7]. Some other researchers have used the term for an extensive range of knowledge-transfer exercise ^[8]. It is evident from the findings of past studies that academic entrepreneurship creates economic benefits for universities and profits to the overall economy ^[9].

2.2 Nature of academic entrepreneurship

Academic Entrepreneurship is considered as a leadership process and a new way to perform teaching and research activities. According to this concept, a university should assume the responsibility to create value by innovation and commercialize the research produced within or outside the university ^[10]. This provides a new way of looking universities differently by the stake holders involved and interested in academia, expectations from academia are now furthered and extended more than just

teaching, fact finding and creation of premier educated work force but they are now supposed to play a more influential, comprehensive and effective role for society and economy by pursuing academic entrepreneurship thus placing themselves as a strategically significant source of technological advancement leading to the economic growth of society. As a result, university's leadership part is getting multifaceted. Much more than the primary task of to teach individuals however they have to prepare talented human resource at all levels from graduate to post graduate. To establish, develop and strengthen knowledge-based modernization frameworks, it would be required from the universities to expand the supply of useful knowledge like publications, patents and industry collaboration. Another important requirement can be the involvement of academia in critical thinking exercises in the businesses through university industry collaboration, innovation licensing, workforce consulting, and giving access to concentrated instrumentation and supplies, and brooding administrations^[11]. The new knowledge development and innovative economy driven by universities is not only important for their own nation but also for the neighboring countries as well^[12]. This is academic entrepreneurship that converts a university into the executor of industrial innovation, innovative advancement, financial improvement and social advancement particularly in the setting of developing knowledge-based economies. This also results in the emergence of university as financially and societal centered, more into a helping for a culturally improved and matured society, respects its scholarly and social reason for enhancing the personal satisfaction for the entire group, and, gets to be all the more outward-searching and responsible for open stores and its inner workings^[13]. Actual challenge is the transformation of academic research into commercialized product being a tedious activity involving people from both academia and industry. Therefore it is need that academician and industry work joining hands with hands to synergize and maximize the socio-economic pay back of innovative idea. By transferring technology universities share skills, information, technology and facility with industry in order to serve the purpose of research that is benefit of the innovation available to great number of users for further development and enrichment of technology into products, services, processes, applications and methods. Commercialization of university research is found to be an extremely uphill task and includes great issues like types of innovation exchange, business matching between the researcher and firms, the marketability of the university's new research and inventions and the administration of registered innovation like patent and intangible assets. Informal collaboration system with industry enables the value creation activities like knowledge exchange, university-industry joint publications and consultancy^[14]. University industry partnership is inevitable for scholarly achievement of universities, growth of industry and expansion of economy of a country^[15].

This above discussed positive and significant impact of university research on industrial innovation is found in the literature from the work of Lee Mansfield 1995^[16]. Universities are major contributor to innovative processes for small and large firms^[17-18]. Industrial revolution has proved to be the back bone of many developed countries whereas Industrial revolution was the fruit of university-industry linkages. University based research and national industrial structure have developed side by side. Universities are responsible to develop high-Tec industry^[19].

2.3 Role of organizational support for academic entrepreneurship

To achieve the goal of academic entrepreneurship organizational support is very necessary, as a matter of fact in a university as academia a systematic and planned assistance is required for academician from university administration to support and encourage their research work, entrepreneurial activities and university-industry collaboration. Academic entrepreneurship and resultant research commercialization is not an easy task to be performed by a university researcher, carrying it along with routine and required work load like teaching classes, administrative assignments and student supervision. Financial and incubation assistance is needed by researchers to conduct the proposed academic entrepreneurship activities. A researcher due to his primary and core responsibilities is limited to the university premises it is important to have necessary assistance from university administration in the terms of expert advices, training, linkage with industry professionals to support new venture creation and research commercialization. The literature available on the topic primarily considers technology transfer office responsible for creating helpful structural environment that helps out university startups^[20-21]. The increase in the business start ups from Western particularly European universities since 1990 is usually linked to the efficiency and effectiveness of technology transfer office. This technology transfer office is an entity within university which has a mandate to stimulate a range of entrepreneurial activities by academics, spanning invention disclosures to patent applications, the generation of licensing income, and the involvement of academics in the founding of businesses^[22-24]. Increase in the efforts of university in the terms of academician encouragement at department level or a

professional technology transfer office development enhances the probability of academician involvement in entrepreneurial activities ^[25]. Academic entrepreneurship is the focus of researchers in developed countries. A broad range of literature about the subject in the context of USA, Sweden, and Malaysia etc can be found, but with the perspective of Pakistan this phenomenon is new and still evolving at early stages. Pakistan being a developing economy possesses an immense potential of research & technology development in universities, industrious labor force and efficient industrial set up which demands for university industry linkage and collaborative system for better economic growth. Universities in Pakistan are acquiring the role of innovation and research commercialization as their mandate allocated from Higher Education Commission (HEC) along with teaching and research. In Pakistan the regulatory authority for institutions of higher education, the Higher Education Commission of Pakistan has made it mandatory to establish Offices of Research, Innovation and Commercialization (ORIC) and business incubation centers (BIC) in every university operating in the country whether it is a Public sector or Private Sector University. On the basis of these guidelines from many universities has developed their ORIC and BIC departments. The major roles assigned to these offices include research, consultancy, joint ventures, continuing professional development, knowledge transfer partnerships, patenting etc. It is therefore very much important to determine the result and impact of these efforts from universities sides on beneficiary industries must be evaluated for better apprehension of feedback and further improvement of these efforts.

3 Gap in literature

The discussion about the literature of academic entrepreneurship concludes that the major focus of researcher is to find out the causes and determinants of academic entrepreneurship but there is still an unattended query that what impact academic entrepreneurship exerts on innovative capabilities of relevant industry. Therefore it is critical to explore the link between academic entrepreneurship and industrial innovation in the context of private sector universities in Pakistan. More over the study will also discuss the moderating role of organizational support in this relationship.

4 Research Methodology

Due to time constraints, case study methodology was adopted and a Private sector university was selected for this study from Pakistan. A self administered questionnaire was given to 50 teachers from different schools of the university. A five point likert scale questionnaire, consisting of 25 items was adapted and modified from previous studies and same was considered for data collection. In this study, academic entrepreneurship was used as independent variable. Response about this variable was captured using 5-point likert scale. 10 item measures used for this variable were adapted and modified from a study ^[26]. As a moderating variable, Organizational support was used. Response about this variable was taken using 5-point likert scale. Measures used for this variable were adapted and modified by a research conducted by Eisenberg ^[27]. The construct included 8 items. Industrial innovation was dependent variable in this variable. Response about this variable was taken using 5-point likert scale. Measures used for this variable adapted and modified by Polona^[28]. The measure includes 7 items.

All items used for measuring constructs of sub-dimensions were taken on a 5-point Likert scale ranging from “1 = Strongly Disagree” and “5 = Strongly Agree”.

5 Data Analysis

5.1 Descriptive statistics

Following results were calculated for descriptive statistic of this study.

Table 1 Descriptive Statistics (Source: generated)

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Academic Entrepreneurship	50	2.00	4.82	3.8200	.47513
Organizational Support	50	1.74	4.82	3.5750	.56501
Industrial Innovation	50	2.56	5.01	4.1336	.47929
Valid N (list wise)	50				

5.2 Demographics

The study resulted in following demographic characteristics of respondents of the study

Table2 Demographics-Age (Source: generated)

Age	Percentage
Below 25 years	4.1
25-30	18.8
31-35	22.9
36-40	27.6
41-45	11.8
46-50	9.4
51 and above	5.4
Total:	100

Teaching experience of the sample resulted as follows.

Table 3 Teaching Experience (Source-generated)

Teaching Experience	Percent
1-5	23
6-10	26
11-15	24
16-20	15
21 and above	12
Total	100

5.4 Research experience

As for as research experience was concerned, the respondents of survey were found to be in majority with teaching experience of 11-15 years with 21% respondents followed by 16-20 years' experience teachers with 15% of respondents.

Table 4 Research Experience (Source: Generated)

Research Experience	Percent
1-5	29
6-10	23
11-15	21
16-20	15
21 and above	12
Total	100

5.5 Reliability analysis

Cronbach's alpha was found to test the reliability of the instrument and results were quite satisfactory for the study.

Table 5 Reliability Analysis (Source: generated)

Variables	Cronbach's alpha
Academic Entrepreneurship	.762
Organizational Support	.792
Industrial Innovation	.798
Overall α Cronbach	.915

5.6 Correlation analysis

Correlation analysis was applied on the responses from the sample and following correlation matrix was generated. Results of same are shown in table 6 below.

Table 6 Correlation Analysis (source: generated)

Correlations Matrix				
Variables		Academic entrepreneurship	Organizational Support	Industrial Innovation
Academic entrepreneurship	Pearson Correlation		.777**	.839**
	Sig. (2-tailed)		.000	.000
	N	170	170	170
Organizational support	Pearson Correlation	.777**		.823**
	Sig. (2-tailed)	.000		.000
	N	170	170	170
Industrial innovation	Pearson Correlation	.839**	.823**	
	Sig. (2-tailed)	.000	.000	
	N	170	170	170

** Correlation is significant at the 0.01 level (2-tailed).
N=50, *P<0.05, ** P<0.01

The above given table shows the correlations among variables. Correlation shows the relationship among academic entrepreneurship, organizational support and industrial innovation. The results shows that there is positive and significant relationship between Academic entrepreneurship and industrial innovation (r=0.839, p<0.01). Organizational support also shows significant and positive relationship with industrial innovation (r=0.823, p<0.01). This particular finding confirms that there is also a relationship between organizational support and industrial innovation. Finally results shows that academic entrepreneurship has a positive relationship with organizational support (r=0.777, p<0.01).

5.7 Results of moderator regression analysis: organizational support:

Moderation and mediation analyses are widely used in biomedical and psychosocial research^[29]. Upon running regression and testing moderation, we applied hierarchical regression including service academic entrepreneurship as independent variable and industrial innovation as dependent variable. Firstly, we standardized all variables to make interpretations easy and avoid multi-collinearity. The ANOVA results of models were significant and the results below in Table 6.4 show that the amount of variance in Model 2(with interaction term) is considerably more than the Model 1 (without interaction).

Table 7 Anova Results (Source: generated)

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.350	1	27.350	400.538	.000 ^b
	Residual	11.472	168	.068		
	Total	38.822	169			
2	Regression	30.194	2	15.097	292.213	.000 ^c
	Residual	8.628	167	.052		
	Total	38.822	169			
3	Regression	30.476	3	10.159	202.047	.000 ^d
	Residual	8.346	166	.050		
	Total	38.822	169			

a. Dependent Variable: Industrial Innovation

b. Predictors: (Constant), Academic Entrepreneurship

a. Excluded Variables

Following table shows the variables that have been excluded due to co-linearity

Table 8 Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Co-linearity Statistics
						Tolerance
1	Organizational Support	.430 ^b	7.419	.000	.498	.396
	AExOS	.565 ^b	5.981	.000	.420	.163
2	AExOS	-.649 ^c	-2.367	.019	-.181	.017

a. Dependent Variable: Industrial Innovation.

b. Predictors in the Model: (Constant), Academic Entrepreneurship.

c. Predictors in the Model: (Constant), Academic Entrepreneurship, Organizational Support.

5.8 Regression analysis

Regression is a technique related to statistics for estimation of variables relationship. The focus is on relation between the dependent and independent variables. It tells that how the dependent variable value varies when the independent value is changed. When there is one independent and one dependent variable then linear regression is used which produce the same results as of bivariate Pearson's correlation [30].

5.9 Regression equation

$$Y = a + B1X1 + B2X2 + B3X3 + ei$$

Y= Industrial Innovation

X1= Academic Entrepreneurship

X2= Organizational Support

X3= Interaction Factor

a= Constant

ei = error term

$$Y = -0.212 + 0.799 X1 + 0.700 X2 + 0.087x3$$

R2= 78.5%

(1)

Table 9 Regression Analysis Coefficients^a

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.	Collinearity Statistics			
					B	Std. Error	Beta	Tolerance
1	(Constant)	.899	.163		5.522	.000		
	Academic Entrepreneurship	.847	.042	.839	20.013	.000	1.000	1.000
2	(Constant)	.883	.142		6.236	.000		
	Academic Entrepreneurship	.509	.059	.505	8.704	.000	.396	2.528
	Organizational Support	.365	.049	.430	7.419	.000	.396	2.528
3	(Constant)	-.212	.483		-.438	.662		
	Academic Entrepreneurship	.799	.135	.792	5.907	.000	.072	13.873
	Organizational Support	.700	.149	.825	4.681	.000	.042	23.963
	AExOS	-.087	.037	-.649	-2.367	.019	.017	58.027

a. Dependent Variable: Industrial Innovation

5.10 Model summary

Following table presents the summary of model applied to the data of this study.

Table 10 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.839 ^a	.705	.703	.26131	.705	400.538	1	168	.000
2	.882 ^b	.778	.775	.22730	.073	55.042	1	167	.000
3	.886 ^c	.785	.781	.22423	.007	5.604	1	166	.019

a. Predictors: (Constant), Academic Entrepreneurship

b. Predictors: (Constant), Academic Entrepreneurship, Organizational Support

c. Predictors: (Constant), Academic Entrepreneurship, Organizational Support, AExOS

5.11 Main effects hypotheses

Hypothesis 1: There is a positive relationship between Service academic entrepreneurship and industrial innovation.

The Correlation involving Academic entrepreneurship and industrial innovation is $r=0.839$, $p<0.01$ and significant. Academic entrepreneurship has positive relationship with industrial innovation. Whereas R2 shows that among the other variables academic entrepreneurship explain the model by 70.3%. As

proved from previous studies about academic entrepreneurship that academic research and commercialize efforts contribute positively in stimulating industry's effort for innovation^[31]. Hence the results confirm the hypothesis H1, there is a positive relationship between Academic entrepreneurship and industrial innovation.

5.12 Moderating effect hypothesis

Hypothesis 2: Organizational support (OS) moderates between academic entrepreneurship (AE) and Industrial innovation (II)

In hierarchical regression analysis the variable of organization support was used as moderator, the value of un-standardized regression co-efficient beta increases by 0.365 to .700 after the moderation of organizational support, which is significant with $p > 0.05$. Moderating variable strengthens the effect of the predictor's outcome, thus moderates positively.

A moderation effect could be of three types.

By increasing the moderator would enhance the effect of independent variable on dependent variable.

It could be buffering, whereby raising the moderator value would decrease the effect of the predictor on the dependent variable.

The moderator would reverse the effect of the independent variable on the dependent variable^[32].

In this case, increasing magnitude of moderating variable strengthens the effect of the predictor's outcome, thus moderates positively. Therefore, the presence of organizational support activities as a moderator enhances the impact on relationship involving academic entrepreneurship and industrial innovation. Our results are consistent with Cargill, (2006) and Bart Clarysse et al. (2011). Thus we accept hypotheses H2. The analysis found that academic entrepreneurship through cooperation with industry, consulting activities, patent activities, research publications and applied research as significant predictor of industrial innovation. Hence in the context of private sector universities of Pakistan improved academic entrepreneurship activities by academicians shall increase the likely hood that industry which is utilizing this research would develop innovative products. Academic entrepreneurship can be improved by increasing confidence and motivation of teaching staff. Such a motivation can be bring by providing better infrastructure, work environment and training. In addition the results of the study found that as moderator organizational support significantly increases the academic entrepreneurship efforts for industrial innovation. Therefore organization support in terms of technology transfer office and departmental level support increase the possibility that academic entrepreneurial efforts by an academician contribute positively in industrial innovation in the perspective of private universities of Pakistan.

6 Conclusion

Academic entrepreneurship is a concept that still needs more exploration and description. In the literature a gap has been found that the impact of academic entrepreneurship on industrial innovation is yet to be discovered. Focus of previous studies on academic entrepreneurship was to find out the causes and determinants of academic entrepreneurship. This study quantitatively measures the impact of academic entrepreneurship activities comprising of cooperation with industry, consulting activities, patent activities, research publication and applied research on industrial innovation efforts. In addition the research also analyzes the effect of organizational support as moderator among the link of academic entrepreneurship and industry. The study generated the convincing proof that academic entrepreneurship impacts the industrial innovation and growth activities with the perspective of private research universities of Pakistan and academic entrepreneurship activities are instigated by organizational and departmental support. However for organizational support there is still room for improvement, academicians want effective administrative and institutional support from university administration. The situation implies even in present situation researchers are contributing towards industrial innovation through new venture creation, research commercialization, patenting and industrial collaboration successfully. University researchers are concerned about increased teaching load, large numbers of students under supervision and less time for academic research. A well planned and academician focused organizational support shall enhance the researcher's academic entrepreneurship capabilities by many folds. The study has contributed to fill the gap in academic entrepreneurship research keeping in view Pakistani scenario and proposed a model of academic entrepreneurship and industrial innovation. Resultantly we are aware of what impact academic entrepreneurship exerts on industrial innovation and the effect of organizational support to instigate the efforts of technology transfer to industry. This

research is beneficial particularly for higher education commission and university administration as feedback of their effort for promoting entrepreneurial and research commercialization activities in universities.

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The Conceptual Innovation of College Students Management

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Abstract: College students are the guarantee for modernization construction of China. Under the background of the popularization of higher education, the management of college students face with many challenges, and how to innovate college students management is worth being discussed.

This paper uses documentary method and observation method. By analyzing the documents which are related to college students management and combining practical working experience, this paper comes up with the importance of establishing the management idea of “student-oriented” and holds the idea that only adhering to the “student-oriented” management philosophy can we deal with the new challenges facing with school management. Finally, this paper comes to the conclusion that six ways which connect to the “student-oriented” can contribute to university students’ management innovation.

Key words: College student management; Student-oriented; Conceptual innovation; Management approach

1 Introduction

Fist of all, this paper expounds research significance. It has become a goal and responsibility for university at present to cultivate and foster students who have innovation ability, competitiveness and develop synthetically. The education and management in school more focus on tap existing potential and fully mobilize enthusiasm, initiative as well as creativity. New features of modern education and college students in the new era requires that student mangers must establish a student-centered concept, enhance service awareness, put students on an important position and do a great job in education management.

Secondly, this paper summarizes the concepts of student management in the domestic research situation. In *The Book of the School Students Management Operation* which is edited by Gu Mingyuan, students management is defined as the management for students learning and activities Inside and outside the school including Planning, organizing, coordinating and controlling. In recent years, with development of student management work, some scholars apply the concept of “student affairs” and “student management affairs” which are from America to the study of student management in colleges and universities in China. After comparing the differences of universities student management work between China and the United States, Cai Guochun thinks that Management of colleges and universities influences students through nonacademic affairs and extracurricular activities and it is an organization activity which aims to guide and service students as well as enriching the campus life, promoting students. Teng Huaiguo divides the development of student management according to time sequence.

Finally, the innovation points of this paper is combining theory and practice. The author of this paper is a students managers and this paper starts from the present situation of University students’ management and then discuss management innovation as well as comes up with “student-oriented” management philosophy.

2 New Challenges Facing with the Management of College Students

Market economy tests school management system. As the development of socialist market economy and the improvement of university enrollment, the content of college student management increases and the managements of college students face a series of management changes. For example, the general university college graduates have completely independent careers. The financial aid for needy students changed from the original issuance of grants, hardship relief to student loan, national scholarships, state grants, work-study, social aid. However, the mechanisms and methods which adapts not yet fully formed in the colleges. As a result, in order to enhance pertinence and effectiveness of student management work, it requires student managers to reform the original management mode and establishing student-centered management system which is suit for the development of socialist market economic.

Information technology challenges the traditional management approach. As the development of information technology, the Internet has a great influence on the learning, living and even ideological conception of college students. Internet has greatly changed the way of life, the way of learning and the language habits of college students. For student management, the network is a double-edged sword. On

one hand, it provides new positions and areas for student management and new condition for enhancing and improving ideological as well as political work of college students. On the other hand, it brings great impact on student management and makes it difficult for student managers to convey information accumulated in the minds of students. Besides, it has seriously affected the role of ideological and political work. Next, the virtual and stealth of Internet make it become the breeding of harmful information. Therefore, it contaminates the environment of students' ideological education and makes it difficult for college students to distinguish and resist harmful information. Some students are deceived, and some even indulge inextricably bogged down in.

Credit System and the Elastic Credit challenge teaching management. At present, many colleges and universities across the country have generally implemented credit system. Under credit system, students management broke the uniform teaching management mode, and the students' class concept weakened. The multi - metamorphic lecture group formed with the curriculum as the link. Students from different specialties and even different schools can study together and student management is not limited to the school, this class and the students of this profession. Besides, student managers also guide students in course selection, help students to construct a reasonable knowledge structure, ask students change from directed learning to autonomic learning under the guidance of teachers. Student management work changes from prescriptive management to instructive management. Therefore, student management work must seek and build a new platform.

3 Adhere to the “Student-Oriented” Management Concept

As the talent cultivating base, the management object of student affair department in universities is student who is physically mature but whose outlook on life, values, world view of people management has not yet fully formed. The student affair department manages a group of people who haven't been in self-reliance and still in the learning phase. It is necessary to establish the idea of “human-oriented” for the management of this group. Only by adhering to “human-oriented” and “student-oriented” can accelerate students' integrated development and finally realize human's all-round development.

“Student-oriented” is beneficial to realize the training goal of universities. Therefore, universities need to further strengthen the education of student's thought and quality, to guide students to set up correct learning view and talent view, to cultivate students' scientific spirit of studying hard, positive enterprising, exploring bravely. Moreover, it is also important to integrate employ education into the whole education process, to do a good job in graduates employment guidance and propulsion, to raise the employment rate of graduates.

“Student-oriented” is good for students to be socialized and organized. In accordance with the requirements for social morality and individual moral cultivation, the “student-oriented” asks students to get moral education independently and to be a well-rounded person. There are many colorful activities in Wuhan University of Technology like recitation contest, knowledge vies to answer first, basketball game, debate competition etc. They can make students involve in communication and discussion and give some inspiration to them and overcome the trend that managers monopolize the power to say. Under the nurture of “dialogue” concept, the socialization and organization of student management can be effectively realized.

“Student-oriented” benefits traditional universities' transformation in student management. It emphasizes the subject status of students and focuses on students' self-management and all-round development. It changes the Paternalistic management pattern which places students in subordinate place and implemented strict discipline. “Student-oriented” fully mobilizes students to develop themselves and perform themselves actively. The focus of student management work transfers from empty preaching to moral concern, from the drive of fame and wealth to training students' consciousness.

4 Explore “Student-Oriented” Management Approach

Student managers should exert the influence of student subjectivity. Modern education should be quality-oriented education but not test-oriented education. Quality-oriented education requires universities to take student as the main body, which places the development and the demand of students in the core position and positively encourages students to raise self-consciousness. The pertinence of modern education follows the law that teaching students according to their aptitude and reflecting students' subjectivity, truly realizing “all for students, for all students, for all of the students”.

Student managers should change the understanding of students' role in management. The

administrators should realize that student management is not only to manage people but also to cultivate people. Student management work must stick to the combinations of “education, management, service” three principles. The managing process is a process of serving people, educating people. All the management work serves for students’ learning as well as growing and creates a good environment for students to be excellent from various aspects. It can be said that the most important “service” for students is providing an inspiring environment and a good condition for them in order to improve their all-round quality.

Student managers should pay attention to emotional guidance in student management. In my view, in order to strengthen students' emotional guidance, the managers should enlighten students with reasons firstly. According to the specific problems of students, we can improve students’ thinking and understanding by reasoning with students from things into the grounds and from the shallower to the deeper. Student managers should resort to emotion when managing students. Managers need to care about students’ progress as well as life and solve students’ trouble. The relationship between emotions and reason should also be well dealt with. Management should either being sentient without reason or replacing reason with emotions, but striking a good balance between emotions and reason. To sum up, on management, the administrators should be just and meticulous to reflect a kind of “rigidity”; on emotion, we should be lenient and considerate as well as genuine to reflect a kind of “flexibility”.

Student managers should change passive management to self management. In order to do a great job in student management, student manager should pay attention to mobilize the initiative of students to participate in the management, change the subordinate and passive status of students in management work, reduce and even eliminate the reverse psychology of college students and achieve their self-management. Student management should be carried out the management mode which is under the guidance of the science department and regards instructors and students' autonomous managements as the center. In this way, students are both managers and administrators. In the process of such a role reversal, students can greatly improve the enthusiasm of self-management and enhance their ability of self restraint as well as self-control.

Student management should reflect humanistic concern. University student management is the work of people. Man is rational, but also emotional. The need for people is multifaceted and the development of human is also multi-level. So our management should not adopt rigid, unified management mode, but should face the individual difference of the students and create a variety of learning and development opportunities for students. Because the unified and monotonous management mode is not only suppresses the students' nature, but also kills the students’ imagination and creativity. Management should reflect humane care, fully develop students' advantages of scientific quality and realize the integration of scientific quality and humane quality.

Student management should create a harmonious environment. One may learn earlier than others and may specialize in some filed. In the student management work, managers cannot evaluate students according to age, knowledge and ability. And they also cannot use corporal punishment, abuse and other ways to treat students. Teachers and students should communicate with each other and strive for a harmonious management environment in which teachers care for students and students respect teachers. Only in this way can we build a harmonious school environment which is good for teachers to teach and great for students to learn.

5 Conclusion

The histories of Chinese and foreign colleges and universities show that the first-class universities should not only have a first-class teaching scientific research achievements but also have a first-class management levels. The management concepts, management modes and management systems of traditional student management works have lagged behind the actual development of colleges and universities. As a result, University students' management works need to be reformed and innovated. On the basis of existing research results, this paper explicitly proposes and expounds the “student-oriented” creative thinking of student management in colleges and universities, that is ,student-oriented, creating a good environment for the students, exerting students' initiative and enthusiasm, promoting and guiding students to self management.

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Study on Business Applications and Profit Model of SaaS

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Abstract: As the “cloud computing” technology developed, SaaS has become an important application service mode which realizes the information needs of SMEs and supports the development of e-commerce. This work elaborates the definition and features of SaaS, and on the basis of the construction of network system of SaaS’s core value, combining cases of enterprises’ business applications of SaaS, summarizes two different types of applications with the SaaS mode. Ultimately, this work builds the profit model with SaaS operators as the core according to the charging method and revenue distribution model.

Key words: SaaS; Business applications; Profit model

1 Introduction

SaaS is the abbreviation of Software as a Service (SaaS), a completely innovative software application model based on the Internet to provide software^[1]. Specifically, the provider integrates, unifies and deploys the software or application in the cloud, and builds various software platforms for enterprises to provide information needed. The provider is responsible for the environment layout of the platform in the early stage, service support in mid stage and software maintenance in later stage. User can order application software from supplier based on their specific needs and run the software using the browser, while supplier can charge the user according to the factors such as time of using or quantity of the software ordered.

Compared with traditional software mode, the users do not need to pay a one-time fee to purchase the software and spend a lot of money on building complex IT systems and ongoing maintenance^[2]. The user just pays a small rental fee and may update the software according to user’s need at any time. From this point, SaaS is really the best way to accelerate enterprise’s informatization and improve the penetration of advanced technology. SaaS greatly reduces the risk of enterprise’s investment in software, which is especially important for SMEs in China.

Table 1 Differences Between SaaS Mode and Traditional Software Mode

Way	SaaS Mode	Traditional Software Mode
Fee	Regular rental service fee	One-time purchase fee
Service mode	Supplier providing professional service	Need to train professional service team
Equipment deployment	Simple PC equipment	Need to build complex IT system
Software update	Supplier updating at any time according to need	Updating by enterprise itself, with a long period

According to Forrester Research’s forecast, global cloud computing market will reach \$ 241 billion in 2020. And cloud computing as one of the new strategic industries in 12th Five-Year Plan, its size of the industrial chain is expected to reach 750 billion yuan in 2015 in China. SaaS as the topmost service mode in cloud computing, it also attracts key attention from government, professional software companies, Internet service providers, telecommunications operators and a variety of small and medium enterprises. SaaS has strong policy support and good prospects for development.

2 Features of SaaS

SaaS is one of the service mode of cloud computing, relying on the resiliency service and powerful computing ability of cloud computing. It has unique business advantages and characteristics, mainly in the following three aspects:

1) Feature of service

SaaS has relevant features of information service in online service quality assurance, service contracts signment, and service usage measurement and so on. SaaS service is generally divided into two categories^[3], namely business-oriented service and consumer-oriented service. The former includes online storage management, CRM, ERP, sales management, and application services for the specific needs of business users. The latter includes account management, document management, online

document editing, and calendar management. Relationship between software suppliers and users becomes service relationship, which also marks the formal entry of software industry into the socialized software development phase.

2) Feature of multi-tenancy

SaaS provides services for the users with different needs based on the same system, realizing one-to-many delivery mode, that is, multi-tenancy mode. In the SaaS application mode, the supplier no longer develops new software for specific users or projects^[4,5]. The supplier builds a cloud platform and develops SaaS software according to popular demand. Then the supplier places all these pieces of SaaS software in the cloud for users to lease, supporting isolation of data and configuration between different lessees and ensuring data security and privacy of each lessee.

3) Feature of using on-demand

SaaS provides services based on Web Service or Web 2.0 program, via the Internet browser. It greatly reduces the time and space distance between the user and SaaS supplier. In addition, SaaS software does not limit the user's operating platform. Therefore, the user can always be operational, whether using Windows or Linux system.

3 Business Applications of SaaS

3.1 Construction of core value network of SaaS

SaaS was introduced into China in 2004. But the importance of SaaS was really appreciated by the media, customers, governments and enterprises until 2009. Since then all kinds of professional software companies, telecommunications operators have been offering their own SaaS development modes.

Formation of SaaS requires the support of a whole value chain. Its role participants include: SaaS operators, SaaS application software providers, independent software vendors, hardware providers, platform vendors, competitors, replacement, agents, customers, consultants, telecom operators and other relevant groups. However, the relationships between these groups are not simple as linear relationship. To build the value creation process of SaaS, the following two preconditions must be first defined:

1) Division of product-type SaaS and platform-type SaaS. According to different roles SaaS providers play, SaaS can be divided into product-type SaaS and platform-type SaaS. Table 2 presents the specific division details.

Table 2 SaaS Categories

	Product-type SaaS	Platform-type SaaS
Roles of SaaS providers	SaaS providers directly responsible for the development and design of software	SaaS providers only responsible for operation and service support
Concrete elaboration	Vendors directly provides online software services to customers, without middlemen	Software development companies provide online software services to customers, needing an independent third party to act as an intermediary coordinator
Component of main value chain	Software development companies providing SaaS services , online delivery platform, clients and other related units	ISV(independent software vendors), BSP(service provider), clients and other related units
Example	Kingdee Youshang, Xtools, k.cn, etc.	Salesforce: AppExchange、 Digital China Online: SaaSBB, 800app, etc.

2) If the SaaS operators play the role of provider of SaaS platform at the same time, they must build their own database and website. And they conduct management and update to their own operating platform more directly.

After determining the above two premises, the building of the core value network of SaaS service mode includes a central layer and an auxiliary layer. The central layer forms the core of the value network, of which components interact through competition and cooperation on the value network or other internal coupling modes. And then it creates value for customers. The auxiliary layer provides support in aspects of resources and infrastructure, knowledge flow, technology flow, human resources, information flows and other factors of production for the central layer. The structure is shown in Figure1.

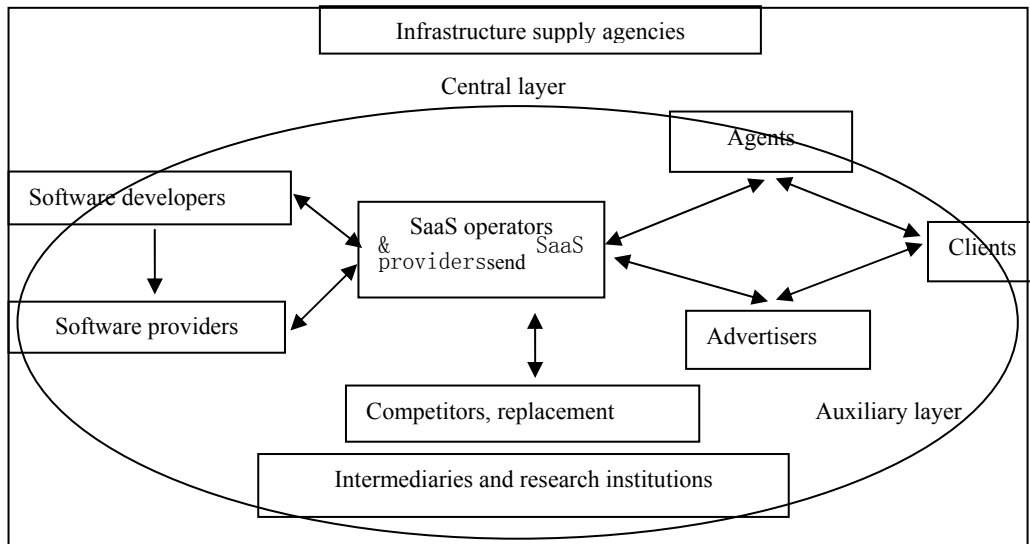


Figure 1 Ecosystem of SaaS Core Value Network

3.2 Business application cases of SaaS

By analyzing different operating modes of product-type SaaS and platform-type SaaS, SaaS modes for different business applications of three typical landing enterprises are cited.

1) XTools.com

Xtools.com mainly provides its self-developed software XtoolsCRM to SMEs worldwide, behind which there are two companies: Warrison and Voli Sender. The former is responsible for design and development of SaaS software, the latter is responsible for post-sale of software. This is a typical product-type SaaS. XtoolsCRM not only has the features and advantages of SaaS software, but also put the model of “Monthly rental payment” into its area, attracting a large number of users. In addition, they use experience-consumption model of “payment after the first trial” in marketing. This type not only greatly reduces the user’s selection risk, implementation risk and financial risk, but also eliminates the user’s burden of pre-development and post maintenance of software. Compared to the purchase of CRM software, its online service can provide a more complete and comprehensive enterprise-customer relationship management.

2) Kingdee YouShang: youshang.com

Compared to Xtools.com, the Kingdee YouShang not only provides services to all types of enterprises, but also provides one-stop integrated services to individuals. It includes online customer management, online agent account platform, online accounting, online ordering platform as well as some other value added application services. And the service software is all developed and provided by Kingdee itself. It is also typical product-type SaaS. This kind of whole-course and comprehensive service can better enable enterprise to exert effectiveness and vitality in aspects of information and innovation. It can gain much larger customer group. According to the judgment of the market research institute "Analysis International", the number of subscribers of Kingdee YouShang will continue to grow rapidly in the next few years. And its proportion in managed SaaS market will reach more than 30%. Thus it is clear that its market prospect is very broad.

3) Digital China Online: SaaSBB.com

SaaSBB.com is a Chinese first online software service operating platform constructed by Beijing Digital China Online Technology Co. Ltd. for the SMEs which have special needs of production on demand. In the operation of the platform, independent software vendors (ISV) provide software resources. SaaSBB is responsible for the integration of resources, services support (IT infrastructure operation and maintenance service, enterprise’s office service, enterprise’s business service and industry application service) and sales channels. Service content of SaaSBB.com almost covers the required various services in the entire development process of SMEs at the present stage. This is a typical platform-type SaaS. The platform generally provides a three-month trial period for at least 5 users and calculates the monthly lease fee of per user. It greatly promotes the information development of SMEs.

Through the above analysis it can be found that the product-type SaaS and platform-type SaaS both have the features of on-demand service, multi-tenancy, using on-demand shared by general SaaS software. But they both have their own outstanding operational focus. For a more intuitive expression,

the basic information of three landing companies and their SaaS software are compared. Their basic operating modes are compared and analyzed. As shown in Table 3.

Table 3 Basic Operation Analysis of Various Types of SaaS Companies

Category	Product-type SaaS		Platform-type SaaS
Service provider	XTools.com(SaaS with a single application)	Kingdee YouShang (whole-course SaaS)	Digital China Online: SaaSBB.com
Software provider	Warrison company of Xtools	Kingdee Software Company	Independent software vendors (ISV)
SaaS software	XtoolsCRM	one-stop integrated services: online accounting, online customer management, online agent account platform, etc.	IT infrastructure operation and maintenance service, enterprise's office service, enterprise's business service and industry application service.
Target customers	SMEs in various sectors	SMEs in various sectors, individual customers	SMEs in various sectors
basic operating model	Monthly rental payment, payment after the first trial, online payment of a third-party online banking	whole-course rent on demand, third-party payment	At least 5 lessees, 3-month trial period, calculating a monthly rental fee of per user

4 Profit Model Construction of SaaS

4.1 Charging methods

SaaS payment model is on-demand and multi-tenancy. It determines the users changing from purchasing to leasing the required software for use. The business income of SaaS is mainly from the users. It has different characteristics according to different types of users, which can be divided into the following five types, as shown in Table 4.

Table 4 Charging Methods of SaaS Service

Charging method	Concrete elaboration	Applicable customer
Charging by solution model	SaaS operators develop personalized large business, government solutions according to user's needs.	Large and medium enterprises, government and public service sectors
Charging by number of user and time	SaaS operators charge according to the number of users or lease time or a combination of both factors.	Small and medium enterprises, individual users
Charging by traffic, CPU, authorization	SaaS operators charge by the traffic used or CPU. This model can better learn about the volume of enterprise's business and control IT cost.	Large, medium and small enterprises
Charging by storage space	SaaS operators do not charge by the software itself, but only charge by the store data provided by the software; applicable to some instant messaging software	Large, medium and small enterprises, individual users
Charging by advertising	SaaS operators provide the software to customers for free, attract advertisers with usage rate, and charge advertising fee	individual users

4.2 Income distribution models

Different SaaS service types are embodied with different models of income distribution. For product-type SaaS, operators will take necessary charge as business income. And they allocate budget for developing SaaS software according to certain standard. While platform-type SaaS is essentially a strategic alliance partnership. Thus there is income distribution between SaaS operators and software providers. The income distribution is not only a discussion on the percentage of income distribution, but also a discussion on the income distribution patterns. After investigating a series statistics and landing enterprises, SaaS has determined the following two income distribution models.

(1) Percentage charge model

This model mainly based on the business content and business traffic when SaaS operators provide service software (business integration, self-owned business/cooperation business, before-sale service, in-sale service and after-sale service) for customers. And it divide and distribute income between SaaS operators and software providers. For example, the distribution model of China Mobile and SI (Business Integrator, Service Integrafor)^[6,7]. With the development of SaaS platform and the diversification of service, this distribution model will gradually be more elaborate and better refined in the distribution of business and the measure of the distribution percentage.

(2) Return charge model

Under this model, SaaS operators provide a platform, while software providers pay necessary membership fee as members and provide the platform with their own software at certain value. At the initial stage, SaaS operators provide customers with SaaS software at a low price or free of charge, which attracts a great number of customers. In this case, the advertising cost can be regarded as the final profit after a certain scale has been developed. For example, the distribution model between Apple Store and software providers. This distribution model not only helps consolidate the cooperation relationship between SaaS operators and software providers, but also facilitates the development and maturity of industrial chain and promotes a virtuous circle of industrial chain.

4.3 Profit model

Opposed to the traditional way of purchasing software, SaaS has built a complete industrial chain which provides an entirely different profit model. The profit model is not only confined to the exchange of service and rent between SaaS operators and customers, but also include software providers, SaaS software developers and SaaS operators in the distribution range. Only in this way can the cost be shared and the win-win situation is achieved. So it promotes a virtuous cycle of development of the whole ind

Through the above analysis of revenue sources, charge system and distribution system of SaaS, the profit model has been built with operators at its core. And it has shown clearly the benefit distribution of stakeholders in the core industrial chain which is showed in Figure 2.

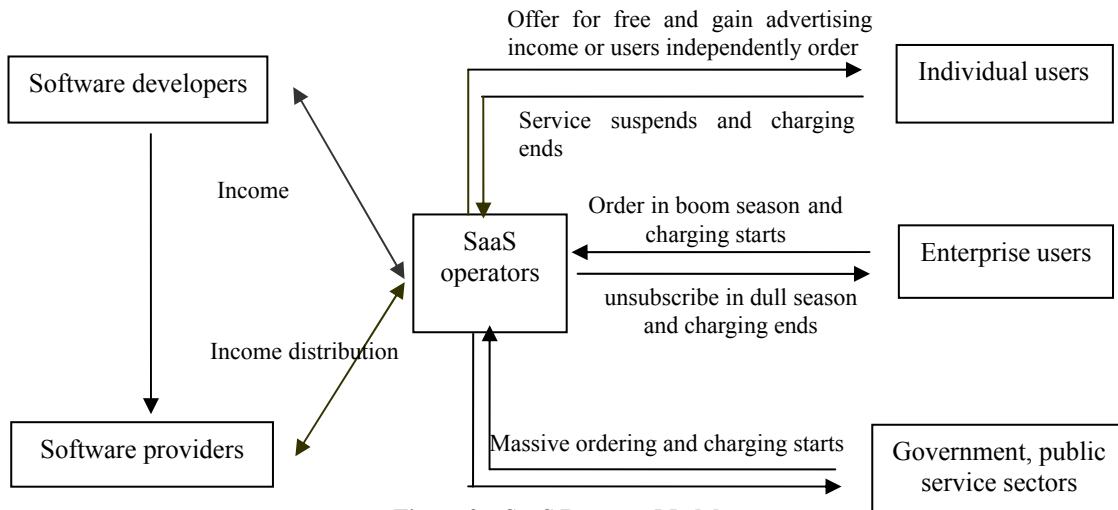


Figure 2 SaaS Revenue Model

5 Conclusion

In this work, a core value network has been build based on the definition, characteristics and the elaboration of SaaS. And two different types of application under SaaS mode are summarized. Ultimately, a profit model with operators at its core is constructed after analyzing some commercial application cases of SaaS. Besides, this work not only makes a summary of the past relevant theories and practice of SaaS, but also sets examples for the business operation of SaaS in China. At present, application of cloud computing in China is at the initial stage of exploration. As the development of information technology and economic environment, the commercial application and the profit model of SaaS will update. It requires further research on the commercial application and the profit model of SaaS.

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Study on Shared Framework Model about the Science and Technology HR Based on Synergic Innovation

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Abstract: Human resources of Science and technology are key impetus to innovation of science and technology and important base elements to promote economic development. To establish shared frame model regarding human resource of science and technology, this article is based on the theory of synergistic creation to confirm four subsystems, including principal part, resource, environment and function constituted by frame of share of human resource of science and technology. This article also put forward the share path from communication, synergistic, cooperation, share willing, share capacity to share behavior and relevant assistant mechanism to impel this model with maneuverability.

Key words: Synergistic innovation; Human resources of science and technology; Shared frame model

1 Introduction

Science and technology are primary productive forces, which gradually become key impetus to promote economic development. The human resources of Science and technology are combination of science, technology and human resource, and it is the human resource that actually engaged in or has the potential to engage in the generation, promotion, dissemination and application activity of systematicness science and technical knowledge^[1]. The human resources of science and technology are the leading forces and strategic resources to build an innovation-originated nation. As the core of scientific resources, the human resources of science and technology have become important base element to promote the economic development via promoting human resource structure and accelerating technological progress.^[2]

In order to achieve the goal of building an innovation-originated nation, the state has continually increased the investment in science and technology (Figure 1). Our R & D investment intensity has a leading position in the emerging developing countries in 2012, and the gap with the developed countries is gradually decreased, the status as a great country which huge investment in science and technology has been consolidated.

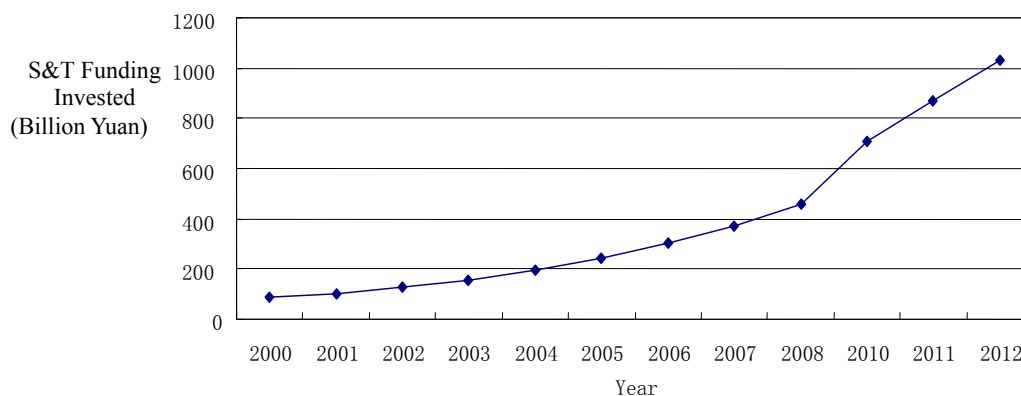


Figure 1 2000--2012 S & T Funding Invested

However, although the overall R & D input intensity of China reached 1.98% in 2012, there is still a gap compared with about 3% level in developed countries. According to the statistic data in "Science and Technology Statistics Report" (total 466) (Table 1 below), the total staff of R & D in China are likely to exceed the United States and ranks the first in the world in 2009. However the per capita R & D expenditure or the average number of R & D staff in every ten thousand labor force is not higher than the international level. On the other hand, the distributions of scientific and technological personnel are not balanceable. The R & D personnel reached 1271000 persons/year in the eastern area, and 399000 persons/year in the central region, but only 296000 persons/year in the western area in 2008, and the

proportion in the eastern region increases year by year while the proportion in the central region decreases year by year, the gap is enlarging^[3].

Table 1 International Comparison of the R & D Personnel Indicators

State	Year	R&D personnel (10000 personnel per year)	Annual average growth rate of R&D personnel since 2000 (%)	Annual average R&D expense per person (10000 USD per personnel year)	No. of R&D personnel every 10000 labors
china	2008	196.5	9.5	3.4	24.8
Japan	2006	93.5	0.7	18.9	140.5
Russia	2007	91.2	-1.4	2.0	121.5
Germany	2007	49.8	0.4	18.8	119.5
France	2006	36.4	1.8	15.3	132.0
England	2006	33.5	1.9	14.3	111.8
South Korea	2006	23.8	9.5	13.5	99.1
Canada	2005	21.4	5.0	11.5	122.9
Italy	2006	19.2	4.2	12.5	77.9
Australia	2006	12.6	4.7	16.7	116.8
Poland	2006	7.4	-1.2	4.0	43.3
Finland	2007	5.6	1.0	17.4	208.7
Argentina	2007	5.3	5.1	2.8	27.7
South Africa	2005	2.9		10.0	17.2
Czech	2007	4.92	10.7	6.8	94.6
Turkey	2006	5.44	12.4	8.4	21.5

Chinese "labor force" refers to the economically active population.

Source: OECD, Main Science and Technology Indicators 2009-1.

The status and role of science and technology human resources, especially key science and technology human resources in organizations is increasingly prominent. As scientific human resources have initiative and creativity, which has broad shared prospect and strong shared effect.^[4] Cooperative mode of combined learning with research and production is blossoming in China, and the state also encourages this model and the proportion of these kinds of projects is increasing (Table 2). This cooperation model has been becoming trend of development of national science and technology. Therefore, from the perspective of industry-college-institute synergistic innovation, this article tries to analyze and research the shared mechanism of science human resources to build shared frame model of scientific human resource based on synergistic innovation perspective

Table 2 Industry-College-Institute Cooperation Status in National Scientific Plan Projects

	"Ninth Five" stage (1996-2000)	"Tenth Five" Stage(2001-2005)	"Eleventh Five" stage(2006-2008)
Total no. of the five category plan project	19348	30144	26797
Total no. of the cooperative projects	2399	6590	5458
Percentage of the cooperative projects (%)	12.4	21.9	20.4

Source: Science and Technology Division "Technology Statistics Report (total 462)."

2 Scientific Human Resources Shared Framework Structure Analysis under Synergistic Innovation Perspective

2.1 Synergistic innovation theoretical foundation

Synergy was firstly suggested in "System theory" by Haken, physicist from German, in 1971. He thinks the synergistic effect of $1+1>2$ can be reached by inter-coordination, cooperation of every sub-system. Synergistic theory treats each system as a complex system which is made up of three layers:

element layer, namely micro level; sub-system layer, also known as meso-level layer; overall system layer, namely the macro layer.

Synergistic innovation represents innovation paradigm or model used in the innovation process of some layer. Throughout the research of domestic and foreign scholars on synergistic innovation: the first to pay attention to synergistic innovation of enterprise internal element in micro-level, such as Zheng Gang, Zhu Ling (2008) put forward a new paradigm, comprehensive synergistic innovation. They believe that the enterprise should view innovation throughout globe understanding to coordinate entirely innovation elements as strategy, technology, production, marketing, culture and organization, not limit the view in some or local several elements^[5]; the second is to concern about regional synergistic innovation, for example, Chen Danyu(2009) using the regional synergistic theory and method to study synergistic development status of the regional innovation systems in Yangtze River Delta region (Jiangsu, Zhejiang and Shanghai)^[6], Shao Chang (2007) put forward to promote the coordinated development of internal innovation element of every province, at the same time as, the innovation system building should be paid attention to after he research science and technology development strategy of six central provinces.^[7]; the third is synergistic innovation from industry-college-institute, for example, He Yu Bing (2012) proposed a new framework of synergistic innovation analysis from industry-college-institute: strategic synergistic level, knowledge collaboration level, organization coordination level, to clarify how enterprises, universities and research institutions accelerate improving efficiency of national and regional innovation systems by using fast interacting, shared and integrating of knowledge and resource between organizations.^[8]

2.2 Technology human resource sharing framework analysis based on synergistic innovation

This article note Synergistic Innovation is to build a Synergistic innovation organic system, and knowledge appreciation are the core, enterprises and government and knowledge production institutions (universities, research institutions) and intermediaries and users create a large span integrated innovative system in order to achieve and carry out scientific and technological innovation system. Of which the key route is to form an interactive network innovation model with the synergistic interaction of multiple subjects that includes the university and research institutions as the core subjects, the government and financial institution and intermediaries' innovation platform and non-profit organizations as the supplemental elements. By the cooperation and integration of the knowledge creation subject and technical innovation subjects, the effect of systems nonlinear superposition is achieved. We can analyze the collaborative innovation from the overall and interactive dimension, and the synergetic innovation could be seen as a process of communication -Coordination -Cooperation -synergy.^[9-11] (As shown in Figure 2)

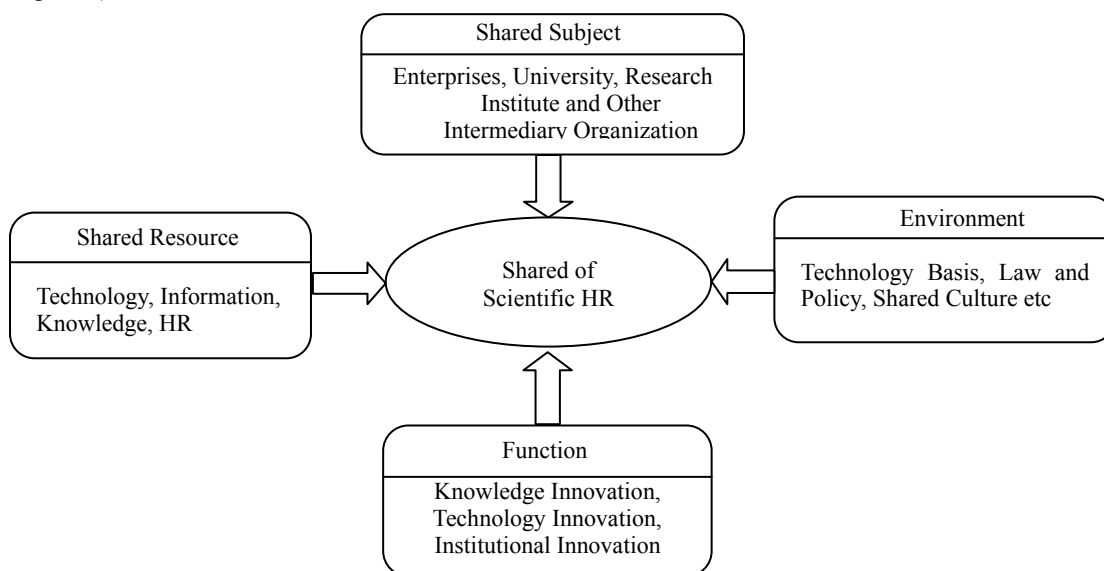


Figure 2 Shared Frameworks of Science and Technology Human Resources under the Perspective of Synergistic Innovation

3 Building of HR Shared Framework Model under the Perspective of Synergistic

Innovation

Based on the previous studies, this article put forward the scientific human resources shared framework, including four subsystems: shared subject, shared resources, environment and function, which clarifies how do enterprises, universities and research institutions make use of the rapid interacting, shared and integration of knowledge and resources to accelerate the efficiency of national and regional innovation system. The shared process is “communication-coordination-synergy-shared aspiration-shared ability-shared behavior”. The supportive layer is the governmental guidance, project-driven and institutional innovation; the auxiliary layer is intermediary organizations, financial institutions and other organizations. They achieved the shared behavior on the basis of contracture of synergistic innovation system. (Shown in Figure 3)

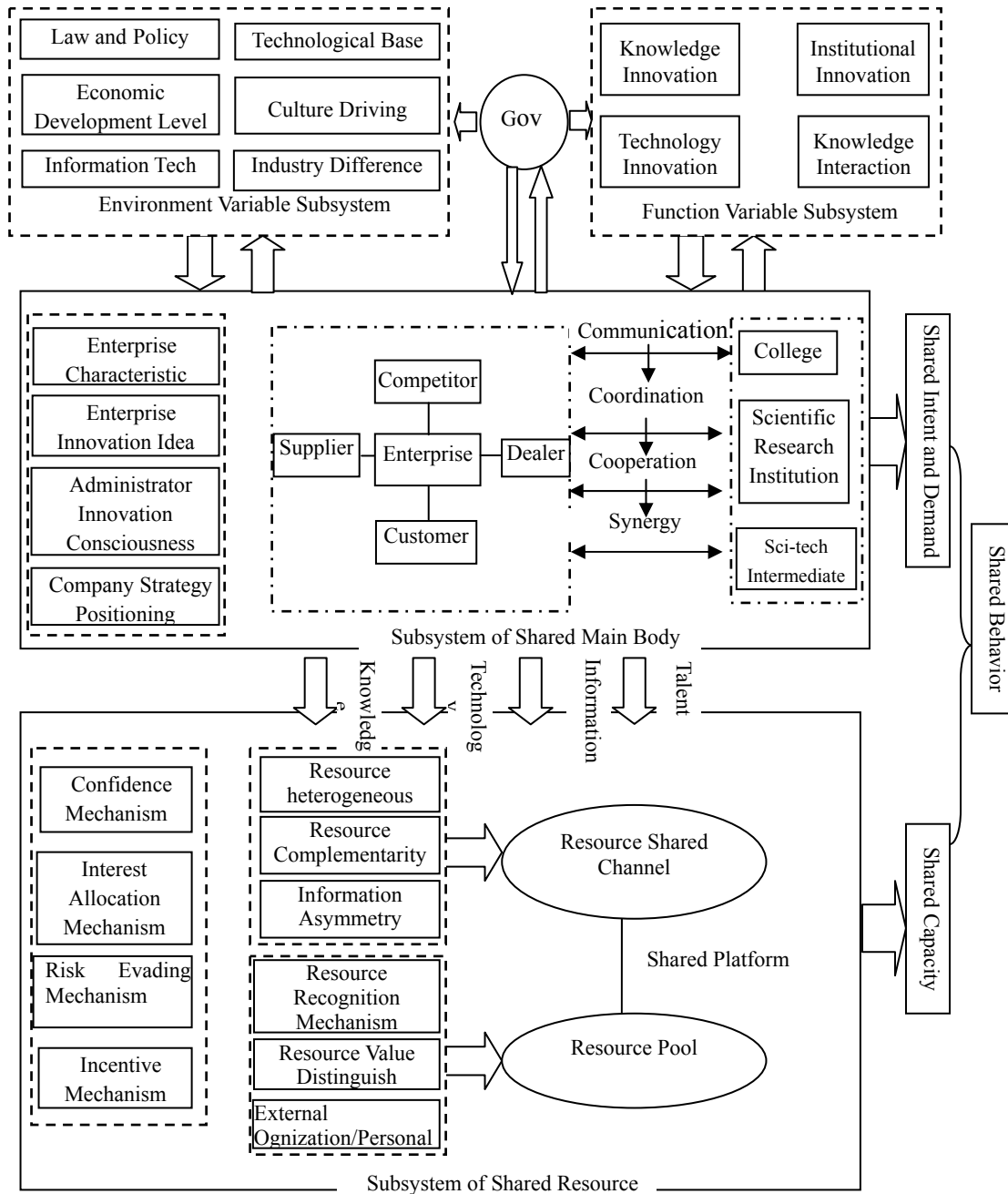


Figure 3 Science and Technology Human Resources Shared Mechanism Frame Model Based on Synergistic Innovation Perspective

3.1 The subsystems of the shared subject

The enterprises, research institutes and universities are not only the subjects of technology innovation, but also the subject of shared mechanism of science and technology human resource. Enterprises are the core subject, universities and research institutions are the subject to create knowledge. The elements of the shared subject are optimized systematically and cooperate to innovate. We can analyze synergistic innovation from two dimensions: integration and interaction. The integration dimension includes the knowledge, resources, action, performance, and interaction dimension mainly refers to the mutual knowledge shared of all innovation subjects, optimization of resources, optimal synchronous of operation and the matching of the system. According to the different positions of two dimensions, synergistic innovation is the process of communication-Coordination-Cooperation-synergy.^[10] On the other hand, the demand of shared resources is affected by the enterprise feature, such as enterprise size, development stage and innovation level, etc. Enterprise innovation development strategy, innovation theory and innovation consciousness of individual managers are the precondition to form shared resource demand.^[12] At the same time, under the action of environment variables and function variables, synergistic innovation of every subject lead to the shared willing and shared demand.

3.2 Shared resource subsystem

The shared resource subsystem includes resource shared channel and resource pool. The shared subject provides knowledge, technology, information and talents to enter into the subsystem. The shared pool is established by resources identifying mechanisms, resources value distinguishing mechanism and external organizations or individuals etc. The shared channel is established through building networking platform, innovative platforms. It is the existence of the complementarily of the need side and the supply side of the science and technology human resource, the resource heterogeneity and information asymmetry that the resource shared channel form. By the establishment of the resource-shared channels and shared pool, the shared subject has the shared ability, and under the stimulation of shared demand and will, the shared behavior is formed. We should also note that it is indispensable for the trust mechanism, interest distribution mechanism, risk avoidance mechanisms and incentive mechanism to form the shared ability.

3.3 Environmental variables subsystem

Shared need and ability of scientific and technological human resources will also be affected by the environment variables. Law and policy, technical base, economic development level, cultural environment, information technology development and inter-industry difference are of environmental variable, which affect the development of shared system. Excellent shared environment includes hard one's and soft one's. Hard environment includes technology infrastructure, technical database and so on. Soft environment includes some aspects as law policy, economic development level and culture driving. We should pay attention to that government is vital for environment establishment of shared mechanism because it can drive the infrastructure construction and draw up relative law and policy with sharing of scientific human resource by its particular legislative authority and administrative power.

3.4 Functional variable subsystem

Science and technology human resources shared system also needs the functional variables to improve itself. Knowledge innovation is the source function, and knowledge, technology and institution are complementary each other. Knowledge Innovation is the creation of new base knowledge, if the new knowledge needs to be transferred into practical productive forces, it will need the enterprise to complete the work internally.

Institution innovation will provide guarantee to the innovation of knowledge and technology. Whether it is the knowledge innovation or technological innovation, ultimately it will be inseparable from the production, transfer and application of knowledge and technology. Therefore there will be transaction costs. It is necessary for proper institution design to reduce the cost need. The goal of institution innovation is to design a rule which is in favor of the innovation of knowledge and technology, in this way we could optimize the knowledge and technology in the system, and lower the transaction costs.^[13]

4 Conclusion

On Synergistic Innovation Perspective we will build a science and technology human resources shared model, which includes four subsystem: the subject, resources, environment and function. The enterprises, universities, research institutions and research intermediary produce synergies through communication, coordination and cooperation, and the sharing intention will occur under the common

effect of the environmental variables and functional variables. Promoted by enterprise characteristics and innovation consciousness, the subjects have formed knowledge, technology, information and human resources as a shared channel by making use of the complementarily and heterogeneity of resources, and then a resource pool is built through opportunity identification and value identification, shared capacity is formed among the subjects, and the effect of the shared ability is also influenced by the following factors: trust mechanism, interest distribution mechanism, risk avoidance mechanisms and incentives mechanism. Only when these mechanisms play a role, and are under the influence of shared intention and shared ability, the shared behavior can be incited. This shared model has the dynamics and complexity, and this model is affected by many factors, and it should be used comprehensively to form synergistic innovation, to achieve shared behavior and to improve the shared performance.

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Innovation of the Social Organization's Registration Management System in China

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Abstract: China's social organizations formed a "centralized registration, dual management, graded responsibility" registration management system in the course of practice. This paper analysis the existing disadvantages of the management system of social organization in China, consider that with the development of socialist market economy and democracy, the system squeezed the living space of social organizations and influenced the overall efficiency in a certain extent. Just because of above-mentioned background, I propose that integrated and unified registration management system should be established instead of the existing system in China.

Key words: Social organization; Registration management system; Innovation; China

1 Introduction

Countries in the world have different titles on "social organization" according to its habit of using word and the definition of it. The usage of "Non-Profit Organization"(abbreviation NPO) is popular in the middle of the twentieth Century. The United Nations often use "Non-Governmental Organization"(abbreviation NGO) in the documents. The non-profit organization management system of USA based on the law, so which called "Tax-exempt organization", UK use "Voluntary Organization" follows its tradition, as well as the commonly usage "Charitable Organization", "civil society" (abbreviation CSO), "Third Sector" and others. The meaning has no unified boundaries, but all refer to the social organizations outside of government department and enterprise sector.

Social organization, refers to the various forms of organization and network configuration with non-profit, non-governmental and social characteristics which formed spontaneously by various social classes of citizens in a society. The concept of "social organization" was put forward in the sixth plenum of the 16th CPC Central Committee in 2006, and was further discussed and confirmed in the report of the 17th National Congress of the CPC.

Throughout the domestic and foreign existing related research materials, we can find that most countries in the world use one-dimensional register management at present. Foreign scholars focus on the study of the means and ways which provide support services for society organization by the government. Such as tax preferences, financial appropriation directly, public service purchase, strategic framework system establishment, government institutional reform and so on.

Domestic scholars mainly concentrated on the reformation of social organization registration management system. On the macro level, they discussed around the overall goal and direction of reform, on the micro level, they analyse and summarize the mode of social organization and management system in local practice. In addition, by comparing the differences between the domestic and international social organizations registration management system, we can sum up the practice and experience of the management system from other countries to enlighten China.

With the development of the socialist market economy and social transformation, the process of democratization in China need legitimate, efficient and standardized social organizations to compensate for the possible failure condition of the market and government, and also provide public goods and public service. Lawfully usually associated with independent, so it needs a reasonable and perfect registration management system as a guarantee.

2 The Evolution of the Social Organization's Registration Management System

After the reform and opening up in China, with the development of economy and the deepening social reform and transformation, social organizations in China present an active situation. In the late 1980s, the government began to establish the standard system of social organizations in the context of political turmoil. In September 1988, the State Council passed the measures for the administration of the foundation, end up the history of that foundation without unified registration. In October 1989, the State Council approved and promulgated the regulations on the registration and administration of social organizations, stipulated clearly that the registration administration department and the competent

business unit are responsible for the registration management and daily management of social organizations. With further implementation of the clean-up of social organizations, in October 1998, the State Council promulgated new “social group registration and management regulations” and “provisional regulations on the registration management of private non-enterprise units”. Since then, social groups, foundations and private non enterprise units unified into the registration management system.

According to the current regulations, the management system of social organizations in China can be summarized as “centralized registration, double responsibility and hierarchical management”. “Centralized registration” refers to, in addition to specific provision exempted from registration of laws, rules and regulations, all non-governmental organizations should have unified registration in the civil affairs department, which registered in other government departments, state organs are not regarded as effective registration; “Double responsibility” refers to, social organizations are managed and supervised by the registration administration organ and the competent business unit; “Hierarchical management” refers to, according to the scale of organization, national non-governmental organizations managed by the State Council’s registration authority and the relevant competent business unit, local non-governmental organizations managed by the local registration authority at all levels and the relevant business unit.

The dual management system of social organization arised at the trend of reform and opening and globalization. With the collapse of the unification and homogeneity of the traditional society, the profit pattern of China occurred significant changes, resulting different social classes. In addition, in the era of globalization, international exchanges become more frequently, the western social thought's impact and penetration increased, the domestic and foreign hostile forces attempting to use of social organizations, through the so-called legal means such as funding, cooperation and communication, to carry on the ideological infiltration to China. In the subsequent rectification, particularly, with the management of the risk of political fluctuations, this management system gradually reflects the advantages and be strengthened gradually. It can avoid the possible political risk by implementing the dual management system, and in the process, supervision and management departments enjoy the power and also should bear the responsibility, so the system is often simplified to a political checks and shared responsibility mechanism of the separation of powers. Social organization and management is a complicated system, unbalanced development, lacking internal management and effective autonomous mechanism of social organizations appeared in its original growth period. In the overall survival environment and development of China's social organizations, the management only by the competent business unit or registration management agency has significant limitations. The dual management system played an important role on guarantee the quality of social organization and the reasonable layout.

3 The Problems Existing in the Dual Management

After entering the 21st century, the dual management system of China’s social organization gradually exposed its drawbacks, and are not adapted to the needs of the development of social organizations increasingly under the new situation. Mainly in following several aspects.

3.1 High standard of access

Under the dual management system, social organizations acquire legitimacy, must first be examined and approved by relevant competent business unit before register in civil administration branch. China's existing three social organization management regulations express that, “the relevant departments of the State Council and local government at all levels above the county level, organization authorized by the state council or the local people's governments above the county level” is the competent business unit. But there is no corresponding implementation details, so that in practice, the social organization is difficult to find a suitable business unit. It also have relatively strict limits on social organizations set up conditions, the social organizations registration management stipulate in article 10 that, “there must be more than 50 individual members or more than 30 unit members; Individual members, mixed with unit members, the members shall not be less than 50;” In terms of assets, “there should have legitimate assets and sources of funds, the national social organizations have 10 million yuan funds for activities, local community groups and cross administrative regional community groups have more than 3 million yuan funds for activities;” To achieve these conditions, the social organization of the community, rural and other smaller scale has certain difficulty. And such a high threshold setting lead to a direct result that the social organization legally establishment been hampered, more and more social organizations instead of taking industrial and commercial registration to obtain legal support, or

just not to be registered, tend to profitable or variable which outside of the system. On the one hand, diaspora social organizations unable to enjoy tax breaks and purchasing service provided by the government, and also not conducive to the effective regulation of the government, on the other hand, they may become endangering social group which is used by illegal forces, that is not conducive to the healthy development of the social organization. In a certain sense, the high threshold of registration is the bottleneck restricting the development of social organizations.

3.2 Subjective consideration of the competent department

Under the dual management system, the social organization, only by getting the examination permission from the business units, it could go to the civil affairs departments for register. To examine and approve the social organization, the competent business unit would consider whether its business scope is related, more important is to see non-governmental organizations are whether under the effective control, and the development of non-governmental organizations will bring too much political risks and responsibilities or not, and it whether increase the departmental interests for competent business unit. In the process of concerning social organizations access, business executives often have subjective factors. Competent departments are lack of driving force on approving the non-profit social organization, they also have their own work, so it requires to bear joint liability reduces the enthusiasm of the competent business unit. The business department in charge of the greater discretion increased the cost of finding a suitable business unit.

3.3 Excessive administrative intervention

Under this management system, business unit in charge of the administrative intervention, the social organizations are lack of independent power of appointment and removal of personnel, financial management, internal autonomy. The methods of manager selection of social organization, there is a survey:

Table 1 Methods of Manager Selection

Democratically elected	28.4%
Dominated and approved by the competent department	23.2%
Dispatch by the competent department	38.5%
No special rules	8.6%

From the above data, the social organization of managers through democratic elections are less than only 30%, and they are mainly from the competent authorities of the dispatch and appointed, the second is nominated by the head of the competent department.

On the source of funding for social organization, for membership social organization, dues and revenue is the main source of the funds; for non-members of social organizations, they need rely more on government procurement of services and corporate donations. The research of social organization's funds over the world shows that social activities of the organization funds mainly come from the government and enterprises. Over reliance on the government on financial, will easily cause social organization lacking of economic independence, financial chaos, corruption, and even affect social autonomy ability and social credibility of the organization.

Business department in charge of social organization's resources is also easy to form affiliation, and this kind of nepotism narrowed the autonomy space of social organization, suppress the rights of themselves. The extension of the administrative power is easy to make social organization alienated as an extension of the government departments or competent authority unit, resulting in a "second government" phenomenon, and directly affect the efficiency of social organization. Some scholars think that "the market-oriented reform gradually abandon the economy plan management system, at the same time, in the field of Chinese society, the planning system are constructed from scratch".

3.4 Legal repetitive supervision and lacking of regulation in practice

The social organizations in China are unified registered by registration and management agency in the legal, as a matter of fact, departments of diplomacy, communication, public security, development and reform, agriculture, taxation also bear certain regulatory functions, the different levels of the various regulatory authorities, hindered the direct coordination between departments, the social organizations in China are faced with multi-department management and repeat regulation. This situation affects the aggregation of supervision and reduces the normative regulation.

In practice, the competent business unit often attaches importance to the early stage of the examination and approval, despise the follow-up management. Failing to establish the perfect

supervision tracing mechanism, the regulatory gaps also led to a large number of registered social organizations in name only. Considering from the reality, due to the limited number of functional departments and the proliferation of social organizations, social organizations accepted by a competent business unit may not in the minority. This situation makes the competent units have no time to give consideration to all social organizations. Moreover, business executives have their own work, the social organization of the regulatory work can be referred to as their additional functions. Facing to the numerous social organizations, the competent business units unable to do what they hope to do, the inaccessibility of supervision aggravated the burden of the competent business unit, it also reduced the supervision efficiency and increased the hidden costs of regulation.

4 Reform and Innovation of Social Organization's Registration Management System

4.1 Reform of social organization's registration management system

Along with the development of socialist market economy and democratic politics, to a certain extent, the registration and management system of China's social organization has squeezed the living space of the social organization, which hindered its effectiveness. On the basis of practice these years, the management system has begun to reform. The "Twelfth Five-Year Plan" pointed out that "improve the management of social organization, establish and improve the social organization and management system which is unified registration, cooperatively, coordination, graded responsibility and supervise according to law." In 2013, "The state council institutional reform and function transformation plan" clearly put forward that focusing on cultivating and giving priority to the development of the social organizations which refer to industry associations, chambers of Commerce, science and technology, charity and public welfare, urban and rural community service. To establish these social organizations, can apply for registration directly to the civil authorities in accordance with law, no longer need the review of business units.

Under the guidance of national policy, the reform of local social organizations registration management system has achieved some results. Jinan, Nanjing and other introduced management interim measures about social organizations at the grass-roots level for the record; Shenzhen explores the registration administration management system directly by the civil affairs department through three "half step" reform; Beijing implemented the policy that "Governing society with society", develop the key-type NGOs as the competent organization of the social organizations.

Shanghai established specialized government agencies as the competent business unit of particular type of social organization. These areas are the leading areas on reforming social organization management system in China. Social organization management system reform is not achieved overnight, it should be innovated actively and steadily form point to surface.

4.2 Innovation of social organization's registration management system

1) Formulate and improve the relevant laws and regulations. In order to strengthen the management of social organizations, the State Council promulgated the "Social group registration and management regulations" and "Provisional regulations on the registration management of private non-enterprise units" and "Regulations on the administration of foundations". However, with the development of social organizations, some policies and regulations can't provide the legal basis for the specific governance issues of social organizations. On October 23, 2014, the 18th Session of the Central Committee of the Fourth Plenary Session of the Communist Party of China, approved of the "Decision of the CPC Central Committee on major issues concerning comprehensively promoting the rule of law" made it clear that should strengthen the social organization legislation, the people's organizations and social organizations could play an active role in the construction of the society.

Establish mechanism and institutionalized channels on helping social organizations participate in social affairs and safeguard the public interest, help difficult masses, admonish special populations and prevention crime. Support social organization such as industry associations, chambers of Commerce to play industry self-regulation and professional services. Social organizations give full play to the behavior guidance, rule constraint, rights and interests maintenance. Strengthen the management of overseas-NGOs in China, guide and supervise their activities in accordance with the law. In addition, we should formulate appropriate management measure for different types of rural, communities social organizations, investigate the disciplinary offence which set up branches, and engage in for-profit business activities in social organizations.

2) Promote the innovation of registration management system gradually. Along with the reform of

the social organization registration management system, the ultimate goal is to achieve the direct registration of all social organizations. Management system will change from dual management to a “unified registration, cooperatively, coordination” comprehensive regulatory. “Unified registration” means that the registration of social organizations by the unified management of a department. In most countries in the world, they implement the one-dimensional register management model. Compared with the current dual management system in China, the one-dimensional register management simplifies the registration procedures, it reduces the discretionary power in the examination and approval links by business unit, facilitate the registration of social organizations, and it can effectively avoid buck-passing between departments, clarify the responsibilities of the administrative authority, which is beneficial to increase the number of social organizations and enhance the independence of its development. But this goal is not achieved overnight, it should be promoted gradually. In the aspect of government supervision and social supervision, it should implement the classified and hierarchical supervisory system including filing, registration and recognition gradually. Provide platform for different categories of social organization the legal status. Implement filing system for small scale and low degree social organizations; Implement strict registration system for the large scale and high political sensitivity social organizations; Implement identification system for social organizations refers to charity, public welfare and social welfare.

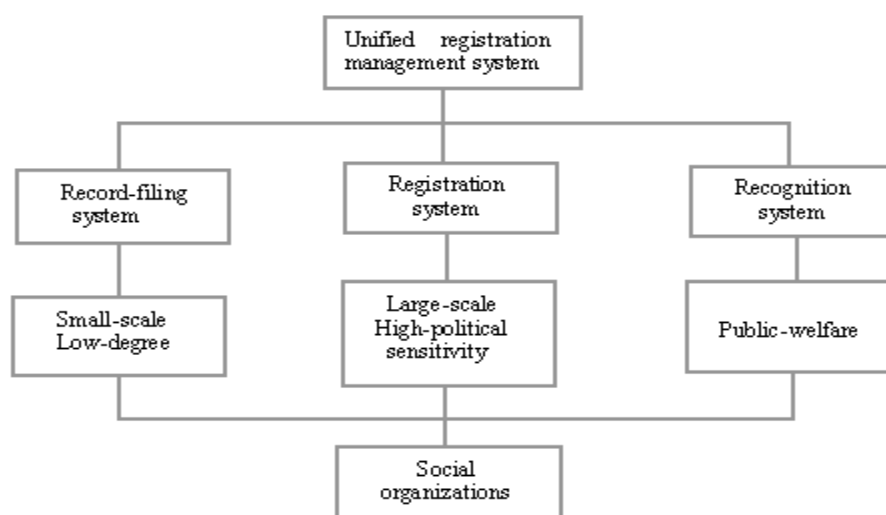


Figure 1 The Social Organization Integrated Management System

3) Innovate the relationship between government and society, change it from “attachment” to “cooperation”. The Eighteen Party Congress Report pointed out that, speed up the modern social organization system which separates government administration from commune management, it has clearly defined rights and responsibilities, and legally autonomous. Relationship between government and social organizations directly affect the independent development and efficiency playing of social organizations. It must break the benefits pattern that social organizations attach themselves to government departments for obtaining resources, and establish a long-term cooperation mechanism between government and social organizations, through projectized operation like “purchasing public service”, to restore equal, efficient and stable interest pattern, and achieve specialization, full coverage of social and public services. For the government, it should achieve the correct guidance and real-time supervision, do not interfere in personnel, finance and other internal affairs of social organization, and strengthen supervision on the social organization’s behavior norms. In terms of social organizations, they should know its position clearly, as information providers and coordinator of interests in a professional field, they ought to create good internal environment for the members and the membership units, reflecting the aspirations of the public opinion, and provide social services, give full play to the role of a bridge and link.

4) Establish an independent and unified regulatory system. In view of the weakness of the dual management system in China, we should establish a third-party regulatory agency independent from the civil affairs departments, competent business departments and other relevant functional departments. It exercise independent regulatory power, implement unified supervision to social organizations, which

can avoid the disordered government affairs and the information failure. On this basis, classified supervision would be the implemented adapt to the reformation of the registration system, the different regulatory measures and standards formulated by different regulators according to different categories, levels of social organizations to achieve the best effect of supervision.

The legal registration of social organization means access to the threshold, it also represents the beginning of the regulatory link. This requires that the social organization regulators must carry on the continuous dynamic supervision and management, instead of letting it go. Social organizations will step into a period which is “wide into but strict control”, supervision departments should establish and improve the power-responsibility mechanism and the interest coordinating mechanism of social organizations. Regulate the daily behavior of social organizations, form a comprehensive and efficient supervision system, to overcome the absence of supervision and improper enforcement, strengthen supervision, make social organizations have healthy and orderly development.

5 Conclusion

The dual management system of social organization in China is a kind of special registration management system, which is not only an important measure, but also a successful model in history. With the deepening of reform and the practice of social organization's development, the reform from dual management system to one-dimensional register management is adapted to the current situation. Giving more space for social organizations to participate in public services is a trend of social reform, and it is inseparably interconnected to the political and administrative reform.

The registration management system of social organization is a gradual process, it needs to be adjusted in practice. In addition, learning the typical practice and experience of social organization supervision management from other countries has important practical significance on constructing China's new social organization management system.

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Managing Cultural Differences in International Business Negotiations

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Abstract: Business negotiation is crucial for the success of business transactions. Based on the belief that the success of international business negotiations not only concerns business factors, but also cultural elements, for one's culture influences his verbal and non-verbal behaviors as well as negotiation styles, conflicts in international business negotiations that may arise because of misunderstanding and misinterpretation in these areas are analyzed. It is suggested that in order to handle cultural differences in business negotiations, negotiators should learn more about their partners' communication rules, communication styles, conflict managerial styles, develop empathy and avoid overgeneralization. So that cultural differences can be minimized, successful negotiation can be gained and the profits of companies can be maximized.

Key words: Cultural differences; International business negotiation; Cross-cultural misunderstanding and misinterpretation; Managerial strategies

1 Introduction

With the rapid development of globalization, international business transactions are increasing at a fast speed all over the world. It has become an important field for many countries' economy. As all human behavior is influenced to some degree by the cultural, social and physical settings in which it occurs, so is international business. When people are doing business with people from their own culture, they unconsciously obey internalized cultural rules and business ethics of their own. But when engaged in international business, things would be different. International business involves different cultures where people's beliefs, values, behavior patterns and the internalized cultural rules would be quite different from each other. The different internalized cultural rules may lead to misunderstandings, misinterpretations and even conflicts for culturally-different business parties. This is especially true for international business negotiations, where parties with different backgrounds gather together, trying to reach an agreement and maximize their own profits. Parties involved in international negotiations come with different goals and maybe conflicting interests; cultural differences that influence communication from all around can make the situation even more complex. Therefore, apart from getting to know business factors, it's important for international negotiators to have cultural sensitivity and cultural awareness for successful, smooth transaction, for cultural differences may lead to conflicts from various aspects.

2 Conflicts Resulting from Cultural Differences

People from different cultures abide by different rules when negotiating in business for their concepts of time, manners, denotation of certain expressions and words, dress and non-verbal behaviors may differ significantly. These different rules and consequently different behaviors in business negotiation may cause misunderstanding and even conflicts in negotiation.

2.1 Misunderstanding and misinterpretation of verbal behaviors

In international business negotiations, information is exchanged mainly through language. Yet, due to the different physical and cultural backgrounds, negotiation parties with different cultures would endow the same expression with different connotations. For instance, Chinese culture is collective culture and in negotiations, they would try to maintain harmonious relationship with their counterparts and save faces for both parties. So when they refuse the other party's requests, they wouldn't give a simple and straightforward "no" for they think it would embarrass their partners and make them lose face. Instead, they would use an indirect speech such as "It would be too difficult", "We'll think about it". While for individualistic cultures such as America, these expressions would be interpreted as "it's actually difficult"; there is still room for discussion and further effort would result in agreement.

Conflict may also rise when a culture endows negative connotation to an expression while the other doesn't. For instance, in English "white elephant" means expensive but useless things, but in China, it doesn't. So we can imagine what would happen if a Chinese negotiator is trying to sell a product named "white elephant" to a British.

2.2 Misunderstanding and misinterpretation of non-verbal behaviors

To become a successful negotiator, in addition to understanding differences in verbal communication, one also has to understand cultural differences in non-verbal communication. Buller and Woodall tell us that between 60 and 65 percent of the information we receive is communicated non-verbally. Non-verbal communication is often beyond our conscious awareness and control. Despite the fact that non-verbal behaviors are often unconscious, when we receive conflicting verbal and non-verbal messages in a communication encounter, it is the non-verbal communication that we believe to be more trustworthy (Houman & Madelyn, 2011).

Non-verbal communication consists of using gestures, facial expressions, body movements, eye contact, touch, adornments, use of space and time, etc. to convey information. Because there are cultural differences among non-verbal communication, there is potential for misunderstanding of non-verbal communications. When we communicate with people from our own culture, we interpret the non-verbal messages unconsciously. For example, the Chinese would naturally beam a warm smile when they meet their partners for the first time and try to shake the hands of their partners. And it's also necessary for them to present their business cards with both hands. While for most westerners they will present their business cards when they believe they will have further communication. And for a deeply-religious Muslim, he may choose to avoid shaking hands with his woman partner. And he wouldn't get the business card with both hands because he would consider the left hand unclean, which is very easily to be perceived as impolite or rude by his Chinese counterpart. When negotiating with North Americans, they expect direct eye contact from their partners for it indicates interest and trust; while for Japanese, it may indicate rudeness and impoliteness and they usually lower their eyes to show respect. While extended facial gazing is typical in France and Brazil, Americans consider it aggressive (Lehman & DuFrene, 2010).

Keeping these differences concerning non-verbal communication in mind can help negotiators understand their partners better and avoid cultural taboos.

2.3 Different negotiation styles

Different cultures have different perceptions for negotiation, i. e. culture will affect negotiators' view of the negotiation process, of their negotiation partners and how they would bargain with their counterparts. For example, negotiators from the United States often view negotiation process as a process of argumentation, debate and persuasion. They try to "win" the negotiation by their eloquence and maximize their own profits. That's why they adopt the direct, straightforward and confrontational approach in negotiation. Establishing a long-term relationship for further cooperation is not their primary consideration. This short-term perspective would cause problems with collective-based cultures such as China and Japan which emphasize long-term harmonious relationships and focus on mutual interests and a "win-win" perspective. This focus will force them to adopt a non-aggressive approach and try to avoid face-to-face confrontation.

The different perceptions of negotiation may well explain Japanese silence and their infrequent use of "no" in negotiation. In order to maintain harmonious relationships, Japanese consider it rude to say "no" and would employ various methods to avoid saying so. During business transactions between an American and a Japanese, it's usual to hear a business person make a sound as if he's sucking air through his teeth, followed by something like "That would be very difficult". It would be wise for the American to shift to another issue and return to the issue under discussion at a later time, for example when they have reached an agreement. Otherwise, the American would be considered as insensitive and pushy, and may cause the meeting end in a negative note (Calero, 2005).

The criteria for choosing negotiation team members are also different from culture to culture. Americans usually choose the most persuasive and efficient members in the company for negotiation meetings, regardless of their age or status; while cultures with long history such as China and Japan tend to choose those with high social or corporate status for important occasions. Therefore, conflicts may arise if those senior Chinese or Japanese negotiators see their American counterparts are just young juniors. They may feel offended and perceive that Americans are not attaching enough importance to the meeting. Conflicts can be solved if they know that this is the American way in doing business negotiation.

3 Strategies for Handling Intercultural Differences in Business Negotiations

The misunderstandings, misinterpretations and conflicts caused by intercultural differences may impede the negotiation process and bring severe loss for both parties involved. Cultural awareness can be raised and cultural sensitivities can be sharpened by learning and accumulated communication

experience. To cope with them, it's necessary for negotiators to develop some strategies.

3.1 Bearing the culturally-different communication rules in mind

Regardless of the context or culture, all communications are influenced by the rules regarding 1) formality and informality; 2). assertiveness and personal harmony; 3). status relationship. These communication rules are culturally different (Samovar, Porter& McDaniel, 2010) and they impose great influence upon business negotiations. Having knowledge of them would aid businessmen greatly in intercultural communications.

The United States is a typical example of informality, openness and directness. They tend to avoid the formal use of conduct, attire, titles, etc. They favors casual attire and would prefer to address people by their first name, which might constitute confusion and misunderstanding for people from more formal cultures such as Japan, Latin American and European societies, where formality is attached to status. The Japanese businessmen are very conscious of their negotiators' appearance and dress. Casual attire, which conveys creative sensitivity in the States, is not accepted by them. So it would be sensible for Americans to leave their jeans in their suitcase when they are going to a business meeting with their Japanese partners.

Some cultures may be assertive, where its people are direct and frank, while some cultures may attach more importance to create and maintain harmonious relationships. For example, the United States is well-known for their assertive communication style. They value frankness, openness and directness in negotiation and seldom mask their emotions, which can be traced to their value and encouragement of individualism, competition and freedom of speech. The assertiveness, frankness and aggressiveness may make people from a culture such as China and Japan that emphasize personal harmony feel uneasy and uncomfortable. They may be perceived as threatening and detrimental to interpersonal relationships by Northeast and Southeast cultures for these cultures value mutual agreement and harmonious relations.

The third variable that influences business communication is a culture's perception of and response to status, which guides interaction of people with varying social positions. Some cultures may have a low level of concern while some may place significant emphasis on status and rank. These two kinds of cultures are classified as egalitarian and hierarchical (Hofstede, 2001). Egalitarian cultures stress informal and open interaction between subordinates and seniors; try to minimize differences caused by social positions; promote equality between superiors and subordinates; individuals with high status and high ranks often downplay their appearance of prestige and power. In hierarchical cultures, differences in status are made obvious by guidelines governing seniors' and juniors' interpersonal interactions. American business executives should adopt those guidelines when dealing business with hierarchical cultures such as Chinese culture. For instance, the person of the Chinese group who leads the way when they enter into the meeting is supposed to be the senior one and should do the main talking; junior members are not supposed to interrupt unless being talked to. And so is expected of the American group.

In business negotiations, to avoid conflicts, participants should have a good knowledge of what kind of cultural rules their negotiation partners would adopt and then develop strategies accordingly.

3.2 Accommodate to different communication styles

To be a successful business negotiator, it is essential to be aware of your own culture's communication styles and how they might differ from the styles of your business partner with whom you are interacting. Dissimilar communication styles that may lead to misunderstanding and conflicts in cross-cultural context include: 1) formality and status; 2) pace and patience; 3) emotional displays; and 4) direct and indirect forms of communication (Samovar, Porter& McDaniel, 2010).

The typical example that is quite informal and disregards status is the US. It contrasts with the European cultures such as German where formality plays a greater role and may lead to uneasiness for some eastern cultures where status is part of a person's identity and people would prefer titles instead of Americans' first names.

Compared with the fast-paced American businessmen who are anxious to get deals done as soon as possible, Japanese and Chinese would seem much more patient because they think establishing good relationships with your partners is a prerequisite for successful business deals for the long-term benefits of both parties. They would spend some time on small talks at the beginning of the negotiation process to minimize the distance in interpersonal relationships, which may be regarded as a waste of time by Americans who would like to get to business as soon as possible. And Japanese are used to spending some time thinking before offers and proposals are stated, and this would make their American counterparts uneasy for they are accustomed to immediate responses.

Cultural differences in emotional displays may also influence the negotiation process and outcome. Americans are taught to display their emotions and feelings such as anger, pleasure, happiness, while in

some eastern cultures such as Japan, China and Korea, public display of feelings and affections may be considered as immature and inappropriate. They would try to conceal their real feelings in official business settings and behave as politely and friendly as possible. Thus, Americans may find their eastern partners stiff and may be inscrutable.

Negotiators' tendency to choose direct or indirect language may also have a bearing for the negotiation outcome. People from collective culture emphasize harmony and would try to avoid open confrontation or conflicts by indirect speech when they disagree with their counterparts. For instance they would not say "no" directly but use expressions such as "That would be difficult", "We'll consider about it" instead to show their negative response. Yet, for those cultures that use explicit and direct language it may give them false illusions and be interpreted in the wrong way, for they may hold the hope that their negotiation counterparts would really think about it later.

3.3 When in Roman, do as Romans do.

In order to minimize conflicts caused by cultural differences and not jeopardize negotiation for cultural reasons, it would be wise for negotiators to emphasize with the host culture.

It's suggested that business executives give greetings according to the customs of the host culture. Americans tend to be informal and friendly. On arriving for a meeting, they would shake hands on meeting and leaving; address people with their first names except on very formal occasions or to very senior people. While when American business executives come to a negotiation with a Chinese group, they should be aware that Chinese culture is more formal and they should greet the most senior person first. When addressing people, it would please their Chinese counterparts to use titles that reflect their cultural emphasis on hierarchy such as manager, chief engineer, etc. When the negotiation process begins, Americans should be aware that head-nod of a Chinese is not a signal of agreement to what is being said but an acknowledgement that "I'm listening"; they should also avoid direct eye-contact, which is considered impolite and disrespectful by the Chinese. While when coming for a meeting with Japanese, an important aspect of greeting each other is to exchange business cards, which contains specific information about people's positions in the company and which means a lot to the Japanese for Japan is a country where hierarchy is very rigid and many interactions are conducted according to people's ranks and status. So the greeting cards of the Japanese should be read carefully and then interact accordingly.

However, when it comes to conflicting ethical principles, it might be difficult to do "as Romans do". Different cultures have different ethical principles that would influence business interactions. For example, some cultures regard the exchange of gifts as a natural part of the business negotiation, such as Mexico, while for others like the United States, it might constitute a bribery crime. The best solution may be to avoid such conflicting principles so that their own principles are not violated.

3.4 Learn about your counterparts' conflict managerial skills

Regardless of the cultural context, the conflict management styles usually include: avoidance style—to avoid the issue in dispute and turn to something else; accommodation/yielding approach—to satisfy the other party's needs in order to seek connections or establish relations; competition style—trying to persuade the other party and win; collaboration style/compromise—working together to resolve conflicts. Yet different cultures' views on conflicts and their approaches to handle them are different. Cultural values exert great impact upon the conflict management styles (Samovar, Porter & McDaniel, 2010).

Americans with its value on individualism and self-achievement, see conflicts as an integral part of competition. For them competition is a fundamental value and they would win at any cost. So it's not surprising to find that competition is the dominant approach to manage conflicts even in business negotiations. While in collective cultures such as Japan and China, where harmonious relationship is sought after with their partners, open and direct conflict is regarded as a threatening factor for cooperation, the avoidance style is often adopted. That's why it's not unusual to see Chinese and Japanese negotiator keeping silent when conflicts occur—they're trying to avoid open conflicts.

When negotiators have a good knowledge of different negotiation styles and put their negotiation partners into the right categories, they would develop appropriate communication strategies accordingly; have a better control of the negotiation process and a greater chance to reach their goals.

3.5 Avoid stereotypes and overgeneralization

Overgeneralization and stereotype in intercultural communication has three characteristics: regarding the most typical features as the overall features; putting all individuals into a certain group without any distinctions; treating different individuals within a group with the same approach. Because overgeneralization simplifies the innately-complex culture and exaggerate some aspects while ignoring

some others, it can easily impede communication in international negotiation. Negotiators should try to learn about partners' culture, but couldn't over depend on the information they have collected. Influenced by their individual personality, the organizational culture they represent and the physical setting of the meeting, negotiators may adopt communication styles that are quite different from what the text books have mentioned. For instance, not all eastern negotiators adopt euphemistic and indirect approach to refuse; not all American negotiators adopt straightforward and confrontational negotiation styles. Therefore, negotiators should overcome overgeneralization and adopt flexible negotiation strategies.

4 Conclusion

International business negotiation is a cross-cultural communication that's closely concerned with the interests of companies and enterprises. Its success concerns the development of companies and enterprises. Cultural differences among companies from different nations will inevitably lead to conflicts in international business negotiations. Negotiators involved should have a good knowledge of their counterparts' culture, the cultural differences, the potential misunderstanding and conflicts in verbal and non-verbal communications. Getting to know and accommodating themselves to the communication styles and managerial skills will greatly promote negotiators' competence to cope with cultural differences and conflicts in international business negotiations and increase their chances of success.

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Analysis of the Problem of Junior Staff's Sense of Belonging in Haishang Property Company

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Abstract: With the development of economy and the improving of people's living standard, the property companies, as a new service industry, are developing fast. The essay, takes the specific company as example, bases on large amount of reference researches and research results, by means of questionnaire and on-the-spot interviews to collect data, brings out five factors affect the staff's sense of belonging and conclude problems exist in the staff's sense of belong. Most employees are not clear about the situation of property companies, employees are not easy to be activated by the present welfare system, there is no smooth communication, and companies do not pay much attention to the employee's work ability and self-development, which result in the weak sense of belonging. According to the above problems, the essay proposes solution so as to increase employees' sense of belonging, helps the company in HR solutions, provides example to companies with similar problems.

Key words: Employee's sense of belonging; Property company; Loss of employee; Solutions

1 Introduction

1.1 Research background

Employees pay more attention to the realization of their own development and self value, which result from the influence of lifelong education and social learning values. If a company can not satisfy its employees or establish its employees' sense of belonging, it will bring a certain loss of its sustainable management. Whether a company can own and retain talents it needs for the development is the key of success in the fierce marketing competition. A company will develop steady by reducing the employee turnover rate and improving the sense of belonging of employees.

From the last century in the middle-late ninety's, the property service corporation had begun to appear gradually from the coastal cities to inland cities, from south to north in China. The property company developed rapidly during the period from 1994 to 2004 especially. 2005 is the critical period of maturity of property management industry during last 20 years. In 2005, Shenzhen of China was a leader in the Pearl River Delta property management industry regional economic circle, with Shanghai of China as the leader of the Yangtze River Delta property management industry regional economic circle, and Beijing of China as a leader of the Bohai property management industry regional economic circle. At the end of 2008, more than 4600 property companies had spread in large and medium cities in China.

The rapid increase of the domestic property service corporation plays an important role for the development of our country's property industry, and has gradually embarked on the road of legalization and standardization. However, because of the characteristics of the property industry and people's understanding of the property industry, it is difficult to attract employees or retain staff, strengthen the sense of belonging etc...

1.2 Literature review

In 1943, Maslow referred "the need of belonging and love" in Maslow's hierarchy theory of needs, in which "belonging" emerged at the first time, which provided the basic theory for the research about employees both in China and other countries. Through research, Buchanan concluded the definition of belonging in 1974, it is a kind of believe in feeling between individuals and the group both in aims and value. In 1986, Eisenberger proposed the key points of employees' sense of belonging, the communication and interaction between employees and organization, the feeling of caring and supporting from the positive actions of organization.

Mathieu Zajac concluded five factors that affect the causing of sense of belonging in 1990: personnel information, duty characteristics, state of roles, organization feature and relation between team and leaders. At the same period, Meyer&Allen proposed three-factor mode according to organization belonging, and subdivide the factor of affecting organization belonging into the following: the degree of challenging employees felt, organization value, organization management, interaction and participation rate between employees as well as justification of organization system. In the theory, it emphasized the importance of individuals. In 2004, McMurray&Scott proposed the relation between

appearing and vanishing of sense of belonging and factors of democracy, fair and innovation.

All in all, the sense of belonging research could be brought out in different angles: personal, organization, feeling, goal and value, which made the research more systematic and comprehensive. Therefore, the comprehension about sense of belonging is more clear and general.

In the middle 80s of 20th century, Chinese scholars began to research sense of belonging, in which three scholars' research were more systematic, they were Linwenquan (1998), Zhican (2000) and Fangliluo (2001). They concluded the commitment types of organization belonging included feeling, dream, principle, economy and chance etc..., and in further degree, they divided five commitments into psychological factor and social economy factor. They also concluded that the human relation principle was affected both by family principle as well as collectivism principle, which sinicized organization belonging.

Combining with the Eastern culture background, WangYing and Lishuzhuo (2007) analyzed the factors that influence the employee's sense of belonging from the following angles: organization variable, personal feature variable and performance variable. They concluded the factors which affect the employees' sense of belonging: loyalty to company, enthusiasm degree to work and degree of career development. At the same time, they pointed out that the medium variable that affect the sense of belonging is the satisfaction degree of job. Zhangzheng and Liyongtai (2007) held the opinion that it is easy to nourish the employees' sense of belonging from the following aspects: creation, fair, communication, excellent company image, normative attitude and custom, harmony relationship and demonstrative of leaders. ChenHaiyu thought that the procedure of forming sense of belonging is gradual and complicated. Once the sense of belonging emerged, employees are willing to combine the personal target with the company target. Therefore, the strong recognition to company development goals and the strong responsibility to the company will be emerged.

1.3 The meaning of employees' sense of belonging

Foreign scholar Byles considers that organization sense of belonging can be also called organization commitment, indicating that employees identify with organization in thoughts, feelings as well as psychology, and are willing to bear on their responsibilities and obligations of enterprises to invest time and effort, with a positive attitude and strong responsibility sense of hard work. This view based on the mutual understanding between employee and organization, the consistent objectives of the company and employees; therefore, the idea of target acceptance of the employee exists. Because of the employees' sense of belonging and love, they are willing to attribute all they have to the company in their work. Salacik believes that the sense of organization belonging is the individual's dependence on a particular enterprise and so demonstrated the corresponding behavior." This view points to the study of the sense of belonging of the staff from the observation of their behavior, to sum up the sense of belonging according to the behavior of the employees.

Since 1980s, the domestic scholars in China began to study the employees' sense of belonging. Yu Kaicheng divided the sense of organization belonging into four categories: the sense of participation, the belonging of kinship, the utilitarian belonging and the objectives of belonging. Subsequently, many other scholars had studied the concept. According to the comprehensive translation and definition, they all reflected the staff's recognition for the organization's goals and values.

1.4 The characteristics of employees' sense of belonging

The paper shows the characteristics of employees' sense of belonging in three aspects: emotional sense of belonging, sense of values belonging, and sense of achievement. The division of the sense of belonging is derived from five levels of the sense of organization belonging to the levels of Lei Hong and Zhu Ling (1995), and the reference and induction of the sense of belonging to the employees. Lei Hong and Zhu Ling (1995) inducted five levels of the sense of organization belonging and defined the meaning of employees' sense of belonging, which are used to divide the characteristics of employees' sense of belonging.

1.4.1 Emotional sense of belonging

The sense of belonging is the attitude and behavior of the members of the organization who are attached to the organization. People will inevitably communicate with others in life and they need to be recognized by others in the process of communication. And then they will feel warm and being helped in the group. A sense of belonging is a kind of subjective feeling. When people feel being cared in the organization, they will feel happy and satisfied, and then they will gradually create dependence, obedience and loyalty, and they will be refusing to leave, and finally they will lay their emotion on the organization.

1.4.2 Sense of values belonging

The sense of values is the manifestation of the objects and direction of the organization. When an employee agrees to the organization's goals and values, they will transform the organization goals into their own goals, which will result in values sense of belonging. The employees who have this sense of values belonging to the organization will take the interests of the organization as a starting point and will have strong sense of responsibility.

1.4.3 Sense of achievement belonging

The sense of achievement belonging is the members' satisfaction when they achieve the objectives through their efforts. In the process of creating wealth for the enterprise, employees also need to realize their self-value, which varies from person to person. Therefore, the enterprise should create the conditions for the achievement of the staff, and provide the wealth, the social status, etc...

1.5 Relevant theories used to form the employee's sense of belonging

1.5.1 Maslow's hierarchy of needs theory

Maslow's theory of hierarchy of needs: physiological needs, security needs, emotional and attribution needs, respect for demand and self demand. The need for emotion and attribution refers to the individual hope to get family, organization, friends and colleagues to understand the care and love. It is the need for friendship, love, warm affection and the need for trust. Employees put their own time, knowledge, skills, and energy into work, and the enterprises need to give back various resources as a return. From the basic needs of themselves, employees will compare the resources provided by the enterprises with the past or others, compare their expected value, and measure whether the resources provided by the enterprise can meet the requirements of their own needs. If employees satisfied, it will be the psychological foundation to sense of belonging.

1.5.2 Social exchange theory

Social exchange theory is the theoretic basis of the form of staff sense of belonging. In the theory, staff creates mental physical items and services for enterprises in order to achieve their own desired in money, fame, position and opportunity. At the same time, organizations give their employees a variety of resources in return. In the exchange process, employees behave to protect the interests of the company is the reflection of sense of belonging. The formation of the sense of belonging depends on the return of the enterprise and the contribution ratio of the employee in the exchange process.

2 Hunan Haishang Property Company Profile and Staff Belonging Investigation of First-line Employees

2.1 The investigation of haishang property company

2.1.1 Company profile

Haishang Property Company was founded in 2012, by Shenzhen City Sanxin real estate development property Service Corporation. There are 168 companies, including 11 office staff, 157 first-line staff. They outsource the clean work of residence district to two cleaning companies. By using the office 5S method, which is, tidying, reorganizing, clearing, cleaning and quality, the company's goal is to improve the house-owners' satisfaction, create and enhance the brand image, to create first-class property service enterprise. The property company's service area is Haishang garden. The construction area is 300,222 square meters, residential area is about 152,000 square meters, the office area is about 1.7 million square meters, the commercial area is about 1.6 million square meters, with a total area of 92,746.51 square meters, there are 1127 households in total, the greening rate is 90%, the volume rate of 2.0 construction and the construction rate is 11%. There are 9 high buildings and 5 rows of multi-layer buildings. There are 2500 underground parking spaces. There are indoor and outdoor swimming pool, tennis courts, fitness facility, children's playground and other facilities.

2.1.2 Internal structure of the company

The structure of Sanxiang haishang property service company: customer service department, engineering department, safety management department, department of greening, cleaning department, administrative department, finance department, and in which the cleaning department is outsourced. There is a manager for each department who reports to GM. As the increase of the number of the households, the number of employees of the company at the first-line level increases too. However, as the number of the manager is not increased. One person is responsible for one position. With the increase of work and first-line workers, the management difficulty increases too. If higher position could be set up, the problem could be solved effectively and the employees' satisfaction and activity could be realized as well.

2.2 Investigation of the sense of belonging of the first-line staff

2.2.1 Description of survey samples

140 copies of questionnaire were distributed and 126 of them were turned over, the number of valid questionnaires was 120, the reclaiming rate was 0.90, and the efficiency rate was 0.86, as shown in table 1.

Table 1 Survey and Statistics of Questionnaires and Statistics

Total questionnaire	Issuing questionnaires	Reclaiming questionnaire	Valid questionnaire	Reclaiming Ratio	Efficiency
140	140	126	120	0.90	0.86

2.2.2 The analysis of present situation of the staff sense of belonging

1) Basic statistical results of basic staff

The basic information of the basic staff in Sanxiang haishang property company is as follows: 75% is men and 25% is women; 58% is 35 years old or below, 21% is between 36 years old to 40 years old, and 15% is 41 to 50 years old, 6% is 50 years old or above. 67% is married, 33% is unmarried. There are 78% employees who are senior high school or below, 19% has college degree, 3% is undergraduate education, but there are no graduates or above. 28% employees' monthly income is 2500 Yuan, 11% employee's income is 2501 Yuan to 3500 Yuan, 54% is between 3500 to 4500 RMB, and 6% is over 4500.

From the point of the age structure of the employees: employees who are 35 years old or below takes the largest proportion, followed by ages between 36 and 40, 41 years old or above takes the smallest proportion. There are advantages as well as disadvantages for young team. The advantage is it will bring the creativity and vitality to the company, and the disadvantage is that young people are unstable in the first years of their work life because they are lack of experience and the uncertainty about the future career planning. The change of marriage status to the unmarried person may cause the change of company. The overall education situation is not high for the company: the education level of employee mainly in high school and below, college level plays a little part; undergraduate is less, no master's degree, which demonstrates that this industry is lack of attraction. Even if there are some college graduates, but if the company cannot provide them with the development platform or provide the opportunity to realize the self value, it will reduce the employee sense of belonging. At the end, it will cause the staff loss.

2) analysis of the position design and division of labor of the company

In Sanxiang haishang property companies, the need of first-line staff is relatively large; there is only one department manager for the direct leadership, which will lead to the problems of not being handled in time. In addition, it will be lack of supervision to employees. Serious staff may feel unfair. At the same time, the level is too less. For those who performance well and who has ability, the promotion demand is difficult to get in time.

For the first-line staff in Property Company, the contents of the work are some trivial matters. For those who are full of enthusiasm and pursuing long-term development, if they are dealing with this sort of trivial thing every day, they will lose enthusiasm for work, therefore, the sense of belonging will lost too. As the gradual increase in occupancy rate, the workload has subsequently increased. The work scope has been increased as the information and technology products have been in the application of the property company. Take the service department as example, they work six days a week. Even during the holidays, they need to make sure the cell phone turns on at any time, which will in a certain extent sacrifice their personal space and time. If there are no measures taken to solve this problem, complaint and displeasure will be caused.

3) The implementation effect of the company's salary and welfare system

In the case of the company, there are some employees who are not satisfied with the remuneration and welfare policies of the company. For monthly payment, there are no wage detail notes to provide to the employees. There is no communication between HR and the staff about the salary as well as the performance. Staff is not clear about the component of their wage, which may cause misunderstanding about their wages and performance. Greater dissatisfaction or complaining will be caused because there is no proper communication on staff performance, therefore, the sense of belonging will also be affected. As for employee benefits, there is only "five kinds of social insurance and one housing fund", which cannot motivate the enthusiasm of the staff in fact.

4) Investigation and analysis of communication situation in the organization

According to the survey, the majority of employees feel a lot of psychological pressure in the

process of communication with the owners. Real estate industry is a special service industry; it serves to owners and some other relevant personnel. And the objects are families, which make the work tedious and complicated. The Main thing is communication. If you want to be an excellent expert, it is necessary to study the service objects, relevant information about the owner, such as background, status, behavior and habits, in this way you will never loss in the process of communication with the owners. Dealing with people is a complicated thing, contacting with all kinds of people adds to the difficulty of communication even. Therefore, to this kind of employee, they need to be more patient to deal with specific problems. Study from table 3-2 about the basic information on first-line staff, 58% of employees is 35 years and below. Some young people, who are lack of social experience and the psychological ability, still need to be improved.

In addition, most of the first-line staff is not able to get attention from leaders when needed. In company, the lack of communication between leaders and employee will cause many problems: firstly, leaders will not be familiar with the situation of their employees, which will cause side effects to works. On the other hand, employees may feel the leader is not paying attention to them. The work pressure makes them distressed, therefore, employees' sense of belonging and satisfaction will be affected.

5) Survey of employee training

In the company, the training is mostly made by leaders or old employees to new employees; new employees are always being trained. However, there are no specific training programs for old employees. The training contents are only concerned with the work, which make the training boring; therefore, it cannot meet the further needs of employees.

As for the development platform provided by the company, most employees are not satisfied with it. Property companies are lack of staff career management so that they cannot focus on the career objects or the individual employee's career development. In this case, it is bad for the development of the individual employee or the overall and long-term development of the company.

6) Survey of the company's target identification

The long-term development targets and the direction of Sanxiang haishang Property Company is: continuously improve property services quality and level, improve the satisfaction of the owners, to expand the size of the company, to consolidate the company's position in the market, increase profits, and improve the competition advantage. Due to the lack of understanding on the company's goals of first-line employees, even some employees are not aware of the company goal, so some employees don't think that there is a clear long-term goal. Therefore, it is more difficult for those employees to agree with the company's goal or direction. The fact is that once an employee can combine his own goal with the company's goal, it is benefit for the company as well as the individual development. It can also increase the employees' sense of belonging.

3 Research Conclusion and Policy Recommendations

3.1 Research conclusion

3.1.1 The lack of understanding of the industry and the job duty

Sanxiang haishang Property Company's first-line staff tends to be younger; there is a small proportion of employees who are bachelor's degree or above. Most employees are only aware of the basic work about Property Company, such as the greening, health, security and other basics instead of knowing the other duties. With the improvement of industry development and improvement of the housing condition, the demands on the staff are increased. They need to study knowledge about property service, and increase their understanding of roles and responsibilities of their duties, so that the consistent goal and value system of the employees and the organization could be created.

3.1.2 The incentives of the compensation and welfare policy are limited

Employees are concerned about the salary and welfare policy, what is the content, how to communicate, and the effect of communication as well. The wage level of the first-line staff mainly concentrated between 3500 to 4500 Yuan, which should meet the basic needs of employees, and should be flexible too. If the employees are not approval of the remuneration and welfare policies, it will cause the employee dissatisfaction in different degree.

3.1.3 No smooth communication affects the vent of employee pressure

The internal communication and exchange is important for relieving the psychological and working pressure of the staff, and the proper care can increase the trust and affection of the staff to the organization. For the first-line employees in Property Company, they are always facing with different problems. Good internal communication will provide an opportunity to the staff to express and ask for

help, therefore, the sense of belonging will be increased too.

3.1.4 The training failed to improve the ability of the staff

Providing training is a vital way to increase the knowledge of the staff, to improve the ability of individuals. It will meet the needs of company development, and it is benefit for the company development too. Making the full use of HR to foster experts for the company, it is necessary to make the proper training programs to meet the needs of the development of employees as well as the individuals.

3.1.5 Staff is not clear about the goal of the company

It is not only the administrative who must be clearly aware of the goal of the company, for the first-line employees, they also need to be clear about the company objects. Being aware of the goals and direction of the company is conducive to the development of the company's daily operations, also helps employees to combine their goals with the company's goal.

3.2 Policy recommendations

3.2.1 To set up reasonable positions and to divide responsibilities

When setting up positions, the company's own position, strategic target, organization mode, human resource plan should be taken into consideration. The position compiling should match with the organization pattern.

There are some problems for Sanxiang haishang Property Company in position compiling: from the management level, the leaders are not enough. A supervisor could be added between the management and the first-line staff. By this way, it is useful for the leaders to deal with emergency promptly and effectively, managers could save more energy to deal with something more important and critical, on the other hand, the increase of positions and duties is the reflect of the company which is adapting to the change of the objective environment, not only to meet the needs of employees' self realization, but also to some extent it is incentive to employees' enthusiasm and energy. From a supervising perspective, the establishment of the position can also increase the understanding of management about first-line staff, can regulate employee behavior and job status, so that a sense of importance is produced to employees, and therefore, employees will work harder too.

The work of first-line staff is trivial, coupled with the fact that the company asks employees to keep cell phone on for 24 hours, in this way employees will be lack of private life. This policy is a serious invades to personal life. So the company can take appropriate measure to increase the number of such employees, to ensure that the employees will not be disturbed by work when they are on holiday. It is also saved experts for company.

3.2.2 Improve the salary and welfare system

For the management as well as the first-line staff, it is necessary to learn the modern performance knowledge, methods, ideas, understanding and learning. To set up different performance criteria to different staff, to make sure all the employees know their own performance appraisal and the result. Management and employees should be communicate and give feedback about the performance communication. So that employees are clearly about their performance, and they will get help from the leadership, which will also make its work more positive. The performance appraisal system will not only motivate employees to improve the work efficiency, it will also help more companies to retain employees, and eventually make the staff get more salary, meet the material needs, increase the satisfaction to the company, and finally create a sense of belonging. In addition, the company should appropriately increase the work allowance, so that employees could understand that their efforts have met the company's recognition, but also improve the company's recognition of staff.

The welfare policy is an important factor to attract top experts and motivate employee. For companies, they can adopt some flexible welfare policy to measure with the performance and ability of the staff, to incentive employees through their own efforts to achieve. Welfare programs can mixed in life and diversified, such as providing the employees with paid vacation, travel vouchers, special holiday gifts.

3.2.3 Establish good communication and management mechanism

To strengthen communication with staff is an effective tool for modern management. Communication is the link between the enterprise and the employees on emotion, thought, knowledge, information, and feedback process. Effective communication can understand employees' needs, can help to eliminate the discontent, to establish a good interpersonal relationship and improve the satisfaction and loyalty of the staff to the enterprise.

Leadership should learn to listen to the voice of the staff. Listening can solve the dissatisfaction of the staff, so that the employees feel to be respected. Managers should also be empathy, standing on the

perspective of the staff, and think for the perspective of employees. The company could provide more convenient and comfortable conditions for communication, such as: communication meeting, regular team meetings. Meetings can be small, convenient and useful to summarize the present work. Managers and employees should strengthen communication by various forms of interaction, such as in some outdoor development training and small game. Establishing harmonious interpersonal relationships is easy for exchanges and communication for two sides. Management should solve the problems encountered in the work and meet demands of the workers, give positive and effective measures and guidance, praise their positive things, and reduce the psychological pressure of their work. In addition, they need to get aware of the living conditions of the staff in order to provide material or spiritual assistant when it is needed.

3.2.4 Adjust company training plan

Providing training is an important way to promote the employee's ability and the level. The company should provide the staff with comprehensive system training with fabulous content, establish a sound training system, and to implement the training. For training contents, they should not only pay attention to company policies, responsibilities, skills and work related knowledge, but also the problem of life training, to make the employees feel warm and being cared by the company. It is also cannot ignore the training of corporate culture, so that employees can feel the spirit of enterprise. For the form of training, you can try outdoor development training, so as to avoid the traditional teaching mode which will cause the lack of interest. It also allows employees to participate and provide opportunities for their self-expression. In addition, the weico classroom and QQ group chatting will make the training go deep and continue to create a good learning atmosphere. Provided with effective communication platform, such as the establishment of internal network, the employee will understand the company's plan and summary and other information in time.

3.2.5 Developing the company's goal and direction

The development target and direction of the enterprise play an important role in the company's sustainable operation and long-term development. The property company, taking its actual situation and the market environment into consideration, should formulate a suitable target and direction. The company's goal and direction is not well known by the first-line staff. The company can share the future development direction and goal by establishing related channels, for example, by the establishment of the internal LAN, not only include learning garden, staff forum column, can also publish events of the company development of great significance. Or making a plate of company targets placed in a prominent position by publicity column updated timely. Employees will take an impression about the notice, and later they will combine it with their own work practice, gradually it will be internalized into their own goals and direction. Setting up company magazine is another method. The company is not only able to public the incident to the whole staff; it can also attract the staff's attention by some special columns. These methods are ultimately aimed to realize the consistence of goal of the company and staff, to meet the sense of achievement of employees, to achieve their sense of belonging to the company.

4 Conclusion

The paper takes a high-class residential property services company in Shenzhen as an example, combines with the general problem of employee's lack of belonging sense. Proposes solutions according to the present situation of the company, from the establishment of following five aspects—setting up more positions, salary and welfare, organizational communication, employee training, popularization of company's target, provided as the reference to those property company who are in the similar situation.

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Stage-Wise Management of Enterprise Culture during Development of Private High-Tech Enterprises: Based on Case Study of Shenzhen Huawei Technologies Co., Ltd.

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Abstract: To study the multi-stage management of corporate culture, this paper points out the principle of stage-wise management of enterprise culture that shall be followed by private high-tech enterprise during its development by studying enterprise culture of Huawei Technologies Co., Ltd. in its three development stages: traditional during venture period, high performance culture in growth stage and adaptive culture in mature period. Meanwhile, it concludes that the stage-wise management model of corporate culture in Huawei Technologies Co., Ltd provides a set of corporate culture management model to Chinese private high-tech enterprises, which is good to enhance the competitiveness of high-tech enterprises.

Key words: High-tech enterprise; Enterprise culture; Stage-wise management

1 Introduction

With further researches on private corporate culture in academia, a part of scholars begin to pay attention to research on the role of corporate life cycle on corporate culture. The concept of corporate life cycle was first put forward by foreign scholar Mason Haire, later American managerialist raised classical model, and Chinese scholar raised growth model. Throughout the research results of domestic scholars, researches on corporate culture from perspective of corporate life cycle are not systematical, for example, Wei Huawei makes preliminary conclusion of corporate culture in start-up stage of enterprise; Lin Shutang discusses the corporate cultures in different stages of enterprise; Wang Xingdong and Luo Wanrong discuss different corporate culture concepts in different stages of enterprise. This thesis discusses stage management of corporate culture during growth of private high-tech enterprise with case analysis method.

Since reform and opening-up in 1978, China has strengthened supportive force on private enterprises, the rapid growth and expansion of private high-tech enterprises has become a bright spot of Chinese economic development. Afterwards, with the ever-increasing internationalization and intensification of market competition, the survival environment of enterprise has worsened, managers of private high-tech enterprises has begun to realize how important is construction and management of enterprise culture to survival and development of an enterprise. Enterprise culture refers to the highest goal, core value and behavioral norms that are fostered and followed by all corporate staff during years of entrepreneurship and development, it is organic complex of an enterprise's ideological form culture, behavioral form culture, institutional form culture and material form culture, a group competitive consciousness of one enterprise made great efforts to implement and show in various activities and achievements, being characterized by "civilization-oriented success". Enterprise culture is an embodiment of basic belief, values, moral standards, rules & regulations, code of conduct, cultural environment, product brand and business strategy with characteristics of this enterprise.

In accordance with "enterprise life cycle theory" proposed by US management expert Ichak Adizes, it is well-known that like all living beings in nature, an enterprise will go through a process of birth, growth, maturity and aging. If one enterprise can position correctly in its different life cycle stages matching enterprise culture, its core competitiveness and sustainable development capacity will be enhanced. As a private high-tech enterprise, Shenzhen Huawei Technologies Co.,Ltd(hereinafter referred to as "Huawei") has experienced since its founding 3 stages: venture period, growth period and mature period. It is Huawei's emphasis on stage-wise management of enterprise culture that contributes to its rapid rise as the flagship of Chinese private enterprises in a short span of few decades. Huawei established in its venture period an enterprise culture rooted in traditional Chinese culture; spread high performance culture in its growth period, innovated its technology and management and transformed rapidly into a technical enterprise; permeated adaptive enterprise culture through cross-cultural management, weakened differences of national cultures and stressed convergence of commercial culture in its mature period.

2 Enterprise Culture of Shenzhen Huawei Technologies Co., Ltd. in Its Venture Period-A Struggling Culture Rooted in Traditional Chinese Culture

In 1988, Ren Zhengfei incorporated Huawei Technologies Co., Ltd. in Shenzhen. As a private high-tech enterprise specializing in production and sales of telecommunication equipment, it engages mainly in R&D, production and sales of communication network technologies and products and provides telecom operators with network solutions in the fields of optical network, fixed network, mobile network and value-added businesses. Guided by corporate cultural idea in the venture period, the promotion of market position of Huawei's self-developed C&C08 exchange board yielded an annual sales of RMB500 millions in 1995, which also marked the end of its venture period-with agent sales as its main profit model.

During nearly ten years of Huawei's venture period (1987~1996), based on ideological foundation of "Huawei" culture- "survival is a fundamental objective", Huawei paid close attention to organic combination of internal value orientation (struggle hard amid difficulties) and external value orientation (customer), constructed enterprise culture with hard working spirit as the core and won customers, expanded market in the end. In one word, the enterprise culture of Huawei in its venture period integrated moral standard and code of conduct of traditional Chinese culture, the "wolf culture", "mattress culture" and "pressure culture" extracted could all be attributed to the spirit of unity and cooperation, hard struggle and continuous self-renewal in traditional Chinese culture, this struggling culture also became the source for construction of Huawei's core values.

2.1 Wolf culture

Huawei has fostered a "wolf culture" in its course of development-repeated establishment of unusual merits in market competition. "Wolf culture" stressed agility, unity and perseverance. Spurred by such culture, all staff in Huawei has gathered to be an indestructible cooperative group, the highly efficient organization, good teamwork and close cooperation has ever astonished many rivals. The endurance of Huawei people was also amazing, they will never go off the deep end without mature conditions no matter how great the temptation is; but once the time is ripe, they will move toward the goal and try to succeed in one stroke, no matter how great the difficulty is.

The agility of Huawei people is appraised widely in the industry, which originates from their adept forward-looking thinking ability and accurate judgment of the future. These allow them to always get insight into market trends, capture information that has not been noticed so as to seize the initiative, get the advantage and be the eventual winner. "Wolf culture" forces Huawei people to maintain an initiative stance, who have strong desire for good performance and will spare no effort to achieve success once a breakthrough is found.

2.2 Mattress culture

Without any resources and conditions and supported by hard working spirit, Huawei people make up for stupidity by diligence, storm strongholds in defiance of difficulties and study technical plan round the clock. Each developer puts a mattress under his/her office desk for resting in extra hours. It is this mattress that encourages Huawei people to go through many hardships of venture and fosters a unique "mattress culture" within Huawei company.

"Mattress culture" fosters a work style of hard working among Huawei people and inspires their high enthusiasm for work and persistent work attitude. Amid fierce market competition, Huawei people suffers high-intensity working pressure, makes the most of their own intelligence and wisdom, keeps improving work efficiency and per capita benefits, thus it becomes a model for entrepreneurship in China.

2.3 Pressure culture

Huawei transfers constantly the enterprise's competitive and development pressure to all corporate staff in order to inspire their work enthusiasm and creativity, which is so-called "pressure culture". Huawei people take the initiative to challenge the environment and themselves rather than passively complete general task, they treat overcoming difficulties as a kind of pleasure, a way to embody their self-values and even a channel to meet the needs of self-realization." The "whole staff succession system" in Huawei passes the pressure to each staff and keeps the activated state of its internal mechanism.

Thus it can be seen that Huawei adapted constantly in its venture period changes in internal and external environment, fostered its unique "wolf culture", "mattress culture" and "pressure culture", which never deflect from the core value of "customer centered, fighter-oriented, persistent hard work" despite constant changes of their expressive forms.

3 Enterprise Culture in Growing Period of Huawei-High Performance Culture

In accordance with “enterprise life cycle theory”, the enterprise has equipped itself with certain competitive power after it tided over various crises and gained a foothold in the market. Next the enterprise shall try to enter quickly into a growing period through proper business management and seizure of good market opportunities. In 1995, a self-developed product in Huawei-the exchange board enhanced the market position and gained a foothold, which marked the end of venture period characterized by agent sales and a high-speed development stage was entered.

During this period, Huawei absorbed the essence of its enterprise culture in venture period and constructed at the right moment high performance enterprise culture. Huawei holds that the enterprise lives essentially in fierce market competition and the essence of management is improvement of efficiency, the essence of business is profit-making, the mission of staff is contributions, the mission of competition is value, the demand of customer is value and the essence of market economy is input and output, all of which necessitate cohesion of high performance enterprise culture. The expansion of private enterprise shall base on high performance, this is an iron law of corporate management, Huawei is in a key transitional period from sales-driven type to refined operation type and potential profits will be sourced more from efficiency improvement of Huawei Company.

3.1 Formulation of huawei basic corporate law and establishment of core values in huawei Company

In 1988, the most complete and standard “basic corporate law” for Chinese modern enterprise-“Basic Law of Huawei Company” was promulgated, this law was divided into 6 aspects: objective, basic business policy, basic organization policy, basic human resource policy and basic control policy and it was also a systematic summary of corporate culture, corporate governance philosophy and corporate spirit. “Basic law” was presented in written form, restrained with system, it embodied core competitiveness of Huawei Company, described each elements for construction of such core competitiveness and summarized factors in base layer, carrier layer and transition layer, all of which were the pivots of core competence building.

“Basic law” defined core values of Huawei company: hard struggle, self-criticism, customer-centered, respect talents, eternal phoenix and pay attention to R&D; In a value system with high performance as the core, the core value of high performance enterprise culture and its elements were defined through 4 coordinates: internal operation, external development, flexibility & self-reliance and process control. In terms of internal operation, a spirit of hard work shall be embodied and an atmosphere of respecting talents shall be created; on the level of flexibility and self-reliance, the staff shall be restrained by self-criticism; on the level of external development, technical R&D and innovation shall be paid much attention; on the level of process control, customer service shall be centered. Such description is as follows:

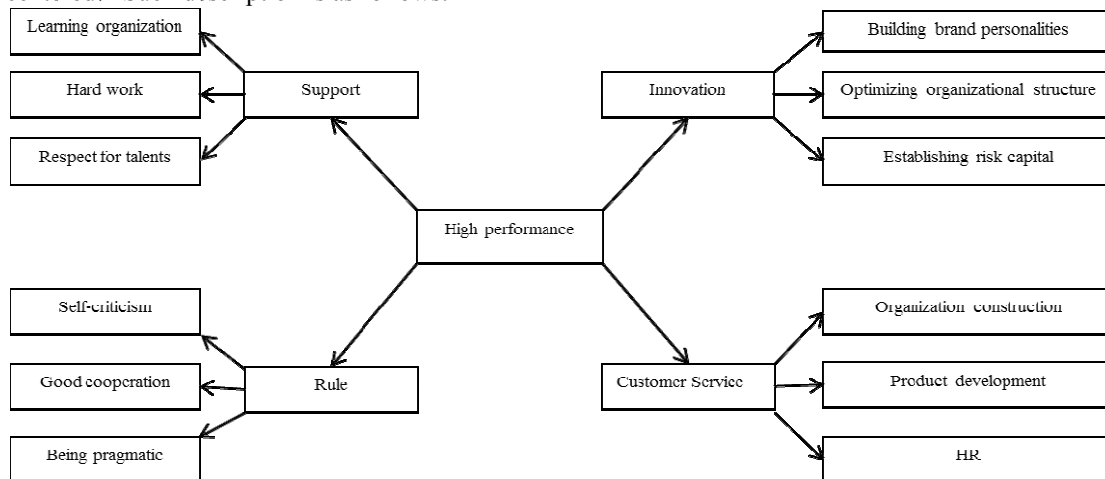


Figure 1 Core Values of High-performance Corporate Culture

3.2 Plane decomposition of high-performance corporate culture

Based on the inheritance of our initial corporate culture, “Huawei” puts forward four dimensions aimed at establishing high-performance culture: innovation culture, service culture, strictness culture and learning culture, which are linked to each other and centered on the high performance of the enterprise. (see figure 2)

1) Innovation culture

Hi-tech enterprise is mainly featured in innovation. The core of the enterprise spirit is innovation, and it is to make creative destruction, recombine the production factors and reestablish the production system. Corporate culture is an organic and integrated system, and innovation is the life of corporate culture and the key to improving the competitiveness of the enterprise. A mature organization must make continuous innovation to keep the enterprise energetic.

“Huawei” has his own opinions on innovation: first, having no innovation is the largest risk for “Huawei”, which confirms innovation; second, “Huawei” seeks his innovation motivation from the demands of clients and excellence of rivals, as well as hard work of his own staff, which helps “Huawei” to find the key to the door of innovation; third, innovation shall focus on technology and management, which answers the question where to make innovations; fourth, we shall have emphasis in our innovation, concentrate on and achieve our goals one by one, and we advocate teamwork and object individualism. “Huawei”, in innovative integration of his corporate culture, not only makes substantial innovation in his corporate culture content, but also pays great attention to innovation of the expression method when integrating the corporate culture resources.

Based on this, “Huawei” makes innovations in the method to express his corporate culture, technical R&D, brand personalities, risk capital and organizational structure. In the selection of the World’s Top 50 Most Innovation Companies in 2010 by “Fast Company”, a well-know magazine in USA, “Huawei” ranks the fifth. With innovations from the concept to the products, from internal management mechanism to client service, “Huawei” keeps trying actively.

2) Service culture

“Huawei” has always been stressing the core value to be client-oriented. Mission of “Huawei” people is to focus on the challenge and pressure concerned by clients, provide competitive communication solutions and services, and keep creating maximum value for clients. “To serve our clients” is the only reason for existence of “Huawei” and demands of clients are the power to drive the development of “Huawei”. The first and foremost principle of “Huawei” is be client-orientated and never to give a thought to short-term gain or loss while other enterprises are mainly guided by income and profit. Our service culture receives wide recognition from clients and wins more faithful clients for “Huawei”.

Being client-oriented is not created by “Huawei”, but a universal business value. Peter Drucker, a master for management, believes that the aim of enterprises is to “create clients”. The motto that “Client is God” is almost used by all Western companies. However, in the global surge of technology worship and capital worship, there are few persisting in it. Wang Labs, Motorola, Lucent Technologies, Northern Telecom, AT&T and others have failed after being tempted by technology or capital. “Huawei” is not among them, and one of the most important reasons is that we keep ourselves away from temptation of capital power and high technology without worship for capital or technology and that we keep aware of and firmly persist in the common sense of business to be “client-oriented” so as to “be engaged in limited things with limited resources and to concentrate all our resources on the core strategy”.

3) Strictness culture

“Huawei” lays emphasis on self-criticism. “Compliance with requirements of moral qualities and capacity to criticize oneself” are one of the principles of “Huawei” to select leaders. As Ren Zhengfei puts it, self-criticism of an organization will optimize the process and the management; self-criticism of an employee will improve his own qualities; development of thousands of successors with capacity to criticize themselves will enable the flag of the enterprise to wave forever. “Huawei” people will always keep it in mind that capacity of self-criticism is actually the intellect, the self-discipline power and inner control strength for self-leading and self-management so as to make self-analysis and review our own visions, values and mental modes by guidance of reason. Process of self-criticism is that to reject the dross and assimilate the essence in our mind, thus achieving enhancement and growth.

4) Learning culture

How to become an international modern enterprise with global competence? As “Huawei” is concerned, only by learning from advanced enterprises in the West and through continuous innovation and efficient management can we continue on the way to an international enterprise. In the communication industry involved in non-stopping fierce competition, without strong learning capacity, he must be weeded out. Since 1997, “Huawei” have brought in many external consultations from IBM, PWC and other companies, including process reform, employee stock ownership plan, human resources management, financial management and quality control.

Training is a necessary factor for learning enterprise. “Huawei” provides targeted and complete

training for various employees. In addition, “Huawei” adopts job rotation to promote the employees to learn from each other. Through various training and guidance, “Huawei” develops the unique learning culture: learning becomes a habit; keeps learning and learn systematically.

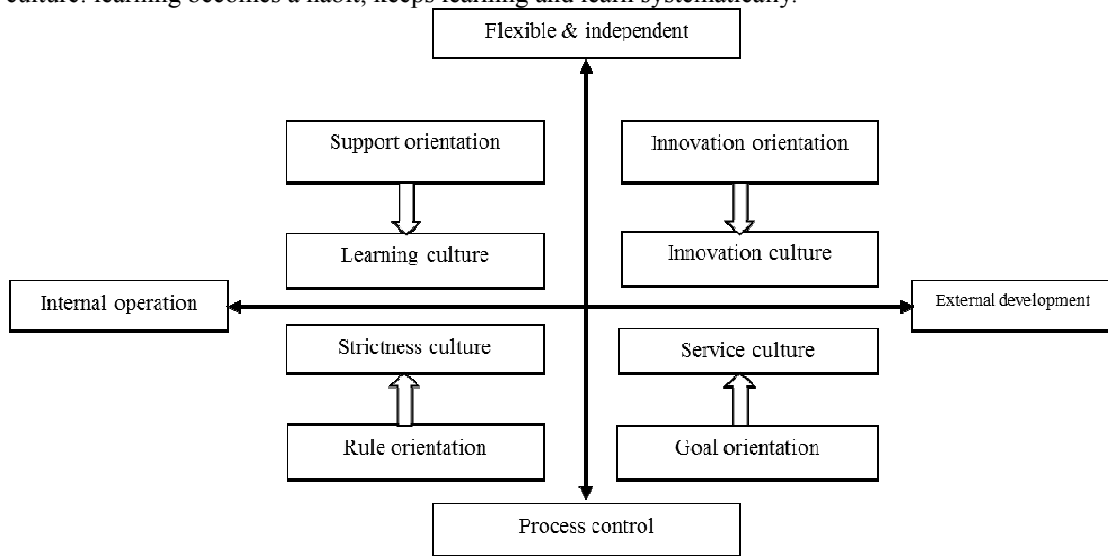


Figure 2 Plane Decomposition of High-performance Corporate Culture

4 Corporate Culture Theory for Mature Period of “Huawei”—Adaptability Culture

In 2004, having going through the severe winter of IT industry, “Huawei” ended in a draw in the intellectual property suit against “Cisco” and achieved significant potential advertising effect. From then on, “Huawei” gradually opened the door to the international market and stepped on the way to a comprehensive international enterprise. For an international enterprise, cross-culture conflict is problem that is difficult to get over, and cross-culture management is an issue that a trans-national enterprise has to deal with. In the international strategy of “Huawei” during the mature period, we adopt the corporate culture focusing on adaptability.

Adaptive corporate culture can help the enterprise adapt to the change of market business environment and go ahead of others during the adaptation. It can enable the enterprise to change rapidly when faced with different situations. It is featured in its call for confidence, trust, courage and stress on behavior style in both personal life of employees and enterprise life. It lays emphasis on and encourages culture of collective spirit that will help the enterprise to adapt to the change of market business environment.

In “Huawei”, it is widely accepted that for cross-culture management, the culture conflict occurs during internationalization is personal conflict, not that of the organization, and it can be dealt with through mutual understanding and communication. In trans-national operation and management, resistance and value arising from culture are not considerable in a short term, since ethnic cultures and national cultures are different but business cultures tend to be similar.

“Huawei” consciously infuses his culture to the overseas companies. When establishing overseas agency, “Huawei” selected employees with distinct personalities to be the head and gave play to their role as “seeding machine and propaganda team”. In the acquired international market shares, “Huawei” not only pays attention to integration with local cultures, but also consciously infuses his culture to the newly-established companies.

First, “Huawei” provides cross-culture training and cultivates a group of high-quality management. We provide not only cross-culture training for Chinese employees working overseas, but also culture of parent company for local employees of the subsidiaries. In the construction of cross-culture management team, we face the problem arising from culture difference and different cultural values.

Besides, “Huawei” has been devoted to winning based on product and facing the fierce competition in the industry, and we also know well the state policies and industrial standards of the subsidiaries, improve our product quality and service standard and win the mass with our products.

What’s more, “Huawei” is always laying emphasis on the coverage of the products and service, and

pay attention to investigating the achievements of enterprise image and national image in foreign cultures.

As a high-tech trans-national enterprise, “Huawei”, through cross-culture identification, understanding, participation and integration, establishes proper cross-culture management mode, strengthens the adaptive corporate culture, consolidate and enhance his position in the competition, and ensure to realize the strategic goal of the enterprise finally.

5 Conclusion

The fact that “Huawei” has successfully achieved the phased management with his corporate culture inspires us that as a hi-tech enterprise, the management consumption of an enterprise shall be adjusted accordingly when the whole business environment becomes different and its development pace changes in different development phrases and different management consumption. Apparently, people may feel that “Huawei” has been changing his corporate culture all the time from the traditional culture during pioneering period to “basic method” in rapid growth period and to the vision, mission and strategy during international period. There are different contents and value propositions in different periods, but it is substantially the thinking for the operation and management of the enterprise and the exploration for the growing rules of the enterprise. Differences in corporate cultures of different periods indicate the different levels of the exploration for the internal rules of the enterprise in different stages. The level-to-level management mode of corporate culture of “Huawei” provides a set of pattern for corporate culture management, and helps to improving the competitiveness of hi-tech enterprises.

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Research on the Innovation of the Operation and Management of the Public Bicycle System in Universities*

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Abstract: This paper combines both quantitative analysis and qualitative analysis, and puts forward concerning conditions and basics of the construction of the public bike system in university. It takes Wuhan University of Technology (WHUT) for example, and found that the related conditions of WHUT are good, and the practicability of building a campus public bike system in this college is high. It finally sets up a whole public bike system in universities, hoping that it can be improved according to the effect of actual implementation in WHUT, as well as to provide experience to other colleges.

Key words: University; Bicycle; Public; Practicability; Students

1 Introduction

Public bicycle system is a rental system for short term. Users can rent and return bicycles in any rental station. They don't need to pay for the cost of the bike, and worry about the vehicle safety as well as parking problems.(Wang Wenchi, Cao Guishan, Chen Xueying 2014)

Public bicycle service system originated from the European countries and then spreaded to China and abroad quickly as an important strategy for the sustainable development of environment(Zhao Yingmei 2013). It is run by the government and the enterprise joint cooperation to achieve win-win. It has experienced three development stages. The first generation of public bicycle system began in Dutch in 1965. The Danish capital Copenhagen in 1995 launched the second generation of public system. In the late 1990s. With the development of IT technology in Europe, it formed the third generation in a form of digital management and operations. Public bicycle used by foreigner universities students are mostly depend on the system of city. With the propaganda and practice of the resource conservation and environment friendly society, low carbon way to travel is more and more popular, and here started a boom of the construction of public bicycle rental system.(Liu Linna, Huang Rui, Lin Yuan, Zhao Hua 2014). Some Chinese colleges and universities who have spirit of exploratory also started to set up public bike rental service within the school system in recent years, it generally adopt two modes, run with urban public bike system or have its own independent system(Zhao Yingmei 2013). Overall, the campus public bike system has a high practicability.

In Samuelson's theory. When compared with personal belongings, the pure public goods have remarkable non-competitive and non-exclusive attributes. With further research on public goods, the concept of it has been enriched and expanded, and formed the broad concept of public goods, which refers to non-exclusive and non-competitive goods. Public goods are faced up with resource allocation problem as well as the plight of widespread overuse and abuse, making resource allocation inefficiently. When it comes to public bicycle, it can be reflected in following three aspects. Firstly, people would prefer to ride bicycle in the case of a bicycle available, which leads to the overuse of public bicycles. Secondly, when it is public bicycles, a man wouldn't take good care of them as usual treat of their private bicycles. Thirdly, the repairmen service is not enough.(Huang Yu, 2012)

Many researches have estimated on the problems and difficulties on the process of system construction, but lack specific solutions to solve these problems. In addition, the Mafang Shan campus of WHUT is highly scattered, with sex ratio imbalance seriously. Researches on whether these factors will effect on the practicability of the campus public bike system is also rare.

2 Feasibility Analysis of the Operation and Management of the Public Bicycle System in Universities

2.1 Supply and demand analysis

WHUT has two campuses. One is Mafang Shan campus, the other is Yujia Tou campus. Mafang

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Shan campus covers a wide area and includes five separate campus. According to statistics, 79.49% of male students and 79.17% of female students have or have had a bicycle, from which the difference between sex is not great. Due to the dispersion between campus, there is a difference between places that students accommodate and go for the class, and many students go to class by bike.

In addition, the rate of obsolescence is nearly 30%, which is a huge numbers. Combining the analysis, it is not difficult to conclude that there is a great demand for bicycle among today's college, and a considerable number of wasted bicycles at graduation season. In this way, here is a promising prospect to implement a set of abandoned bicycle recycling system. The related data are as follows:

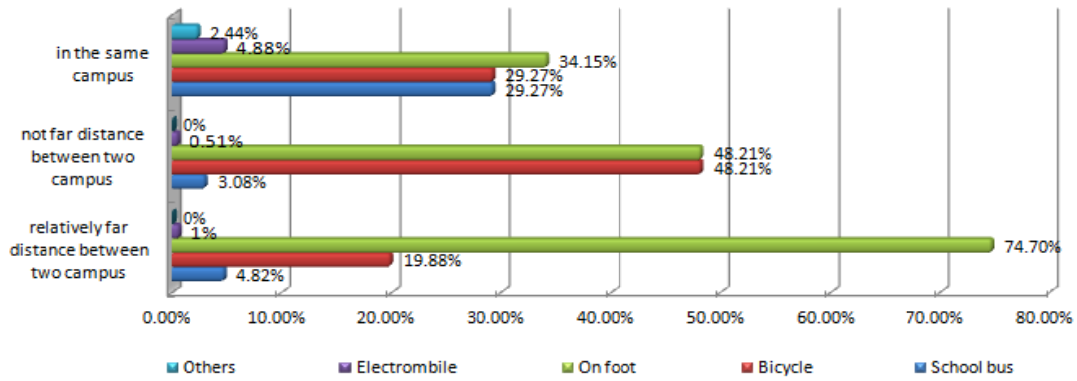


Figure 1 Way of Going to Class

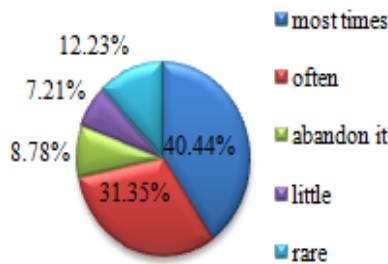


Figure 2 Frequency of Bicycle Using

2.2 Organizational conditions analysis

2.2.1 Organization system.

Through effective communication, we win support from school authorities. Besides, every school has their youth volunteer organizations, providing a platform and window for the run of the system.

2.2.2 Resource security.

There will be a large amount of abandoned bicycles every year. Besides, more than half of the students are willing to offer their old bicycles or help which will help to reduce costs.

2.2.3 High environmental consciousness.

67.16% of the students think it necessary to deal with those abandoned bicycles in time. 89.3% of the students are willing to take part in this system or even provide assistance for free. The system of recycling and reusing has a mass public base and great social benefits. The related datas as follows.

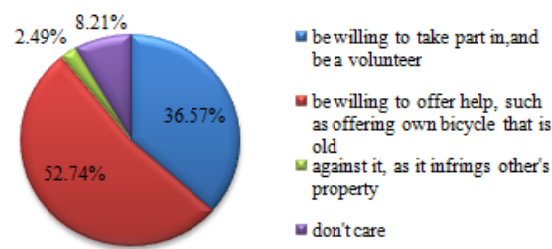


Figure 3 Attitude Towards the Public Bicycle System in Universities

3 Establishment of the Operation and Management of the Public Bicycle System in Universities

3.1 Sources of bicycles

Partly from abandoned bicycles, and others donated by students.(Ge Tengxin, Wang Shuo 2013). Department of college security collects badly damaged bicycle and issues claim notice regularly, informing students to take back their own bicycles within a specified period of time. If no owners go and get those bicycles, school will have the right to process them. On the other hand, gradutors are advocated to donate their idle bicycles to their school in order to contribute to bike rental activities.

3.2 Leasing location constructions

3.2.1 Leasing location preliminary positioning

For them to become an alternative to more traditional forms of public transport, public bicycle systems need to be efficiently managed and aimed towards sustainable mobility(Maria Bordagaray, Angel Ibeas, Luigi dell'Olio 2012). According to the distribution of the WHUT campus, we will select the park plaza and other key buildings around the park to set the leasing locations, which will be operated by security organization, or set locations around the dormitories, which will be managed by dorm staff. In this way, trial leasing location will be set around the main building of Jan Lake campus, Erudite Plaza of New campus, Teaching Building IV and Pegasus Plaza. Subdivision is as follows: main building of Jan Lake campus (space beneath the stairs), space in front of the canteen, Erudite Plaza of New campus (including underground parking field), the space around the library, Teaching Building IV (sending and receiving express corridor), Pegasus Plaza (corner of plaza), part-time base of dormitory, basketball court corner of dormitory C.(Yang Yaxia 2014)

3.2.2 Staffing and device setting of leasing location.

There should be a duty room, a computer to register, a desk and 2 chairs, basic tools to repair bike, like pump, pliers. Besides, there should be at least 3 staffs during the peak period of changing classes, and at least one staff at weekends and holidays or off-peak period.(Li Jinxia 2013)

3.3 Lease model

Campus card record students' credit degree and will play a crucial role in the bicycle rental system. When students rent bicycles by its campus card, the information will be recorded automatically, and when students brush campus cards return the bicycles, the money will be charged too.

3.4 Toll mode

From the travelers' perspective, the system should meet the demand by providing the passengers with cheap and convenient service, so the rental price must be moderate and reasonable(Liu Yang, Zhu Ning, Ma Shoufeng 2015). If students return bicycles within 7 days, they will be charged 0.5 Yuan per day. While students return bicycles over 7 days, they will be charged 0.3 Yuan per day. Compared with ordinary bicycles, mountain bicycles are more convenient and practical, so it will be overcharged 0.2 Yuan per day. If bicycles were found badly worse than before, there should be some fine.

3.5 Management and maintenance

3.5.1 Repairmen and obsolescence.

According to the research statistics, 30.85% of bicycles have been dumped for breakdown and late-time disposal, which reflects the importance of bicycle maintenance. The bicycles for renting system are partly from dumped and unclaimed bikes. Therefore, there must be some problems on their quality as well as safety. We can cooperate with repairing shops or train management staffs to master basic repair skills. Maintenance are required to inspect each bicycle once a week. If the bicycle is too

serious to maintain, put it into obsolescence.(Cheng Pengfei, Yang Sengseng, Zhao Lingling 2014)

3.5.2 Managerial personnels.

Apply to schools for recruiting students who are willing to do part-time jobs. Not only does it offers a broad stage for college students to be involved in practice activities, but also help to enhance ability of solving problems. Or it can be managed by student groups such as the community volunteer team, can actively mobilize the communities to participate in daily management (Zhao Yingmei 2013).

3.5.3 Humanized service details

Provide inflator service for free, provide disposable ponchos on rainy days and provide sunshade in hot summer.(Yang Qingxu, Liao Xiuzhi, Song Yan 2014).

4 Economic Benefit Assessment of the Operation and Management of the Public Bicycle System in Universities

According to the statistics, the percentage of students having bicycles in WHUT is about 79%. Since some of these has lost or stolen, we assumed that the proportion of still having a bicycle is 60%. Mafang Shan area is estimated at about 30000 people, so $30000 \times 60\% = 18000$, go shares to each grade is 4500. Assuming 1000 ownerless bicycle left in graduation season and estimate students will donate 500 bikes. There are total 1500 bicycles for the construction of campus public bicycle system.

We randomly selected 50 unowned bicycles to do the practical assessment, including 42 bicycle body with no serious deformation. Review indicators: chain status, car mat, outside paint integrity, pedal integrity, tires, handlebar, whether has a brake. To evaluate each bike one by one and score from 1 to 5 points. (Mei Zheling, Shi Duli, Zhang Xu 2012)

Table 1 Statistics of Bicycle Quality

Quality grade	Quantity	Ratio
1	5	10%
2	14	28%
3	9	18%
4	12	24%
5	2	4%
Serious deformation	8	16%

Bicycles graded at 3 or 4 can be recycled as a public bicycle after renovation. Bicycles graded 1 or 2 or having serious deformation will be treated as a waste. Bicycles graded 5 can be sold as a new car after renovation. Waste disposal : $1500 \times 54\% = 810$ bicycles. Repair for reuse: $1500 \times 42\% = 630$ bicycles. Repair for selling as new bicycles: $1500 \times 4\% = 60$ bicycles

4.1 Cost calculation

1) Bicycles' repair fee of rank 3, rank 4 and rank 5: the repair cost of a 50% to 60% new bicycle roughly is 70 to 80 Yuan. If we adopt the method of outsourcing and negotiate with the suppliers, by use of long-term cooperation and scale effect the coats can be cut down to about 60 Yuan per bicycle(ZhaoRui, Wang Hui, Han Yinfeng, Zhang Yanning, Hu Jianqun, Peng Jian 2014). $1500 \times (18\% + 24\% + 4\%) \times 60 = 41400$. The service life of the car after the renovation is about two years. $41400 \div 24 = 1725$ Yuan per month.

2) Maintenance cost. According to these understanding for the bicycles' basic maintenance , the costs for basic maintenance is: $630 \times 5 = 3150$ Yuan per month.

3) Management staff salaries. Operating time is from 6 to 23 points per day, totally 17 hours, 7 Yuan per hour, then the total amount is: $17 \times 7 \times 30 = 3570$ Yuan per month.

4) Personalized service. Purchase 50 one-time ponchos per month. Each one is 4 Yuan, and the total amount is 200 Yuan per month.

5) The basic flat cost is assumed to be 10 Yuan, and the life span of a second-hand bicycle after renovation is two years, so the flat cost is $630 \times 10 \div 24 = 262.5$ Yuan per month.

The total costs is $1725 + 3150 + 3570 + 200 + 262.5 = 8907.5$ Yuan per month.

4.2 Income calculation

1) Business income. Assume that each bicycle is used on average 1 hours per day, 0.5 Yuan per day, 630 bicycles, then totally all bicycles can earn 315 Yuan per day, and 9450 Yuan per month.

2) Income from the selling off the new bicycles after renovation; all bicycles can earn $60 \times 200 = 12000$ Yuan. Supposed all can be sold within 4 months, then the income is 3000 Yuan per month.

3) Income from the disposed bicycles: After investigation, our school will sell these disposed bicycles to steel mills, and the price is 5 Yuan per bicycle. Every year there will be a Centralized treatment for selling these bicycles, then income for each month is : $5 \times 810 \div 12 \approx 354$ Yuan.

4) Sponsorship income: At the same time, we can attract the surrounding businesses to invest in sponsorship and assume the sponsor is 500 Yuan per month.

5) Advertising income: Merchants around the college can put advertisements on public bicycles to promote its merchandises, which is supposed to be 500 Yuan per month.

The total income is $9450 + 3000 + 354 + 500 + 500 = 13804$ Yuan per month.

Profit calculation

The total income minus the total cost equals the total profit.

So, the total profit is $13804 - 8907.5 = 4896.5$ Yuan per month. (Chen Wei 131)

5 Conclusion

The establishment of the campus public bicycle system on the Mafang Shan campus of WHUT has high practicality. Embodied in which many students have bicycles and use it with low frequency for various reasons, causing a large amount of abandoned bicycles which, on the contrary, provide abundant resources and broad market for the campus public bike system.

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The Impact of Transformational Leadership Style on Firm Innovation in Manufacturing Organizations in Sri Lanka

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Abstract: The purpose of this empirical studying is to provide how transformational leadership impacts on firm innovation in manufacturing organizations in Sri Lanka. The perpetual data were collected from 140 Production Management Leaders in 30 manufacturing organizations. The results showed that there was a positive and significant impact and relationship between transformational leadership of Production Management Leaders and firm innovation. Additionally, the findings accounted for indicating the positive relationships between transformational leadership and employee motivation and employee motivation and firm innovation. It is the fact that firms are required to look into transformational leadership development before executing of innovations. This paper opens up intellectual discussions about role of human resources development departments over firm innovation.

Key words: Transformational leadership; Firm innovation; Employee motivation

1 Introduction

To meet customers' expectations while delighting them in a way which creates the loyalty towards companies, business leaders should tap the value-creating ideas of their employees, customers, partners, and those who see and expect progress of companies. This value creation process through idea generation and converting them into real practice is identified as innovation which is one of the top three key drivers of any business in any industry in future. In fact, creativity, coupled with innovation impacts on product and process development which directly deals with effectiveness and efficiency of companies which pursue and look for delighting customers while increasing shareholders' value.

Leaders are one of very significant factors which deals with and influences on employees' innovative behavior of which is considered as the required and fundamental means of survival in competitive business environment. (Elkins and Keller, 2003).^[6] The most researchers have identified leadership is the one of the most important and critical factors which enormously influence over creative behavior and performance (Jung et al., 2003).^[9] According to him, leaders are the most powerful persons who can directly and indirectly influence on innovative behavior of employees in organizations. Innovation and leadership are two sides of one coin and they are very much interrelated and interdependent. Leadership always focuses to bring forward some change for better future as same as innovation is the process of challenging the status quo through considerable break through.

It is the fact that leaders in business are facing dynamic business environment where the change is inevitable and to face this nature of business followers should have share the leaders' vision and commit themselves to accomplish leaders' direction effectively (Baum and Locke 2004).^[5] Thus, one of the best leadership style which very clearly explains above dynamic business environment while influencing on firm innovation is transformational leadership. Transformational leaders challenging status quo while transforming followers' personal values and self-concept and moving them to higher level of expectations and aspirations (Jung et al., 2008).^[10] They enhance their performance expectations (Bass, 1990).^[4]

This study contributes to the emerging research area on the impact of transformational leadership of production management team (Head of Production, Production Manager, Assistant Production Manager and Production Executive) on firm innovation in manufacturing companies of Sri Lanka. It is the fact that all strategic and operational plans of innovation is executed by Head of Production and his team at firm level and their leadership competency is very much critical to teach minds, touch hearts and transform lives of employees who are required to come up with more innovative interventions in production floor.

In fact, it is timely important to study about the impact of transformational leadership of Production Management Team on firm innovation in manufacturing organizations and look into detailed analysis of the relationship. The next section is the literature review which comes up with a conceptual framework and the third section is mainly focused on methodology of the study. The fourth section is allocated to results of the analysis and conclusion is presented fifth section.

2 Literature Review and Development of Hypothesis

This section describes highlights of various researchers who have contributed a lot to the area of study and it is fact that the conceptual framework is supported with literatures which are available in books, journals, websites and magazines.

2.1 Transformational leadership

There are wider ranges of literature over leadership, required for organizational success and many scholars have contributed enormously on leadership role of senior management in organizations. An effective leadership means achieving organizational goals in a productive way producing and establishing sustainable results (Longenecher & Neubert, 2003).^[11] Sosik, Kahai, and Avolio (1998)^[14] found that transformational leadership increased followers' creativity in a computer-mediated brainstorming exercise. In this study, the followers' performance was assessed in part based on the number of creative ideas generated. Amabile (1996)^[11] also has suggested that by influencing the nature of the work environment and organizational culture, leaders can affect organizational members' work attitudes and motivation in their interactions, thereby affecting their collective organizational achievement. James McGregor (1978)^[13] identified four components of transformational leadership as follows.

Charisma or idealized influence - the degree to which the leader behaves in admirable ways and displays convictions and takes stands that cause followers to identify with the leader who has a clear set of values and acts as a role model for the followers. Inspirational motivation - the degree to which the leader articulates a vision that is appeals to and inspires the followers with optimism about future goals, and offers meaning for the current tasks in hand. Intellectual stimulation - the degree to which the leader challenges assumptions, stimulates and encourages creativity in the followers - by providing a framework for followers to see how they connect [to the leader, the organization, each other, and the goal] they can creatively overcome any obstacles in the way of the mission. Personal and individual attention - the degree to which the leader attends to each individual follower's needs and acts as a mentor or coach and gives respect to and appreciation of the individual's contribution to the team. This fulfills and enhances each individual team members' need for self-fulfillment, and self-worth - and in so doing inspires followers to further achievement and growth.

For the purpose of this study, above four characteristics will be utilized to measure transformational leadership of Production Management Team, perceived by themselves about their roles over firm innovation.

2.2 Innovation

Joseph Schumpeter is often thought of as the first economist to draw attention to the importance of innovation (Roger, 1998).^[15] Rogers, E. M. Diffusion of Innovation, New York: The Free Press, 1962

He identified five types of innovation named, introduction of new product or qualitative change in an existing product, process innovation new to an industry, the opening of a new market, development of new sources of supply for raw materials or other inputs, and changes in industrial.

Those ideas paved the way for coming up with some of definitions for innovation which is a change in the thought process for doing something, or the useful application of new inventions or discoveries. It may refer to an incremental emergent or radical and revolutionary changes in thinking, products, processes, or organizations. This definition indicates that innovation is process of converting new ideas into realities or real outputs and it indeed make changes in thinking, process, products and organization as a whole. Innovation is generally understood as the successful introduction of a new thing or method. Innovation is the embodiment, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services.

In fact, some researchers illustrate innovation on the basis of two phases, called initiation and implementation. This simply means idea generation and implementation (Zaltman et al., 1973).^[19] Further, Urabe et al. (1988)^[18] clarified innovation as generation of new ideas and implementing them towards a new product, process or service. It is the fact that innovation is defined successful implementation of ideas, generated within the organizations (Amabile et al. 1996)^[11] is study, above two factors also have been considered to measure firm innovation except product and process innovation and return on product development expenses.

2.3 Transformational leadership and innovation

Researchers have highlighted the fact that leaders can help direct reports to be innovative at work (Shin and Zoau, 2003).^[16] Michaelis et al. (2010)^[14] argued that the impact of transformation leadership is based on motivation, empowerment and morality, which in turn influence on innovation

positively and effectively. Transformational leaders adopt inspirational motivation and intellectual stimulation which are very significant and critical for organizational innovation (Elkins and Keller, 2003).^[3]

There are some researches which show the positive relationship between transformational leadership and innovation. Jung et al., (2008)^[10] pinpointed a positive relationship between CEOs' transformational leadership and organizational innovation in Taiwan's electronic and telecommunication companies. In Turkey entrepreneur software development companies have been studied with relevant to above matter and it has been found that R&D managers' transformational leadership style has considerably impacted on organizational and individual level innovation and further they not only promote innovative activities and ensure the market success of them (Gumusluoglu and Ilesv, 2009). In USA, Gilley et al., have described that there is the significance of transformational leadership towards change interventions and innovation in private and public companies.

Literature review, given above emphasize that it is evident that the influence of transformational leadership has direct impact of firm innovation, employee innovative behavior and employee motivation which in return impacts in innovation of organization. In fact, it is required to set the hypothesis for the study with a view of testing them in manufacturing organizations in Sri Lanka.

H1. There is a positive relationship between transformational leadership and firm innovation.

The main focus is on transactional leadership of Production Management Team (Head of Production, Production Manager, Assistant Production Manager, and Production Executive) in manufacturing organizations in Sri Lanka. The team oversees the manufacturing process and make sure that production lines are running smoothly and efficiently. They work closely with supervisors and maintenance staff to plan work, set targets and make sure the finished products meet quality standards. The conceptual framework contribution of Jung et al., (2003)^[10] is applied to test the above relationship

But, the study further focuses to test how employee motivation, created through transformational leadership is a driving force for firm innovation. Motivation is giving encouragement to someone. And innovation is a new creation or something new. An innovation can be introducing something-and idea or object-for the first time. People need motivation to be innovative. There needs to be a reason for them to work hard to create something new. Thus, the study further looks into the relationship between transformational leadership and employee' motivation. Theory of transformational leadership related many studies show that there is positive relationship of transformational leadership and other dependent variable like satisfaction, commitment, motivation and performance of the employees. The article on Motivation and Innovation of Herzberg (1979)^[8] says that innovations such as this must be based on personal productivity and should be ordered to move from personal productivity to internal client productivity to the desired organizational productivity. In addition, Lenard, Beauvais et al., (1999) introduced five source of motivation such as intrinsic process motivation, instrumental motivation external self-concept motivation, internal self-concept motivation and goal internalization. This empirical contribution paves the way for the second hypothesis, given as follows:

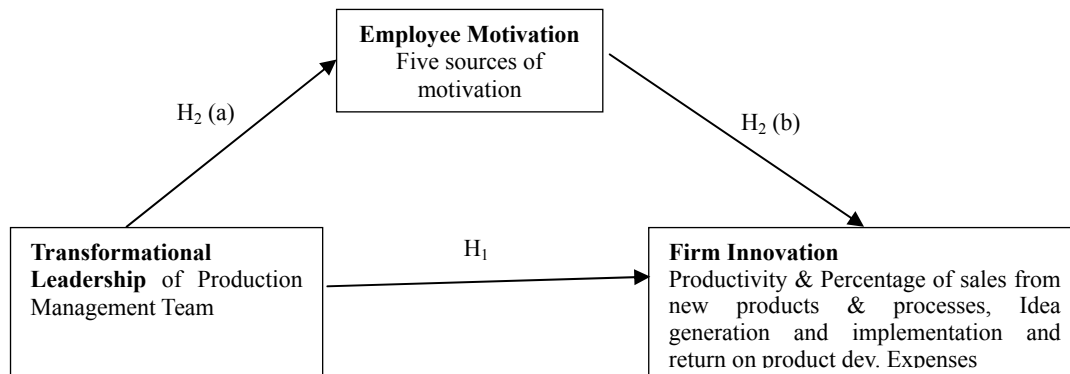


Figure 1

H2. (a) There is a positive relationship between transformational leadership and employee motivation.

H2 (b) There is a positive relationship between employee motivation and firm innovation.

FI = f(TL, EM)

FI = Firm Innovation

TL = Transformational Leadership

EM = Employee Motivation

On the basis of above hypothetical explanation, the following conceptual model can be introduced and it is required to test in the environment of manufacturing originations in Sri Lanka.

3 Methodology

3.1 Sample and procedure

Thirty manufactures of Sri Lanka were taken into considered for the study and the list of them was taken from Board of Investment. 210 members who represent Production Management Team of the organization were selected on random sample techniques. Seven members were selected from each factory and they were given structured questionnaire the impact of transformational leadership and firm innovation, mediated by employee motivation and 140 questionnaire were returned, ensuring 70% of respondent rate. 30% Heads of Production, 30% Production Managers, 10% of Assistant Production Managers and 30% Production Executives represent the sample. In fact, gender representation of the sample is 97.3% is male and 3.7% female.

3.2 Measure

Transactional leadership is measured on the basis of Multifactor Leadership Questionnaire (Tool A), introduced by Bass and Avolio (1997)^[3] which is widely used transformational leadership measure in leadership research (Awamleh & Gardner, 1999).^[2] The questionnaire is made on five rating scale which denotes that 1 stands for strongly disagree and 5 stands for fully agree. In fact, employee motivation driven behavior is measured through structured 05 questions which deals with how they can manage employee motivation which ultimately paves the way for firm innovation.

Firm innovation is measured on two different proxies, introduced by Roger (1998).^[15] The two proxies are productivity and percentage of sales from new product/s or new processes. In addition, two questions were included to measure idea generation and implementation which have been highlighted by Amabalie et al., (1996).^[1]

4 Results and Analysis

To identify the relationships among relation among transformational leadership, firm innovation, and employee motivation correlation and regression analysis is executed.

The results of correlation is tabulated in table 01 and the analysis indicates the fact that there are positive relationship among the variables, given in the table. Once the attention is paid to the relationship between transformational leadership (charisma (CRI), intellectual stimulation (ISN) inspirational motivation (IMN) and personal and individual attention (PIA) and firm innovation (FINO) the relationships with each variable is positive. This is to highlight that there is a significant ($p < 0.01$ or $p < 0.05$) and positive relationship between transformational leadership and firm innovation. In fact, the very strong positive factor of transformational leadership towards firm innovation is inspirational motivation (ISN) 0.801 where how production management team's vision is articulated to inspire themselves for higher level contribution towards firm innovation.

The figures indicate that there is a positive strong relationship between transformational leadership and employee motivation interventions among the production management team. Personal and individual attention (PIA) 0.633 very positively deals with employee motivation.

The third positive relationship, derived from the following figures is the relationship between employee motivation and firm innovation. The relationship is strong (0.624) and it indicates that if the leaders are motivated themselves they tend to act as change agents who guide others towards innovation. The correlations, explained above facilitate the hypothesis H1, H2 (a) and H2 (b).

Table 1 Correlations of Transformational Leadership, Employee Motivation and Firm Innovation

Variables		CRI	ISN	IMN	PIA	EMOT	FINO
Charisma/Idealized Influence (CRI)	P. Correlation	1	0.524	0.611	0.598	0.582	0.675
Intellectual Stimulation (ISN)	P. Correlation		1	0.732	0.506	0.523	0.786
Inspirational Motivation (IMN)	P. Correlation			1	0.599	0.567	0.801
Personal & Individual Attention (PIA)	P. Correlation				1	0.633	0.619
Employee Motivation (EMOT)	P. Correlation					1	0.624
Firm Innovation (FINO)	P. Correlation						1

*. Correlation is significant at the 0.01 level (2-tailed).

In order to test the probable impacts on innovation, multiple linier regression analysis is done and

the results are tabulated in the following tables which separately explains the probable impacts of variables separately.

Table 2 Regression Analysis of Transformational Leadership and Firm Innovation

Independent variables	Standard beta	P value
Charisma/Idealized Influence(CRI)	0.480	0.021
Intellectual Stimulation (ISN)	0.430	0.039
Inspirational Motivation (IMN)	0.490	0.034
Personal and Individual Attention (PIA)	0.295	0.049
Dependent Variable: Firm Innovation	R ² =0.673	P value= 0.033

The regression model which investigates the impacts of transformational leadership on firm innovation is presented in table 08. The R² value indicates how much of dependent variable (Firm Innovation) is expressed and explained by independent variable (Transformational Leadership). R² value of is 0.67 and it indicates the fact that dependent variable is explained by 67% through independent variable. The R² value is to be at least R² > 0.5. The regression model is significant p=0.003 where it indicates that there is a positive relationship between transformational leadership and firm innovation. This regression model supports H¹ which indicated the impact of transformational leadership is very positive on firm innovation.

Table 3 Regression Analysis of Transformational Leadership and Employee Motivation

Independent variables	Standard beta	P value
Charisma/Idealized Influence(CRI)	0.153	0.012
Intellectual stimulation (ISN)	0.394	0.043
Inspirational Motivation (IMN)	0.301	0.028
Personal and Individual Attention (PIA)	0.120	0.035
Dependent Variable: Employee Motivation	R ² =0.671	P value= 0.038

The below regression model is done with the purpose of supporting the second hypothesis H² (a) where the model explains how much of dependent variable (Employee Motivation) is expressed by the independent variable (Transformational Leadership) in the table 3. Since the R² value of the model is 0.673 and the regression model is significant because p=0.038 where it confirms the positive relationship among all variable. Thus, it is the fact that transformational leadership of Production Management Team positively impacts on employee motivation, proving H² (a).

Table 4 Regression Analysis of Employee Motivation and Firm Innovation

Independent variables	Standard beta	P value
Employee Motivation (EMOT)	0.238	0.000
Dependent Variable: Firm Innovation	R ² =0.671	P value= 0.034

The above regression model focuses on how much dependant variable of Firm Innovation is articulated and conveyed by independent variable, called Employee Motivation. Since R² value is more than 0.5 and p= 0.034 it is correct to asset that above relationship is positive and significant.

5 Conclusion

In a broader sense, the impact of transformational leadership is considerably significant and very much vital when firm innovation is executed. The empirical research in the context of manufacturing organizations in Sri Lanka indicates the fact that transformational leadership qualities of Production Management Team directly impacts on firm innovation. In fact, the relationship between transformational leadership and employee motivation also is very positive and significant while employee motivation further impacts positively on firm innovation. By and large, it is very clear to assert that transformational leadership has positive impacts in manufacturing organizations of Sri Lanka.

Since there are very less contribution of research in this nature in Sri Lanka, this paper contributes to the literature of impact of transformational leadership over firm innovation in the context of manufacturing organizations of Sri Lanka. In fact, this paper inspires other researches to explore human

resources management interventions over success of firm innovation. For examples, role of training and development, impact of line managers' soft skills, role of HR department and responsibility of shop floor leaders over implementation of innovation are new thought provoking areas and those who are interested can take initiative to explore the contribution of above areas over firm innovation.

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Effects of Organizational Innovation on the Firms Production Performance: With Special Reference to Sri Lanka

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Abstract: Concept of Innovation is central to economic growth and can be a source of sustained competitive and effective advantage to firms (Schumpeter, 1934). On the other hand the innovation system concept is still a new title to many countries including Sri Lanka. This study tried to analyze the relationship between different types of innovations (product, process, marketing and organizational), and the firm production performance. The main objective of this study is to evaluate the Effects of Organizational innovation on the firm's production performance.

The sample consisted of 45 manufacturing firms in the Western province of Sri Lanka and drawn using a stratified random sampling method. Analysis took place in order to identify the relationship among the innovation types and the firms production performance i.e., correlation and regression analysis. The correlation analysis indicates the strong relationship between the factors and there is a significant positive relationship between all types of innovations and the firm's production performance. Since the innovation system concept is new to Sri Lanka government should act a major role in establishment of the new concept.

Key words Innovation; Organizational innovations; Production performance; Manufacturing firms

1 Introduction

Innovation is studied in various disciplines. It has been defined from different perspectives. Schumpeter, 1934^[1] includes five manifestations of innovation in its definition: Creation of new products or qualitative improvements in existing products, Use of a new industrial processes, New market openings, Developing of new raw-material sources or other new inputs, New forms of industrial organisations. The influence of the Schumpeterian vision of innovation stand still to this day and can be seen in the European Commission's Green Paper, 1995 on innovation that defines it as "...renewal and enlargement of a range of products and services and the associated markets, the establishment of new methods of production, supply and distribution, the introduction of changes in management, work organisation and the working conditions and skills of the workforce" and in Edquist's (2001)^[7] summary description of innovations as new creations of economic significance normally carried out by firms. Department of Trade and Industry from UK has perhaps the broadest and most comprehensive definition of innovation and it is "the successful exploitation of new ideas" and explains that it "involves new technologies or technological applications, which can deliver better products and services, new, cleaner and more efficient production processes and improved business models. (DCS, 2003)⁽⁴⁾.

Four different innovation types that are introduced by OECD Oslo Manual in 2005⁽¹⁰⁾. These are, Product innovation, Process innovation, Marketing innovation and Organizational innovation.

Organizational innovations produce long-term competitive advantages and important for technical innovations (Mol & Birkinshaw, 2006)^[9]. Scholars have normally defined innovation as the development and use of new ideas or behaviours in organizations. A new idea could be a new product, service or method of production or a new market, organizational structure or administrative system. The key intention of innovation is to introduce change in the organization to create new opportunities or exploit the active ones (Drucker, 1985)^[5].

Organizational innovation as a distinct concept, defined as "the implementation of a new organizational method in the firm's business practices, workplace organization or external relations that has not been used before in the firm and is the result of strategic decisions taken by management" (OECD, 2005)⁽¹⁰⁾. An organizational innovation has been defined according to OECD (2007) as "...a new organizational method in the firm's business practices, workplace organization or external relations. Organizational innovations can be intended to increase a firm's performance by reducing administrative costs or transaction costs, improving workplace satisfaction (and thus labour productivity), gaining access to non-tradable assets (such as non-codified external knowledge) or reducing cost of supplies."

According to Pleschak and Sabisch, characteristic of organizational innovations is interdependent relationship to product or process innovations. New products frequently need new production processes and it needs new organizational structures. On the other hand another characteristic is the social

dimension: They influence the corporate culture and also the attitudes and the behaviour of the employees.

Sri Lanka is an island country which is in Indian Ocean next to the southern part of India. The population is approximately 20Mn in 2013 and 70% of its population living in the rural areas whose main income is agriculture. With a human development index of 93 out of 177 countries and a literacy rate of 90%. Sri Lanka recorded the highest growth rate after independence (in 1948), in 2011 viz 8.3 percent. Further, the per capita income of the country had remarkably increased from \$871 in 2000 to \$2836 by 2011. In 2013 it was a \$3194 (Central Bank Report 2013)^[2].

Innovation is a concept central to economic growth and can be a source of sustained. Organizational innovations are not a new phenomenon, but due to their augmented importance for the global competition they have become a focus of attention for scholars.

There are a few studies that focus on the effects of Organizational innovation on the firm production performance. According to Drucker (1999)^[5], few empirical studies have closely examined the relationship between the level of organizational innovativeness and firm production performance.

Recently, Dutz and Connell (2013)^[6] also suggested that it is more important than ever to identify and assess existing constraints to investment, productivity, innovation and growth in the Sri Lankan economy.

2 Literature Review

The literature on innovation is very voluminous and diverse. Most research tends to focus on innovation outcomes of product or process. Few studies examine innovation outcomes at the firm level empirically, or the relationship between organizational innovation, and production performance.

Adam Smith's 1776, analysis of the division of labour is an early example of organisational innovation and the study of its impact on productivity.

The model of Mol and Birkinshaw (2006)^[9] try to answer the question of under which conditions will firms introduce organizational innovations. Their model uses data from the U.K. "Community innovation Survey" CIS III survey (covering the years 1998-2000), and proves significant in explaining the adoption of organizational innovation.

Their study examines variables that describe two sets of antecedents, a firm's organizational context, and its knowledge based relations. Suggest that organizational innovation is driven by the firm's competitive strategy and position.

Ulusoy, G. et al, 2008^[12] have done study of Effects of Organizational Innovations on Firm's Production Performance of the manufacturing firms in the Northern Marmara region within Turkey. The objective of this paper is to explore the role of different innovation types as well as the organizational innovations on the firm's production performance based on an empirical study covering 184 manufacturing firms in the Northern Marmara region within Turkey. A significant positive relationship between organizational innovations and the firm's production performance is determined.

Based on study of "Organizational innovation as an enabler of technological innovation capabilities and firm performance" were studied by César Camisón Ana Villar-López in 2010^[11]. And assesses the relationship between organizational innovation and technological innovation capabilities, and analyzes their effect on firm performance using a resource-based view theoretical framework. The study presents empirical evidence from a survey of 144 Spanish industrial firms and modelling of a system of structural equations using partial least squares.

The results confirm that organizational innovation favours the development of technological innovation capabilities and that both organizational innovation and technological capabilities for products and processes can lead to superior firm performance.

Jaskyte (2011) found that there is a positive relationship between innovation and performance, which creates the need in the non-profit firms to build the culture of innovation in order to improve the performance.

Empirical evidence on effects of organizational innovation on the firm production performance considerable disagreements. Some writers argue that organizational innovation positively effect to firm production performance and another scholars argue that there is a negative relationship between organizational innovation and firm production performance.

In reviewing these diverse views, it is questioned and important to assess the effects of Organizational innovation on the firm production performance in Sri Lanka. The problem of this study is, What are the effects of Organizational innovation on the firm production performance?

3 Research Methodology

3.1 Conceptual framework

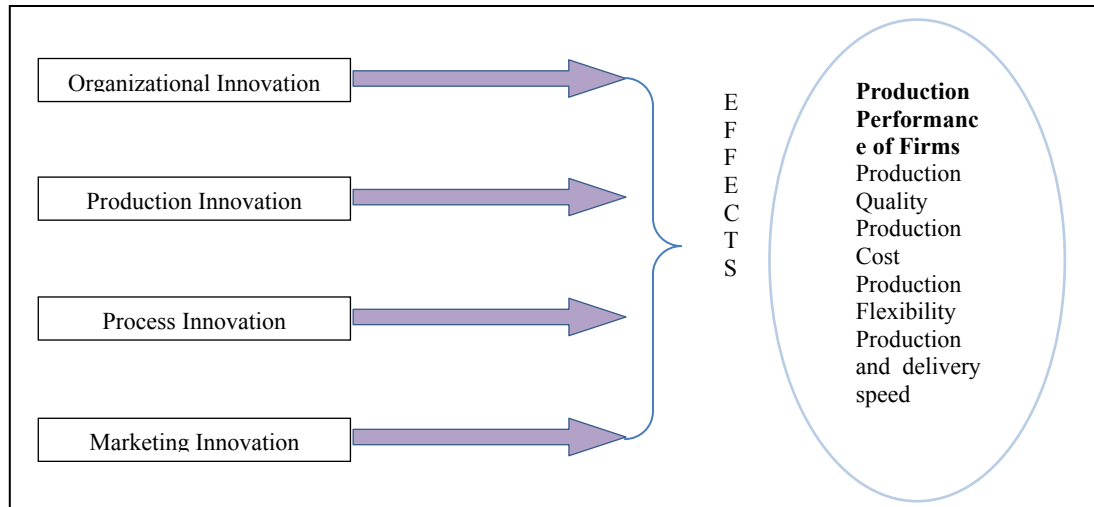


Figure 1 Conceptual Framework of the Study

3.2 Hypothesis of the study

The relationship between different types of innovations (product, process, marketing and organizational) and the firm production performance is investigated in this research.

H1. There is a positive relationship exists between the firm Production performance and Organizational Innovation

H2. The relationship between firm Production performance and Production Innovation is positive.

H3. There is a positive relationship exists between the firm Production performance and Process Innovation

H4. There is a positive relationship exists between the firm Production performance and Marketing Innovation

Secondary data for the study were collected from Reports of the Central Bank of Sri Lanka, Annual Survey data of Department of Census and Statistics in Sri Lanka, internet, Journals, Research papers, Conference and Seminar papers and relevant documents.

As this study is empirical in nature, a great attempt was made to collect primary data using sample survey using well-structured questionnaires.

The population of this study consists of manufacturing firms in the Western province of Sri Lanka.

The sample, comprising 45 manufacturing firms (senior officer/executive) in the Western province of Sri Lanka, is drawn using a stratified random sampling method from the statistical data base of the National Enterprise Survey conducted by Department of Census and Statistics (DCS) in 2008 and updated annually. (Last report Published in 2014 based on the data of 2012). The Western province, which includes main three districts of the country: Colombo, Gampaha, and Kaluthara and populated with 28.8 percent of total population, was selected as approximately 42 percent of firms are located in the province (DCS,2014)⁽³⁾.

Primary data were gathered through a sample survey and the sample was comprised of the 45 manufacturing firms (senior officer/executive) in the Western Province of Sri Lanka to investigate the effect of organizational innovation as well as other types of innovations to the firm’s production performance. The questions about the production performance are asked by 5 points Likert scale.

This study uses tables, charts, graphs to present the collected data. In addition, descriptive statistics methods were used on essentially.

In order to identify the relation among the innovation types and the production performance of firm’s relationship analysis, i.e., correlation analysis and regression analysis is conducted.

Multiple linear Regression method

$$Y = \alpha + \beta_{1X1} + \beta_{2X2} + \beta_{3X3} + \beta_{4X4} + \epsilon$$

Y = Production Performance

X1 = Product innovation

X_2 = Process innovation
 X_3 = Marketing innovation
 X_4 = Organizational innovation

4 Data Presentation and Analysis

According to the data of field survey (interview of officers and executive) following information can be interpreted. According to sample, almost two third of the samples are male executive officers i.e.32 (71.1%). The geographical dispersion of the sample shows its representation in the three districts in the Western province, Sri Lanka (Colombo, Gampaha and kaluthara). Firms engaged in manufacturing food and beverages products was recorded as 19 firms (42%) while 11 firms are (24%) manufacturing garment apparel and designing were included in the analysis. 08 firms (17%) and 07 firms (15%) were engaged in two sectors, manufacturing rubber and plastic products. Following table shows the distribution of the sample according to the number of employees in the firms.

In order to identify the relationship among the innovation types and the production performance correlation and regression analysis is conducted as bellow.

Table 1 The Correlation analysis of the innovation types and Production Performance

	Prod. Innov	Proc. Innov.	Mar. Innov.	Org. Innov.	Prod. Expan.
Prod. Innov.	1	0.36	0.21	0.53	0.32
Proc. Innov.		1	0.35	0.48	0.24
Mar. Innov.			1	0.43	0.32
Org. Innov.				1	0.38
Prod. Expan.					1

In the table 1, the correlation analysis indicates the strong relationship between the factors and a significant positive relationship between all types of innovations and the firm's production performance. Among them high association can be seen with organizational innovation (0.38).

In the above multiple linear regression model analysis can be seen connection and effect of innovation types to production performance of Manufacturing firms in Sri Lanka.

Table 2 Regression analysis of Production Performance

Independent variables	beta	Significance value
Product Innovation	0.178	0.87
Process Innovation	0.143	0.53
Marketing Innovation	0.012	0.92
Organizational Innovation	0.213	0.07
$R^2 = 0.036$; $p=0.048$		

When we take a look at the types of innovation along there is no significant affect because of "p" values of these types of innovation are greater than the 0.05. When considering multiple regression model is significant ($p<0.05$) $p=0.048$ and confirm positive relationship between all innovation types and the firm's production performance.

And also R^2 value is 0.036, this indicate that 3.6% dependent variable can be expressed by independent variables like: Production, process, Marketing and Organizational innovations. It can be illustrated that types of innovation is not considerable factor to determine the production performance of manufacturing firms. 96.4% other factors effect to determine the production performance of the Manufacturing firms.

5 Conclusion

It can be concluded that most of the innovative activities are new to the firm and there was no considerable innovation in the category of 'New to the world'. And also it has been revealed that the results of these innovations haven't brought big financial gains to the firms.

Accordingly, many firms were not actively involved in the innovative process. Most of organizations still depend on traditional management, marketing, operations and daily routines instead of finding new cost effective innovative solutions. Few firms were identified well in management and

marketing innovations from above selected firms.

Generally there was insufficient allocation of funds for innovative activities as they believe that it is very difficult to recover these investments. As a result they have engaged in low cost, mainly trial and error methods and low cost reverse engineering as de-assembling old machinery and equipment for improvements and obtaining technical know-how.

As well as when considering about the types of innovation can be concluded that there are positive relationship between types of innovation and business performance of the Manufacturing firms in Sri Lanka.

All hypotheses can be accepted according to results of analysis.

The study identified the obstacles which restrain innovative attempts of the manufacturing firms in the Western province of Sri Lanka. Through the survey, the factors such as high cost of innovation, lack of funding sources internally and externally, lack of skilled personnel, lack of information on technology and the lack of economic condition of the country restricting the purchasing power of the people are obstacles of the Manufacturing firms in the western Province of Sri Lanka.

There is a need for sufficient knowledge and information infrastructure and assistance being provided by the government, universities, technical education firms, and R&D institutions.

Financial assistance from the banking system and government projects should help resource constrained firms to generate innovations as they are not capable enough to allocate needed funds themselves.

And also, government institutions, universities, technology centres, R&D firms should provide innovation infrastructure to the progress of manufacturing firms., Finally it can be point out that, Sri Lanka should pay more attention to reach to innovation economy with covering manufacturing firms as a developing country because the Improvement of firms very important to increase the economy of Sri Lankan.

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Research on the Evaluation Index System of Internal Control Based on Enterprise Ethics

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Abstract: Introducing Enterprise Ethics to the internal control evaluation system and combining with internal control elements, this paper establishes a preliminary evaluation index system of internal control based on enterprise ethics and uses the structural equation modeling to conduct the empirical test, finally forms an evaluation index system including 5 first class indicators, 9 second class indicators and 27 third class indicators in order to improve the level of the enterprise internal control evaluation.

Key words: Enterprise ethics; Internal control; Evaluation index; Structural equation modeling

1 Introduction

The internal control is increasingly brought to the attention of the entrepreneurs and government management department on a global scale. A large number of theoretical results and the rise and fall of the enterprise instance show that healthy and effective internal control systems play significance roles in helping enterprises to reduce the financial fraud, improve the efficiency and effectiveness of enterprise management and achieve strategic goals. However, construction of internal control is not running smoothly all the time, the enterprise operators need to regularly review their own internal control system and conduct evaluation of the design and implementation effectiveness. Meanwhile, the kind of guide to evaluate internal control will directly determine the effect of internal control evaluation and improvement direction. In recent years, such as various kinds of 'gate incident' incidents all kinds of corporate scandals put many enterprises in the spot light and behind the event reflecting thought-provoking ethical problems of companies. Therefore, it's necessary to introducing enterprise ethics to internal control evaluation system, to construct an evaluation index system of internal control for the company's ethics in order to guide enterprises focus on ethical risks, increase timely awareness to identify defects of internal control design and implementation and realize the continuous improvement of enterprise internal control.

2 Enterprise Ethics Connotation

Definition of enterprise ethics in the theoretical circle has not yet formed and there are multiple points of view. Among the great number of definitions, it's of higher recognition degree that enterprise ethics is defined as the guidance and principles of employee behavior moral, norms or standards proposed by the American scholar Lewis P.V. on the basis of his academic study in 1985. Enterprise ethics research focus business ethics as a particular social phenomenon, including the specification, function and form between good and evil, evaluation of the business ethics construction, etc. This paper argues that enterprise ethics is the basic rules for dealing with the relationship between various stakeholders and the company and is the total of the ethical consciousness of operating activities throughout the enterprise to adjust the enterprise internal and external relations ethics, embodied in managers and employees or employees within the organization, as well as the enterprise ethical relationship with external stakeholders. Enterprise ethics includes not only the individuals in the enterprise ethics, also reflecting the enterprise ethics as a whole, its business activities of the enterprise, the good and evil should and should not make the specification and it is different from the corporate social responsibility. Corporate social responsibility is enterprise obligations to society, involving little or no relationship between the internal stakeholders and enterprise ethics includes not only the external ethics but also covers the ethical relationship between people in different levels inside the enterprise. In addition, enterprise ethics is different from the corporate culture. Corporate culture is gradually formed in the business activities of enterprises approved by all the members in the organization's values, moral standard, business philosophy rules and regulations and so on, which is richer than enterprise ethics in content. Enterprise ethics mainly reflects the value judgment of good and evil, and is the core of the enterprise values, as well as the core of corporate culture.

3 Relationships Between Enterprise Ethics and Internal Control

Goals of both Enterprise ethics and internal control have intrinsic consistency, and their mechanisms of action are complementary. Internal control is essentially a kind of remedy mechanism of incomplete contract relationship, which means through internal control equivalence of related interest subjects' rights and obligations in enterprises can be reached in order to ensure stability and sustainability of the enterprise management. Through the core values of ethics ideal faith, enterprise ethics exerts a subtle role in enterprise staffs' deep psychological, widely and deeply affect the persons' spiritual world, which makes the ethics and principles throughout every corner of the enterprise management and exist the invisible and powerful control, so as to reduce the enterprise risk and create value for stakeholders. Because the enterprise ethics belongs to the category of spirit, its content is abstract, not easy to implement in the concrete actions, needs the carrier of internal control. Therefore, enterprise ethics can be introduced into the internal control of each link to make up for the internal control standard procedure not involved or lag in enterprise reform so as to make the enterprise behavior restricted by double constraints of ethics and institutional.

4 Evaluation Index System of Internal Control Based on Enterprise Ethics

4.1 Preliminary establishment

Table 1 Evaluation Index System of Internal Control Based on Enterprise Ethics

First class indicators	Second class indicators	Third class indicators
Internal environment (a ₁)	Enterprise governance (b ₁₁)	Board size(c ₁₁₁);Loyalty of board(c ₁₁₂);Due diligence of independent directors (c ₁₁₃)
	Enterprise strategy (b ₁₂)	Sharpness of the strategic objectives (c ₁₂₁); Degree of credibility of introducing strategic (c ₁₂₂); Realization of the company's business goals (c ₁₂₃)
	Ethics and values (b ₁₃)	Level of management morality (c ₁₃₁); Integrity of employee handbook and ethics norms(c ₁₃₂); Enterprises' care for employees (c ₁₃₃)
External ethics risk (a ₂)	Degree of the responsibility implementation for community (b ₂₁)	Actively handling enterprises' damage to the community (c ₂₁₁); Actively participate in community construction (c ₂₁₂); Participate in public welfare activities and charity (c ₂₁₃)
	Ethical responsibility of supplier (b ₂₂)	Vendor payment on schedule in a timely manner (c ₂₂₁); According to the rules to choose suppliers (c ₂₂₂);Establish long-term cooperation relations with suppliers (c ₂₂₃)
	Ethical responsibility of rivals (b ₂₃)	Not use unethical means to damage rivals' images (c ₂₃₁);Not through improper means to obtain the competition technical data (c ₂₃₂); Not conduct malicious competition to rivals by lower prices (c ₂₃₃)
	Ethical responsibility to the customer (b ₂₄)	Not false advertising (c ₂₄₁); Response to customer complaints quickly (c ₂₄₂); True disclosure of defect product information (c ₂₄₃)
Internal control activities (a ₃)	Incompatible positions and separation (b ₃₁)	Separation between feasibility analysis and decision-making (c ₃₁₁); Separation between examination and approval of the business (c ₃₁₂); Separation between implementation and supervision of the business (c ₃₁₅)
	Authorized examining and approving control (b ₃₂)	Soundness of authorized examining and approving system sound (c ₃₂₁); Frequency of Management authorization at will (c ₃₂₂); Major projects collective decision-making (c ₃₂₃)
	Accountant system control (b ₃₃)	Frequency of Accounting policy change (c ₃₃₁); Soundness of accounting manual accounting system (c ₃₃₂); Accounting personnel's quality (c ₃₃₃)
Information and communication (a ₄)	Transfer mechanism of internal report (b ₄₁)	Internal information generation and transmission in a timely manner (c ₄₁₁); Major or emergency rapid transfer (c ₄₁₂); Classified information confidential (c ₄₁₃)
	Information communication platform (b ₄₂)	Information sharing between departments at the same level (c ₄₂₁); Information communication between different levels and interaction (c ₄₂₂); Communication effect evaluation (c ₄₂₃)
Internal supervision (a ₅)	Organization of internal supervision (b ₅₁)	independence of the internal supervision mechanism (c ₅₁₁); competence of Supervise staffs; (c ₅₁₂); professional ethics of supervise staffs (c ₅₁₃)
	Assessment and accountability mechanism (b ₅₂)	Regular analysis of internal control implementation (c ₅₂₁); Recognition level of management to evaluation and improvement reports (c ₅₂₂); Follow-up rectification of the internal control defects (c ₅₂₃)

There are three kinds of way to select the internal control evaluation index: 1) from the perspective of objective results of internal control, if the internal control goal can be achieved, it is given to illustrate the effectiveness of the internal control for example Zhang Zhaoguo & Zhang Wangfeng (2010) established evaluation index system of internal control from five objective results and took external evaluation data availability into account; 2) refine Internal control elements and form the internal control evaluation index for example Chi Guohua & Guan Jianpeng (2011) set up four levels of evaluation index in logic framework of internal control elements; 3) Starting from the process of internal control, set up index evaluation, such as Wang Hailin (2009). Combining with five factors of COSO framework and the internal control basic norms issued by five ministries and commissions such as the ministry of finance, this paper preliminary builds index system as shown in table 1.

4.2 Structure equation modeling test

Structure Equation Modeling (SEM) can reveal the relationship between the variables which can't be measured accurately. This paper uses SPSS17.0 software for analyzing the reliability and validity of survey data and screens the internal control evaluation index based on enterprise ethics combining with AMOS17.0 construct structural equation model to test. Those are not able to be real and effective reflect the status of enterprise internal control running poor or representative indicators are weed out to reduce the index quantity, raise the efficiency and effectiveness of internal control evaluation.

1) Issuance of Questionnaires

Adopting 7 point scale measurement for each evaluation index design problems ,the internal control evaluation questionnaires are formed and distributed to enterprise internal control department or the internal audit department in the eight industries including machine manufacturing, food processing, auto manufacturing, textile garment industry, timber industry, medical instrument manufacturing industry of metal, smelting industry, etc., asking respondents with the method of score to importance representative and efficacy evaluation indexes for comments. The higher the score reflects the higher recognition on behalf of the respondents to the indicators in the evaluation of internal control. The total number of distributed questionnaires is 450 and the actual number of recovery is 340, which meets the requirements of data analysis basically.

2) Reliability Analysis of Questionnaires

Reliability Analysis is for the judgement of whether the data have stability and reliability. A reliability coefficient method of Cronbach's Alpha coefficient is used and a value of Cronbach's Alpha coefficient higher than 0.5 can be accepted in general. As shown with the output of SPSS software, the results of Cronbach's Alpha coefficient of third class indicators based on the standardized item is 0.802 reflecting relatively good reliability. The total correlation of indicators of c_{232} , c_{322} and c_{433} is less than 0.3 and after these three indicators is deleted, the degree of reliability is higher and the value of Cronbach's Alpha coefficient becomes 0.831.

3) Validity Analysis of Questionnaires

Validity reflects the reliability of measurement results and the readers of the object to be tested and it can be divided into the content validity and structure validity. Because the content of the questionnaire has been reviewed at the beginning of design, only structure validity analysis is needed in this paper. Structure validity usually uses the factor analysis method to carry on the analysis to determine whether the selected indicators consistent with the expected result. The collected sample data are randomly divided into two groups as group A and group B, each group contains 170 samples and group A is selected to factor analysis. The KMO value of in the overall questionnaire scale is 0.815 and the related significance probability (Sig) of the chi-square in Bartlett's sphere test is less than 0.001, which indicates that it's suitable for factor analysis.

Using SPSS software, the rotation matrix is obtained resulting from the factors of rotating components for the judgment of convergent validity and discriminant validity. The three-level indicators with factor loading coefficient less than 0.5 should be deleted and the rest indicators will be renamed using Z_{ij} for the second class and t_{ij} for the third class. The adjusted results are as enterprise governance (Z_{11} , including the original c_{111} , c_{112} , c_{113}), enterprise strategy (Z_{12} , including the original c_{121} , c_{122} , c_{123}), ethics and values (Z_{13} , including the original c_{131} , c_{132} , c_{133}), ethical responsibility of supplier (Z_{21} , including the original c_{211} , c_{212} , c_{213}), ethical responsibility to the customer (Z_{22} , including the original c_{241} , c_{242} , c_{243}), responsibility and authorization (Z_{31} , including the original c_{311} , c_{312} , c_{313}), accountant system control (Z_{32} , including the original c_{331} , c_{332} , c_{333}), information communication mechanism (Z_{41} , including the original c_{421} , c_{422} , c_{423}), Internal supervision and examination (Z_{51} , including the original c_{511} , c_{512} , c_{521}).

4) Structural equation modeling and analysis

Combined early indicators of processing, a structural equation model is built shown as figure 1, in which the graphical shade represents the variable measurement error or the error of the latent variables. Therefore, hypotheses are proposed as follows: the i th secondary internal control evaluation index has positive correlation with the enterprise internal control evaluation effectiveness (H_i); the j th third class internal control evaluation index has positive correlation with the i th secondary internal control evaluation index (H_{ij}). Import the data of group B data into AMOS17.0 software for low index analysis. Research shows that secondary evaluation index and third class evaluation index are presented positive correlation and the correlation coefficient are higher than 0.45. Take enterprise governance dimension for example as shown in table 2 that the path coefficient of board size index to corporate governance index is 0.57, the path coefficient of board loyalty index to corporate governance index is 0.52 and the path coefficient of due diligence of independent directors index to corporate governance index is 0.67, indicating that the selection of the third class indexes and corporate governance index have strong correlation, which can be well used to evaluate the condition of corporate governance.

Table 2 Corporate Governance Standardized Regression Coefficients

Hypothesis	Relationship	Standardized path coefficient	Value of P	Conclusion
H_{11}	$t_{111} \rightarrow Z_{11}$	0.57	***	Support
H_{12}	$t_{112} \rightarrow Z_{11}$	0.52	***	Support
H_{13}	$t_{113} \rightarrow Z_{11}$	0.67	***	Support

*** represents significant correlation in 0.001 significant level

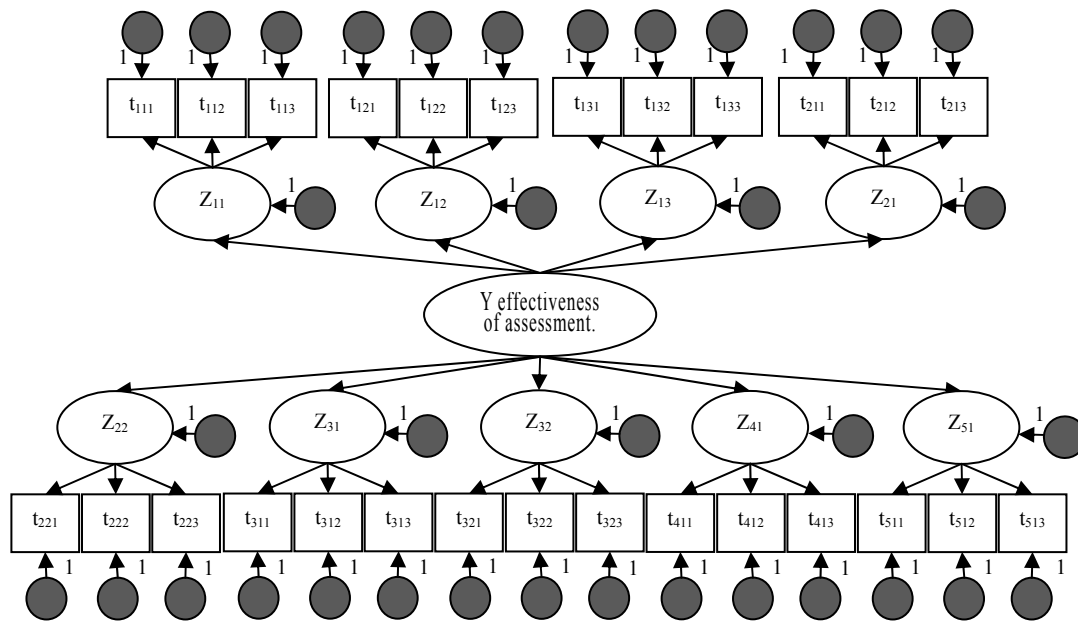


Figure 1 Evaluation Index of Structural Equation Model Test

High order index path coefficient is based on low index, reflecting the secondary indicators and on the basis of correlation between the effectiveness of the internal control evaluation. As shown in table 3, the value of P is less than 0.001 and each of the standardized path coefficients is higher than 0.5, which indicates that the selected indicators have certain representativeness and rationality to a certain extent and the evaluation index system of enterprise internal control is effective.

Table 3 Results of the High-order Factor Analysis

Hypothesis	Relationship	Standardized path coefficient	Value of P	Conclusion
H_1	$Z_{11} \rightarrow y$	0.54	***	Support
H_2	$Z_{12} \rightarrow y$	0.52	***	Support
H_3	$Z_{13} \rightarrow y$	0.58	***	Support
H_4	$Z_{21} \rightarrow y$	0.55	***	Support

H ₅	Z ₂₂ →y	0.69	***	Support
H ₆	Z ₃₁ →y	0.53	***	Support
H ₇	Z ₃₂ →y	0.60	***	Support
H ₈	Z ₄₁ →y	0.56	***	Support
H ₉	Z ₄₂ →y	0.62	***	Support

*** represents significant correlation in 0.001 significant level

From the final metrics, corporate governance is the highest level of internal control, coordinating the internal relations of interests of various bodies of institutional arrangements and corporate governance flaws and loopholes many bring fatal blow. Enterprise strategy is about the development direction, especially for manufacturing enterprises in the secondary transformation, which means the appropriateness of enterprise strategy choice will determine the future development space of the size and the persistence of the time. External ethical responsibility is inevitable requirement bring by the evolution of external environment and enterprises are no longer just responsible to the shareholders, but should also take other stakeholder needs into account. as mentioned in the COSO report, business control activities is to help management ensure policies and procedures of the instruction to be executed and incompatible positions and separation, authorized examining and approving control and accountant system control are is the most basic and the most universal in different enterprises control activities. Information communication is to ensure the business decisions required for the rapid generation and transmission of information, so that the enterprise can take quick reaction to the big event, thus the soundness of information communication platform is the important carrier of effective internal control. Additionally, assessment and accountability mechanism is an important part of the evaluation of internal control effectiveness. Internal control is an embedded system in the enterprise management activity and its effectiveness and continuous improvement depends on the assessment of internal control and responsibility mechanism. When lacking of the link of evaluation, the internal control system will lack of implementation and improvement, remaining the execution of internal control deviation and control error of the system itself is difficult to be uncorrected.

5 Conclusion

The selection of evaluation index has an influence on the evaluation results of enterprise internal control. Introducing enterprise ethics to internal control evaluation system can help to construct an evaluation index system of internal control to evaluate the effectiveness of enterprise internal control design and implementation and to exert an important guiding role in achieving the continuous improvement of enterprise internal control. This paper establishes a preliminary evaluation index system of internal control based on enterprise ethics and uses the structural equation modeling to conduct the empirical test, finally forms an evaluation index system including 5 first class indicators, 9 second class indicators and 27 third class indicators. Since enterprise internal control itself is a complex system, trying to construct a set of general evaluation index system of internal control must be a process of constant improvement and it remains to be further studied.

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Innovations on Moral Consciousness Education and its Cultivating Principles*

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Abstract: The history of human morality shows that morality develops from naturally and spontaneously to freely and consciously. During current social transition period in China, there exists some serious problems such as moral anomie and lack of good faith, thus cultivating moral consciousness has become a hot issue both in ideological and political education research. In this paper, according to the definition and development of morality and consciousness, it redefines the concept of moral consciousness and points out that moral consciousness has functions of cognition, education, evaluation as well as regulatory. It discusses the strategic significances of cultivating moral consciousness in order to promote human development under socialism, the construction of socialism with Chinese characteristics and the sustainable development of the society as a whole. It also proposes some basic principles in cultivating moral consciousness including adhering to Chinese characteristics; focusing on the pursuit of value and continuous innovation and compatibility; paying attention to its application and so on.

Key words: Moral consciousness; Subject development; Cultivating principles

1 Introduction

In the process of thoughts and ideas development, moral change and choice of conception guide every major change in human society. Each person, every nation and even the entire world are beginning to reflect, examine the morality under economic globalization and multiculturalism. The history of human morality shows that morality develops from naturally and spontaneously to freely and consciously. Or in other words, human morality has always been on the way to moral consciousness.

Under the background of global economic integration, Chinese society is facing profound changes in economic structure, social structure, pattern of interests and new ideas. Utilitarianism, libertarianism and so on all in different ways declined to reflect the market conceptions and invaded into everyday life in contemporary Chinese society. Different demands and different moral expressions clashed with each other. Ethical and moral problems were triggered by these collisions. Irritability and anxiety were deepened by social mood of moral alienation. Rational thinkers of public morality were excluded. In a word, there exists the phenomenon of moral anomie and lack of good faith in some areas. All these posed severe challenges on the construction of our common spiritual home. At the time when we should be vigilance of thoughts and behaviors dominated by economic interests and market-oriented ideology and when social moral status were asked and tortured repeatedly, people were often touched by some so called grassroots love and the most beautiful phenomenon. Relations among people are adjusted by moral code of conduct. The appeal of morality is expanding and the influence of morality will also continue to sublimate.

The report of 18th party congress lists significantly to enhance soft power of culture as one of the objectives of completing a comprehensive well-off society and of reform and opening, stresses to carry out the study and education of socialist core value system, to lead the socialist core value system as social thought, social cohesion and consensus. Mr. Fei Xiaotong in 1997 first proposed that in response to the trend of global integration, we should emphasize cultural consciousness. To strengthen the reflection on morality, we should note that moral consciousness was not only an important part of cultural consciousness, but also the first issue of basic research. Currently, according to the data of CNKI up to 2013, more and more papers focused on moral consciousness research. Since 1983 Chinese scholars have been studying on moral consciousness, which is basically consistent with China's reform and opening up. They mainly explained the current situation of social and moral changes with their academic sensitivity. Until 2000 the research on this area increases very slowly. Only 4 papers each year

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on average chose moral consciousness as their main topics. Recently, especially after 2007, there were about 10 or more papers focused on moral consciousness and the number is increasing every year. Moral consciousness is gradually valued by academic research. Research groups and core authors have been come into being. Study subjects began to be diversified and research methods are also more suitable for research in this field.

2 Definition of Moral Consciousness and its Function

To discuss the issue of moral consciousness, we must firstly define moral consciousness, clarify the evolution of the conception, its meaning and content, which is also the start point for moral consciousness research.

Morality was accompanied by human generation. There were rich researches on ethical thoughts in ancient China. Kant often mixed ethic and morality and there was a clear separation between ethic and morality by Hegel. He believes that ethics are absolute objective idea, but mainly in the subjective moral aspect. According to Hegel, morality primarily includes your own subjective reflection, your own faith and universal reason to follow the will of decision, or universal obligation. According to Marx and Engels, they clearly attributed the morality to ideology. With the development of times, the word morality is generally used in social ideology. From the nature of the provisions, the so-called morality is the human reality, determined by economic relations with criteria to evaluate good and evil, relying on public opinion, inner conviction and traditional practices to maintain a type of social phenomenon. We believe that it is biased simply mixing morality with ideology. Morality should include not only the ideological level of thinking, understanding of spirit, but also the achievement of ethical behavior of moral subjects including individuals, ethical groups and system.

On the other hand, in Chinese the term consciousness comes from The Analects of Confucius. According to Confucian, freedom, spontaneity and repeatability are the basic feature of our daily life embodying empiricism, inertia of common sense thinking and dominated by lust, instinct, kinship, clan and other natural emotions. With respect to spontaneity, consciousness represents the inner self-discovery, self-liberation and external innovation. Consciousness should go beyond thinking on creative behavior. Therefore, consciousness, from the point of view of ideological and political education, is the reflection of people's mental state and behavior state.

In summary, we can conclude that, moral consciousness means self-awareness, self-reflection, self-creating and self-enforcement including morality and conscious purposes. Thus, moral consciousness has functions of cognitive, education, evaluation and regulation, which can promote the individual initiative to understand the law of moral life, standard practice in moral life and the initiative to understand themselves, their own sense of family to others, to social responsibility and obligation to the country. It could help people to educate themselves, to establish a correct duty, honor, justice and happiness and other conceptions, to cultivate good moral consciousness, moral and ethical behavior, to become a moral purity, ideal noble person, to enhance the force of moral judgment of social members, to evaluate the reality, to form a huge social force and people's inner strength of will, to help people to adjust their behavior according to socially accepted moral standards timely, to guide and correct people's behavior, to regulate the relationship of people, nature and society and to promote social improvement and harmony.

3 Strategic Importance of Cultivating Moral Consciousness

Morality is non-mandatory and can only rely on people's consciousness and public opinion. To cultivate a high degree of moral consciousness is an important task of ideological and political education and a positive respond to the ideological and political education of social reality. Only through cultivating people's moral consciousness could promote the comprehensive development of a person, the social harmony and stability and the long civilization of the world.

3.1 An inevitable requirement of moral subject development

The morality distinguish human from animal. From the relations of morality and human, the main purpose of moral study is to investigate the essential characteristics of human activities and the relevant provisions. The moral consciousness is human consciousness and the moral consciousness is the need of people as a moral subject of development. President Xi Jinping in 2009 ever stressed the need to strengthen the moral training of young cadres, to guide them to cherish personality, reputation and image, to enhance sense of moral responsibility and courage them to be responsible for the force entrants, courtesy and honesty, law-abiding pioneer and leader of life decent, fun and healthy. To

cultivate high degree of moral consciousness, it will promote the socialist core value system to deeply root in people's heart and to improve the quality and degree of social civilization and civilized citizens significantly.

Construction of moral consciousness is a prerequisite of good moral character, which means that an individual's moral quality will manifest the moral stability and tendency. They are habits of certain social forces in accordance with the will of choosing according to the formation of social ethics. To have high moral quality, we must cultivate a high degree of moral consciousness. How to nurture civic consciousness of socialist morality so that people could realize the relationship, the developing mode and activities of their own, of others, of the community, of the nature is the most fundamental moral personality issue. Then people could stick with ethical behavior, overcome the moral blind, build moral feeling, clarify moral confusion, enhance moral judgments, rectify moral redress from the strengthening of moral internalization, promote the ethical practice of knowing and doing, and develop moral habits.

Moral consciousness is the cornerstone of human spiritual world. The human spiritual world refers to the sum of knowledge, feelings, consciousness and other states displayed in the process of transforming the subjective world. Moral consciousness is the most concentrated expressing of knowledge, emotion and basic consciousness in the spiritual world. Moral consciousness needs to achieve rational moral awareness, persistent pursuit of moral and ethical behavior. It helps people to form a rational and social psychology, to establish a correct outlook on life, values, and unswervingly to uplift spirit for the building of a modern socialist country with Chinese characteristics common ideal and the realization of communism conviction.

Moral consciousness promotes the comprehensive development of people. Marxism, from the analysis in the relations between real people and real production, points out that a comprehensive human development is people's fully physical, intellectual, free and harmonious development. Moral freedom is the basis of freedom and free-hearted owner. In the process of achieving moral consciousness, by understanding their own moral and ethical conduct through proper reflection, evaluation, selection, practice, it will help to promote human comprehensive sustainable development by improving people's self-awareness, sound mind, analytical skills and intellectual level.

3.2 Exploration of deepening moral education

Moral education is the foundation of ideological and political education and we must actively respond to major theoretical and practical issues of economic and social development. Moral consciousness provides a new start point for proposing the deepening research on moral education. Cultivation of moral consciousness requires us to effectively reflect moral education, to reinterpret fundamental purpose, content carrier, modes and methods of moral education, to promote the development of moral education research from the perspective of cultivating moral consciousness.

Cultivation of moral consciousness is to adapt the new changing requirements of moral education elements. The current status of moral reality shows the mismatch phenomenon of China's moral education and raises a higher requirement for moral education. Education should not just instill some moral knowledge. Main object relations of moral education, content, methods and means all must be innovated. People's increasing awareness of equality challenged the authority of previous educators. It is an equal relationship between the educator and the educated. Moral confusions, decision-making complexity of people's behavior and choice, call for a wide range of forms and methods of moral education. This requires that the educators' main task is to guide and promote the active participation of the educated to moral education process in order to be inspired by educators' moral consciousness.

Cultivating moral consciousness is the response of enhancement of the timeliness of moral education. With the intense social change, everyday moral event undoubtedly provides the best material for moral education. The speed and frequency of social moral events increase the timeliness and effectiveness of moral education. Moral education is the main object of moral development. The purpose of moral education is to help the moral subjects to form correct moral and ethical values and behaviors, and consciously resist the erosion of bad moral thought accordingly. Moral education itself persuades and influences the contents and the implementation of moral education, which evoke the inner moral consciousness of the people.

3.3 Strategic needs of continued social progress

Morality is a basic consensus and spirit of the bottom line for a heritage, healthy and harmonious society. As a social ideology close to economic basis, moral status reflects the social and economic changes. To cultivate moral consciousness, we must base on lively social reality and social life, and strongly respond to new situations and new problems, new features and new trends that occur in social development process.

Moral consciousness research can promote the creation of a harmonious and orderly society. Morality is essential to maintain social ties. Building socialist harmonious society is not to eliminate social conflicts, but to contain and resolve social conflicts. Xi Jinping pointed out that when interests were coordinated, thoughts were rationalized, social development could be obtained in a timely manner to resolve the instability. Various conflicts could be effectively groomed and social harmony would have a solid foundation. Thus, in-depth, comprehensive, systematic study of moral consciousness is an important way to achieve social consensus, to enhance social forces, promote and deepen social construction so as to ensure the healthy social operation and social harmony.

Moral consciousness will promote the implication of virtue strategies. Marxism, combined with the rule of law and by virtue, is the basic principles and theoretical achievements in China. The right thought grasped by the masses will become the material force to transform the society and the world. Only by correctly solving ideas, views, position issues could stimulate people's enthusiasm for socialism and fundamentally promote and ensure the party's program and course implementation. Morality requires systematic and comprehensive study of moral consciousness. Global communication in the event of Western morality under modern context, through a variety of moral reflection, scientific understanding of the essence of morality, could correctly help to understand ethical standards, to promote socialist morality and socialist core values, to adhere the route of socialism with Chinese characteristics, to build a moderately prosperous society and a democratic, civilized and harmonious modern socialist country with great practical significance.

Moral consciousness research will drive overall sustainable development of society. Morality coordinates the relations of people, between people and society, between nation and state, between people and nature. In the long run, studying on moral consciousness not only relates to the spiritual civilization, but also the material civilization; not only relates to the current social development, but also the sustainable development of society. In all aspects of economic construction, political construction, cultural construction, social construction and ecological civilization construction, cultivating people's moral consciousness will help people to create a good family formation, career, civic and moral quality, to improve market economy, science and technology, ecology, moral status of the network and other areas, to achieve a comprehensive coordinated sustainable development of human society. It has a worldwide significance.

4 Principles of Cultivating Moral Consciousness

To cultivate a high degree of moral consciousness, we must aim to foster self-esteem, rational calm and positive social attitude. It plays a basic role in rejuvenating the culture, enhancing the international influence of national moral and cultural values, achieving the great rejuvenation of the Chinese nation. At this level, moral consciousness seriously answered exactly what we should have as a fashion and spirit, and should be able to open the way to foster such moral. In the new era of Socialist members of nurturing moral consciousness of society, we must overcome the experience of westernized, mysterious blur of generalization and so indiscriminate tendency to stick with Chinese characteristics, focus on the pursuit of value, continuous innovation and attention to applicable compatible with a degree in principle.

4.1 Be with Chinese characteristics

To cultivate moral consciousness with Chinese characteristics, the process must be on the moral development of innovation and in the future it must have a full understanding, in particular it must strengthen the ethical standards of Chinese civilization changes in education, understand the Chinese moral tradition, cherish national culture and moral traditions. The time dimension has also cultivated moral consciousness. Different ages have different moral standards. Only understand Chinese modern era of moral development can we value in line with the present individual pursuit of morality and in the internal point of self-awareness, self-reflection, self-perception, the foreign viewpoint of social and moral self-awareness, self-evaluation. The need to make the final approval from the heart of Honor and Disgrace in the current era, strengthens social morality, professional ethics and family virtues and individual moral character.

To cultivate moral consciousness with Chinese characteristics, we must co-exist in a world of various different morals, recognize and establish our own moral positions, which have a spatial dimension of moral consciousness. Different countries have different moral values. Morality ultimately belongs to the category of ideology, and is determined by certain economic basis of society, and serves to a certain degree of social and economic infrastructure and services. To achieve moral consciousness,

we must first understand the multicultural world in different moralities. Western modernity as instrumental rationality considers morality as ethics of post-modernism, freedom law, which is different from that of East Asian countries that are similar in common Confucian cultural background. The difference is the objective reality of social existence, diverse social development and inevitable trend. We should respect differences, respect the masses on ideology, values differences; allow diversity to establish symbiotic diversity. Ideological and cultural diversity in the field of human society is a normal state. A variety of social thought promoting the emancipation of the mind inspire the vitality of the community; promote innovation theory, science and technology, culture and other aspects. Only initiatively understanding the various ethics could we have confidence to confirm the position of moral standards with Chinese characteristics in line with China's actual identity of the socialist ethical standards through autonomous adaptation, innovation and courage. It's also good to learn all the outstanding achievements of civilization created by mankind, to learn the spirit of having his country's moral standards in universal values to achieve moral self-confidence on the basis of moral consciousness, moral self-improvement, to enhance the international influence of national moral and cultural values.

4.2 Concern the pursuit of value

Marxism has always stressed that the status of human subjectivity in understanding and practice in activities. To cultivate moral consciousness, we must reflect the intrinsic value of the pursuit. To comprehensively improve the quality of civic morality is the basic task of socialist moral construction. To promote civic morality, we must cultivate a high degree of moral consciousness. To cultivate moral consciousness is the essence of our lives guiding individual's self-awakening, self-reflection, self-creating, pro-active moral reflection and improving personal moral consciousness as people implementing outstanding ethical behavior habits rather than passive behavior in line with regulatory requirements.

The 18th party congress put forward the strategic goal of socialism with Chinese characteristics, that is, in the centenary of its founding, building a moderately prosperous society; at the time of the founding of the centenary, becoming a prosperous, powerful, democratic, civilized and harmonious modern socialist country. Cultivation of moral consciousness requires us to consciously respond to the times, through a five in one process building in all areas to build various aspects of moral consciousness including: to provide value to coordinate economic development, to specify ethics direction; to expand scientific and technological development of moral criticism and ethical reflection; to analysis narrow human anatomy center stance, to participate in the construction of ecological civilization, to advocate environment-friendly, ecological principle of fairness.

To cultivate moral consciousness, we must actively respond to the real hot events such as series of successful best case advocated by the network, moral hazard events causing great social debate. We must study the effects of these phenomena on social individuals; analyze the root causes of the initiative to guide people to the social phenomenon of moral understanding, evaluation, reflection, purpose and to plan socialist core values to go through people's daily lives, to highlight the good and the beautiful.

4.3 Continuously innovate and be compatible

To cultivate moral consciousness, we must face different moral values. To strengthen the moral self-confidence such as believing in and sticking to our own moral and cultural superiority and superior in comparison, we must put our efforts to strengthen the socialist concept of honor as the core of moral consciousness. In comparing openness and tolerance, constructive dialogue, absorbing, focusing on cultivating moral consciousness means of modernization, we must understand a language accepted by the world socialist core moral concise. In comparison with the times, we must break the insularity of private position, independent innovation, theoretical innovation and maintain inexhaustible momentum.

We must pay attention to cultivate moral consciousness implicit methods. Cultivate a high degree of moral consciousness, we should pay attention to the formal, compassionate care and psychological counseling, the practice of habituation. We must deepen the masses to build spiritual civilization, extensive volunteer service; promote learning from Lei Feng activities; learn publicity moral model normalization. Last but not least, we should organize diverse cultural activities and networking, and guide the masses of self-expression, self-education, self-awareness, and consciously resist the adverse impact of value orientation.

4.4 Be applicable

To cultivate moral consciousness, we must prevent the pan moral. Cultivating moral consciousness is thought mainly to adjust the internal of the people, plus the moral relativity of certain properties. Its function is not unlimited. If we exaggerated moral consciousness function, we often got counterproductive. Cultivation of moral consciousness includes to foster individual moral introspection

and external audits on two levels. If we put the moral criticism to the extreme, to the lives of others and carry out any social phenomena pan-moral criticism, it will inevitably lead to confrontation between people, cause people to doubt moral state, increase moral anxiety, undermine social cohesion. If we attribute economic political and legal culture and social issues to the issue of moral consciousness, it will easily lead people to doubt the moral standards, increase pessimism emotional and deepen social alienation.

To cultivate a high degree of moral consciousness, we cannot ignore the importance of the legal rules. Moral consciousness through personal self-reflection, the value of the times to respond to public opinion, individual conscience and other non-coercive power plays an important role; and the law is to ensure the implementation of the national force in order to adjust the behavior of both legal and illegal relations as the basic category, management of social order. Morality and law are parallel regulators of social norms and indispensable. The law is above all the bottom line and is the higher moral standard of social rules. If we exaggerated function of moral consciousness, contrary to the spirit of the rule of law, the rule of law will be stagnated and will result in the constraints of social stability and development.

5 Conclusion

The history of human morality shows that morality develops from naturally and spontaneously to freely and consciously. During the current social transition period in China, there exists some serious problems such as moral anomie and lack of good faith, thus cultivating moral consciousness has become a hot issue both in ideological and political education research. In this paper, according to the definition and their development of morality and consciousness, we redefine the concept of moral consciousness and points out that moral consciousness has functions of cognition, education, evaluation as well as regulatory. It discusses the strategic significances of innovation and cultivating moral consciousness in order to promote human development under socialism, the construction of socialism with Chinese characteristics and the sustainable development of the society as a whole. It also proposes some basic principles in cultivating moral consciousness, including adhering to Chinese characteristics; focusing on the pursuit of value and continuous innovation and compatibility; paying attention to its application and so on.

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Research on Management Innovation of Talents Introduction in Colleges

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Abstract: In recent years, colleges develop dramatically and talents introduction becomes a significant part. This paper aims to offer some advises on preceding investigation and posterior supervision based on the existing problems in talents introduction, and conclude that talents introduction should be beneficial to colleges progress, echelon building of talents and disciplinary development, to find a series of new methods of talents assessment and management.

Key words: Talents introduction; Management innovation; Investigation; Colleges

1 Introduction

21st century is a time when talents compete intensely. For colleges, discipline is laying the foundation but talents are playing the key part, that is, the quality and quantity of talents decide colleges' comprehensive strength and prospect. According to the demand of teaching and scientific research, teachers are introduced or hired, becoming the important part of faculty building. For the past few years, talents introduction in colleges develops well in both quality and quantity. On one hand, fresh blood is injected in faculty, improving the problems lying in education background, professional title and age and also bringing different teaching theory, on the other hand, there are some defects in management, such as defective hiring formalities and unsound assessment and motivation mechanism, which influence the effects of talents introduction. Starting from solving these problems, this paper discusses how to introduce talents and perfect the management.

2 Background

2.1 No scientific assessment and rational programming

There are no scientific forecast to talents demand and assessment to talents introduction, making the talents unable to develop their wisdom and intelligence, kind of a waste for colleges. Generally speaking, talents who have good background and high professional title are preferable without being assessed on their practical teaching and scientific research. On no basis of academic progress and faculty construction will make the talents introduction blind and short-sighted, squandering human resources and preventing the colleges' overall aims from being realized.

2.2 No favorable environment to retain talents

Talents value much the working environment of the college, including respect on their givings, good working conditions and liberal academic space. In fact, all of these factors are affecting their working enthusiasm. Firstly, preferential treatment is a blank check, big gap with the promises in introduction, resulting in the distrust to colleges. Secondly, colleges haven't dealt with the relations between talents, who have great difficulty in college identification because of the unbalanced state of mind. Thirdly, the defective recruitment mechanism and competition system prevent them from initiating their intelligence.

2.3 No talents introduction cost accounting and lower benefit

The cost includes manpower, material resources and financial resources and talents with high-quality are the goal or the benefits. Strong sense of benefits must be built for talents introduction is human resource development. In fact, because of no cost accounting and irrational recruitment process, all of the cost waste for nothing.

3 Management Innovation

3.1 Multi-channel recruitment process innovation

Recruiting is the premise and primary step, from position analysis, condition analysis, recruitment in formation release to talents assessment.

3.1.1 Scientific planning attracts talents

The plan is the basis and attached to the overall layout of the colleges. There are 4 principles: first, following the scientific development perspective; second, working things selectively; third, building discipline echelon personnel; fourth, systematical analysis on position demands. For talents introduction,

formulating the plan should associate with the discipline building, defining the faculty construction and analyzing the status of talent team. Accordingly, the talents introduction principles should be made out of actual needs.

3.1.2 Making full use of modern communication means to release information

More publicity means good advertisement on the colleges and wide social influence. Releasing information on careers fairs or internet improve publicity and using media reports broaden introduction channel to academies and all social sectors.

3.1.3 Exploring the new introduction approach

The competitive talents development situation asks for innovation and new forms in bringing in talents. Flexibility in talents introduction is attached much importance, for example, hiring adjunct professors, relieving the talents shortage of colleges in inferior position and discipline. Thus, this approach enhances the competitive strength of colleges, lowers the cost and promotes the social talent resource sharing .

3.1.4 Improving talents assessment and investigation

Upon talents introduction, colleges should make profound investigation and assessment accordingly under the supervision of sophisticated administrators in functional department and professional teaching supervisors. Through trial lecture, he or she will be evaluated on the specialized knowledge, potential in academic research, initiative spirit and team work. Except for that, they will also investigated on their political caliber, professional ethics and personal quality. If necessary, personnel department invite experts and scholars to discuss their academic capability.

3.2 Incentive mechanism and assessment innovation

The management and utilization of talents is another key point in talents introduction, better way to stimulate their enthusiasm and initiative and increase benefits.

According to Maslow, people have 5 kinds of needs: physical needs, safety, social needs, self-esteem, self-actualization needs (as follow).

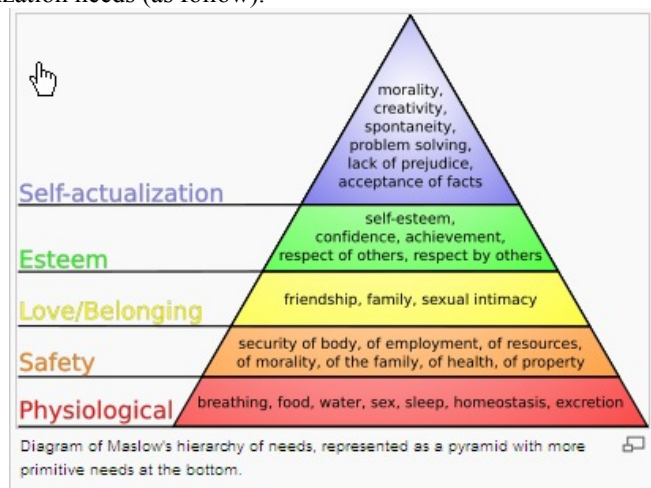


Figure 1 Maslow's Hierarchy of Needs

For teachers, their needs can be featured as prior spiritual needs, strong achievement needs, deep self-esteem needs and spiritually abundant physical needs. All the colleges have formulated preferential policies, such as settling-in allowance, scientific research start-up funding and family members settling-in in order to meet the basic needs of the introduced talents, who have strong achievement motivation and self-fulfillment needs, therefore, it is more important to build a free and lively academic environment and policy conditions for attracting and retaining talents.

3.2.1 Creating favorable working environment

Favorable working environment is beneficial to developing talents potential. Colleges should keep their promise and follow the articles of agreement, offering them settling-in allowance and hardware and software, endowing them some rights for exploring their capability, saving enough space for their assignments, aiding them to handle the relations for fear of the psychological imbalance in those within campus because of the different preferential policies, building liaison system with college authorities so that they can keep in firm touch with high-level talents' opinions and advises and take their needs into consideration and retain them.

3.2.2 Adopting flexible position recruitment system

Based on public recruitment, equal competition and talents first, the system should be formulated on the performance and achievements, fully defining the principles. By means of lower position, higher space and flexible assessment, some genuine talents will stand out, effectively avoiding the defective hierarchy in campus, strongly strengthening the incentive system of equal competition.

3.2.3 Establishing fair and valid performance assessment system

Except for the appropriate performance evaluation, the system should stand on motivating abilities development and career plan according to their abilities and performances. In colleges, professional titles evaluation and employment, administrative duties appointment and dismissal, and internal subsidy allocation are the main management elements of leading role, which are supposed to be strict and standardized for building the performance-oriented, fair competition and aggressive environment, helping them self-actualize with preferential allocation, financial support in research and understanding in mentality.

3.2.4 Stress on talents cultivation and rational flow

With the rapid development of discipline and updating of the knowledge, talents are also in great need of updating their knowledge. Meantime, objectively speaking, talents rational flow is helpful for human resources efficient allocation in universities and to the utmost extent exploiting their potential, appreciating the whole social human resources.

4 Conclusion

Talents introduction is the first step of human resource management and the key issue of colleges progress. Only through management innovation and higher benefits of talents introduction will colleges win in the talents competition. The development of modern times requires the colleges to be bound to explore all kinds of methods, improve related policies, make deep reform, and build personnel management system under socialist market economy. Forming fairly competitive, standardized and scientifically efficient talents introduction mechanism is going to refuel the construction of colleges and the development of higher education.

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Research on Development Path of High-Tech Industries in University Town

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Abstract: The University Town (UT) is targeted for the city in which a multitude of universities are located. With the development of modern society, universities have gradually transformed from single-purpose academic organizations to multi-purpose unions of scientific research and development, achievement transformation and incubation, enterprise consulting, training, etc. The transformation of universities also accelerates the development of high-tech industries. This paper elaborates the development path selection of high-tech industries in UT from three aspects: successful cases, institutional innovation and development trends.

Key words: University town; High-tech industries; City functions; High-tech development parks

1 Introduction

With the rapid development of modern cities, re-innovation becomes the dominant impetus factor for economic development. Thus, universities inevitably become the main force source of scientific innovation. The establishing of UT strengthens the relationship between universities and the economic development in cities, and makes universities become the core organization and impulse for the city development. For this reason, the establishing of UT can rebuild traditional industries through the innovation in knowledge, science and technology. Further, emerging industry in UT can be developed for the demand of society and guiding consumption by high-tech means. Thus, the transformation and upgrading of the industrial structure in UT can be accelerated. The pattern and quality of economic development can be transformed and improved respectively, and then the target of industrial development can be achieved.

2 Analysis of High-Tech Industries' Development Path

Because UT is the knowledge intensive region, the motive power of UT is included by knowledge innovation and scientific research. Advanced science and technology are widely required not only as a support for openness, sociability, marketization and industrialization of UT, but also for developing the ideas of cultural and innovative engineering to upgrade the industries. In the situation of new economy, the trend shows that technical innovation and knowledge innovation obviously interweave. The preceding steps of technical innovation extend into the procedure of scientific transformation. Meanwhile, knowledge innovation extends into the field in which scientific knowledge is transformed into productivity. In sum, the establish of UT offers the cities more industrial support and plays more and more important role in the improvement of industries in the city and the fostering of new economic growth. The primary architecture of the research is depicted in Figure 1.

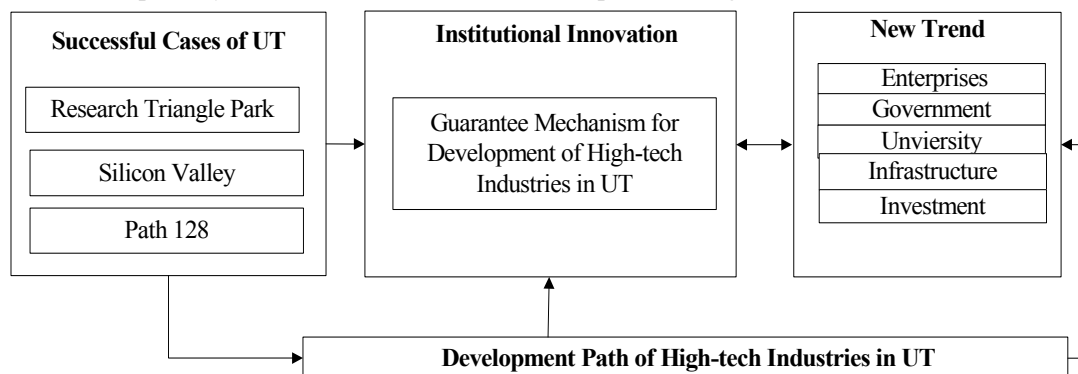


Figure 1 Primary Architecture of Development Path of High-Tech Industries in UT

2.1 Successful cases in USA

- 1) A paragon of the collaboration among government, business and academia

The Research Triangle Park (RTP) is located at the geographic central area among Durham, Chapel Hill and Raleigh in North Carolina USA. Duke University (Durham), University of North Carolina (Chapel Hill), North Carolina State University (Raleigh) and a number of community colleges are located around RTP. Therefore, RTP is also the geographic center of the three famous universities, which is the origin of the name of RTP. RTP first establishes in 1959 and initiates by academic, industrial and commercial circles. RTP betakes itself to attracting high-tech research and development organizations which have world class and greatly promising, and offers necessary services for the initial and elementary stage of the industrialization of the organizations. The management and operation organization of RTP is the Research Triangle Foundation mainly originated by Duke University, University of North Carolina and North Carolina State University. Since the establishment of RTP, the three universities have become its strong backup based on which market opportunities, research and development systems and the quality of talent are accumulated. Consequently, RTP has become a paradise of scientists, engineers, entrepreneurs, companies and organizations. It also has become a paragon of the collaboration among government, business and academia in the development of worldwide high-tech industries.

2) The Miracle of Silicon Valley and Path 128

In USA, there are two areas where high-tech industries are densely located with higher level and larger scale than RTP. The one is Silicon Valley in California with Stanford University, UC Berkeley, California State University and the California Community College System. The other one is the Path 128 zone with a number of famous universities such as Harvard University, MIT, etc. in the Boston area. Without exception, technology talent and high-tech industries zones are established around universities in these regions. Moreover, the collaboration between regions and universities strengthens the universities' function of supporting high-tech industries. As a result, the development of the cities and regions are pushed forward. For example, the Stanford Research Park is also one of the earliest high-tech industries zones in USA, and has become a significant form and approach of the collaboration between Stanford University and the high-tech enterprises in the region. Meanwhile, other state universities and community colleges play a greatly important role in technical training. Saying without exaggeration, the new economy of the United States are derived from these universities and the zones where high-tech industries are densely located.

2.2 Institutional innovation: guarantee mechanism for development of High-Tech industries in UT

In the domestic and international practice of developing high-tech industries, a great deal of exemplary successful experience can be obtained. For example, Silicon Valley, Path 128 zone and RTP are all originated from regional top-rank universities in USA. Top-rank universities and community college systems become the core resource of the technical innovation and training in the development of high-tech industries in cities and regions. Meanwhile, for the purpose of making UT the most important incubation garden for the development of high-tech industries, municipal functionality innovation should also be pushed forward. It is an important innovative features that UT becomes the technological innovation center of high-tech industry of city. In addition, the market-oriented association and cooperation between university-based academic institutions, the business community and the government shows great effects. Therefore, it has become an important model that promoting the development pattern transformation of the UT to upgrade the industrial structure by the cooperation of the government, business and universities and research institutions. And for the innovative features of UT as the incubator for high-tech industries, the system and environmental innovation that suitable for the high-tech industry is the basis.

From the city and high-tech industry development, the high-tech parks or similar business parks has been becoming an important driving force for the development of UT since the early 1990s. A variety of high-tech industries and service organizations such as high-tech parks, college students entrepreneurship parks and returned overseas business services Parks has been established at present. In fact, Beijing, Shanghai, Guangzhou, Wuhan, Nanjing, Xi'an, Chongqing and other large & medium-size cities have intensive universities and research institutions, which is a significant feature of UT to realize the innovation of high-tech cities. However, these UT do not give full play to its advantages. And people always emphasize the gap of high-tech between China and developed countries, but they ignore the mechanism defect. Therefore, the key of interactive development between high-tech of UT and city is the innovation of urban functions, which forms a complete set of high-tech innovation, market adaptation and industrialization mechanism. For high-tech industrial parks and business parks, the most important thing is not to lead the venture capital firms, grasping the project by the government, but firstly to promote the innovative features of city, create the venture capital investment environment that

suitable for high-tech industries, and establish of the comprehensive advantages of city development to promote restructuring and upgrading of city industrial structure.

2.3 New trend of High-Tech industry development of UT

The high-tech industries development of UT needs to make efforts in the following directions at present. First, it should be clarity that the main body of innovation is enterprises, and the positive interaction between enterprises and universities should be established. Through the establishment of an effective mechanism of Industry-Academy-Research, the investment (venture capital, etc.) on the university and research institutions will play skillfully deflected role. Second, the infrastructure for high-tech transformation should be established, such as incubators and pilot base. If UT wants to foster technology companies have independent intellectual property rights, it is necessary to build the high-tech development parks (Science Park, Innovation Center), which will provide a suitable hardware and software environment for startup of original technological feats, and not just stay in the traditional patterns. The growth of private small and medium technology enterprises should be concerned, which are the most effective way for high-tech incubators. Third, the establishment of multi-level and multi-channel technology investment and financing system should be developed to increase R&D funding. In addition to raise R&D funding by enterprises themselves, the external funding also should be fully utilized. The pluralistic financing system by government, enterprises, financial institutions, individuals and foreign investment should be established. UT should actively create a favorable external venture investment environment for the industrialization of high-tech, improve the standard market system for the venture investment and guide the multi-channel, multi-level investment for high-tech industries.

3 Conclusion

UT can transform traditional industries by the innovation of science and technology, develop emerging industries making use of high technology that required by social development and consumer demand, transform and upgrade the industrial structure as soon as possible. Then, the economic development mode and the quality of economic can be improved to realize city industrial development target, thus the virtuous development of economic, social culture and ecology will be promoted. The successful cases of high-tech industry by UT in United States-USA "triangle" Science and Technology Park, the "Silicon Valley" and "Path 128" miracle, are the high-tech industry collaboration model of the government-business-academia in the world. America's new economy is basically generated in these universities and high-tech industry-intensive region.

The key for UT to achieve high-tech and interactive development of the city is the innovation of city functions, which forms a complete set mechanisms of high-tech innovation, market and industrialization. It creates a good venture capital investments environment for the development of high-tech industries, establishes the comprehensive advantages of city development.

The high-tech industries of UT need to make efforts in the following directions at present. First, it should be clarity that the main body of innovation is enterprises, and the positive interaction between enterprises and universities should be established. Second, the infrastructure for high-tech transformation should be established, such as incubators and pilot base. Third, the establishment of multi-level and multi-channel technology investment and financing system to increase R&D funding.

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Design and Implementation of Large Instrument Platform of Wuhan University of Technology

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Abstract: It is a powerful mean to construct a sharing platform for large-scale instruments and equipment in universities, which is able to use limited resources effectively and efficiently. This paper mainly presents the design goal, design principle, and multi-function of sharing platform in Wuhan University of Technology. It has made the transition from traditional manual management to network information management possible, as well as provided the detailed scientific basis for effective macro-management, construction and development in labs. It will also provide a unique hands-on experience of using the construction experience of each modular and the reserved interface to satisfy individual requirements for constructing the sharing platforms in any other field.

Key words: Large-scale instruments; Sharing platform; Practice; Multi-level management system

1 Introduction

In recent years, the government raises investments in the field of scientific research of universities^[1]. Currently the number of large-scale instruments is increasing, but the existing instruments didn't fully play their roles^[2]. Some departments of government and universities are actively exploring the construction and innovation of the opening and sharing mechanism and promoting the construction of instrument resources developing and sharing system to make use of resource integration, development and sharing^[3-4]. Many universities have developed sustainable research and innovation for large-scale instruments opening and sharing, and it has formed a series of effective policies and measures^[5]. The construction of sharing platform can bring a lot of benefits to universities, such as taking advantage of large-scale instrument resources, achieving high quality resource sharing, increasing instruments using efficiency, and playing more important role in education, scientific research and innovation in the future^[6]. Many universities have successively launched construction of large-scale instrument sharing platform. But many platforms only provide the function of information consultation and online reserve, but the deep test service and standard management procedures have not been finished. Only the combination of most advanced instruments and management concept can create first-class academic research environment and train up first-class talents^[7-8]. By the end of 2013, Wuhan University of Technology has established large-scale instruments opening and sharing platform which possesses instruments management, lab management and metrological certification. This paper mainly introduces the software function of the platform.

2 System Design Goal and Principle

2.1 Design goal

The design goal of this system is to establish an intelligent management system, which combines the software with the hardware, possesses excellent compatibility and has a strong scalability. As a management core of the whole centre, the system will have the functions of information disclosure, user authorization, user records, reservation and charge, environment monitor, statistics report forms, etc. It will not only provide convenient and fast service for users but also offer paperless easy-operated management environment for administrators, so the public lab resource can be used fully and economically.

2.2 Design principles

System design reflects the following principles:

1) The advancement principle; 2) The economy principle; 3) The stability principle; 4) The scalability principle; 5) The safety principle; 6) The openness principle; 7) The usability principle.

3 System Constitution

The system combined the management system with hardware equipment. The management system includes authorization system, multi-level user authority management system, multi-level instruments

authority management system, equipment management/ booking/ using system, charging system, file sharing system and report and results management system. The hardware includes power supply controller and IC card.

4 Multi-layer Function Structure

4.1 Client authorization system

As the core of the whole platform, client authorization system adopts centralized authentication strategy based on network. Clients can freely log into the platform and visit allowed resources at any time and place.

4.1.1 Multi-level authorization

This system can be designed to flexibly define the permissions of the administrators and users. For example, the instrument management platform can be divided into several sub-platforms, such as facility office administrator, school administrator, department/ institute administrator, instruments administrator, laboratory manager, etc.

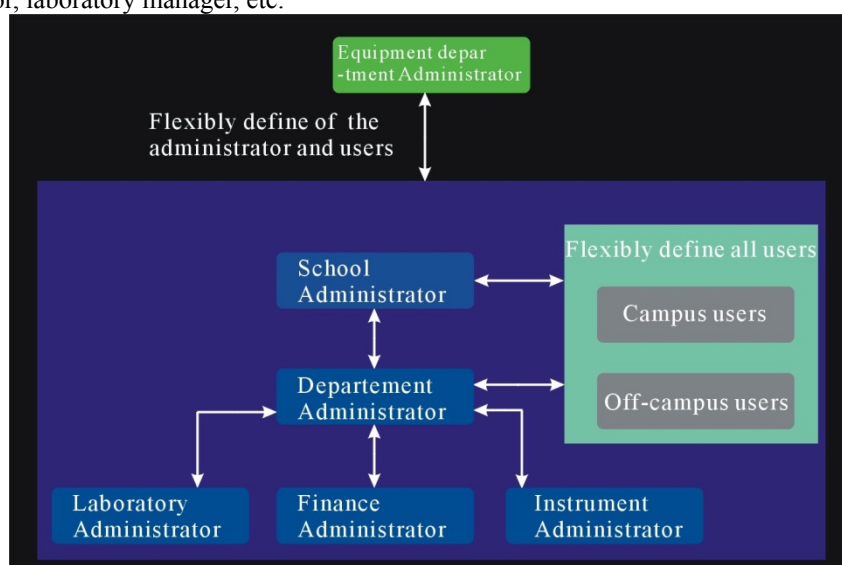


Figure 1 Multi-level Management Design

Ordinary users need to register and apply to administrator to activate the account.

Equipment administrators are in charge of instrument routine maintenance, including training users, setting various restrictions on instrument reservations, checking fees, uploading data, and etc.

Financial managers are responsible for managing finance such as charge and recharge.

Other administrator authorities are distributed by departments depending on the situation, which could activate new user accounts, manage blacklists, release instrument information, and set instrument opening.

Top administrator has the highest authority. According to different situations, one can manage authority distribution, monitor equipments' operation, usage condition, and charging status, gather the overall equipment performance information, grasp all macro information on equipment operation, and print report forms as necessary.

4.1.2 Appointment/ operation authorization

The system directly restricts user login time and location according to booking/ paying situation. Users can only be verified from a specific computer terminal or card reader, granting them access to use and control the corresponding equipment.

4.2 Equipment management/ booking/ operation system

4.2.1 Equipment management

Information entering: The administrator checks in the instruments' classification, name, model, specification, quantity, value, source, department (section, office), situation, administration, and location. In this way, users can find the relevant equipment information and its usage condition conveniently.

Instrument user standard: Some equipments can only be used after training.

Instrument charging standard: Administrators can set how the usage of device is charged, pay by number of times, operation time, or sample number, and the usage sum per unit.

Blacklist management: Those who had a no-show, didn't pay or used overtime will appear on the blacklist. This will affect their future use of the instruments.

Automatic statistics report: According to the information standard of education ministry, data will be counted and reported. We can query laboratory reported losses, maintenance, and scrapping, as well as usage time and the number of people in use.

4.2.2 Instrument booking/ usage system

The department administrator of instrument can open and close booking time period. Users can schedule equipment usage as easily as using Google Calendar. The booking system will automatically notify the authorization system to confirm and verify users' specified place and time period according to the appointment.

4.3 Charging system

The funds account takes one research group as a unit. Fund managers pay to the finance manager to recharge account. After using the equipment, the charging system will automatically calculate the cost and balance from the account according to both the appointment and actual usage time. Users can check the funds balance and print personal fund usage report. Lab administrator and management department can check the account balance, print fund usage report and instrument charge record report.

4.4 Document sharing system

Document sharing system allows users to visit their file data directly. The system includes lab's users catalogue, lab-in sharing catalogue and platform sharing catalogue. Users can upload and download their required files by directly dragging to the designated place.

4.5 Report forms management system

The system can automatically generate forms. While statistical report is generating, the system can generate real-time statistical data chart, including 1D line chart, histogram and pie charts. These interlocking data can reflect the usage and utilization degree of instrument management system.

4.6 Laboratory monitor system

In order to provide equipments with good working conditions, lab administrator needs to monitor the equipment premises, corridor and laboratory, ensuring their safety. This system uses real-time streaming technology to intercept the monitor screen recorded by web camera, so that the lab administrator can monitor the lab in real time and acknowledge its condition.



Figure 2 The Picture of Monitoring Equipment

5 The Implementation Effect

The platform has run for nearly a year and reflected the following actual effects:

- 1) Integrated experiment resources, avoided repeated purchase, coordinated and unified managing equipment and personnel, obtained maximum benefit.
- 2) Shared instrument information, made it easy to open and query for public, benefited to developing coordination from both inside and outside of the university.

3) Achieved entire automation management, avoided complex registration procedures, reduced labor cost, tracked the instrument usage state in real time, recorded equipment reservation conditions, financial settlement and instruments fault conditions, improved management efficiency.

4) Collected, gathered and analyzed experiment data information, provided online evaluation feedback of the test results timely, generated statistical reports automatically. Lightened the burdens of the administrators and improved work efficiency.

5) Had the function to upload the references, documents, records and other experimental resources of users to sharing files for obtaining more reliable data.

6) Set up the automatic payment system regulated the standards and methods of payment promoted sharing platform into a virtuous cycle.

7) Combined software and hardware without modifying the instruments saved cost and increased economic & social benefits.

6 Conclusion

It is very important to construct a unique sharing platform in Wuhan University of Technology, which can provide the detailed scientific basis for effective macro-management, construction and development in labs, improve the level of teaching and scientific research, promote the crossing and integration between different disciplines and strengthen the cultivation of innovative talents as well. We believe that, the sharing platform will play a major role in the development of science and technology and economic construction of China in the future.

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Study on the Collaborative Innovation of Art-Originated Production*

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Abstract: Based on the economic evolution perspective in *Das Kapital*, the characteristic features of creation-oriented industries and the features of their industry parks are analyzed. It can be concluded that the division of labor is the basis for the change of production mode; and that collaborative innovation is the premise for the assembling of creative industries. As an aggregation of industries, cultural parks or art zones is a new mode of development, where various resources (such as enterprises, universities, research institutes, government agencies, intermediary organizations, etc.), through function division, target orientation, integration and optimization, can share their resources, complement each other with their advantages, cut their costs and share their profits, thus leading to the 1+1>2 collaborative innovation effect and scale economy effect.

Key words: Creative industries; Collaborative innovation; Scale economy; Art creation

1 Introduction

From a micro perspective, the art-creation-originated industry belongs to art industry, and it is a cultural industry from a macro perspective. Nowadays, both the art industry and cultural industry have entered an unprecedented development phase and they're developing at a speed faster than ever before. Because of the innate embeddedness and versatility of art and culture, many governments construct industry parks to foster, develop and expand the art industry. Generally speaking, the construction of cultural parks and art zones have to experience the following phases: the infrastructure preparation, the rebuilt of old architectures, the repairing and restoring of cultural relics, the construction of value links, etc. And meanwhile they have to adapt themselves to the development trend of technicalization and clustering development. However, compared with the construction practice of industry parks, the theoretical studies of cultural parks and art parks are slightly falling behind. This is especially true with the vague concept of parks, which leads to the divergence concerning what criteria to abide by in the construction and planning process, how to manage them according to different categories, etc. All this constitutes a serious obstacle for the development of art parks. Therefore, it's necessary and urgent to clarify the concepts and categories of art parks and only in this way can correspondent construction criteria and innovation system be built.

2 The Concepts and Categories of Parks Originated from Art Creation

What is art industry? And what is cultural industry? Scholars' answers to these questions are different. The most representative answer comes from Professor Justin O'Connor who's from the University of Manchester in Britain. He has not only defined the concept and scope of cultural industry, but also elaborated the relationship between cultural industry and art industry. According to him, cultural industry not only includes the traditional industries such as the radio industry, the television industry, the publishing industry, the recording industry, the design industry, the architecture industry, the new media industry and so on, it also embraces the art industry such as the visual art, handicraft, theater, music hall, concerts, performances, museums, art galleries and so on, for these industries mainly deal with symbolic commodities and their economic value mainly comes from their cultural values. The official definition of cultural industry also varies from country to country. Germany, South Korea and France defines cultural industry as "replicable industry"; Japan and U.S. vividly address it as "content industry" or "copyright industry"; while Britain from a brand-new perspective calls it "creative industry". In 1998, *British Creative Industries Mapping Documents* points out that the enterprises that gain their

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development from individuals' creation, skills and talents, and the activities that create potential wealth and employment opportunities through the exploration of copyrights, can all be called creative industries. They cover 13 professions — advertising, architecture, art and antique transaction, arts and crafts, design, fashion, television broadcasting, leisure software, music, performing arts, publishing and software. Then, UNESCO combines “cultural industry” and “creative industry” into “cultural creative industry”, explaining that “the series of activities involving the production, reproduction, storage and distribution of cultural products and services are according to industrial standards”.

Since 2003, China set up the "Statistics Research Group of Cultural industries", led by the National Bureau of Statistics, and supported by the Ministry of Culture, Administration of Radio, Press and Publication Administration, the State Cultural Relics Bureau and other units. The group believes that the activities that involve providing the public with culture, entertainment products and services, and all other activities that are relevant to them, can all be classified into “cultural and its relevant industries”. Accordingly, the National Bureau of Statistics released *Culture and the Classification of its Related Industries* in 2004, and it classifies eighty industries in the *National Economic Industry Classification* (GB/T4754—2002) into nine categories, which are 1. News services; 2. publishing and copyright services; 3. radio, television, film services; 4. arts and cultural services; 5. cyber culture services; 6. cultural entertainment services; 7. other cultural services; 8. the production of cultural commodities, equipment and other related products; 9. the sales of cultural commodities, equipment and other related products, etc. On the basis of this, *Culture and the Classification of its Related Industries* was revised in 2012. Culture and its related industries are classified into four categories, which are 1. production activities involving the creation, manufacture, distribution, and exhibition of cultural products(including goods and services) which take culture as their core content and proceed for the purpose of meeting people’s spiritual needs; 2. the assisting production activities that are necessary for the production of cultural products; 3. the production activities(including manufacture and sale) of cultural products which serve as physical carriers or manufacture tools(application, distribution, display tools); 4. the production activities(including manufacture and sale) of specialized equipment that are necessary for the production of cultural products. Here, the production of “cultural products which take culture as their core content” is put in the first place because the industrial feature of “content as the king” and its implied value demand have to be emphasized. This is because both cultural career and cultural industry are based on creativity as a fundamental means and meet people's spiritual consumption through the production of products. In turn, the consumption vitality of products will spur the production of products. Just as Marx claims “Production is just consumption, and consumption is just production. Each party is its counterpart. Yet there is a medium between the two.” The direct impact of the medium is organizational design and institutional arrangements. Cultural parks or art zones is just such a design and arrangement that has collective function and aggregate effect, thus forming a management and control mode that can efficiently arrange and integrate the resources in the specific area.

So far, according to the different approaches to arrange and integrate resources, art zones can be classified into the following four types: creative art type; the combination of production, study and research type; cultural entertainment type; integrated type.

First, the creative art type takes original products as its core and is based on creative design. Through the joint development of cultural products by creation, design, performing arts, videos and audios, publishing and so on, a highly-industrialized supply chain is formed. For example, the most renowned Beijing "798" Dashanzi Art District in China was once regarded as one of the world's 22 most culturally iconic art centers in urban areas. The combination of production, study and research type mainly relies on universities and focuses on research and development, forming characteristic yet inimitable manufacturing clusters. The Tanhualin Art Village in Wuhan is a good example. Hubei Institute of Fine Arts and the unique cultural resources near Tanhualin have offered constant development vitality for it. Compared with the above two types of industry parks, cultural entertainment parks highlight humanitarian advantages and develop a new mode of economics as festival exhibition and tourism consumption. The successive success of “Impression Liu Sanjie”, “Impression the West Lake”, “Everlasting Regret” and “Cosmic Voyage” are some of the examples. The integrated type depends on the power of technology to manifest regional specialties through the assembling of industries. For instance, the Tianjin Happy Economic Special Zone has transferred the music instrument resources of the Jinghai music instrument manufacture industry into cultural capitals, and has constructed a comprehensive industry park that includes the manufacture of music instruments, performing arts and shows, tourism, exhibition transaction, and so on. It has constructed a corporate industry that integrates production, study and research; eating, accommodation and play; tourism,

entertainment and shopping, etc.

3 Synergy in the Combination of Production, Study and Research Parks and Its Theoretical Basis

Marx claims “Many people plans to work together in the same production process or in different yet related production process. This is called synergy.”^[1] In today’s knowledge economy era, “planning to work together” refers to the complementing of resources and interaction of advantages of different disciplines, different industries and different domains. The different disciplines, industries and domains can get what they need, what they’re good at; they can share risks as well as profits; thus constitutes a well-integrated organization mode of production.

Cultural parks or art zones is such a kind of organizational mode of production, where relevant universities, institutes and enterprises gather together there, operate under the rules of the market and take advantage of mass operation, thus achieving synergy of saving capitals and reducing cost by sharing professional expertise, production skills, market information, etc.

Members within the organization, through informal loose restriction rules or formal contractual ones, constitute a supply chain; or they can work across chains by cooperating with different industries, and incorporate the art-originated design, production, processing and sale into a whole, thus forming a great coupling force of value. This coupling force is just like what Marx concludes: An individual’s strength is small, but the small strengths combined can generate a force that is greater than the sum of them all. Therefore, the combination of forces can save time and expand the space they function.

Marx also believes that Many workers who can complement each other are engaged in one or the same work. This is because the simplest collaborative work can play important roles in even the most developed collaborative forms. Based on the different roles shouldered by the “simplest collaborative work”, they have constructed the “most developed collaborative form” in the cultural parks or art parks, enabling members within them to fulfill different goals and different missions because of their different orientations. Just as scholars such as Freder and Ulrich, Achartinger and Rammer(2002) claims, apart from the transmission of knowledge, the interaction of knowledge is becoming more and more important. Santorohe and Chakrabarti (2003) even propose four basic modes based on this “collaborate form”—research funding types, collaborative research types, knowledge transmission types and technology transmission types, which represent different interaction relations between enterprises and universities. The Primary task of enterprises is to incorporate the large number of professional knowledge into a whole and then encourage the transference, communication and sharing of it among group members(Kong, 2000). In this process, how to fully explore implicit knowledge which is difficult to simulate by rivals plays a decisive role, because it not only decides the enterprise’s ability to allocate resources, integrate and exploit resources, optimize and develop resources and its competence to protect its property rights, but also determines if the enterprise can identify, discover and take control of opportunities and even the chances to create future (Spender, 1996). Therefore, the knowledge emphasized here is not only a resource, but more an ability and this is the basis of enterprises’ heterogeneity, which is the key for enterprises to gain core competitiveness^[2].

In the practice of socialist market economy with Chinese characteristics, the most successful “simplest joint labor” and “the most advanced collaboration form” is, in the first place, university science and technology parks and hi-tech development zones. After them, the new economic lightspot goes to cultural parks or art zones. Cultural parks or art zones is the gathering place for art-originated creations, which hopes to get the investment or hatch funding from enterprises so that large-scale and “popcorn” type of industrial chain can be constructed. So far, some of the cultural parks and art zones in China still have the problem of “selling horse meat as beefsteak” problem, and the rally function and aggregation effect of the parks are not fully exerted, thus jeopardize the financing flow, transport capacity, etc. While facing such a serious situation, how to form park economy with great vision in the globalization context and construct sensible industrial chains is an important issue for the whole society.

4 The Collaboration of Production, Study and Research is the Driving Force for Creative Development

Marx once says: If the working process is complex, different operations can be given to different people as long as there are a large number of people working together, so that different operations can proceed at the same time. In this way, the working hours to produce the required sum of products can be shortened. As for the cultural parks or art zones, the participating elements take artistic work as their

core, which is independent, individual and abstract. Artistic creation repels simplification, conceptualization, formulization and standardization, for artistic works is the achievement of the creation subject's mental and physical effort, and it conveys the artist's aesthetic sensibility, design ability, image delivering capacity and the competence to use them. Art is using artists' comprehensive labor and creation achievements to elevate our life, better our environment and change the world while offering a sensible sublimation access to satisfy human's instinct desires.

According to Marx's viewpoints about complex labor, art should "distribute different operations to different people", and organize art production in standardized and mass production so that more artistic products can be produced to satisfy the needs of the developing society. "Different operations proceeding at the same time...can shorten the working hours to produce the required amount of products" can prove that the construction of supply chains originated from artistic creation can also save the working hours required to produce each commodity. The construction of supply chains involves various links like material purchase, products production and final consumption, and concerns suppliers, manufacturers, retailers, consumers and so on. In a supply chain elicited by artistic creation, seamless joint from artistic creation or artistic design to the consumption of artistic products is also required so that a relatively complete network can be forged. This structure not only demands various creation companies to offer different products, but also needs market operation in charge of marketing, logistic management and advisory services, which can coordinate their cooperation and competition so that they can get additional benefits that otherwise can't be obtained, or supply a mechanism that can influence the law or property transfer, and this will be significant for the business goal to explore products in depth and produce them repeatedly, including offering more market opportunities for relevant industry chains^[3]. It can be concluded that the members and organizations within cultural parks "not only improve personal productivity through collaboration, but also create a productivity which inevitably becomes a collective force." Not to mention the newly-generated strength of the total force merged by various forces, in most productive labors, social contact alone will elicit competition and energy boost, and consequently promote individual's work efficiency.

But Marx also emphasizes that modern industry never perceives the existing form of a certain production process as the final one. When the low-carbon and environment-friendly cultural industry is taken as a national development strategy, the construction of art-originated parks will inevitably become a new engine of the new economic norms. When creation becomes a driving force for the economic development, the government will take an active part and take advantage of various policies and measures to build a bridge for universities, research institutes and enterprises, so that a new cooperative interaction, which is called "triple helix"^[4], can be established.

"The triple helix" refers the comparatively independent and yet interrelated cooperation among the universities/research institutes, industries and the government. Because of the cooperation, each curve in the "triple helix" has gained a stronger research and development ability than before. Universities and enterprises acting as the subjects of "scientific republic" (Merten, 1973) and "technology complex" respectively is given special emphasis. Based on the powerful organizational platform of the government, they get heterogeneous tasks and assignments and constitute an environment for creation together (Etzkowitz, 1996), thus breaking the pattern in which enterprises always play a core and leading role in economic development. In this way, the role of universities in economic development is becoming more and more prominent. Universities will finally become a social institute that has similar functions as enterprises and the government, producing enormous economic growth. With the development of economic globalization, they even recruit talents from worldwide, and so begins the global development of the university-industry-government "triple helix" and thereupon an open civil society is formed. In this civil society, free and open negotiation and cooperation are increasing and creation potential can be maximized.

Creative arts is rooted in free environment and the cultural industry is the domain that most needs creation. In such an open and free space, it's much easier to form a corporate body that can share resources—cultural parks or art zones, and produce a series of economic spillover effects, enabling the market elements such as knowledge, talents, technology, information and so on to play their part in the mutual trust between schools and enterprises, thus constructing a creative eco-friendly environment. For example, Beijing 798 Art District gathers a lot of cultural institutes and studios such as 798 Space, Tokyo Art Project, Left Bank Corporation, Century International Photography Gallery, Eulees, Pace, etc. covering different domains such as paintings, photographing, sculpture, advertisement design, publishing, etc. It has become an important center for contemporary Chinese art. In the creation process where there are many subjects participating and many elements interacting with each other, the bio-helix

market effects emerge, encouraging the parks' creation for the second time and third time and also turning creation into the driving force for the cultural parks or art zones.

5 Conclusion

It can be concluded that innovation-oriented industries can't be separated from collaborative innovation. Most governments regard cultural parks or art zones as a major form to foster and develop industries. As an organizational design and institutional arrangement, cultural parks or art zones is a new development mode after the emergence of university science parks and hi-tech development zones. In the cultural parks and art zones, various resources(such as enterprises, universities, research institutes, government agencies, intermediary organizations, etc), through function division and target orientation, integrate and optimize their resources, enabling various market elements such as innovation, knowledge, technology, talents, information, etc. to gather together and be distributed rationally. In this relatively-open space, resources and advantages are shared, costs are cut down and profits are shared and maximized, thus leading to the 1+1>2 scale economy effect. In this process which involves various subjects participating and various elements interacting with each other, collaborative innovation, secondary innovation and tertiary innovation takes place, becoming the creation in innovation and even more, the driving force for economic development. Thus, the collaborative innovation of production, study and research is not only the inevitable development trend of innovation economy, but also the primary engine for the development of cluster economy.

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Simulation Analysis of the Government-Industry-University-Institute Collaboration Mode Based on System Dynamics: Take Shahe Glass Technology Research Institute for Example

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Abstract: Strengthening Government-Industry-University-Institute Collaboration is one of the most important ways to deep the structural reform of science and technology, develop new innovation institution and speed up the construction of national innovation system. Government-industry-university-institute collaboration plays a decisive role on the positive effects of regional economy. This article designs the dynamics simulation system model and investigates the mechanism of government-industry-university-institute collaboration of Shahe glass research institute mode. Analyze the factors related to the development of glass research institute, build the flow chart to explore the intrinsic mechanism, analyze the dynamic mechanism of government-industry-university-institute collaboration interaction and develop simulation model of system dynamics by Anylogic. Through the analysis of sensitivity based on Monte Carlo simulation, we explore the evolutionary process of the influence which the government-industry-university-institute collaboration affect the development of glass research institute and regional economy development. Finally we analyze the co-building background of Shahe glass research institute, motivation and function of the cooperation parties and the management system and operational mechanism. Conduct some superficial discussions on the achievements, possible difficulties and countermeasures in the development process.

Key words: Government-industry-university-institute collaboration; Research institutions; Regional economies; System dynamics.

1 Introduction

January, 2010, Shahe Glass Research Institute of Technology was formally established by Shahe Municipal People's government and Wuhan University of Technology to develop the government-industry-university-institute collaboration and promote industrial upgrading in Shahe glass technology. Because the technical forces are weak in the small and medium-sized enterprise. So it will promote the industrial development by various forms of government-industry-university-institute collaboration.

At present, the domestic government-industry-university-institute collaboration is facing the following background:

1) The enterprise restructuring of scientific research institute. After scientific research institutes transmitting into enterprise they become responsible for their own profits and losses which mobilize the enthusiasm of scientific and technical personnel engaged in economic construction. However, the market property also determines the "limited company" pursue the guideline of "short, flat, fast" and pay more attention on output and short term but despise input and long term. It is difficult to achieve public goals to drive the industry and regional economic development.

2) The shortage of innovation ability in small and medium sized enterprises. China's small and medium-sized enterprises lack the awareness and motive forces of independent innovation and the innovation personnel costs tend to be high^[2]. Only 25% of the national scale industrial enterprises have R & D institutions and less than 40% have the R & D activities. Sales revenue accounted for only 0.56% of the investment in research and development (Large and medium-sized enterprises is only 0.71%)^[1]. With the rapid development of science and technology, the transformation of scientific research achievements has become a bottleneck problem to solve the current economic contradiction.

3) Practice of a variety of government-industry-university-institute collaboration model. The State Council has issued relevant comments to strengthen science and technology and economic integration and government-industry-university-institute collaboration and improve the ability of serving the economic and social development. The parties have carried out cooperation in various forms. For example, Tsinghua University corporate with many local governments in the establishment of research institute. Dongguan city jointly set up 12 research institutions with universities and colleges. The related organizations have carried on the beneficial exploration of cooperation mode and mechanism, for

example, grotesque theory from research Institute of Tsinghua University in Shenzhen.

In this article, we adopt the method of system theory, on the basis of system dynamics theory. Combine with the characteristics of the model in Shahe glass research institute, build the simulation model of system dynamics which take the Shahe glass research institute operation mechanism as the core. We investigate the mechanism of government-industry-university-institute collaboration of Shahe glass research institute mode.

System dynamics (SD) is the combination of feedback control theory, information theory, system theory, decision theory, computer simulation and system analysis method. It applies the viewpoint of system thinking to define the system organization boundary, operation and information flow. Describe the dynamic complexity of system by causal feedback, build up quantitative model and applies computer simulation method to simulate the system behavior under different strategies. At last by changing the structure we help people understand the system dynamic behavior model. Then analyze and design the high leverage solutions of complex problems and improve the system dynamic performance. As a method to investigate the behavior of system dynamics, SD is suitable for the research of the internal mechanism in Shahe Glass Research Institute of technology development under the interaction of government-industry-university-institute collaboration.

2 Government-Industry-University-Institute Model based on System Dynamic

2.1 The construction of system dynamics flow diagram

Internal mechanism of Shahe glass research institute's development is affected by four factors. Government comes first. If the government fulfill scientific outlook on development, play a leading role and increase support to Shahe glass research institute. It will promote the development of Shahe glass research institute directly. Besides, if the government carries on the reasonable planning and division for enterprise location it will help them realize the aggregation effect thus drive the development of Shahe glass research institute indirectly. Secondly, colleges and universities will affect the development of Shahe glass research institute in the area of strategy and development goals. On the basis of decision, the laws and regulations of the government and policy and industry development status, colleges and universities can make up strategy measures according to its own characteristic disciplines. Specific development goals which based on the achievements in scientific research will applies in actual production. The third is industry which includes industrial structure and the entrepreneur group. From the view of industrial structure, industrial capital accumulation and accumulation of workers will play a decisive role. From the point of the enterprise leaders, the fourth is the research institute. The core part of the research institute is the orientation and the innovation of mechanism, the research institutes' orientation relate to the development goals, development principle and mode of operation. Take the market as the guidance, accurate positioning will further promote the development of the sand glass institute. Academy of sand glass accrual and execution mechanism promotes the sand glass institute of modern mechanism innovation, thus providing a guarantee for the development of the sand glass institute.

Based on these four ways of analysis, discover the sand glass institute development dynamics system consists of four feedback loops (see Figure 2): 1) feedback loop 1, composed of Shahe city government function of the feedback loop; 2) feedback loop 2, produced by Wuhan University of science and technology strategic planning of the feedback loop; 3) the feedback loop 3, produced by Shahe City glass industry structure feedback loop. 4) feedback loop 4, feedback loop of the policy action of sand Institute.

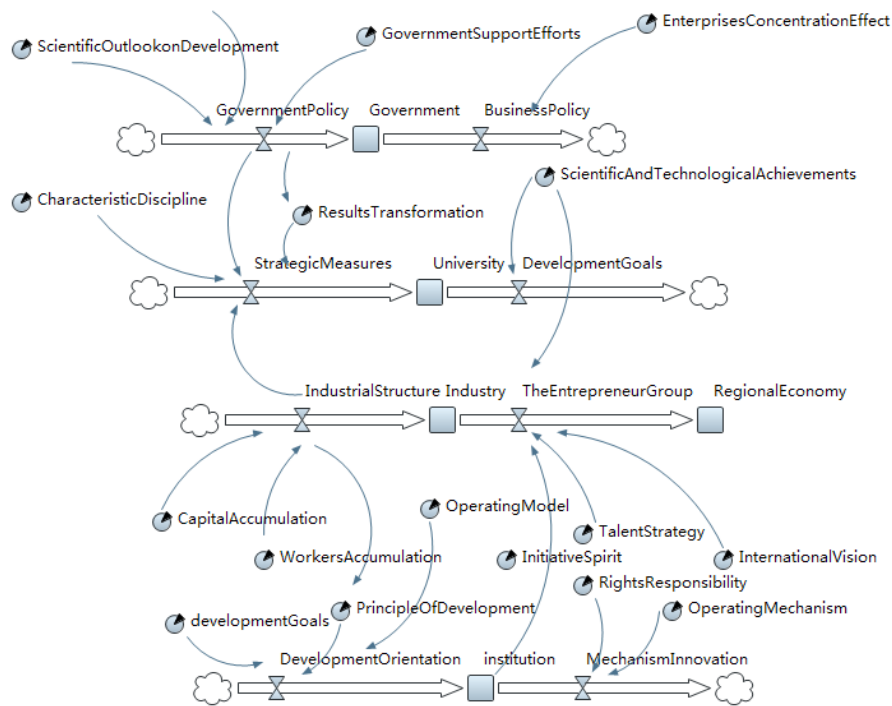


Figure 1 Government-Industry-University-Institute Collaboration System Dynamics Flowchart

2.3 Establishment of kinetic function relationship

The mathematical formulation of the system dynamics model is represented by the variable relationship in the flow chart, and the main kinetic relationship is described as the formula (1) to the formula (4):

$$d(\text{government}) / dt = \text{government decision-making} + \text{enterprise decision-making} \quad (1)$$

$$d(\text{university}) / dt = \text{development objective} + \text{strategic measures} \quad (2)$$

$$d(\text{industry}) / dt = \text{industry structure} + \text{entrepreneur group} \quad (3)$$

$$d(\text{institute}) / dt = \text{mechanism innovation} + \text{development orientation} \quad (4)$$

1) Shahe City Government’s related decision of the glass industry in accordance with the scientific development concept of guidance and create the goal of "national glass production base and the glass of the world". By leading role of the government, combine with the industrial support. So as to improve the level of science and technology of glass industry, and achieve the comprehensive and sustainable development, expressed as the following formula:

$$\text{Government decision-making} = \text{Scientific Development View} * \text{government leading role} * \text{government support} \quad (5)$$

2) Corporate policy is decide by the enterprise aggregation effect. Put the enterprises’ similar function together and strengthen the cooperation between each other. Realize the sharing of infrastructure and further reduces the enterprise production cost. Increasing the profits of the business and make the enterprises adjust to the policy statement. The formula is as follows:

$$\text{Enterprise policy} = \text{enterprise aggregation effect} \quad (6)$$

3) Colleges base on its glass materials engineering disciplines advantages, make the glass research in the national leading level. Colleges according to the market situation, create scientific and technological achievements and scientific and technical personnel to actively participate in the transformation mediated. The formula is as follows:

$$\text{Strategic measures} = \text{results for the transformation of the characteristics subject} * \text{industry} \quad (7)$$

4) The new development goals can be determined according to the latest research achievement of science and technology. The scientific and technological achievements represents a new direction for the future development of science and industry, exhibit important meaning and value, represented by the following formula:

$$\text{Development goals} = \text{Scientific and technological achievements} \quad (8)$$

5) The current glass industry is one of the three pillar industries of Shahe City, and the annual consumption of broken glass accounted for 50 percent of the national total. Rich glass industry professional and technical personnel will make Shahe City glass industrial structure rationalization degree improve. Represented by the following formula:

$$\text{Industrial structure} = \text{capital accumulation} * \text{worker accumulation} \quad (9)$$

6) Whether the Shahe city entrepreneurs groups have an international vision, whether the direction of future development of glass industry can be predicted. Training the professional and technical personnel, make the innovations continuously. It will greatly influence the sustainable and healthy development of the Shahe glass industry in the future. Represented by the following formula:

$$\text{Entrepreneur group} = \text{innovation spirit} * \text{talent strategy} * \text{International Perspective} \quad (10)$$

7) Shahe City Glass Technology Research Institute’s reasonable responsibilities of organizational structure and establish scientific operation mechanism. Represented by the following formula:

$$\text{Mechanism innovation} = \text{operating mechanism of the accrual basis} \quad (11)$$

8) With the market oriented, to take the Shahe glass industry development as the core, make clear the development goals, clear the sand glass college location, unswervingly adhere to the basic principles of the sand glass Institute, and comprehensively improve the efficiency of operation mode. Enable the development orientations of the sand glass institute have more time significance. The formula is as follows:

$$\text{Development positioning} = \text{development target} * \text{Sha Glass Institute positioning} * \text{basic principles} * \text{operating mode} \quad (12)$$

3 Experimental Analysis of System Dynamics Simulation

This paper use Anylogic simulation software to analysis in the dynamic mechanism of the above academic innovation and the design of the system dynamics mode. Among them, the initial parameters of the system are set as shown in Table 1. Base on the Monte Carlo simulation method multiple runs of the simulation system, observe and compare the different values of academic innovation with the evolution of analog clock. Thereby, the research on the government, industry, academia, research and other factors to the sand glass Institute hair exhibition and Shahe City Regional Economic Development (in units of 100).

Table 1 Academic Innovation simulation system mainly variable initial parameter settings

Parameters	Introductions	Default
Prospective Government Decision	Indicates the level of government decision-making	50
Higher Education Institutions	Represents the development strategy of Wuhan University of Technology	100
Industry level	Indicates the level of Shahe City Glass Industry	50
Institute of Organizational Structure	Represents Shahe glass research institute organizational structure set level	100
Institute Development Level	Indicates the degree of development of Shahe glass research institute	s00
Regional Development Level	Indicates the level of economic development Shahe City	150

3.1 The influence of government decision-making level on the development of institute

According to the simulation results, the improvement of the level of government decision-making will lead to the development of the Institute to accelerate (as shown in Figure 2). In the mode of cooperation between the government and industry, the Shahe municipal government develops the forward-looking policies for the success of the sand glass Institute Foundation. Municipal government through civil servants is encouraged to establish the scientific development viewpoints and play the role of the government in the regional economy. So as to improve the participation enthusiasm and to promote the sand glass Institute was established successfully.

After years developed, the municipal government established the development strategy of “industrial prospering City, prospering the city by science and technology”, and put forward the following measures:

- 1) Establish a scientific view of development

With the cooperation of Wuhan University of technology, make the idea that "strengthen government university industry cooperation, science and technology to promote the city, to build

national glass production base and the world of glass" strikes root in people's hearts and become the long-term development goals of "does not change because of the change of leadership".

2) The government's leading role

Shahe municipal government fully understand and play a leading role in regional innovation, strengthen the cooperation between government and industry, accelerate the construction of regional innovation system with the characteristics of the city. Build the sand glass Institute with Wuhan Science University of technology and declared to the Hebei Provincial Department of science and technology innovation platform to apply for funding. Reduce the technical risks of the enterprise and enhance the enterprises to participate in the enthusiasm of cooperation and innovation, make the good foundation for glass industry upgrade replacement.

3) Increasing government support

Shahe city government appointed a government office, deputy director of the Academy of sand glass served as vice president. Take the liaison work in Building Materials Association and coordinate with the sand glass institute in the construction process. The government will also give the sand glass institute certain career preparation, accelerate the construction of facilities and provide comfortable work and living conditions for Shahe experts, technicians and encourage them to make more contribution to the development of Shahe, etc.

4) enterprise aggregation effect

Shahe government also gives full play to the enterprise aggregation effect, reduce the enterprise production costs. The initiative is the 17 square kilometers layout of hundreds of glass industrial parks the park roads, drainage, power supply, gas, communications and other facilities have been basically perfect.

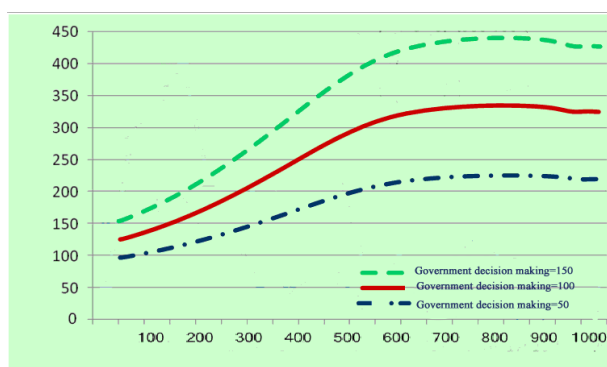


Figure 2 Government Influence Factors on the Development of Shahe Glass Research Institute

3.2 The influence of University Strategy on the development of Institute

The improvement of university strategy formulation is benefit for improving the research institute development level (as shown in Figure 3). Wuhan University of Technology develops the comprehensive development goals and strategic measures to provide the opportunity for the success of the sand glass Institute. Wuhan University of Technology is the national key university with science and engineering, and the goal of the research university is to provide an opportunity for the development of Sand Glass Institute. Specific measures are as follows:

1) Creating a wealth of scientific and technological achievements

Around the goal of "the overall level of the domestic first-class, part of the subject of the world first-class", all the scientific and technical workers in Wuhan University of technology concentrated on theoretical basis, high technology and achievements to academic research in the long-term and have accumulated huge scientific and technological achievements. Meanwhile, the school attaches importance to the function of social service, and actively strengthens scientific and technological cooperation with local government and industry enterprises.

2) Actively converting scientific and technological achievements into work

The school has set up a series of papers to guide the scientific and technical personnel to actively participate in the transformation of the results of the work. Carrying out the "15551 talent project", introducing and training a number of strategic scientists, subject leading figures in teaching and researching and top-notch talent, promote discipline, specialty and course construction, promote teachers to upgrade the overall level. The school decided to rely on Collaborative Innovation Center and graduate student training basis to carry out professional degree graduate team to guide pilot work.

3) Efforts to develop specialty disciplines

In China's glass materials engineering disciplines, the school has the strongest teaching and scientific research system, and the glass research in China is in the leading level. It's an important basis for our country engaged in architectural glass, glass thermal engineering and equipment research and development.

For school and Shahe city government, to build a glass technology research institute and actively involved, put the glass specialty basic research in the school, placed the research, application in test and industrialization in the sand glass Institute and Shahe glass enterprises, improve the efficiency of personnel and equipment.

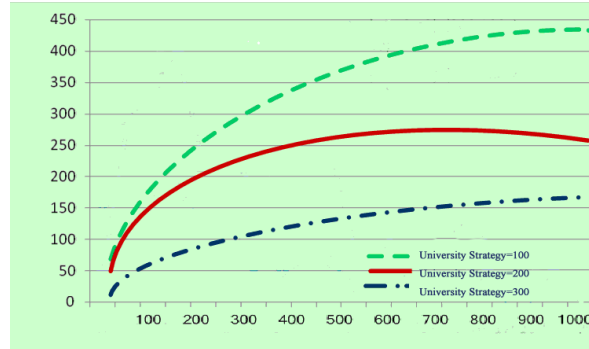


Figure 3 Universities strategic Influence on the Development of Shahe Glass Research Institute

3.3 The impact of industry level on the development of Institute

From Figure 4, it can be seen that the improvement of the industry level in Shahe benefits from the development of the Institute. The industrial structure and entrepreneur group of Shahe also provides a steady stream of impetus and creativity for the development of Sand Glass Institute. The entrepreneurs use the excellent innovation and creativity, pay attention to the implementation and training of talent strategy, and expand the cooperation and exchanges with university actively. Bring a large number of fresh strength into sand glass institute and constantly enhance the international competitiveness of the sand glass Institute. Therefore, the industrial structure and entrepreneur group of Shahe is the power of Sand Glass Institute.

1) Complete the accumulation of industrial capital and workers actively

In the end of 1996, Shahe glass industry small flat wise tensile production line is 128, production accounted for about 5% of the country. By the end of 2006 reached 224 production lines. After 20 years' developed, Shahe glass industry becomes one of the three big pillar industry. But the talent shortage, low technological content and the innovation ability is not strong. Under the dual pressures of the market and policy, it has the internal power of industrial upgrading and the cooperative technological innovation.

2) The innovation spirit of Shahe entrepreneur

Shahe glass industry mainly takes the cullet as raw materials in the initial period. The products are mainly applied in the low layer building in rural areas and small towns. Over 30 years' developed, from the flat wise tension to grid transformation, "one kiln line above the pellet production" to the present floats glass production. It reflects the Shahe glass people have followed the development trend and the courage to innovation of entrepreneur quality. The enterprise innovation request becomes the biggest power of government industry university institute cooperation and the basic safeguard of the achievement.

3) The talent strategy of Shahe entrepreneur

On the one hand, by the sand glass courtyard platform, the enterprise workers participate in the glass technology job training hold by Wuhan University of Technology, guarantee the safety in production of the new production line security; On the other hand, select out some outstanding high school graduates to Wuhan University of Technology for oriented training. These students will become the backbone of Shahe glass enterprise technology, management, operation and various departments after graduated. And by their promotion, many graduated college students may choose to work or create business in Shahe.

4) The international perspective of the entrepreneur in Shahe

The upgrade and the development of the industries expand the corporate in Shahe and make Shahe

entrepreneurs have sufficient lung power of technology support and technology development. They begin to expand the overseas market actively. Build overseas investment and factories to further promote the cooperation between the enterprise and Wuhan University of Technology and the sand glass Institute, and provide another opportunity for the development of Sand Glass Institute.

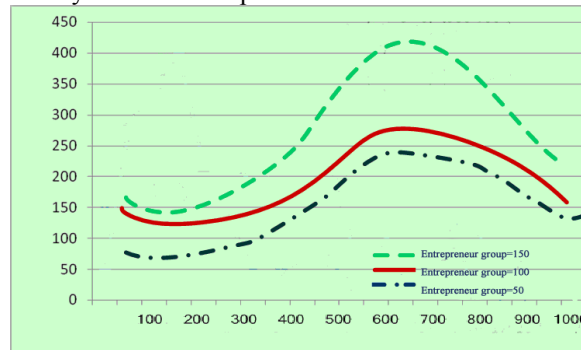


Figure 4 The Impact on the Industry Level of Development of Shahe Glass Research Institute

3.4 The influence of research institute organization institute on the development of Institute

As shown in Figure 5, the level of organizational structure of the Institute has a positive effect on the development of the Institute. Institute set the organizational structure that to take the dean responsibility system as the core characteristics. And constantly improve the personnel, scientific research and a variety of innovative management system. Establish the comprehensive supervision and incentive equilibrium, achievements and security evaluation and financing mechanism. Make the Security Research Institute develop healthy.

1) Establish the accrual basis

Shahe glass school is responsible for the implementation of the dean, and set the management committee and academic committee. The management committee is responsible for the overall development plan and major decisions of Research Institute. The academic committee is responsible for validation of Research Institute’s research direction.

2) Establish the scientific operating mechanism

Firstly, establish comprehensive supervision and incentive balance mechanism. Through the development and implementation of fair and reasonable assessment system, we can solve the internal coordination and development issues in the development process. Then, achievethe implementation of the system of personnel appointment and the person in charge of the project. Thirdly, establish the concept of "talent resource is the first resource", to make the qualified personnel attract more talents to work in the sand glass Institute. Establish scientific talent management system and mechanism. Finally, establish the scientific research results transformation mechanism.

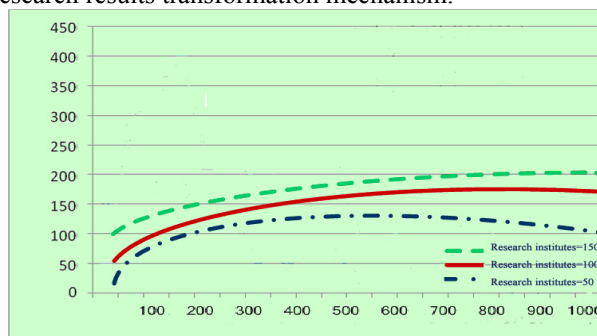


Figure 5 Effect of Structure Research Institute Shahe Glass Research Institute for Development

3.5 The impact of development of research institute on industry level

As shown in Figure 6, with the development of Research Institute, the glass industry development level continues to improve. Based on the glass materials science frontier and continuous through the independent innovation, the Institute has become a scientific research and academic exchanges and personnel training basis. Subsequently provide complete professional and technical support and core competitiveness for Shahe glass industry development. Therefore, take the glass courtyard with the market as the guide and make the positioning accurately.

1) Develop specific development goals

The sand glass Institute developed a detailed development goal: by the parties' co-operation strive to create China's glass technology R & D center and technology sources cradle. Realize the real integration of officer, production, learning and research and the win-win situation. Explore the effective integration of new models and the establishment of market and service oriented business system and mechanism actively.

2) Shahe glassy Institute positioning

The basic orientation of the sand glass Institute is Shahe glass industry technology development, service center and China's important glass production basis; Function positioning is Shahe glass industry new technology, new products and new technology R & D and radiation center, Shahe glass industry technical and management personnel training center, important scientific and technological achievements, transformation, industrialization base technology R & D center.

3) Basic principle

Adhere to the service of the glass industry in Shahe as the core, and support the development of the whole industry. Explore the new mode of industry, research and research base actively. Adhere to the collection of resources and constantly enhance service capabilities. Adhere to the combination of science and industry, and co-ordinate the relationship between the University and the University.

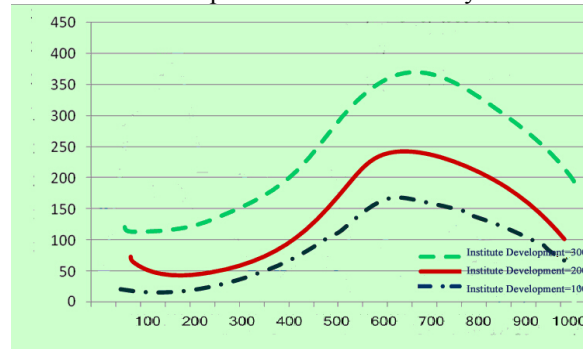


Figure 6 Impact on the Industry Level Development Institute

3.6 The impact of industrial development level on regional economy

As shown in Figure7, with the development of the glass industry in Shahe, Shahe City, the regional economic development level continues to improve. The construction of the Shahe glass research institute can guide the development of the Shahe glass industry, perfect the mechanism of regional innovation development and give full play to the local industry leading role in regional innovation. Finally promote the regional economic innovation and leap continuously. In order to build a new efficient operation mode, sand glass Institute can take the following measures:

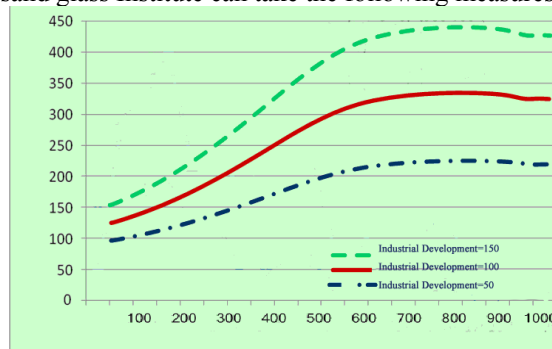


Figure 7 Glass industry Development's Impact on Regional Economic Level

As a basis for industry-research, it should research carried out by the base mode. Try to build and research the cooperation platform in the scientific and technological achievements and applications, human training and other aspects. Sand Glass Institute carry out the mode of "the open, cooperation and sharing". Under the government leadership and organization, build the long-term cooperation and innovation mechanism with the enterprise.

The sand glass Institute accord to the enterprises' demand and establish a joint research and

development center. Help the enterprises to introduce international resources, the high technology and research and development strength. Introduce the concept of venture capital funds and help the enterprises grow rapidly. Thereby pull the depth of the cooperation in the political research.

4 Conclusion

This article constructs the system dynamics simulation model, analyze the related factors which takes the sand glass operation mechanism as the core and explores the operation mechanism of government industry university institute cooperation. Then use the anylogic software to build the development system dynamics simulation model. Explore the process of evolution of the influence of research officer in Research Institute and the regional economic development. The research found: municipal government forward-looking decision is the basis of the sand glass institute's success; Wuhan University of technology's development goal and strategic measure is the opportunity of the sand glass Institute's success; Shahe Industrial Structure and entrepreneur group is the power and modern management system and mechanism of system innovation is the guarantee.

In short, research officer parties use its characteristics, cognitive and discuss the co-operation model. Decide the form, the breadth and depth of the co-operation and ultimately affect the effectiveness of the cooperation and the sand glass Institute formed and development. While in this mode, the government, the production, the colleges, the management system and the market localization is the restriction factor which decides the Shahe glass technology research institute to establish and its development effectiveness.

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Research on the Collaborative Innovation Strategy of Technology-Based Small Micro Enterprises and Research Institutions of Higher Learning*

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Abstract: Technology-based small micro enterprise are smaller companies group, in the proceeding of development they face lots of problems just as the lack of innzxcovation power, financing difficulties, lack of technology and so on. In order to solve these problems, they can structure a collaborative innovation mode with research institutions of higher learning. Based on the analysis of the game relationship between Technology-based small micro enterprises, government departments, financial institutions and research institutions of higher learning, builds a collaborative innovation model of Technology-based small micro enterprises and research institutions of higher learning, then puts forward corresponding countermeasures and suggestions.

Key words: Technology-based small micro enterprise; Collaborative innovation; Institutions of higher learning; Financial support

1 Introduction

Technology-based small micro enterprises are smaller companies group which engage in research, development, production and management of technology products, independent accounting or independent accounting relatively^[1]. In July 2013, the state council premier Li Keqiang chaired a state council executive meeting and pointed out that the small micro enterprises are numerous, and most of them are numerous. They can play in promoting economic development and market prosperity, expanding employment. This meeting decided that small micro enterprises will temporarily exempt from value-added tax and business tax if their sales are less than 20000 Yuan per month from August 1, 2013. Although the national tax policy brings benefits for 600 small micro enterprises, small sizes and insufficient funds Make them faced the plight of low level of innovation and development^[2].

At present, scholars at home and abroad have lots of further researches. Baldwin^[3] proposes independent innovation and collaborative innovation are two main ways of enterprises' innovation, then analyzes the independent innovation and collaborative innovation comparison from the design cost, communication cost, production cost and transaction cost four aspects, think that cooperative innovation is the innovation trend of enterprises. Bunduchi^[4] puts forward that trust is a key element of collaborative innovation between partners. Because trust can reduce the costs and risks of collaborative innovation, improve the overall performance. Xue-mei XIE^[5] thinks that vertical and horizontal innovation network have different influences for the performance of technology-based enterprises by using structural equation model, and cooperative innovation between enterprises has the biggest impact to improve enterprises' technology innovation performance. Yu-ming XIE and Yun-Fei Shao^[6] put forward that cooperative innovation should have two elements: investing and sharing resources, recombining the enterprise organization. Pei ZHOU^[7] thinks collaborative innovation combined with multivariate interaction can form the open three-dimensional joint innovation network mode. Sheng XU^[8] considers that cooperative innovation with complementary patents is helpful to take the cooperation strategy based on the option game and cooperative game theory.

If enterprises own strong technical innovation ability, they can more quickly respond to the external environment, and easily improve the enterprises' innovation performance, strengthen enterprises' competitive advantage^[9]. The key factors to affect the collaborative innovation of technology-based small micro enterprises mainly contain research specialist staff, science and technology departments, patents and so on. Research institutions of higher learning have the advanced patents and plentiful technical personnel, but lack the platform of translating the research achievement into products. And technology-based small micro enterprises own production, sales, service and other

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resources. In the ever-changing market environment, technology-based small micro enterprises, who want to raise their ability of innovation and market competitiveness, should carry out the cooperative innovation with research institutions of higher learning.

2 The Subjects' Relations of Collaborative Innovation

Technology-based small micro enterprises develop as the core of new technologies, new products, and new technology. These enterprises have a larger proportion in the technology industry in China. They are the important impetuses to promote technology development and technology progress.

2.1 The collaborative innovation relations with government departments

The government plays an important role in the innovation process for enterprises^[10]. The main obstacle of innovation for technology-based enterprises lies not in the enterprises' scale, but in the characteristics of innovation projects, the technology innovation strategy, and technical guidance of management. In the study of growth and development about technology-based small micro enterprises, some scholars propose the improvements in government procurement support policies.

The collaborative of Technology-based small micro enterprises and government departments can play an important role in reducing the operating cost of enterprises, attracting outside investment, achieving the optimal allocation of resources and so on^[11]. The science and technology innovation fund in our country is a project which foster and support technology-based small micro enterprises with high technical content, good market prospects. In the process, government departments play an indirect role in the development of the enterprises, but the driver directly affects the performance of the enterprises.

In a specific area, the government's policy guidance is important to the expansion of technology innovation network. Especially the government public policy about research and development play a role in the technological innovation and technological innovation network expansion. The government's policy of science and technology, technical guidance and research and development funds provide important guarantee for technological innovation network expansion. Local governments should actively guide various kinds of resources of science and technology to mutually support technology-based small micro enterprises in technology innovation.

2.2 The collaborative innovation relations with financial institutions

At present the study about financing and financial services of technology-based small micro enterprises is relatively more. In the financial system study of technology-based small micro enterprises, only optimizing the technology-based small micro enterprises' financing system by the government, commercial Banks and regulatory departments collectively, the innovation activities are well developed. Establishing the financial service system according to the characteristics of technology-based small micro enterprises is the effective way to support their development. Venture investment loan is an important safeguard to promote the level of development for technology-based small micro enterprises.

2.3 The collaborative innovation relations with research institutions of higher learning

In the research of the talents training for technology-based small micro enterprises, establishing scientific training system and carrying out effective innovation personnel training can promote the development level of innovation projects well. Research institutions of higher learning have the advantage of knowledge. They can provide advanced technical personnel, technical solutions, management consulting services, decision-makers suggestions and so on. The relationship among technology-based small micro enterprises and government departments, financial institutions and research institutions of higher learning is shown in Figure 1.

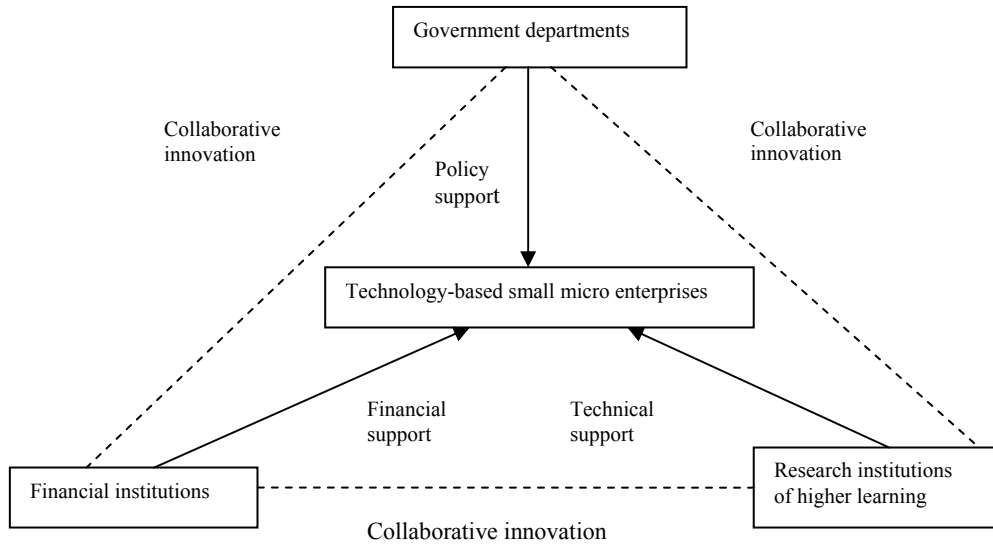


Figure 1 The Relationship among Different Subjects

3 The Game Model of Collaborative Innovation Between Technology-Based Small Micro Enterprises and Research Institutions of Higher Learning

3.1 Basic assumptions

Hypothesis 1: Only considering the dynamic evolution game between technology-based small micro enterprises and research institutions of higher learning except the influence of financial institutions and government departments.

Hypothesis 2: The game decision on both is bounded rationality. All information specific to the game is known to both players. The one don't know the decision of the other in decision-making. For technology-based small micro enterprises, they can choose independent innovation or collaborative innovation. For research institutions of higher learning, they can choose to cooperate with different scale enterprises, maximize the research proceeds. The one adjusts the strategy according to the other eventually, then reach game equilibrium.

Hypothesis 3: If the game both sides choose cooperative innovation, they will get the benefits according to their investment proportion. If technology-based small micro enterprises choose independent innovation and research institutions of higher learning choose cooperation with large and medium-sized enterprises, collaborative innovation revenue is zero. If the one chooses collaborative innovation but the other refusing, the side who choose collaborative innovation will bear all costs for it.

3.2 Structuring the game model

Make assumptions to various elements in the game process: Technology-based small micro enterprise is game 1. a_1 is technology investment cost of technology-based small micro enterprises for collaborative innovation. b_1 is core competitiveness of technology-based small micro enterprises. c is coordination using coefficient of resources. d_1 is the probability of successful innovation for technology-based small micro enterprises alone. f is the probability of success of collaborative innovation between technology-based small micro enterprises and research institutions of higher learning. g_1 is the profit distribution proportion of technology-based small micro enterprises. Research institutions of higher learning is game 2, the symbols in the same way, and $g_1 + g_2 = 1$.

According to the above assumptions, the game matrix of collaborative innovation between technology-based small micro enterprises and research institutions of higher learning is as shown in Table 1.

Table 1 Game Matrix of Collaborative Innovation

Revenue of game		Game 2	
		Collaborative innovation	Independent innovation
Game 1	Collaborative innovation	$g_1(b_1 + b_2)cf - a_1,$ $g_2(b_1 + b_2)cf - a_2$	$b_1d_1 - a_1, b_2d_2$
	Independent innovation	$b_1d_1, b_2d_2 - a_2$	b_1d_1, b_2d_2

Assuming the ratio of choosing cooperative innovation strategy is x for Game 1, then the ratio of independent innovation strategy is $1-x$. At the same time, assuming the ratio of choosing cooperative innovation strategy is y for Game 2, then the ratio of independent innovation strategy is $1-y$.

For Game 1, the revenue of collaborative innovation is u_1 , and the revenue of independent innovation is u_2 .

$$u_1 = [g_1(b_1 + b_2)cf - a_1]y + (b_1d_1 - a_1)(1-y) \tag{1}$$

$$u_2 = (b_1d_1)y + (b_1d_1)(1-y) \tag{2}$$

The average revenue \bar{u} is as follows:

$$\bar{u} = xu_1 + (1-x)u_2 \tag{3}$$

For Game 2, the revenue of collaborative innovation is v_1 , and the revenue of independent innovation is v_2 .

$$v_1 = [g_2(b_1 + b_2)cf - a_2]x + (b_2d_2 - a_2)(1-y) \tag{4}$$

$$v_2 = (b_2d_2)x + (b_2d_2)(1-x) \tag{5}$$

The average revenue \bar{v} is as follows:

$$\bar{v} = yv_1 + (1-y)v_2 \tag{6}$$

Game 1 and Game 2 will make the final decision according to the benefits.

4 The Collaborative Innovation Strategy Between Technology-Based Small Micro Enterprises and Research Institutions of Higher Learning

4.1 Establishing the cooperation concept of sharing risk and benefit

When setting the profit allocation rate, technology-based small micro enterprises and research institutions of higher learning should fully consider input and output of resources between the two sides. Only establishing good relations of cooperation and trust, collaborative innovation can play a proper role. Technology-based small micro enterprises and research institutions of higher learning should establish the mechanism of sharing risk and benefit, enhance the confidence in collaborative innovation, then to achieve a greater degree to reduce the innovation cost and fully arouse the enthusiasm of the two sides.

4.2 Setting a clear goal of collaborative innovation: promoting the core competitiveness

If Technology-based small micro enterprises want to improve their core competitiveness, they should improve the resources allocation mechanism in the aspects of human resources, technological resources, financial resources and so on. The collaborative innovation with research institutions of higher learning is helpful to reach resources sharing agreement about human resources and technical resources. At the same time, technology-based small micro enterprises should take active measures to improve the financing channels, and set the management mode which is adapted to the socialist market competition.

4.3 Improving the resources utilization efficiency of collaborative innovation

The main aspect of collaborative innovation between technology-based small micro enterprises and research institutions of higher learning is the effective sharing of resources. But the utilization efficiency of resources and the waste of resources should be the focus for the two sides. Technology-based small micro enterprises and research institutions of higher learning must set the clear goal of collaborative innovation, and keep every employee to understand the meaning of collaborative innovation, then reach the ultimate goal.

5 Conclusion

From the point of Game Theory, the collaborative innovation of technology-based small micro enterprises and research institutions of higher learning has the important meaning for each other.

Establishing the cooperation concept of sharing risk and benefit, Setting a clear goal of collaborative innovation: promoting the core competitiveness and Improving the resources utilization efficiency of collaborative innovation are helpful to strengthen the cooperation between the two and maximize the effectiveness of the collaborative innovation. At the same time, the methods, the methods and patterns of technology-based small micro enterprises and research institutions of higher learning will be the directions for future research.

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A Study on Value Pursuit and Orientation of Local Colleges and Universities from the Perspective of Industry-University-Research Alliance

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Abstract: This paper employs literature analysis, theoretical analysis, comparative analysis and other research methodology and proposes the local colleges and universities in industry-university-Research alliance should consider the academic value and educational value as the main goals and balance commercial interests as well. The regional-oriented and open applied technology colleges and universities should be established to cultivate talents with the path of cooperative education of industry-university-research. As the main participants of the alliance, local colleges and universities need to establish a sense of service, market concept and take advantage of the talents, product advantage and to strengthen the link between teachers, researchers and the enterprise to participate in enterprise technical reform and innovation, and use alliance platform to promote application technology and enhance the quality of personnel training, and provide support for students' innovation and entrepreneurship. Local colleges and universities should actively take the cooperative road of industry-university-research with market allocation of resources in the mode of government led and promoted alliance.

Key words: Industry-university-research alliance; Local colleges and universities; Orientation; Study

Industry-university-research alliance is the advanced form of the cooperation in the fields of industry, university and research. The main bodies are enterprises, universities, scientific research institutions formed with the alliance. In order to adapt to the increasingly fierce market competition, seize new market opportunities and realize technological innovation and common vision and to obtain the best benefit and comprehensive advantages, governments, financial and intermediary organizations establish an advantage-complemented and risk-benefit sharing and common development relations that are formal and cooperative but not merged based on the participants' developmental strategic objectives and intents.^{[1][2]} The establishment, implementation and promotion of industry -university -research alliance have important influence on the development of national and social technological innovation activities and the improvement of comprehensive strength.^[3] For local colleges and universities, they should adapt to the trend of technological innovation and treat the active participation in the strategic alliance of industry-university-research as important task and means of improving their own technological innovation capability and talent training quality and make contributions to the development of local economy and society.

1 Introduction

The researches on industry-university-research alliance abroad mainly analyze the influences and roles for universities, enterprises and regional economy from the cooperation of industry-university-research and the transaction cost theory, resource based theory, game theory, strategic choice theory, the triple helix theory were proposed and the "Silicon Valley", the British "partner program", Japan's government-industry -university cooperation formed. Domestic researches on industry-university-research alliance theory originated from the middle and late 1980s. There has accumulated a large number of research results, mainly from the perspective of economics, management science, including research on the main body of the alliance, the selection of partners, the dynamic mechanism, the trust mechanism, the organization mode, the performance evaluation, the benefit distribution mechanism, the government responsibility and so on. BaiLiqingfeng and LiHaiou (2012) brings out the enlightenment for local colleges and universities on the basis of categories, mode and operating mechanism of industry-university-research strategic alliance of Ministry of Education-administrated universities. YaoJie (2014) analyses the problems existed in industry-university-research strategic alliance of Chinese universities grounded on combing the current development situation of the industry-university-research strategic alliance, and proposes the healthy development measures of the universities strategic alliance

based on attribution and analysis, including awareness rise, system construction, clear guidelines and implementation path exploration.

2 Value Pursuit of Local Colleges and Universities from the Perspective of Industry-University-Research Alliance

The value pursuit of the members in industry-university-research alliance is the driving force and the goal of the construction of the alliance. Industry-university-research alliance is a resource sharing, advantage-complemented and risk-benefit sharing organization, in which the value pursuit includes mainly commercial, academic and educational value pursuit. Enterprise has the advantages of manufacturing sites and equipment, rich manufacturing management experience and abundant funds; the disadvantages are the poor independent research and development ability, the low technical level, the inaccessible technical information channels and the insensitivity to the development trend of new technology. The advantages of local undergraduate colleges and universities are having a high level of academic and scientific research achievements, the accessible academic information, the advanced scientific research equipment and high-quality talents; the disadvantages are lack of research funds, manufacturing experience and weak ability in undertaking risk. The main goal of local undergraduate colleges and universities participating in industry-university-research alliance is to promote the development of its connotation and characteristics development, while obtaining more resources and funds to realize self-development, strengthen survival and development abilities. Local colleges and universities in industry-university-research alliance should consider the academic value and educational value as the main goals and commercial interests as well. By joining in industry-university-research alliance can improve teachers' applied research and development abilities, produce more and high level scientific and technological achievements, get more higher level achievement awards, create more and better practice and innovative entrepreneurial opportunities for students, create a good environment for the practice of talents cultivation and employment environment.

Meanwhile, local colleges should balance the pursuit of economic interests. On one hand, more funds motivates more teachers to participate in the alliance building, on the other hand, the demand of market and commercial interests drive also make teachers do more applied researches, jump out of the original narrow academic circles to market and achieve scientific and technological achievements transformation and application to achieve the benign development among colleges or universities, the alliance and other participants.

3 Developmental Orientation of Local Colleges and Universities from the Perspective of Industry-University-Research Alliance

The triple helix theory holds that university, industry, government are three relatively independent areas and are the core power in the era of knowledge-driven economy development. They interact with each other to promote social development and have different roles in the alliance. Enterprise is the main part in the industry-university-research alliance and plays a dominant role in “industry-university-institute” cooperation. Local colleges and universities are the main undertakers in educating and cultivating qualified talents who meet the need of the social production development. Local colleges and universities should become major participants in the industry-university-research alliance mainly by means of talents output and technology innovation achievements to participate in the activities of science and technology innovation.

The author randomly selects about 20 universities of the east, the west and the middle China as the study objects (as first figure shows the location of the universities). The author analyzes the top-level design of the universities such as the school-running orientation, service orientation and etc. The study result is as the second list(CPT is the the abbreviation of combination of production and teaching).

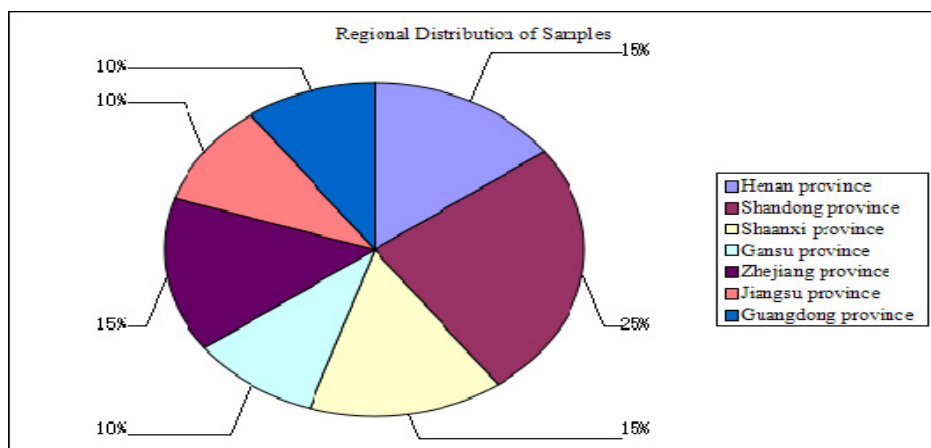


Figure 1 Location of the 20 Universities

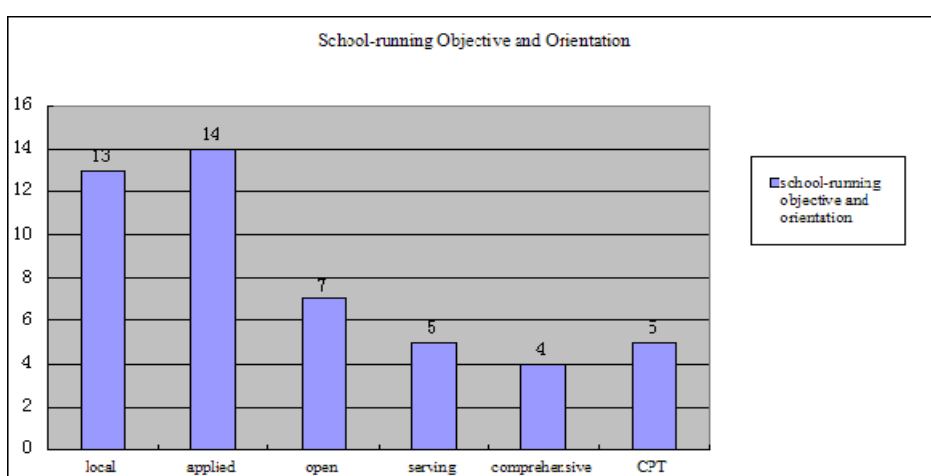


Figure 2 Statistics of the School-running Orientation

3.1 Serving regional innovation and development

National innovation system is a subsystem of the core competence of a country, which consists of three parts, the knowledge innovation system, technology innovation system and institutional innovation system. National innovation is fundamental driving force for development for enterprises, universities, scientific research institutions, governments and intermediary institutions, and it regards inspiration, introduction, transformation and diffusion of new technology as the main activities for common social and economic goals and the above mentioned constitute the institutional network through constructive interactions^[4]. Industry-university-research alliance that combines the main bodies of knowledge innovation (universities, research institutions) with the main bodies of technology innovation system(enterprises) and the main bodies of institutional innovation(governments) closely, scientifically and orderly is the key to the operation of national innovation system under the new situation. According to the innovation system theory, the interaction and communication between people, technology and information are the key to the whole performance of the system. There is a situation that universities, research institutes and enterprises work alone in innovation for a long time in our country, and there is no, complementary advantages, benign and orderly flow about resources. In view of these phenomena, the country pointed out the direction for the construction of national and local strategic industry-university-research alliance and provides a strong policy support for the construction and development of it in terms of policy, which is to promote the construction and development of the strategic industry-university-research alliance. For example, in Oct. 2010, the 12th five-year-plan points out that ‘guide and support innovation elements to gather in enterprises and quicken the establishment of technology innovation system that take enterprise as main parts and is market-oriented and industry-university-research combined; strengthen the innovation driving force of scientific research institutes and universities, encourage large enterprises to increase R & D investment, stimulate the

creative vitality of small and medium-sized enterprises, and play the important roles of entrepreneurs and leading technology talents'. The chart 2 shows that 65% of the universities set their orientation as local universities totaling 13 universities, and ranks as the second.

Local undergraduate colleges and universities are the main force and backbone to realize regional innovation. Local undergraduate colleges and universities belong to the municipality and the funds are from the local government. So it is Local undergraduate colleges and universities' mission and responsibility to serve the regional economic construction and social development based on locality. Meanwhile, local undergraduate colleges and universities are closely combined with local social and economic development. Naturally it becomes centers of the scientific research, knowledge innovation and technology development and engines of the regional innovation system in the process of providing intellectual support for economy, society and related industries.

3.2 To establish applied technique-oriented research

Based on locality, local colleges, universities and enterprises have the common administration, policy, culture environment and industry background together with the low cost of cooperation. Therefore, local colleges and universities have natural advantages in serving locality. For small and medium-sized enterprises, it is obviously unwise and unrealistic to invest a large amount of money for the applied research, risk investment, and to realize industrialization independently. The chart 2 shows that 70% of the universities set their orientation as applied universities totaling 14 universities, and ranks as the first.

Local colleges and universities usually emphasize theories and under-emphasize applications in scientific study due to the limitations of history and their own conditions. They pursue the higher and larger blindly and cannot obtain breakthrough. However, they can base themselves on locality, establish application-oriented research and obtain achievements in application with the talent advantage, science and technology, achievements around the industry and region needs and carry out science and technology support, technical service and theoretical guidance. Local colleges and universities should be closely combined with the regional economic and social development in accordance with the needs of regional and small-sized enterprise innovation. And they should adhere to be problem-oriented, demand-guided and thus to help enterprises to solve technical problems, participate in enterprise technical innovation, provide technical advice, training service and talents support, and help them to improve products quality and management to realize the independent innovation of enterprises by means of joint research and collaboration innovation.

Colleges and universities should establish an evaluation mechanism of applied research and actively promote the scientific and technological achievements transformation and guide researchers to comprehend the market demands, enterprise needs and actively carry out the enterprise technology consultation and product research and development cooperation. Colleges and universities should promote their own capacity to serve enterprises and realize academic value pursuit through seeking researching subjects and projects in production lines and hence form their characteristics in industry-university-research cooperation.

3.3 The principle of open college-running model

Universities are open systems, only through the energy exchange with the outside world, will they gain vigor and vitality and develop well. [5] The chart 2 shows that 65% of the universities set their orientation as local universities totaling 13 universities, and ranks as the second. The chart 2 shows that 65% of the universities set their orientation as open universities totaling 7 universities, and ranks as the third.

The advantages of Local Universities lie in the applied research, technical information, scientific equipment and scientific research personnel, but they are lacking in production practices, market information, experimental facilities and research funding. It is necessary for local universities to adhere to the principle of complementary resources, increase their opening up, and work closely with enterprises so that the scientific and technological elements, which has long been cornered in local universities, can integrate and recombine the economic elements of enterprises. Nowadays, science, technology and production cycles are getting shorter and have got the integrated development trend, and therefore the boundaries between basic research, applied research, development research and industrialization have increasingly blurred, and the problems in the actual production, especially in the production with high-tech are pregnant with significant research subjects and breakthroughs, which are hard-won opportunities for local universities. Therefore, in addition to basic research, which can promote advanced achievements by following the technology development law, there is the need for local universities to aim at target market demand and establish a market consciousness, user

consciousness and production management concept, which will result in effective convergence between research and the corporate production and market application.

By building industry-university- research alliances, colleges and universities can gradually reach out into society, achieving the demand joint, personnel movement and co-built platform with enterprises, industries, government and other research institutions. In this way, knowledge and scientific research can be transformed into real products and the platform of communication can be built for the purpose of personnel training, scientific research and social harmonious development..

3.4 Strategy of industry-university- research cooperative education for talent cultivation

Since the end of the last century, Local Universities have tried to increase college enrollment enlargement and the scale expansion, namely, the extended development, as their main feature. The cultivation of large numbers of advanced applied talents for regional development, who can meet the need of local development and industrial requirements with practical ability and innovation ability and the improvement of teaching quality and efficiency, namely, connotative development, have become the main target for local undergraduate colleges and universities for a long period. Based on this understanding, the quality improvement of applied talents has come to be the key for connotative development of local colleges. The cultivation objective of local universities is to provide advanced applied talents for local regions. So it is the important task for local colleges and universities to cultivate students' abilities concerning innovation, practice, research and development and the combination with theories into practice. For a long time, local undergraduate colleges and universities only pay attention to knowledge teaching instead of practical application in daily teaching, or practice teaching is ignored for various reasons in the talent cultivation. Industry-university- research Cooperative education model is an educational model which focuses on the development of students' overall quality, comprehensive ability and employment competitiveness, takes advantage of a variety of environmental and educational resources among schools and enterprises and research units and their respective advantages and combine the classroom-based school education with production and research practice.^[6]Local colleges and universities ought to give the industry-university- research alliance platform a role to play and establish industry-university- research cooperative education mechanism to provide guarantee for the cultivation of applied technical talents. Colleges and universities should actively promote the establishment of a professional guidance committee, which is made up of the research alliance parties involved, and complete a top-level design from the perspective of personnel cultivation objectives, curriculum construction, teaching practice, double-quality staff construction and the construction of practice and training platform so that all resources can be made good use of to service the cultivation of applied talents.

To enhance the quality of advanced applied talents, there is the need to establish more practice and training bases or platforms, and this requires a closer, long-term, lasting and profound cooperation with related enterprises in the region. Through the construction of industry-university- research cooperative alliances and the government guidance or market push, the alliances concerned ought to form a long-lasting, stable, and profound partnership. Thus students can have more opportunities to learn at industry-university- research cooperative bases, put to use their theoretical knowledge and basic skills in the production, have direct access to productive and empirical knowledge, and thus the effectiveness of practical teaching can be greatly improved and more high-quality, application-oriented talents can be cultivated.

To enhance the quality of advanced applied talents, there must be adequate double-qualified and innovative teachers. Due to the fact that local colleges and universities focus on cultivating applied talents, the staff ought to have high academic level besides the double-qualified teachers, who have got abundant practical experiences and strong practical teaching ability. Double-qualified teachers can be cultivated through such means as within training and outside introduction and combination of full-time and part-time teachers. Through the personnel system innovation, the industry-university- research alliance ought to allow a wide flow range with all its alliance professional and technical members, and thus teachers from the local universities can be regularly sent to the alliance branches to carry out practice and training for the purpose of combining theories with production practice; at the same time, other senior technical members with industries or enterprises can go to colleges and universities for their part-time work. Such double-qualified talents with relative freedom can meet the needs of cultivating applied talents.

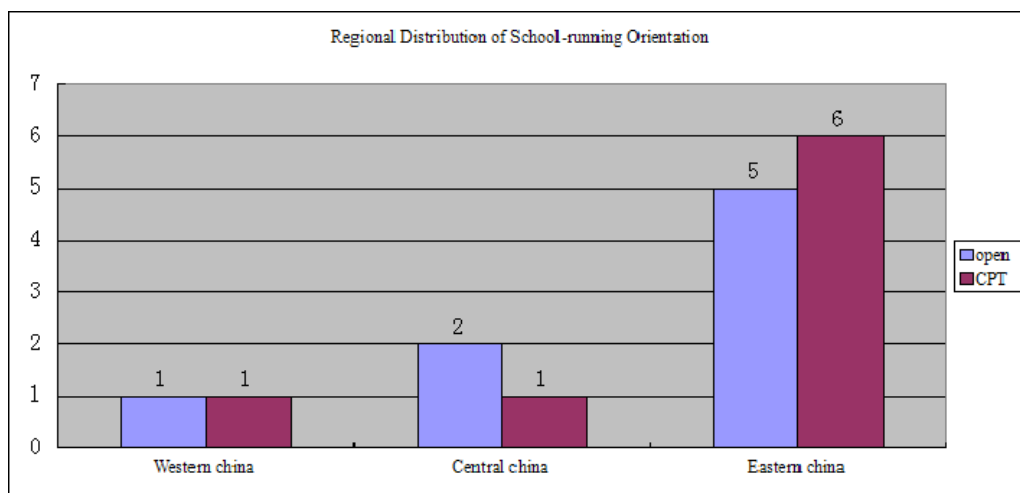


Figure 3 Location of the Open Universities and the Fusion of Production and Education Universities

4 Cooperation Mode Between Local Universities and Industry-University-Research Alliances

Many different types of industry-university- research alliances exist in China mainland. According to the governmental role and the establishment mechanism of industry-university- research alliances, industry-university- research alliances can be classified into the government-directed model, the government-driven model and market-driven guidance mode; According to the research participants, industry-university- research alliances can be classified into the point-to-point type, the point-to-chain type and the network-based type. Faced with the conservative social and cultural macro-environment and underdeveloped financial and intermediary markets, local undergraduate institutions cooperate mainly with medium-sized and small enterprises, which are lacking in adequate financial support and communication channels. Based on this condition, Local universities and colleges ought to give priority to the government-led alliance mode, giving government the intermediary role to in the alliance and getting such privileges as policies, taxation and financial subsidies from the government. And this type of point-to-point mode can give incentives to the development of universities. At the same time, under appropriate conditions point-to-chain alliances and network-based ones should be constructed so that Local Universities and Colleges can participate actively in the market-led mode of cooperation.

Local Universities and Colleges should raise awareness for the initiative construction of teaching-research-production alliances. Based on their actual conditions and external environment, they should make a reality of the optimal allocation of resources through scientific cooperation mode and institutional innovation. In particular, they should change the existing operating system of scientific research institutions, so that the research scientific resources which are long divorced from the market can enter the market. Through the market-oriented allocation of the resources, Local Universities and Colleges should carry out scientific research and establish operating rules and organizational models which are in line with market economy mechanism. By the use of economic levers and market regulation, Local Universities and Colleges should allow scientific research resources to serve economic development automatically, and actively strengthen contacts and cooperation with enterprises as regards to technology transfer, joint research breakthroughs, academic seminars, personnel exchange and scientific and technological services. Thus, Local Universities and Colleges combine their scientific and technological advantages, dominant talent position and academic strengths with the advantages of industrial enterprises to realize industrialization connection in terms of research and development, test and product achievements, striving to take a place in the high-tech fields.

5 Conclusions and Prospects

For local universities and colleges, the establishment of industry-university- research alliances meets the need of their service with the local and national innovation, the connotative development, and it is also a must for the realization of their sustainable and healthy development. In the early stage when Local Universities and Colleges participate in the alliances, Local Universities and Colleges should

improve the academic level and education quality as their main pursuit, taking into account the commercial interests as well. Local universities and colleges are the important participants in industry-university- research alliances, and they need to establish service awareness, market concept, the user concept, making use of school talent superiority, scientific and technological advantages to strengthen the contacts between teachers and researchers and enterprises and participate in enterprises' technological transformation and innovation.

Such shortcomings as a lack of quantitative research and inadequate analysis exist in the paper. More people are expected to participate in the industry-university- research research with regards to local universities and colleges so that theoretical results can be further enriched, promoting the rapid industry-university- research development concerning local universities and colleges.

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A Study on the Innovation of the Students' Management Work in the Context of the School-Enterprise Cooperation

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Abstract: Students management work plays a very important role in the college education process. This study focuses on the problems that usually occur in the daily students' management work in the context of school-enterprise cooperation, and tries to find methods to solve problems. This essay uses methods of documentary research, observation research, qualitative analysis to summarize the core-principles of students' management work and come up with a conclusion that student management work need innovations to make the education process more effective. The essay offers two innovative ways to help solve these problems.

Key words: Students' management work innovation; School-enterprise cooperation; Change the way of work; Professional ability

1 Introduction

The new talent training mode--the school-enterprise cooperation talent training mode, is served for fitting the social and market needs. It takes the advantage of school and enterprise's different education environments and resources to cultivate the practical talents through the classroom instructions and practices; on the other hand, this new mode's collaboration and integration of functions and resources of scientific research and education can offer new sources of innovations for enterprises and society. The studies that are on the school-enterprise cooperation talent training mode came up earlier overseas, which is as early as 1900s. Ever since 1980s, the U.S, British, German, and Australian have made series of extensive and in-depth researches and studies both in theory and in practice on this issue according to their own characteristics and needs. And from then, series of distinct school-enterprise cooperation systems, modes and projects emerged ever since.

China's school-enterprise cooperation talent training mode click into place after 1992, when the "industry-university-researchcooperation joint development project" launched by the State Economic and Trade Commission, the former State Education Commission and Chinese Academy of Sciences. China's studies on the school-enterprise cooperation talent training mode mostly focused on the importance of school-enterprise cooperation, the school internal mechanism reform, the cooperation model, and the connotative meaning of school-enterprise cooperation. Among all the researches, the study on the student's management is very few. New talent training mode calls for new student's management. Thus, the aim of this essay, is to offer the theory and introduction of experiences on the issue of school-enterprise cooperation talent training mode.

2 The Core-principle of Students' Management Work

In a general sense, the students' management work means the series of services, managements, and supervisions work about college students. According to Shan zuo min's essay named "the manage system reform under the context of school-enterprise cooperation talent training mode", he regarded the students' management work's subject classification as the following: Firstly, the perspective of pedagogy. This angle of view brings the student's management work into the category of general education. It often regarded as "implicit curriculum" in the context of school education. Secondly, a psychological perspective. The students' management work is considered as an environment factor of the process of individual socialization. Thirdly, the management perspective. It takes the students' management work as a requirement for the university's organization and can be used for fully displaying its functional role. It's the base of exploring the significance and methods of the fulfillment of the mission of university. Fourthly, the legal perspective. The students' management work is considered as an offer, and the offer's base is the school and the students' education service contract. Finally, is the sociological perspective. This perspective lays emphasis on the interactive relationship between different Social organizations and group factors, and it looks on the students' management affairs in a holistic social development way.

This essay's understanding on the nature of students' management work is that the students'

management work is served for the realization of education aim. The core-principle of students' management work is to promote the "individual's all-round and free development", and aims to the growth and development of students by means of certain managements and services.

3 The Innovation Necessity of Students' Management Work in the Context of School-Enterprise Cooperation

The school-enterprise cooperation talent training mode is a new practice and new mode in the new era of the reform and development in the area of college education. It is guided by the market requirements and aims at cultivating the students' ability of practice and adaptability. It also is an effective way of employment promotion. But in the meanwhile, the problems of present administration systems become increasingly striking. At present, the mainly problems rise mainly in the following aspects:

3.1 The complexity of management

The school-enterprise cooperation involves multiple managements and education bodies, so it is very important to coordinate the relationship between students, college and enterprises. Thus, it is very normal that the management become more and more complexity. For example, the school-enterprise cooperation will have to face the management differences between in school and outside school. And it is very common that the blind area and cross region in the management appear to make problems even more complex.

3.2 The distinctiveness of management

The school-enterprise cooperation involves the enterprise's participation in the education link. It will lead to the management differences in many ways, such as ways and means. For example, the involvement of enterprises may cause the contradiction between the ideal and the reality, which could bring students emotion fluctuations and influence their understanding to the society, family, and career. Thus, we should realize that the difference of the traditional management mode and the new school-enterprise cooperation exist. We should take targeted measures and grasp key point of work to adjust our work on students' thoughts, behaviors to make them better adapt to the collage life.

3.3 Management objects become increasingly difficult

3.3.1. Students are facing more and more financial and psychological pressure

Because of the teaching arrangements of the school-enterprise cooperation, students will have less time in-school learning, and they need to spent one or two years' work at enterprises. This will make them have not enough time for self-growth, and lead to the inadequate prepare for entering the society. This inadequate in preparing could cause some puzzles for students psychological and emotional. Normally, students may have extra cost in their study because of the use of resources of enterprises, and this also brings some pressure for students.

3.3.2. Students are lacking of initiative and intentionality

Students of the school-enterprise cooperation have already identified the future working industry, even the specific company, so it is very easy for them to lose their initiative and intentionality of future plan.

3.3.3. Students are easy to have conflict during the students practice

Students' internship is the key link for checking the teaching effect and quality. But in reality, many students take passive attitude towards internship. Sometimes, students may slack in work, and work without enthusiasm just because they are not satisfied with enterprise environment, or individual task. Other students only regard the internship as a way of relaxing, free themselves and a flee from the classroom learning and the control of school. We found that, many students' attitude to the internship become more and more boring, passive, and blind after their initial work. As for the college, because of the constraints of human, physical, financial resources, it cannot guarantee the management, counseling of students. This kind of "loose" management cannot make sure the effect and increase the risk of safe production. In a word, many problems may happen during the internship stage and lead to the conflict between students, enterprises, and colleges.

Students' management system is made aiming at the students' development. It includes a series of specific management philosophy, management content, management tools, and management process and management system. Any problem occurs in the context of school-enterprise cooperation calls for new ways of management to solve.

4 The Innovations of the Student's Management Work in the Context of the

School-enterprise Cooperation Talent Training Mode

4.1 Involving the work ethics, professional ability into daily education

Enterprise operating aims at the profitability, while the running of colleges aims at imparting knowledge and educating people. Enterprises and schools' different principles lead to different thoughts on management ways, capital investment, training mode, etc. But both sides' ultimate aim is to cultivate a future productivity that owns work ethics and professional ability. The college students' administrator should conduct discussions and exchange ideas with the enterprise on the relevant matter and help students to grasp a basic conception about the relationship between the major and future working requirements. College can make use of visiting, symposium with students and enterprises, set a role model, outstanding student experience sharing etc. to let students have some understanding about job principles, code of professional ethics, work standards, personnel quality. All the work can make students have a thirst for knowledge learning, good vision for the future work which will help during the entire stage of students' college life. We should also make students education activity carry out in a relative real environment. The content of activity should include occupational ethics education, team work spirit, legal awareness, safety awareness, and life services. This will be a very important part of students' management work, and also served as a education aim for school-enterprise cooperation talent training mode. For the first-line students' management worker, it needs continuous learning on the understanding of students and the enterprise and fight for becoming a specialist.

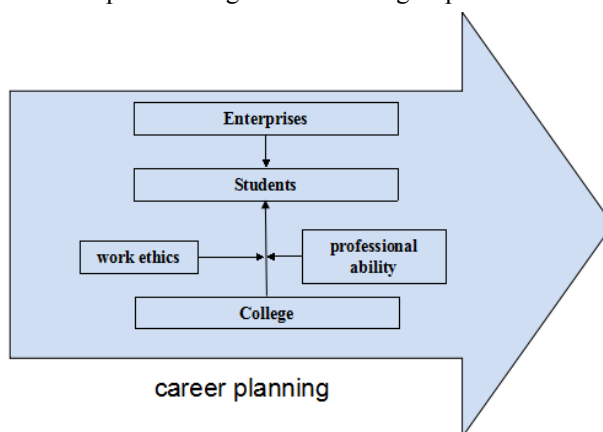


Figure 1 Student Management Work Model

4.2 Career planning should be carried out throughout Students' entire College Life

Students today are independent, with their own character and self-assertiveness. We cannot force them to do anything if they do not want to. And career planning as a new course, plays even more role in students' future development. So if we can make the career planning work throughout students' entire college life, even during the period of the internship will make sense. The career planning's carried out should be made according to the students' different stage. For example, for the freshmen, the most important part is to let them know about their strengths and weaknesses, their interests and values. For the internship stage, it is more important to let them know about the reality of working world, and let them know how to turn the weaknesses to strengths.

5 Conclusion

It is a very complex and urgent problem that need to draw attention to. This new talent training mode--the school-enterprise cooperation talent training mode, which takes the advantage of school and enterprise's different education environments and resources to cultivate the practical talents become increasingly popular all over the world. And this mode is playing a more and more important role in China's working environment. On the other hand, the complexity, and the distinctiveness of the issue make the study on it become very hard.

This essay only put forward two basic ways, including the involving of work ethics, professional ability into daily education and career planning should be carried out throughout students' entire college life to answer to this problem. But we still need more researches on the details of the fulfillment. And, the school-enterprise cooperation talent training mode is vary from college to college, and from course to course. So, we cannot make one system or methods be available for every situation. So, the outlook

about this issue is to make more thoroughly research and need include some quantitative analysis to make the research more reasonable and more convincing.

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Burnout: An Analysis Describing Advances on the Study of the Area in Brazil

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Abstract: This paper employs the bibliographic inquiry of publications about Burnout in Brazil in the period of 2012 through July 2015. For this, researches were made using the SCIELO database where 67 papers were cataloged, describing applied researches in various professional categories, mainly analyzing the incidence of Burnout in professionals of the Health and Education segments. The results of this research confirm the inquiry made by FREIRE et al (2012), in which the results are close to the ones shown here, the difference being the broadening to studies of professionals of other segments, also pointing out the need for better understanding of the syndrome in an interdisciplinary, critic and systemic view.

Key words: Burnout; Burnout in Brazil; Systemic and interdisciplinary Vision

1 Introduction

Maslach, Jackson and Leiter (1997) defined burnout as a psychological syndrome of emotional exhaustion, depersonalization and reduction of personal realization that is inflicted upon people that work with other people's capacity. The concept was initially developed by Freudenberg in the 70s, however there is a need to improve and update the concept and ways of measurement of this syndrome along the time, due to changes on lifestyle and working conditions. Main symptoms are: emotional exhaustion, depersonalization and reduced professional achievement; fatigue; pain; immunodeficiency; sexual dysfunction, distrust, irritability, loss of initiative, tendency to isolation.

Previous studies about burnout that try to identify and also understand how subjects react to their jobs in relation to lack of satisfaction about the activities, low organizational engagement, absenteeism, intention of quitting their jobs, turnover and performance at work. (MASLACH, LEITER and JACKSON, 2012).

The main objective of this paper is to analyze the current scientific production about this subject being developed in Brazil, with focus in the work environment, and ascertain which are the instruments used to measure this syndrome.

2 Methodology

The method used as basis for this study was the bibliographic exploratory research (MICHEL, 2009), through the inquiry of published Works in Brazil from 2012 until July 2015. The SCIELO-Scientific Electronic Library Online database was used with the following keywords: burnout no Brazil, syndrome de burnout. There was scrutiny in choosing only papers that studied Burnout inside Brazil. 67 papers were cataloged analyzing the Burnout syndrome in workers of different segments and activities, with focus on the ones from the Educational and Health segments. However, there is a notable broadening of studies researching other professional categories as shown in the results.

3 Theoretical References

3.1 Concept of burnout

Shaufeli; Leiter and Maslach (2009) wrote a valuable paper for the knowledge of Burnout, as 35 years of research and experiments about this syndrome was investigated and thoroughly described.

The concept of Burnout appeared in the USA in the 70's, and afflicted particularly professionals of Health such as medics, nurses and psychologists as well as lawyers and police officers, which complained about the lack of energy or the extraction of such during their work and losing the value and sense of their jobs. A metaphor known and used by Freudenberg (1974) to express this experience is of a lit candle, which demonstrates the exhaustion of energy to maintain itself lit. The syndrome contains three basic elements: exhaustion, isolation and delusion; and seems to be consequence of chronic stress related to work.

The authors of this study observed that the origin of this concept is rooted to a more openly social, economic and cultural development context and it appears with the fast and deep changes of the transition between the industrial society to a service economy. This process is happening since the last quarter of century XX until today, and it seems present in the work life around the world. There have been thousands of publications about the subject and is estimated that more than 6000 works that exists, as researchers and alumni try to understand it and how to prevent it.

In some countries such as Sweden and Netherlands the Burnout is found in manuals as a defined medical diagnosis, and these countries have the trained professionals to evaluate and treat these cases. However, the majority of the nations don't have these resources and don't understand the syndrome as a clear and defined health issue. The study demonstrates that at times, when this illness was detected there was influence of social values defended by the government. This led young idealist professionals to be deluded with the development of the more humanist careers and ended up in frustration, as the solution of the social issues lived in that context could not be reached by their individual effort but by systemic components of various factors. Schaufeli, Leiter and Maslach (2009, p.207) indicates, "The experience of burnout does not refer as an inconvenience or occupational risk, but as a devastating attack at the professional identity".

The same work points out that in the 21st century there is two distinct contributions in the life of a worker that influence the appearance of the syndrome:

1) The lack of balance between demand of services, which is always rising and the lack of resources needed for this work, such as personnel, equipment, supplies or even time and space.

2) The reasons for the dissatisfaction or frustration: Current employees are critic and demanding and realize that, for example, there is a lack of coherence between the organizational speech and what it does in reality. Sometimes there are conflicts between corporate values and individual values of the employee.

Despite those facts, there is the observation of the emergence of Burnout in countries everywhere; and this seems to show that there are relations between the emergence of the syndrome and the economic development of countries. For example as China and India are progressing economically, there is focus and more studies on the subject. There is a hypothesis that the globalization, privatization and new workers' demands, such as, development of new skills, new types of work, pressure for productivity and quality and accelerated pace in all work processes, are the cause for the emergence of Burnout.

However, Schaufeli, Leiter e Maslach (2009) points out that the fact of Burnout being globalized does not mean that its understanding and treatment has to be equal everywhere. For some, the syndrome is so intensive that is believed that there is may lead to the psychological death of the subject. For others, the development process of the syndrome includes the exhaustion in its most light form and the neutralization of the subject happens only at its final stage. The right to claim benefits and financial compensation depends on the understanding of Burnout in determined context, as its imperative to obtain the formal diagnosis and the acknowledgement of the authorities. Moreover using the scientific research it may be possible to develop specific instruments to detect and evaluate subjects afflicted by Burnout.

3.2 Measuring the burnout: maslach burnout inventory x copenhagen burnout inventory

Christina Maslach and her fellow researchers developed the MBI (standing for Maslach Burnout Inventory). The MBI is a quiz containing twenty-two questions addressing three central issues: emotional exhaustion, depersonalization and personal realization. (CARLOTTO and CÂMARA, 2007).

Despite the broad use of this instrument in empirical studies about Burnout around the world, we have considered important to bring another instrument to polarize against the MBI. It is the Copenhagen Burnout Inventory (CBI). This instrument consists of three scales that measures the personal Burnout, Burnout related to work and the Burnout related to customer services (KRISTENSEN, BORRITZ, VILLADEN and CHRISTENSEN, 2005).

The basis for the critique issued by these authors about the MBI are as follows:

- Burnout is a broad term, and the MBI deals with it in specific terms;
- There is no clear relationship between the MBI and the concept of Burnout;
- What the MBI measures is not clear;
- The MBI is not a public instrument, but is one distributed by a commercial company.

It is important to emphasize that they elaborated a pilot study named PUMA (in Danish stands for:

Burnout, Motivation and Satisfaction at work Project), and the most natural thing to do would be to translate the questionnaire to Danish, but as the studies about the subject deepened they have considered that would be better to develop a tool to close the eventual gaps of the MBI; and this lead to the CBI.

Our suggestion is that the measurement of the Burnout should be done by both instruments as to identify eventual differences and similarities, being applied in the same group of people.

Describing the summary of the main elements known and discussed about Burnout today, we have surveyed studies in Brazil and developed a general analysis about it the country.

3.3 Bibliographical review about studies of burnout in brazil

In Brazil, studies about Burnout are lacking and specified in determined segments of profession, as pointed out by Trigo (2010). The author made a bibliographical review, using BVS, index Psi and Pepsic databases, meeting 27 papers about the subject in Brazil. These studies were made in the Health segment with professionals such as nurses and medics. As a matter of the World Health Organization has being working dor some time with a quality of life assessment called WHOQOL, and moreover a Brazilian version of the World Health Organization's Quality of Life Instrument--Short Version (WHOQOL BREF) was tested already a decade or so ago by Berlim et al (2005) with patients 98 patients with major depression.

Still in 2008, Carlotto and Câmara (2008) made studies of bibliographic reviews about the subject in Brazil. The authors identified that the first studies about Burnout in the country emerged in the 90's, through the publication of the first group of thesis and papers about it. In the same period, the first groups of research in universities and institutes were created, being intensified after 2001. To the authors, the interest for Burnout was risen due to three key factors:

The first of them were the modifications introduced in the concept of health and better quality of life of the WHO – World Health Organization. The second was the rise of demands of the population in relation to social, educational and health services. At last, the awareness of public organizations, researchers and clinical services relating to the syndrome, understanding, the need to deepen its studies and the importance of prevention, as it was more complex and noxious compared to initial projections. (CARLOTTO AND CÂMARA, 2008, page 153)

Freire *et al* (2012) made a specific study about the state of art of the Burnout syndrome in Brazil. Using bibliographic research aiming to analyze the production of knowledge about Burnout, the author inquired the Scielo - Scientific Electronic Library Online database about works between 2000 and 2009 in which the results follow below:

There were 25 papers found, 60% of these approach professionals of the Health segment, 20% teachers, 4% police officers, 4% psychiatric clinic patients and 12% other categories. The central focus was to analyze the prevalence of the Burnout syndrome. (FREIRE et al, 2012, page 66)

In 2015, in bibliographic review done by the authors of this paper, using Burnout no Brazil keywords, cataloged in the Scielo database the existence of 67 papers about the subject between the years of 2012 and 2015. Those papers were distributed as follows:

- 30 papers focused in health professionals such as nurses, psychologists, health agents, etc.
- 16 papers focused on the effects of Burnout in students and professionals of the education segment.
- 07 papers analyzed the methodological procedures of the factorial scale of the *Maslach Burnout inventory-Human Services Survey* (MBI-HSS).
- 3 papers analyzed the syndrome in civil servants.
- 2 papers analyzed the incidence in firefighters.
- 2 papers analyzed the issue with focus on employees of funerary services.
- 2 papers researched the syndrome on professionals in the dance segment.
- 2 papers had emphasis on swimmers.
- 1 paper investigated the syndrome in athletes in general.
- 1 paper analyzed the syndrome on soccer players and
- 1 paper analyzed the Burnout on tennisists.

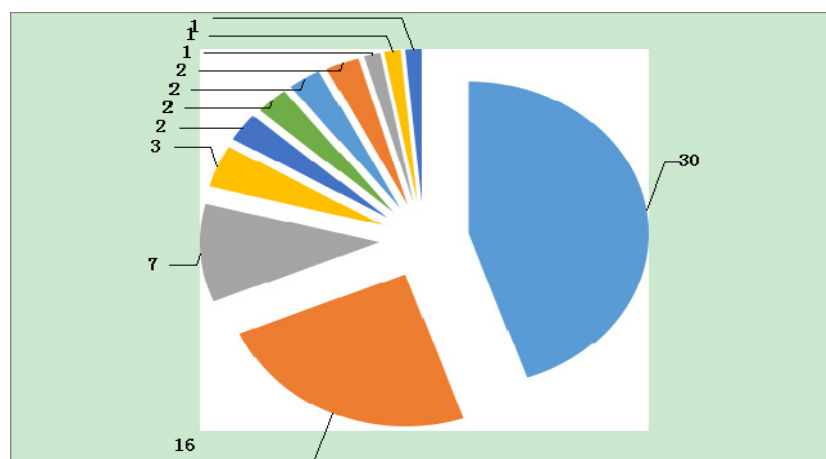


Figure 1 About the Scientific Production about Burnout in Brazil, 2012 – 2015
Source: Scielo, 2015

Clearly Health and Education are the areas most affected, but it's also perceived a broadening of segments in which its professionals receives the attention of researchers, which could mean a relevant advance in the field of study of the syndrome, its recognition by authorities and mainly, in detailed investigation processes, according to the specific demands of each segment of work. However, the process of questioning and investigating has to advance as the current society in which we live require every time more of its workers, intensifying hence the incidence of Burnout.

4 Concluding Remarks

The different arguments held in the whole world indicates that the Burnout syndrome doesn't yet have a complete definition and its researches show different points of view in the matter.

The bibliographic review developed points to a broadening of professionals afflicted by the syndrome and a rising in the research numbers. This indicates the need and interest of a more meaningful and effective action in organizations that must concern themselves about people affected by the syndrome, as it causes ailments to workers and society.

However, we can observe that the economic and social contexts in Brazil accord with what previous studies pointed out: Development in search for a better and stable economy, but with a long way to go. This fact hits all population in its cultural and social way of life, which permits a distant view about better life quality to workers and, as indicated by Schaufeli, Leiter e Maslach (2009) studies, what could be considered as a positive pole of a continuum in which the negative pole would be the Burnout.

Furthermore, if we consider the current crisis going on in Brazil, which in itself led to an impasse in the rights of the worker, bringing a scenario of intensification of outsourcing and inflexibility in the workers' rights. We could foresee a scenario of losing quality of life and intensification of bad developments to the health of the worker, which could rise the Burnout cases in different segments of Brazilian workers. Hence studies about the Burnout Syndrome are urgent as well as improving life styles.

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Dwelling: A Shelter or Inclusion to Citizenship

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Abstract: Access to adequate housing has been recognized as a human right since 1948 with the Universal Declaration of Human Rights as a fundamental right to life of the people. However, regarding the issue of housing, this cannot be treated only as a floor and four walls for protection against the weather. When we talk in the dwelling it is necessary to ensure the survival and minimal structure that guarantees the rights of citizenship to individuals. Is worth mentioning that the large agglomerations in cities lead to what the UN recognized as “favela” or “slums” as mentioned by the United Nations Human Settlements Program (UNHABITAT). This urban element may be described as a wide range of human settlements for low-income and poor living conditions that characterize one of the many manifestations of poverty all around the world. In this context, this paper aims to describe the relationship between access to housing and direct citizenship. Results suggest that there is still need for assertive public policies not only to grant access to protection and housing, but also on the need to have wider access to basic rights and human dignity in the Region. Moreover it is also necessary to ensure a context that would allow access to public services of quality regarding basic items like sanitation, education and employment opportunities. As a matter of fact without access to dwelling people feel marginalized, but with substandard shelter very often life itself is at risk and compromise the future generations. The cause of these problems is an evident lack of basic sanitation, deforestation and pollution arising from the large number of illegal occupation of public and private areas.

Key words: Dwelling; Citizenship; Sustainability; House; Human rights

1 Introduction

An individual needs several things for their survival, from food to supply their hunger, water to kill their thirsty, to a housing to protect themselves. The latter can ensure their safety and that of their families. But Dwelling cannot treat it only as shelter, but also should concern a guarantee of a risk-free environment survival and worthy life now and in the future.

Although the dwelling is often seen only as protection, it should be treated in a more complex way. Therefore, it can't be seen as if the purpose was only one set of walls covered by a roof. Issues related to housing involve security and freedom to access other goods and services in a society (SEN, 2000).

As a matter of fact the exclusion of large populations of the formal housing market, which has adequate housing, has been leading marginalized individuals to progressively occupy areas not incorporated into the formal housing market or even to areas that should not be intended for housing. These new areas are often recognized as illegal occupations, and end up without the necessary basic infrastructure (ONU, 2014; FERREIRA; BIASOTTO, 2012; UNHABITAT, 2014).

Thus, this irregular occupation process becomes precarious causing problems to their occupants and other people of these localities. These problems are of environmental order, in addition to the related lack of adequate public services like sanitation, fresh water, access to electricity grid, among others, which makes it unhealthy people to remain in these locations. The lack of access to dwelling housing leads individuals to seek public shelters, among other options that are available in many locations as the camps of homeless and landless.

So Dwelling is an issue that deals with access to a broader citizenship status which includes the freedom and access to public health services, sanitation, education, and access to economically active individual situation since you can use your address to have access to bank accounts, purchase products, among others.

Based on this context, this article aims to describe the relationship between Dwelling and Human Rights; and we attempted to describe the problem of dwelling and its impact on access to Basic Human Rights in general. Thus, if it's possible to understand this situation, also is possible carry out a better performance in this aspect and which require more assertive action to ensure a minimum of citizenship to their people.

2 Access to Dwelling for Access to Citizenship

2.1 Dwellings as human rights

People in order to survive initially seek for basic needs as food and water, because with hungry and thirsty, the human being is weak and helpless. As described in Maslow's Pyramid of Needs these demands when supplied, at least partially, lead people to seek for the attaining a higher level of human needs.

So after meeting the physiological needs individuals seek security to continue surviving as the next level of the hierarchy of needs. Thus, the human being is constantly searching to meet their needs, makes the question of access to housing an unavoidable primary issue for survival. The protection provided by the housing guarantees the security provided to move to the second level of Maslow's needs, hence is as basic as access to food and water.

However, it is worth noting that the housing used in this paper, is not related only to a protection for individuals, which is, keep your safety. The property in question is seen as the means to achieve citizenship, so it's worth highlighting that access to adequate Dwelling has been recognized as a human right in 1948 with the Universal Declaration of Human Rights (ONU, 2014).

The HPS (Federal Homelessness Partnering Strategy) defines "homeless" as individuals who live on the streets, spend the night in public shelters; overnight in unhealthy places the human condition; aside from that these individuals continually alternate in strangers' homes, friends and parents (HAMILTON, 2014).

According to UN-HABITAT (2003) housing rights are also registered and defended within other international human rights instruments, for example: the International Convention on the Elimination of All Forms of Racial Discrimination (1965); the Convention on the Elimination of All Forms of Discrimination Against Women (1979); the Convention on the Rights of the Child (1989); the Convention Relating to the Status of Refugees (1959); the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (1990).

Another aspect that should be highlighted is the study by the United Nations Human Settlements Program (UNHABITAT). This study used the generic term "slum" to represent a wide range of human settlements for low-income and poor living conditions that characterize one of the many manifestations of poverty. So the question of dwelling is directly related to living conditions of the individual (UNHABITAT, 2014). Noteworthy are some general features that are common to most slums (ALVES, 2010; UNHABITAT, 2014; ONU, 2014), they are they:

- a) Lack of access to basic public services (drinking water, sanitation, electricity, paving etc.);
- b) Poor or illegal dwellings, and inadequate structures that are out of the division of land and construction standards; with inadequate materials and in inappropriate places such as hillsides;
- c) Population density;
- d) Unhealthy and hazardous locations (lack of basic sanitation, proximity to pollution sources, inundation, landslides etc.);
- e) Insecurity of tenure and irregular or informal settlements;
- f) Poverty and social exclusion.

As may be seen these irregular promoted inappropriate living conditions blocks individual's capacity to exercise full citizenship, and put their lives and their families at risk. Therefore, without access to Dwelling access to citizenship also becomes limited.

2.2 Dwelling and the citizenship rights

Dwelling may be seen as a center of stability for individuals, because having an address represent is an anchor of your history. It's a reference to their interaction with other individuals, the basis for interactions and economic and social development. Therefore, the dwelling works as one of the factors that guarantees rights to individuals.

According to the UN (2014) to adequate Dwelling should include:

- Ownership security: Everyone has the right to live without the fear of suffering removal, improper or unexpected threats.
- Availability of services, infrastructure and public facilities: people should have access in their dwellings to water networks, sanitation, gas and electricity; as well as public services in the surrounding area (schools, kindergartens, health clinics, sports and leisure areas, as well as public transport, cleaning, garbage collection etc.).
- Affordable cost: as the cost for the purchase or rental of a dwelling, it must be affordable and not compromise the family budget for food expenditures, culture, leisure etc. Another important

aspect regarding the costs are related to maintenance of the dwelling (water, electricity, taxes etc.);

- **Habitable:** Adequate Dwelling must provide good protection against cold conditions, heat, rain, wind, humidity and also against threats from fire, landslide, flood and any other factor that endangers the health and lives of people and consider the size of dwelling and the amount of rooms should be consistent with the number of residents.
- **Non-discrimination and prioritization of vulnerable groups:** Adequate Dwelling must be accessible to vulnerable groups in society such as elders, women, children, disabled people, people with HIV, victims of natural disasters etc.
- **Appropriate Location:** adequate Dwelling must be in place that offers opportunities for economic development (jobs and income), cultural (leisure) and social (public living spaces such as parks). The location of the dwelling must also allow access to environmental goods, such as land and water, and a balanced environment; as well as security and freedom to access other goods and services in a society.
- **Cultural adequacy:** The way to build dwelling and the materials used in construction must express both the identity and the cultural diversity of residents. Reforms and modernization must also respect the cultural dimensions of housing.

Thus, dwelling becomes a means to obtain citizenship because with the living in a fixed address is provided to the individual being recognized as being economic and social may claim the state for improvements in their locality and to exercise labor activities, social and financial for your wellbeing.

When we talk about dwelling is relevant to mention the Statute of Cities, from Brazil (2001), which defined the general guidelines for urban policy, including among others the guarantee of the right to sustainable cities, understood as the right to urban land, dwelling, environmental sanitation, urban infrastructure, transportation and public services, work and leisure, for present and future generations (FERREIRA; BIASOTTO, 2012).

So, we emphasize that in addition to social and economic issues, also the environmental issue should be taken into account when the problems with housing are treated. Housing should not be built, or even permission, in areas which compromise natural resources such as vegetation and water.

An example of this may be found in invasions in watershed areas in the state of São Paulo, Brazil (BRIDGES, 2012; BONDUKI, 2009). These watershed areas are easily accessible to social movements of homeless, locally organized groups, and individuals who simply find opportunity to take ownership of an area for building a house.

Thus, this irregular occupation process becomes precarious causing problems to their occupants and other people of these localities. These problems are in addition to the environmental, related to lack of adequate public services like sanitation, fresh water, access to electricity grid, among others, which makes it unhealthy people to remain in these locations.

As described by the UNHABITAT, slums consist of an informal settlement, densely populated and characterized by substandard housing surrounded by misery. Slums actually differ in size and other characteristics from country to country, but in general the majority lacks reliable sanitation services, providing clean water, reliable electricity, and other basic public services and private. The villas built in the slums range from tin houses, timber and even masonry, but weakly secure adequate housing (UNHABITAT, 2014).

As an example of how the removal of a slum may bring benefits to a city, there is the case of the removal of slum "Catacumba" in Lagoa Rodrigo de Freitas: "When a slum was taken away in 1970, the buildings in the area, whose values were being depreciated, reversed the curve and began to appreciate, increasing the wealth of the neighborhood and the city for the benefit of all" (FERREIRA; BIASOTTO, 2012). So, in addition to promoting benefits to the purchasers of the villas are also generated positive externalities in the localities affected by this transformation.

In a study published by the UN organization dealing with dwelling at UNHABITAT (2014), the socially focused architect Anna Heringer recommends to overcome the challenge of creating shelters taking in consideration as main tasks:

- Search for potential existing resources and each locality;
- Increasing confidence of the communities in your own skills and resources;
- Train people in the enhanced utilization and construction based on locally available natural materials;
- Build with confidence through individual efforts and collective work;

- Create job opportunities
- Promote Job cultural diversity.

Based on these tasks one may attain a breakthrough not only in the number of dwellings, but also an increase regarding equality between individuals and more peaceful environment. This situation actually helps to develop active citizenship among members of the community being created.

To promote access to dwellings is worthwhile highlighting also projects by the TETO organization. These institutions jointly with the FSC (Forest Stewardship Council) form a partnership so that all houses constructed by the organization in Brazil are made with certified wood for example (GREENSAVERS, 2014). A TETO works in poor communities of Latin American countries and is present in 19 countries: Argentina, Bolívia, Brasil, Chile, Colômbia, Costa Rica, Equador, El Salvador, Guatemala, Haiti, Honduras, México, Panamá, Paraguai, Peru, Uruguai, Nicarágua, República Dominicana e Venezuela (TECHO, 2014).

This partnership between the TETO and FSC hence reinforces also concern for environmental issues. So, the Ibero-American countries need to think in a systematic and integrated manner the issues of Dwelling, and the sharing es should not only be designed locally but interdependently (GREENSAVERS, 2014).

Note that worth mentioning programs developed by other countries that seek to subsidize 25% to 90% of the dwelling value depending on the group's poverty vulnerability, the property value of the remaining beneficiary complements with mortgage up to 25% of their income. The Chilean program is part of public policies developed that offers not only benefit the community, but also tax incentives to builders. As the Department of Economic Studies of the Colombian Chamber of Construction (CAMACOL), others Latin American countries such as Colombia, Mexico, Panama, Peru, Chile and Brazil develop similar programs in relation to the goal and subsidies, which varies are the criteria regarding the value or percentage subsidized. Note also that government initiatives are not enough to combat the deficit dwellings therefore are extremely important initiatives of society as a whole in favor of decent dwelling.

3 Conclusion

Dwelling should be treated in a systematic and interdisciplinary way, as problems related to limited access to basic needs collectively affect living conditions in general. Moreover homelessness leads to exclusion of citizenship. A house is not only a place to live based on wood and stone, but considered as dwelling is as well an address; and hence a local identity that to build people their life story, have a family and other social ties in their localities. Moreover a house helps to guarantee human rights to their owners. In fact, access to housing should also guaranteed access to security, education, sanitation, social life, among other things mentioned in the declaration itself of Human Rights.

Therefore, that much remains to be done regard dwelling and hence access to citizens' rights. As mentioned before low performance in basic indicators mean people still living in slums, and this many times have not only serious social impacts but also environmental impacts and both end up affecting the rest of the population. As matter of fact building shelters in inappropriate places lead to lack of access to citizens' rights and creating huge problems for public health and future education building a vicious circle with the encouragement of informal and illegal. The children raised in environments that come from these kinds of conditions will be hindered from basic human rights and won't have opportunities outside the informal or illegal. Thereby, when it comes to Dwelling, we cannot think only of shelters. We must understand that this is a basic human issue that needs to be considered to ensure social inclusion, environmental care and the well-being of all.

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Research on Development Path of Strategic Emerging Industries in the Context of Regional Innovation^{*}

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Abstract: Under the background of constructing a resource-conserving and environment-friendly society, it's important to study how to perfect our development path of strategic emerging industries and supporting policy to cultivate the core competitiveness of the industries and develop China's economy and society. We analyzed the main factors, environmental factors and functional factors of China's strategic emerging industries base on the study of development path of strategic emerging industries at home and abroad combined with regional innovation perspective. And then, we expanded the common point-line-surface development path to a new one under China's macro and micro environment.

Key words: Strategic emerging industries; Regional innovation; Innovative development path; Economics

1 Introduction

Currently, there already are many international researches on regional innovation, industrial development as well as industrial planning. But most studies confined within the industries, and ignored the important impact of the macroeconomic environment of regional innovation in the process of finding development path of strategic emerging industries. How to take advantage of regional innovation-related advantages; accelerate the development of strategic emerging industries? And how to cultivate and enhance the core competitiveness of strategic emerging industries, promote the regional innovation systems to meet the development needs of the regional economy? All these issues relate to the cross of regional economy, industrial innovation and strategic management, which has a broad exploration of space.

2 An Overview on Development Path of Strategic Emerging Industries

Strategic emerging industries refer to industries that have strategic positions in the national economy with significant and long-term impact on economic, social development and national security and would become the pillars of the region's future economic development(Wei Haihan, Yu Qian Liu &Jingyu, 2012).

2.1 Connotation and characteristics of strategic emerging industries

According to the national definition of strategic emerging industries, strategic emerging industries are extension of the emerging industries, which not only have the general needs, but also need the unique resource endowments. Namely, there is a regional innovation system as a development platform to make them the true strategic emerging industries(Han Minchun Cai Yufe, 2012).

According to its definition, scholars have in-depth research on characteristics of strategic emerging industries. Shi Ping, Zheng Jianghuai (2010) argues that strategic emerging industries are characterized mainly in five aspects: evolution, periodicity, clustering, body interaction, knowledge-intensive and professional. Lai Yahong(2011) summed up its seven features, namely: strategic orientation, comprehension and innovation, high-speed growth, multiple risk, spatial and temporal dynamics, international openness and green and low carbon(Lai Yahong, 2011).Thus the formation and rise of strategic emerging industries are not only impacted by its own inherent laws , but also by many external factors such as technological innovation with time characteristics, global competition, national and regional industrial policies, and so on.

2.2 Research status of strategic emerging industries' development path

1) Domestic research on development path of strategic emerging industries

Chinese scholars Hu Shuhua and Mou Renyan(2008) , thinking from the perspective of main factors, summed up the point - line - surface and surface - Line - Point development Path(Mou Renyan, 2008).

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As to the first path, it means to rely on new technologies or new products to develop industry chain, forming lines, then develop into industrial parks, technology parks, and so on, promoting industrial intersection. For the second one, it means to attract enterprises to enter the park to create industry chain and industry groups relying on existing industrial strengths and foundation, then joint to overcome certain key technologies or develop a new product. According to driving factors, Zhang Wenqiang(2013)proposed market-oriented innovative development path, Gakken-driven innovative development paths, and government guidance Innovative development path(Zhang Wenqiang, 2013).

2) Developed countries' research on development path of emerging industries

Strategic emerging industries in US are mainly developed by the cultivating of industrial park. In 1950s, some high-tech-intensive areas were formed around universities, called" Science and Technology Industrial Park" in US. The development path of American strategic emerging industries was supported by the establishment of these industrial parks, which attract enterprises to enter, from the surface to a point, generating leading enterprise, and attracting upstream and downstream enterprises come into park to form industry chains.

Germany adopted a research-driven innovative development path: Technology Innovation Strategic Alliance. In most of their government policies, major research programs and national high-tech strategy, the Industrial Technology Innovation Alliances are given multi-faceted guidance, supports and funding. The Government has also established alliances website that provides a platform for alliance cooperation, communication, development and services. In recent years, nearly a hundred Innovation Alliances were established throughout Germany which play important roles in strengthening regional research, accelerating product development process, and promoting the development of the service sector.

United States, Germany and other developed countries have been fully aware of the importance of strategic emerging industries, and have found their own development path. Now, our research on the development path of emerging strategic industries still stuck in the hierarchy of "face", which limited to the development of the industry itself, as well as the formation of industrial clusters, ignored the special advantages and functions of strategic emerging industries as a part of regional innovation system. Wang Peng et al.(2011) studied the interaction mechanism of the adjustment of industrial structure and regional innovation, and found that there was a close link between the two. Li Yuhua, Wu Xiaofeng et al.(2014) also believe that because of the pre-guiding, complexity, risk-taking of technology innovation, a regional innovation ecosystem is needed to share resources and the cost of innovation, promote the formation of technical standards to promote the innovation and evolution of strategic emerging industries Based on the above research, we intend to extend the strategic emerging industry development path to the "system", namely to build industry innovation ecosystem, focusing on the integration of industry and industry, industry and region.

3 Analysis of Development Path Under the Perspective of Regional Innovation

Regional Innovation System refers to an institutional network which is distinctive, associated with regional resources and with the purpose of promoting the generation, mobility, updating and transformation of new technologies or new knowledge in a special area.

3.1 Analysis of the main elements of strategic emerging industries

Regional innovation system consists of three parts- main elements- including companies, universities, research institutions, service agencies and local governments in the region, functional elements -including system innovation, technological innovation, management innovation and service innovation within an area, environmental elements -including structure, mechanism, government or legal regulation, infrastructure and security conditions, etc. with the function of outputting technical knowledge, material goods and benefits. Strategic emerging industries, as sub-module of regional innovation system, also consist of these elements.

As shown in figure 1, strategic emerging industries are dominated by different main element when they stay in different stage. Located in the formative period, new industries should be biased towards the government-led model to achieve industry-university-research cooperation. At the beginning of their development, the core technologies of strategic emerging industries have been made some breakthrough, but their non-scale development, imperfect policy system and unsound investment and financing system made government the dominant main element. At this time, government, enterprises and academic sectors were asked to join together to form joint ventures, technology alliances or R&D consortia to lead technological advances, effective integration of resources, accelerate the promotion of technological progress and improve innovation capability, which on the one hand dispersed the investment risks of

each body and on the other hand, promoted the complementary of resources and the exchange and integration of innovative thinking.

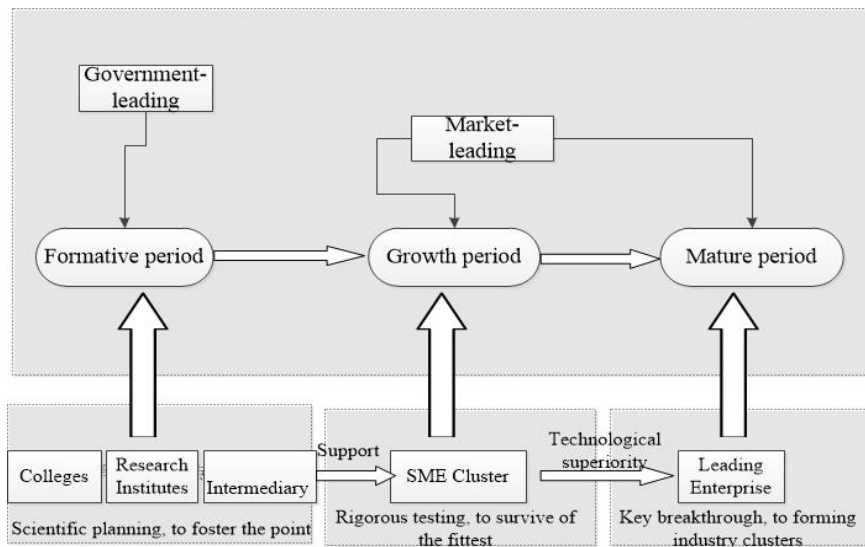


Figure 1 Distribution of the Main Elements of Strategic Emerging Industries

In the growth period, SMEs play a leading role, and symbiotically develop with large enterprises. At this stage, the main product and technological process has been initially formed, industry begun to take shape, and the enterprise technical risk and market risk gradually leveled off. Empirical studies show that there is a positive correlation between the intensity of market competition and innovation performance of enterprises. So, government, just as an auxiliary tool to regulate the market now, should reduce direct investment in industries to ensure free competition. The government's auxiliary methods include: a. Introduce standardized policies to prevent large enterprises monopolize technical standards and improve the entry barriers for SMEs; b. Provide innovative services policies for SMEs, such as the establishment of business incubator, technology information management consulting services and so on.

In the mature period, large enterprises play a leading role. At this stage, core technology has been widely grasped and technical barriers have largely disappeared, there will be a large number of enterprises swarm into the industry. The market-oriented development model with the leading of large enterprises can lead higher degree of concentration of resources for industrial development, and generate economies of scale, thereby reducing the cost of innovation. At this time, the new emerging industry may already be in gestation, so big enterprise can rely on resource advantage, quickly adjust industrial structure, and lead the industry to achieve rapid transformation. For example, Hyundai, Samsung, LG and other large enterprise groups have played a huge role in the process of international competition and became the leader of the information industry.

3.2 Analysis of the environmental elements of strategic emerging industries

Currently, the innovative development of strategic emerging industries in China is still subject to low R&D outcome, low conversion rate, and low utilization of regional advantages, resulting in low self-innovation ability, lacking of core competitiveness and industry leader. The fundamental reason was that the synergy and cooperation between industries were overlooked and the related business areas scattered, which led to less lateral and longitudinal exchange, making them unable to form industry cluster. Therefore, the development path of China's emerging industries to break existing bottleneck should first be adjusted to the development of characteristic industrial parks targeted at the formation of industrial clusters.

Environmental elements consist of market cultivation system and policy supporting system. Market cultivation system means that whether macroeconomic condition is good or not, and whether the social demand and resource supply meet our need. Policy supporting system includes innovation guidance, fiscal subsidy, R & D investment and talent introduction. After the above conditions, the park-driven development path of emerging industries is summarized in Figure2: 1) After the completion of the park, two situations may arise. First, with large leading enterprises in the park, upstream and downstream businesses will be attracted and a certain industry clusters will come into being in a short time; Second, the park has a unique resources endowment which can attract new enterprises to enter, leading to a rapid

formation of industrial clusters according to the allocation of resources, regulating of park as well as industrial difference. 2) With new business settling, the companies which have abundant production-related association in the park will implement farm-out based on their own advantages, which will produce a synergistic effect, and form industrial clusters. First, horizontal enterprise will agglomerate together. Namely, companies with similar properties or business will gather together to achieve the integration of resources and advantage complementary. Second, vertical industry chain will come into being, forming an integrated development including production, product procurement, subcontracting, R&D and consulting. 3) There is a mix of collaboration based on resource sharing and specialization and competition based on the production of similar products or services between the companies in the park. So, with the continuous expansion of enterprise groups, an intricate innovative network will form among governments, research institutions and SMEs, then the industrial cluster come into being. 4) Enterprises in the cluster experience long-term cooperation, and easy benefit from knowledge spillover because of geographical adjacency which may lead to the development of new technologies, new companies and even new industrial chains.

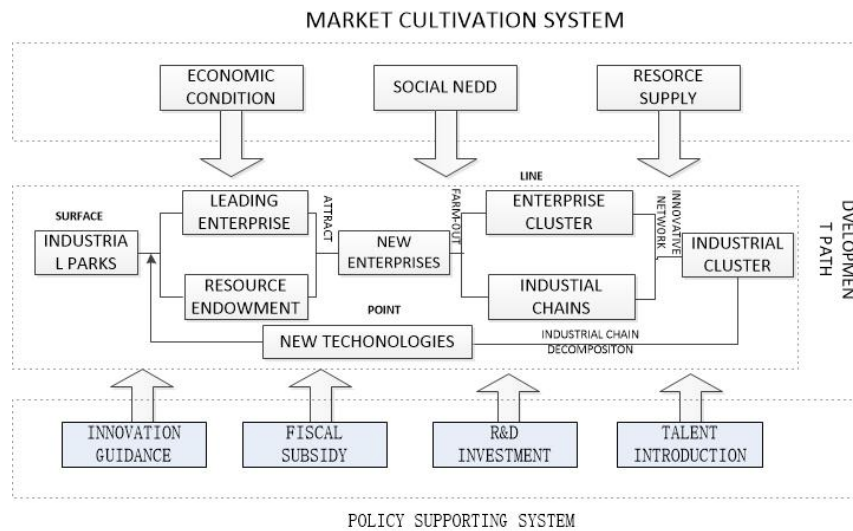


Figure 2 Internal Development Path of Strategic Emerging Industrial in Park

3.3 Analysis of the functional elements of strategic emerging industries

From a technical perspective, the existing technological trajectory will impose a repulsion effect on new industries, which may reduce the validity of diffusion of the new technology because of the lack of complementary infrastructure. From a marketable point of view, new technologies need the consequent choice of the market, but emerging industries can only make market testing and develop in the niche market composed of a small number of leading users, so government is needed to provide them some protective supporting policies (RAVEN, 2005). From a systematic perspective, the institutional system under the old technological paradigm hindered the development of new technologies, and the education system, financial system and patent system launched to support the technologies has not been completed, resulting in a huge demand of government.

4 Conclusion

As shown in figure 2, the internal formation of industrial clusters enhanced the relationships among enterprises and industries, making it possible for the strategic emerging industries' robust growth without the government's auxiliary, and to some extent, the formation of innovation network distracted the repulsion of emerging industries. As shown in figure 3: 1) Colleges and universities and the research institutes provided technical support, talents and information for companies. Because of the high-risk and high-resistance of strategic emerging industries, companies rarely spent a lot of energy to R&D activities. But the universities and scientific research institutes, as a nonprofit organization, could be pencil-thin in innovation research, which to some extent makes up the defect of the little innovation investment of the companies. 2) As a guide of innovative development, government's configuration and optimization of resources could reduce the cost and accelerate the pace of innovation. The government's

R&D investment and policy support for universities and scientific research institutes is one of the most important factors to promote innovation. 3)The presence of scientific and technological agencies effectively reduced the questions of high transaction costs and the hardness of technical searching caused by asymmetric information and information monopoly.

As a part of the regional innovation system, certain correlations must be synchronized between industries or park subsystems. For example, there must be a certain relationship between high-end equipment manufacturing industry and new materials industry, new material industry and biological industry and new generation of information technology industry and new energy automotive industry.

It combined the advantages of internal drive and external drive, and form an innovation ecosystem in the entire region that promoting interdisciplinary research and application between industries, and making the development path from the point-line-surface to the point-line-surface-system.

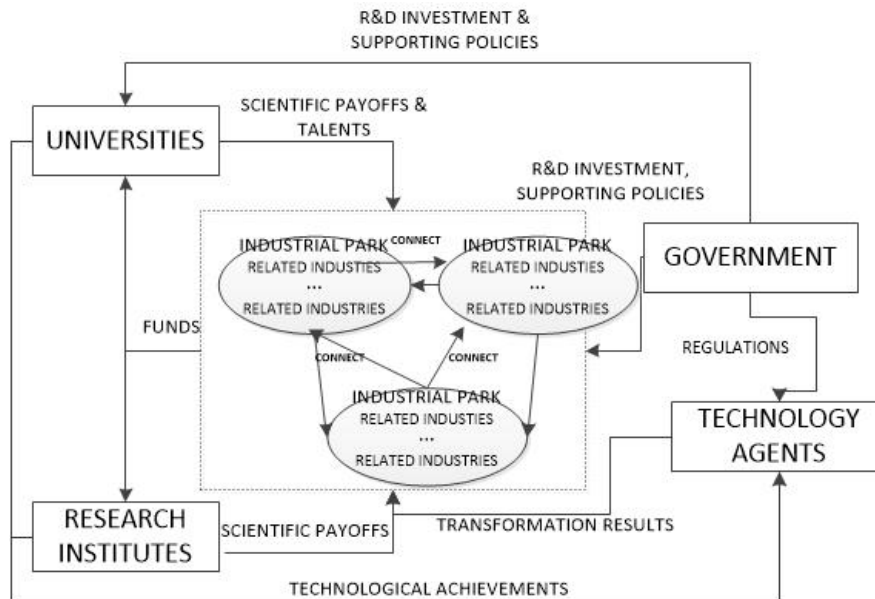


Figure 3 Development Path of Emerging Industries in the context of Regional Innovation

To overcome the obstacle of institutional system under old technology paradigm, following advices are proposed.

1) Increase R & D investment and taxation subsidies. "Twelfth Five-Year Plan" pointed that government should play a fundamental role in the development of investment-driven industry, and guide social investment tilted to the strategic emerging industries. The main measures include: a. Start and nurture emerging industries of strategic markets through government procurement, subsidies, and so on. b. Cultivate the appropriate consumer groups through pilot demonstration at the beginning of the development of strategic emerging industries. c. Promote the popularization of the products of strategic emerging industries through fiscal funds. d. Protect domestic market through technology standards, tariffs, political influence and other methods. e. Encourage domestic enterprises to actively explore the international market. f. Establish a sound legal system for new industries to improve the market environment.

2) Perfect financial system of strategic emerging industries by promoting the reform of financial system. a. Moderately introduce governmental credit and guarantee agencies to improve the success rate of loan. Besides, other debt financing instruments such as SME collective bonds, financial leasing and asset securitization can also be used in the process. b. Contribute to the financial system reform to attract private capital to participate in the process of innovation, which could arouse the support from banking and financial industries and combine the government investment and social investment to support the development of strategic emerging industries. c. Conduct financial innovation in the field of consumer credit to promote the product requirements of strategic emerging industries.

3) Strengthen the planning and guidance of strategic emerging industries to avoid vicious competition and redundant construction. States should clearly formulate a development plan combined with regional advantages and promote the development of industries with different emphasis in different

stages. Meanwhile, the government should adhere to the use of macroeconomic regulation to avoid the situation that the market mechanism is replaced by the government financial investment. Miao Yu(2011) has pointed that the government's most important role in the development of strategic emerging industries is to create an environment to encourage innovation. The main force to explore the market can only be the enterprise, which is unable substitute by the government.

4) Improve the intellectual property system to reduce the risk of enterprise innovation. In the aspect of layout, the government should actively guide the scientific layout of IPR system of strategic emerging industries, and closely track market competition and patent technology trends to set up an IPR review system for major economic activities. And in terms of promotion, we should establish and perfect the green channel of patent review and optimize the patent examination methods to accelerate and promote the establishment of public service platform in industrial agglomeration areas.

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Study on Brand Positioning in the Perspective of Game Theory

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Abstract: This study firstly analyzes connotation of brand positioning from four aspects including advertising, marketing strategy, micro system and brand equity, analyzes the feasibility of Game Theory as a tool used in the study of brand positioning based on the related research. This study establishes a brand positioning model based on Game Theory, which is used to analyze different brand positioning patterns. Importance of brand positioning, information and market is proved from the analysis of the model, this study also finds that first-mover advantage exists in brand positioning. Finally, the limitations and future research directions of this study are summarized.

Key words: Brand; Brand Positioning; Game Theory; First-mover Advantage

1 Introduction

1.1 Brand positioning

“Positioning” is proposed by Al Ries and Jack Trout in 1969, it means to find competitive position of products in the minds of consumers. Later researchers have done in-depth study and interpretation of “positioning”, for example, Lynn B.Upshaw considers customer positioning as the only effective position, Philip Kotler defines positioning as the action of finding the products’ unique position in the minds of customers (Yang Fangping and Yu Mingyang, 2010).

Based on the concept of “positioning”, “brand positioning” can be analyzed from four aspects including advertising, marketing strategy, micro system and brand equity (Li Xuexin and Li Haipeng, 2012). In the perspective of advertising, brand positioning is a key element to achieve brand differentiation and create unique position, advertising highlights the differences between brands. In the perspective of marketing strategy, brand positioning is a necessary approach to occupy a unique position in the minds of consumers and increase market share. In the perspective of micro system, brand positioning is a system to find the positioning point (Li Fei, 2009). In the perspective of brand equity, brand positioning is an effective way to increase brand equity, it helps the formation of consumer brand association, increases brand equity by positive and sustainable brand association.

1.2 Game theory

Game theory focus on the decision, action and equilibrium as well as the mutual influence between different but interconnected decision makers. Brand positioning can be studied in the perspective of game theory, the reasons are as follows: First, brand positioning need to consider the competitors, competition situation, price sensitivity and other conditions which meets the applicable conditions of game theory (Luo Pinliang and Lu Yi, 2007). Secondly, brand positioning is an action of seeking their own interests which are exclusive egoism and just game theory insist on (Abhijit Sengupta and Danica Vukadinovic Greetham, 2010). Finally, brand positioning contain strategies, action, effects and payoffs of different brands, all of them are basic conditions of game analysis.

2 Brand Positioning Model

2.1 Hypothesis

All products of some kind are only supplied by *Brand A* and *Brand B* which are indistinctive and can be replaced by each other. The two brands face the same market which can be divided into two segment markets including *Market X* and *Market Y*. The two segment markets independently face a same demand curve, there are no barriers to market entry and exit or supplies of the two brands. Products of the two brands are same in the unit costs. *Brand A* is first-mover in this model.

2.2 Problems analyses

Problems need to be solved by this model are as follows: First, each of the two brands has to decide which segment market will it enter to, that means “Which is the brand positioning point for each brand?”. Second, each brand has to judge each other's actions according to the market competition situation, that means “What are the market and game environments going on?”. Third, each brand has to adjust according to each other's actions and results, that means “What dynamic adjustments will be taken in brand positioning?”

2.3 Model description

1) game elements

Participants: Brand A and Brand B.

Strategy: Decision are making according to the principle of profit maximization.

Actions: Enter to Market $j(j= X, Y)$ or not.

Payoffs: Payoffs are determined by the market rules.

Information Sets: Information is complete.

2) game timing. Brand A is first-mover, then Brand B. M_X means entering to Market X, M_Y means entering to Market Y, M_{X+Y} means entering to Market X and Market Y.

3) game extended type. Figure1 shows the game extended type (payoffs are in model analysis).

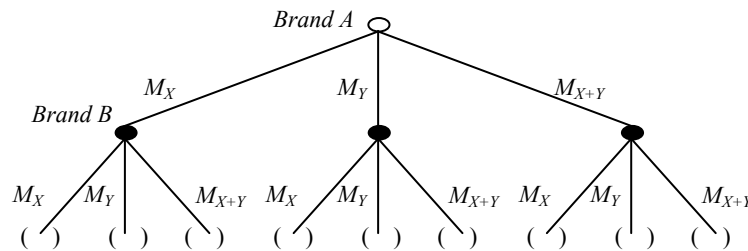


Figure 1 Brand Positioning Game Extended Type

3 Model Analysis

Inverse demand function of Market $j(j= X, Y)$ is :

$$p_j = a - bq_j = a - b(q_{Aj} + q_{Bj}) \tag{1}$$

The equilibrium price of Market j is p_j , a and b are coefficients, q_{Aj} is quantity of supply in Market j which supplied by Brand A, and q_{Bj} is quantity of supply in Market j which supplied by Brand B.

There are two categories of market entry decision of Brand $i(i=A, B)$, they are unilateral entry and bilateral entry (Ye Qing and Chi Wei, 2012). Unilateral entry includes two cases(Case1 and Case2), bilateral entry includes five cases(from Case3 to Case7).

Case1: Brand A enters Market X, Brand B enters Market Y.

Case2: Brand A enters Market Y, Brand B enters Market X.

Case3: Brand A enters Market X and Market Y, Brand B enters Market X.

Case4: Brand A enters Market X and Market Y, Brand B enters Market Y.

Case5: Brand A enters Market X, Brand B enters Market X and Market Y.

Case6: Brand A enters Market Y, Brand B enters Market X and Market Y.

Case7: Brand A enters Market X and Market Y, Brand B enters Market X and Market Y.

3.1 Unilateral entry

Because of products indistinction and markets' same demand curve, the two unilateral entry cases(Case1 and Case2) are same in equilibrium, so Case1 is used to analyse the equilibrium of unilateral entry. In Case1, Brand A monopolizes Market X and Brand B monopolizes Market Y.

For Brand A, the reverse demand function in Market X is:

$$p_X = a - bq_X = a - b(q_{AX} + q_{BX}) = a - bq_A \tag{2}$$

The total profit of Brand A is:

$$\Pi_A = \Pi_{AX} = (p_X - c)q_{AX} = (a - bq_{AX} - c)q_{AX} \tag{3}$$

Condition for maximum Π_A is the derivative of Π_A is 0:

$$a - 2bq_{AX} - c = 0 \tag{4}$$

That means when $q_{AX} = (a - c) / 2b$ the total profit of Brand A is to the $Max \Pi_A = (a - c)^2 / 4b$.

Samely, for Brand B, the optimal supply quantity is $q_{BY} = (a - c) / 2b$, $Max \Pi_B = (a - c)^2 / 4b$.

3.2 Bilateral entry

Bilateral entry includes two categories: the first is a brand enters only one market and another brand enters two markets(from Case3 to Case6), the second is the two brands both enters two markets(Case7).

According to the hypothesis, Brand A is first-mover and decisions are making according to the principle of profit maximization, so in first bilateral entry Case5 and Case6 are both irrational because rational decision of Brand A in bilateral entry is entering two markets. In addition, Case3 and Case4 are similar in equilibrium, the only difference is which market is Brand B's profit comes from, so Case3 can be used to analyse the equilibrium of the first bilateral entry and Case7 for the second.

3.2.1 The first bilateral entry(*Case3* for example)

1) Decision of *Brand A*

As the first-mover, the rational decision of *Brand A* is regarding the two markets as its monopoly markets according to the principle of profit maximization, *Brand A* will determine the optimal supply for the two markets which is the same with the one in unilateral entry. In other words, the optimal supply quantity of *Brand A* is:

$$q_{AX}=q_{AY}=(a-c)/2b \quad (5)$$

2) Decision of *Brand B*

According to the principle of profit maximization, *Brand B* determines its optimal supply depends on *Brand A*'s decision. The equilibrium price in *Market X* is:

$$p_X=a-bq_X=a-b(q_{AX}+q_{BX})=a-b[(a-c)/2b+q_{BX}] \quad (6)$$

The total profit of *Brand B* is:

$$\Pi_B=\Pi_{BX}=(p_X-c)q_{BX}=\{a-b[(a-c)/2b+q_{BX}]-c\}q_{BX} \quad (7)$$

Condition for maximum Π_B is the derivative of Π_B is 0:

$$(a-c)/2-2bq_{BX}=0 \quad (8)$$

That means when $q_{BX}=(a-c)/4b$ the total profit of *Brand B* is to the maximum.

When *Brand A* supplies $(a-c)/2b$ and *Brand B* supplies $(a-c)/4b$, the equilibrium price is:

$$p_X=a-b[(a-c)/2b+(a-c)/4b]=a-b(a+3c)/4 \quad (9)$$

3) Total profits

Total profit of *Brand A* is:

$$\Pi_A=\Pi_{AX}+\Pi_{AY}=(a-c)^2/8b+(a-c)^2/4b=3(a-c)^2/8b \quad (10)$$

Total profit of *Brand B* is:

$$\Pi_B=\Pi_{BX}=(a-c)^2/16b \quad (11)$$

In addition, it can be proved that optimal supply and total profit are not changed in *Case4*.

3.2.2 The second bilateral entry(*Case7*)

1) Decision of *Brand A*

Compared with the first bilateral entry(*Case3*), the rational decision of *Brand A* in the second bilateral entry(*Case7*) has no change, that is:

$$q_{AX}=q_{AY}=(a-c)/2b \quad (12)$$

2) Decision of *Brand B*

Brand B's optimal supply depends on *Brand A*'s decision both in *Market X* and in *Market Y*. The equilibrium price in *Market X* and the equilibrium price in *Market Y* are:

$$p_X=a-bq_X=a-b(q_{AX}+q_{BX})=a-b[(a-c)/2b+q_{BX}] \quad (13)$$

$$p_Y=a-bq_Y=a-b(q_{AY}+q_{BY})=a-b[(a-c)/2b+q_{BY}] \quad (14)$$

And the total profit of *Brand B* is:

$$\Pi_B=\Pi_{BX}+\Pi_{BY}=\{a-b[(a-c)/2b+q_{BX}]-c\}q_{BX}+\{a-b[(a-c)/2b+q_{BY}]-c\}q_{BY} \quad (15)$$

Condition for maximum Π_B is the derivative of Π_B is 0, in other words, it is:

$$q_{BX}=q_{BY}=(a-c)/4b \quad (16)$$

The equilibrium price is:

$$p_X=p_Y=a-b[(a-c)/2b+(a-c)/4b]=a-b(a+3c)/4 \quad (17)$$

3) Total profits

Total profit of *Brand A* is:

$$\Pi_A=\Pi_{AX}+\Pi_{AY}=(a-c)^2/8b+(a-c)^2/8b=(a-c)^2/4b \quad (18)$$

Total profit of *Brand B* is:

$$\Pi_B=\Pi_{BX}+\Pi_{BY}=(a-c)^2/16b+(a-c)^2/16b=(a-c)^2/8b \quad (19)$$

3.3 Cases of incomplete information

If the information is incomplete and the two brands acts in the same time, no brand can observe each other's actions. In this situation, each brand will regard the two markets as their own monopoly markets, similar to unilateral entry decision, each brand supplies $(a-c)/2b$ to each market. In this case, each brand's rational decision leads to irrational results: *Brand A* and *Brand B* supply the same amount of indistinctive products in the two markets, that means the two markets are both perfectly competitive market and no brand can make profits, the total profit of the two brand is 0.

If the information is incomplete and the two brands acts not in the same time, a brand's decision depends on the other one. In this case, equilibrium can be analysed by the Cournot Duopoly Model: For the two brands, optimal supply for each market is $(a-c)/3b$, the total profit of each brand is $2(a-c)^2/9b$ which equally comes from the two markets.

4 Results

4.1 Complete information

1) Interrelationship exists in brand positioning. *Brand A*'s total profit when it enters both *Market X* and *Market Y* is not less than when it enters only one of the two markets. To a certain degree, *Brand A*'s total profit depends on *Brand B*'s decision: If *Brand B* enters only one of the two markets, *Brand A* can get the maximum total profit which is $3(a-c)^2/8b$ while *Brand B* gets the minimum total profit which is $(a-c)^2/16b$; If *Brand B* enters both *Market X* and *Market Y*, *Brand A*'s total profit is $(a-c)^2/4b$ and *Brand B*'s total profit is $(a-c)^2/8b$.

Brand B's total profit depends on *Brand A*'s decision: when *Brand A* enters only one of the two markets can *Brand B* get the maximum total profit which is $(a-c)^2/4b$ by monopolizes the other market.

2) First-mover advantage exists in brand positioning. As the first-mover, *Brand A*'s minimum total profit is $(a-c)^2/4b$ which is just the maximum total profit of *Brand B*. By the rational decision of *Brand A*, the maximum total profit of *Brand A* is $3(a-c)^2/8b$ while *Brand B* gets the minimum total profit which is $(a-c)^2/16b$. In other words, the first-mover *Brand A* increases its own total profit and reduces *Brand B*'s total profit at the same time.

4.2 Incomplete information

When information is incomplete and the two brands act not in the same time, both *Brand A* and *Brand B* make decisions according to the principle of profit maximization and supply the same amount of indistinctive products in the two markets, it leads to irrational results and no brand can make any profits because the two markets are both perfectly competitive market.

When information is incomplete and *Brand A* is first-mover, it's Cournot Duopoly Model. The total profit of each brand in equilibrium is $2(a-c)^2/9b$, that means *Brand A* gets a lower profit than it has when information is complete and *Brand A* as first-mover. But for *Brand B* it's a better situation because it not only gets rid of the repression of *Brand A* but also gets a higher profit than any other situation.

5 Conclusion

This study establishes a brand positioning model based on Game Theory, through model analysis it finds that first-mover advantage and interrelationship exist in brand positioning. The first-mover can obtain a favorable position in markets by information screening and first-movement. Also market exploring helps the first-mover increases its own advantages and represses the competitive brand. The brand which acts latter should widely collect information to have an accurate positioning which avoids competing in the same market with the stronger one, otherwise it will lead to irrational results for both.

Limitations of this study should be summarized. In this study, brand positioning is analyzed by a brand positioning model which uses market segmentations to represent brand positioning differences, but in reality brand positioning differences can exist in the same market, so further and smaller market segmentations are needed. In addition, some hypotheses can be relaxed in order to obtain more general conclusions, for example, classifying different markets according to the market capacities (Gregory S.Carpenter, 1989), analyzing the influence of costs when unit costs are different in brand positioning, adjustments needed when market barriers are existing. All of the above will be studied in the future.

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The Evaluation of Innovation Ability of Wuhan High-Tech Industrial Clusters

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Abstract: This paper constructs the evaluation index system of industrial clusters' innovation capability evaluation and uses of factor analysis method to evaluate Wuhan high-tech industry in 2007-2013 industrial clusters' innovation ability. The results show that industrial clusters' innovation ability in Wuhan High-tech zones has significantly increased in recent years. But it still exists a gap in innovation ability of industrial clusters, such as the incomplete laboring-division system in the industrial chain of enterprises, the insufficient collaborative system and the unstable R&D backbone. The deficient innovative research is also counted in the list, for the majority enterprises still entrap themselves in imitative innovation.

Key words: Industrial cluster; Innovative capability; Environment supporting capacity; Research ability; Factor analysis method

1 Introduction

With the rapid development of the global high-tech industries, industrial clusters have become the significant regional advantage of high-tech zones and the inexorable trend of the industrialization. To foster the high-tech industrial clusters is the significant move to optimize present industrial structure and strengthen the competitiveness as well as implement the policy of "thriving the province through industry". So-called industrial clusters serve as an organic system comprised by related enterprises and institutions in some certain field, complementary or competitive, which gather together in some region to form a complete structure in upper, middle and lower reaches, featuring the sound industry system with peripheral support and flexibility. The practice demonstrates that industrial clusters can not only promote the overall competitive ability of industries and enhance the efficient collaboration among firms, but also do good to strengthen the capacity for independent innovation of enterprises so as to create in a clustered way. So far, Wuhan has formed the traditional industrial clusters represented by Zhuanke automobile industry, Qingshan iron steel & petrifaction and environmental protection industry, and DongXihu logistics industry of agricultural food. Besides, it has also formed the high-tech industrial clusters typical as photoelectron information industry and biomedical industry in East Lake High-tech Zone. After several years' development, Wuhan Hi-tech industrial clusters set the stage for forming correlative industry chain in upper, middle and lower reaches. However, there still exists a certain degree of bottlenecks, including imitative products flooding into the market due to insufficient innovation ability, low technical added value and technology spillovers value of products. Moreover, some hi-tech industrial clusters are also confronted with problems of constancy, hierarchy and level of innovation. Based on this, the article will make some evaluations on the innovation ability of Wuhan hi-tech industrial clusters, which is not only beneficial to potentially grasp the essential factor of innovation activities, but also conducive to inspire vitality and its potential of innovation so as to accelerate the sustainable development.

2 The Construction upon the Evaluation Index System of Innovation Capacity of Industrial Clusters

Innovation capacity of industrial clusters contain components or specific elements operationally processed in specific perspectives. As the capacity itself is an abstract concept, its operability and measurable nature must be embodied in carrier levels. According to the above principle, taking into account of the availability of index data, the industrial cluster's innovation capability evaluation index system is constructed as shown in table 1.

In this system, the carrier of the innovation capacity can be attributed to four aspects: input capacity, environment-supporting capacity, output capacity, and research capacity, where

a total of 22 indicators are selected to evaluate industrial cluster's innovation capability.

Table 1 Wuhan High-Tech Industry Cluster Innovation Capability Evaluation Index System

Target layer	Indicator	Unit
Input Capacity	The number of R&D activities in Above-scale enterprises	No.
	The Number of Staffs of R&D in Above-scale enterprises	personnels
	The Expenditure of R&D of Above-scale Enterprises	Tens of thousands Yuan
	The Expenditure of the Development of New Products in Above-scale Enterprises	Tens of thousands Yuan
Environment-supporting capacity	National Laboratory	No.
	The Expenditure of Research and Experimental Development (R&D)	0.1 Billion Yuan
	Contract Turnover in Technological Market	0.1 Billion Yuan
	National-level Technological Business Incubator	Stores
Output Capacity	Total Industrial Output	0.1 Billion Yuan
	Local Fiscal expenditure	0.1 Billion Yuan
	High-tech Industry Output	0.1 Billion Yuan
	Added value in High-tech industries	0.1 Billion Yuan
	High-tech Products Export Delivery Value	0.1 Billion Yuan
	High-tech Product Sales Revenue	0.1 Billion Yuan
	Total Profit of High-tech Products	0.1 Billion Yuan
	New Products Sales Revenue of Above-scale Enterprises	0.1 Billion Yuan
Research capacity	The Number of Patent Applications of Above-scale Enterprises	pieces
	Science and Technology Research Institutes	Institutes
	National-level Enterprise Technology Center	Institutes
	National-level Engineering Research Center	Institutes
	Projects supported by National Science and technology program	Projects
	The Number of Scientific Achievements	No.

3 The Evaluation of Innovation Capability of Industry Clusters in Wuhan High-Tech Zone

3.1 Data sources

According to above indicator system of the evaluation, the data from 2008 to 2014 is selected in Wuhan Statistical Yearbook and is evaluated by factor analysis.

Table 2 The Indicator Data from 2007-2013

Indicator	2007	2008	2009	2010	2011	2012	2013
X1	264	287	308	319	325	326	389
X2	24276	28651	31076	33602	44244	46170	49982
X3	378956	512785	671523	8822376	1038336	1269103	1503407
X4	487621	698742	882635	1064343	1218807	1461464	1616071
X5	13	14	16	17	22	24	27
X6	88.3	112	132	158.7	175	212.9	255
X7	54.1	65.9	74.04	88.87	107.51	169.69	220
X8	9	11	12	14	15	15	18
X9	4010.30	6251.79	6317.94	7004.96	8461.21	10195.88	11654.64
X10	387.72	479.52	711.91	989.95	1278.36	885.55	1122.88
X11	1380.12	1734.11	2054.99	2638.04	3448.91	4556.00	5604.47
X12	474.76	601.74	711.03	883.10	1074.11	1353.40	1700.19
X13	92.08	118.93	128.49	194.73	376.77	554.62	452.96
X14	1255.91	1595.38	1938.39	2572.33	3817.22	4510.36	4958.95
X15	155.36	157.03	222.30	294.43	329.73	351.69	394.97
X16	1036.65	1127.91	1167.23	1222.54	1296.77	1284.05	1750.86
X17	2863	3271	3659	4032	4409	5711	7542
X18	103	105	107	101	100	104	101
X19	10	12	13	15	18	19	23
X20	16	17	19	20	22	23	26
X21	891	1012	1198	1450	2051	2400	2500
X22	266	278	301	315	392	380	404

(Data sources: Wuhan statistical yearbook from 2008 to 2014)

In order to eliminate some unreasonable effects possibly caused by different dimension, it's necessary to standardize the data before analyzing the principal component so as to make the average value of each variable 0 and make the variance 1 as well.

3.2 The condition of factor analysis

Before factor analysis, we firstly need to test the standardized 22 indicators about whether they are suitable for factor analysis, including the calculation of KMO and Bartlett spherical test. The results show that the KMO value of the raw data is 0.724, good one; the Bartlett ball test value is 0, fit for multivariate normal distribution, which proves they are suitable for factor analysis.

3.3 Data department

According to the principle of factor analysis, we use SPSS18.0 to calculate the feature values, contribution rate, cumulative contribution rate of each factor and the factor load matrix of each index after orthogonal rotation, as shown in Table 3.

Table 3 Total Variance of Factor Interpretation in Innovation Factor of Industrial Clusters

Ingredient	Initial Eigenvalues			Extraction of sum of squares loaded			Rotate the sum of squares loaded		
	total	variance	accumulation	total	variance	accumulation	total	variance	accumulation
1	19.900	90.454	90.454	19.900	90.454	90.454	16.774	76.244	76.244
2	1.042	4.735	95.188	1.042	4.735	95.188	4.168	18.945	95.188
3	.586	2.661	97.850						

According to the principle of the eigenvalues being set over 1, it turns out that the result of initial eigenvalues of the first factors is more than 1, and the two common factors extracted by SPSS18.0 replace the original 22 indexes. After the maximum rotation, the contribution rate of variance reaches 76.244% and 18.945% respectively, and the accumulated variance reaches 95.188%, indicating the two factors include the amount of information of the original 22 evaluation indexes and they can replace those original ones to evaluate the innovation ability of industrial clusters in Wuhan New and High-tech zones.

Table 4 Score Matrix of Principal Component Factor of Industrial Clusters' Innovation Ability

index	ingredient		index	ingredient		index	ingredient	
	F1	F2		F1	F2		F1	F2
X1	.059	-.017	X9	.101	-.105	X17	.122	-.154
X2	.037	.039	X10	-.146	.429	X18	.285	-.702
X3	.069	-.031	X11	.086	-.072	X19	.044	.024
X4	.062	-.018	X12	.083	-.064	X20	.053	.004
X5	.059	-.011	X13	.069	-.042	X21	.047	.015
X6	.078	-.053	X14	.045	.021	X22	-.009	.139
X7	.132	-.178	X15	-.008	.137			
X8	.012	.093	X16	.069	-.043			

According to the score matrix of factor as table 4, score function of factor is:

$$F1 = 0.059X1 + 0.037X2 + 0.069X3 + \dots + 0.047X21 - 0.009X22$$

$$F2 = -0.017X1 + 0.039X2 - 0.031X3 - \dots + 0.015X21 + 0.139X22$$

3.4 Comprehensive evaluation

The two factors, F1 and F2 from different aspects, reflect the present condition of the industrial clusters' innovation ability in Wuhan High-tech Zones during 2007 to 2013. Taking the contribution ratio between variance corresponding to each common factor and cumulative variance as weight calculation, we can obtain the comprehensive score, namely: $F = 0.8010F1 + 0.1990F2$, as showed in Table 5.

Table 5 Factors and Comprehensive Scores in 2007-2013

	F1	F2	scores of innovation ability	comprehensive ranking
2007	-1.20711	-.31033	-1.03	1
2008	-.58838	-.89265	-.65	2
2009	-.15813	-1.09451	-.34	3
2010	-.56949	.94296	-.27	4
2011	-.19863	1.63813	.17	5
2012	1.13290	-.52655	.80	6
2013	1.58885	.24295	1.32	7

The comprehensive evaluation scores of industrial clusters' innovation ability in Wuhan High-tech Zones between 2007 and 2013 are calculated by factor analysis. The figures in table 5 show that industrial clusters' innovation ability in Wuhan High-tech zones has significantly increased in recent years. This is inseparable from our city's huge resources investment, excellent environmental facilities and increased research capacity in the development of industrial clusters.

4 Conclusion

Compared with the southeastern China, Wuhan high-tech Zone still exists a gap in innovation ability of industrial clusters, though it has been continuously improved, such as the incomplete laboring-division system in the industrial chain of enterprises, the insufficient collaborative system and the unstable R&D backbone. The deficient innovative research is also counted in the list, for the majority enterprises still entrap themselves in imitative innovation. To make it better, we need to improve the diversion and co-ordinance mechanism of the whole industrial chain under the leadership of government and the Industry Association. It is necessary to establish the shared platform of basic research in different industries, carry out technical reserves and strengthen the independent innovation ability of the enterprises. What's more, we should make efforts to design attractive salary incentive system, namely, a series of measures to stabilize the R&D talents, like implementing of share holding program to R&D backbones, involving Sci -Tech achievements in the income distribution and establishing the funds for outstanding contribution, etc.

Only in this way can we fundamentally enhance the sustainable innovation ability of the Hi-tech industry clusters in Wuhan.

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Evaluation on Wisdom Degree of Enterprise in Smart City Construction: A Case Study of Ningbo Zhongtong Logistics Group*

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Abstract: By analyzing the development background, theory and construction content of smart city, we concluded that wisdom degree of enterprise is directly related to sustainable development of smart city construction. From the perspective of logistics enterprises, we designed the indicators of personnel Intelligence level, hardware digital level, immediacy of management & intelligent of innovation of logistics enterprise, built the Evaluation Model of wisdom degree of enterprises, and by using this Model, evaluated wisdom degree of Ningbo Zhongtong Logistics Group.

Key words: Smart City; Wisdom Degree of Enterprise; Evaluation model; Case study

1 Introduction

Formation of city is in close relevance with social economic form. The budding city emerges in tribes when human being remains in food-gathering stage. When society evolves to Agrarian Age, city develops into town since it functions as exchange. When society moves into industrial civilization, large scale machine and labor division come into being gradually and urban civilization occupies a leading position. When society promotes itself into the new era, Knowledge Economy, mingling with Industrial Economy, City Economy and Information Economy, constitutes the living environment of smart city and compacts the formation of smart city. (See Fig. 1)

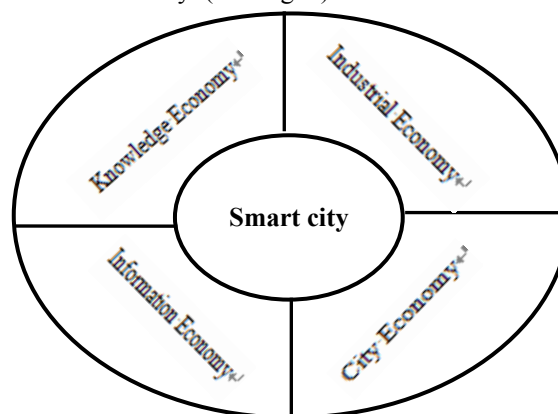


Figure 1 Environment of Smart City

Our knowledge of smart city grows when Gore(1998) proposed the concept of “Digital Earth”, then, Smart Earth”, Microsoft “Smart Cloud”, Oracle “Excellent City Service”, Cisco “Smart Connected City”, MIT “Science & Technology Promoting City”, Digital China “333”(3 techniques, 3 stages and 3 frameworks) of constructing smart city, and so on. The 3rd Information Wave results in a rapid development in smart city theories, techniques and practices.

Pan Yunhe academician (2011) considers the construction contents of smart city a multi-dimensional relation. He emphasizes the solution schemes and macroscopical development strategy of information channel, production and service and their application system construction and development, smart health care, smart transportation, smart environment and smart power grid, etc. Xu Qingrui academician (2012) proposed an image of further constructing smart city by integrating digital city, knowledge city, innovation city, creating city and ecological city. Smart city can be build by 3 levels: smart enterprises, smart society and smart government under the perspective of city economic

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development. (See Fig.2) Through analyzing its driven power, smart enterprises plays a key role in smart city development.

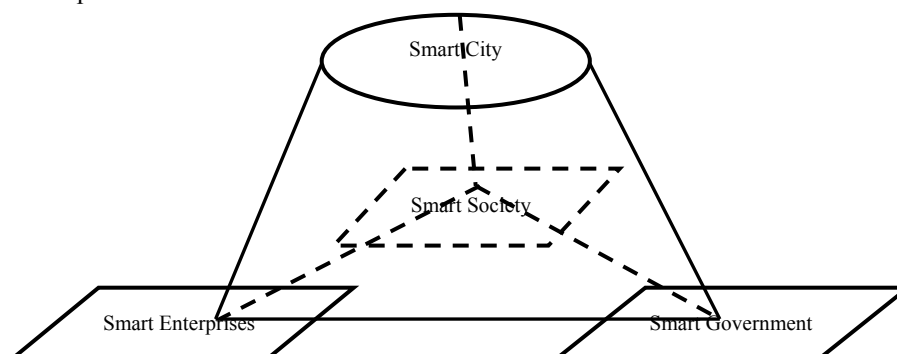


Figure 2 Structures of Smart City

Enterprises are the chief cells in city development and the main source of government fiscal revenue. The wisdom degree of enterprises is directly relative to whether sustainable development can be achieved in smart city construction. Therefore, the research for wisdom enterprises has very important significance.

2 Wisdom Degree Analyses of Logistics Enterprises

Smart enterprises have to be supported by informatization and intellectualization and highlight digitization, perception, interconnection and collaborative in running process. Therefore, analyzing the wisdom degree of enterprises should rest on the aspects like the intelligence of enterprise personnel, the digitization of enterprise hardware, the instant of enterprise management and intellectuality of enterprise innovation. As a comprehensive industry, logistics industry is more representative in enterprises wisdom degree analyzing.

2.1 Intelligence index analysis of logistics enterprise personnel

Promoting the wisdom degree of logistics enterprises means to promote the performance efficiency, effectiveness and benefit of relevant position functions in logistics enterprises, and means to optimize the implementation scheme of each logistics link to guarantee an indeed capacity of quick response, flexible production and supply chain management. Thus, logistics enterprise personnel have to be equipped with a higher intelligence.

The main elements of intelligence evaluation index analysis of logistics enterprise personnel include logistics personnel education background distribution, education background matching rate of logistics skill position, ownership rate of logistics industry qualification certificate, ownership rate of computer level certificate, work shift times of current technical position of logistics enterprise, working life of engaging logistics enterprise technical position and so on.

The education background distribution index shall treat 2 categories differently: manager at or above middle-level and business staff. According to the real situation of logistics industry in our country, manager is usually at junior college degree and the business staff high school degree.

On the aspect of education background matching rate of skill position, logistics enterprises involve many posts, such as, transportation, storage, distribution processing, delivery, finance, human resource management, marketing, maintaining and informatization management, etc. So, matching rate is better counted by wide-caliber.

For the ownership rate of logistics industry qualification certificate, Logistician, Logistics as well as various vouching clerks and accountants shall be included.

The ownership rate of computer level certificate aims to examine the informatization processing capacity of logistics enterprise personnel, so related certificate of informatization shall be included.

The evaluation of work shift times in current technical position of logistics enterprise mastering each link of logistics enterprise management entirely through position shifting, which is a foundation in promoting the wisdom degree of logistics enterprises, According to the current situation of logistics industry development in our country, 3 times, 2 times and 1 time shall be considered as a basic request.

The working life index of engaging logistics enterprise technical position is not only an examination of employment stability of logistics enterprise and a measurement of technical proficiency

of logistics enterprise personnel, but also a basic element of logistics enterprise promoting informatization and intellectualization transformation.

The detail of intelligence evaluation index system of logistics enterprise is shown in Table 1. If a logistics enterprise meets the demands of more than 4 indexes at Level A in Table 1, this logistics enterprise can be thought to achieve the minimum standard of intelligence level at which a smart logistics enterprise personnel should reach. Personnel intelligence level is only one element of smart logistics enterprise. To evaluate the wisdom degree of a logistics enterprise comprehensively still needs other related indexes supports.

Table 1 Intelligence Evaluation Index System of Logistics Enterprise Personnel

Evaluation Index		Level					
		5A	4A	3A	2A	A	Non -A
Education Background Distribution	manager at or above middle-level	> 90% College Degree	80-90% College Degree	70-80% College Degree	60-70% College Degree	50-60% College Degree	< 50% College Degree
	business staff	> 90% High School Degree	80-90% High School Degree	70-80% High School Degree	60-70% High School Degree	50-60% High School Degree	< 50% High School Degree
Education Background Matching Rate of Skill Position		> 70%	60-70%	50-60%	40-50%	30-40%	< 30%
Ownership Rate of Logistics Industry Qualification Certificate		> 60	50-60%	40-50%	30-40%	20-30%	< 20%
Ownership Rate of Computer Level Certificate		> 50%	40-50%	30-40%	20-30%	10-20%	< 10%
Work Shift Times in Current Technical Position		3	2.5	2	1.5	1	0
Working Life of Engaging Logistics Position (over 3 years)		90%	80-90%	70-80%	60-70%	50-60%	< 50%

Note: 1.5 and 2.5 of work shift times in Table 1 means after 1 and 2 times shifting as the whole, 1 work time is shifted in partial position.

2.2 The hardware digitization index analysis of logistics enterprise

The hardware digitization of logistics enterprise is necessary to realize a smart enterprise. Digitization is the basis of informatization and an effect path of collecting, processing and applying all kinds of data. Digitization here represents the level that logistics enterprise employs modern science and technology leading by informatization.

The main indexes of evaluating logistics enterprise hardware include EDI utility ratio, Bar Coding utility ratio, comprehensive operation ratio of GIS/GPS GSM /GPRS /CDMA /3G, RFID utility ratio, popularity of ISO9000 certification, utility ratio of Internet of Things and so on.

EDI (Electronic Data Interchange), a way that computer processes commerce, is a basic condition of logistics enterprise digitization. It is made up of EDI software & hardware, communication network and standardized data. It includes establishing EDI Data and standard system, especially the application of code standard, the establishment of security standard, and popularization of application standard and so on.

Bar Coding is a data carrier, with which data can be collected and transformed quickly. By designing, making, scanning and reading bar code, Bar Coding is an effect path of accelerating goods management informatization and enterprise modernization management. It also is a technique foundation of realizing POS system, EDI application and supply chain management. It attributes to handle jillion goods data conveniently, so it makes up the most fundamental condition in smart logistics enterprise.

GIS, GPS, GSM and GPRS, and other wireless communication techniques are essential configuration of a smart logistics enterprise. These systems provide technique support of inquiry function for goods management. Upgrading and updating their products guarantee information modernization.

RFID is an automatic identification technology to goods by using unique reader to handle the label attached to goods, so as to support smart management for logistics enterprise. RFID making use of non-contact identification is to the benefit to reduce the operating management cost and improve service level for logistics enterprise.

ISO9000 Quality Management System promotes the overall quality management level by

establishing standardized system of every link, like purchasing, storage, delivery, loading & unloading, distribution processing and transportation and so on. As a result, popularizing this system helps to promote digitalization level and management service efficiency.

Technique of Internet of Things interconnects ubiquitous end equipments and facilities by wireless or wired communication network to provide a smart platform support for improving management service level based on various logistics enterprise data handled by cloud computing. Obviously the application level of Internet of Things represents the degree of smart enterprise.

The Hardware Digitization Evaluation Index System of Logistics Enterprise is shown in Table 2.

Table 2 Hardware Digitization Evaluation Index System of Logistics Enterprise

Evaluation Index	Level					
	5A	4A	3A	2A	A	Non-A
EDI Utility Ratio	(90%,100%]	(80%,90%]	(70%,80%]	(60%,70%]	(50%,60%]	[0,50%]
Bar Coding Utility Ratio	100%	> 95%	> 90%	> 85%	> 80%	< 80%
comprehensive operation ratio of GIS/GPS GSM /GPRS /CDMA /3G,etc.	> 90%	> 85%	> 80%	> 75%	> 70%	< 70%
RFID Utility Ratio	100%	> 95%	> 90%	> 85%	> 80%	< 80%
Popularity of ISO9000 Certification	100%	≥ 90	> 80%	> 70%	> 60%	< 60%
Utility Ratio of Internet of Things	> 90%	(80%, 90%]	(70%,80%]	(60%,70%]	(50%,60%]	< 50%

2.3 The instant index analysis of logistics enterprise management

Instant of logistics enterprise management is also called “real-time”, which is a management featuring a quick response by logistics enterprise. Logistics industry is a compound service industry, which functions particularly in the field of production, consumption, investment and trade. Instant of logistics enterprise management is of more significance in the process of social and economical transformation.

Instant responsivity of vehicle scheduling is the ratio between successful allocating times and total allocating times in a certain standard interval. A smart logistics enterprise learns the car operation on the line clearly and vehicle scheduling knows well about the condition of car operation. To define certain standard interval concerns traffic condition and relates closely to how hard the enterprise seeks profit.

Instant responsivity of is the ratio between finished delivery and demand in a certain standard interval. The standard interval differs in material delivery of manufacturing enterprise and end consumption of urban & rural. If manufacturing enterprise entrusts its delivery of internal production logistics to third party logistics enterprise, its time request is strict and controllable from enterprise delivery center to buffer and conversely to delivery center or finished products storage. End consumption of urban & rural can be influenced by multiple factors like traffic condition, supply varieties and quantities and so on.

Instant responsivity of replenishment is the ratio between finished replenishment and demand in a certain standard interval. Under the circumstance of supply chain management, the time and quality of upstream and downstream node supply can be guaranteed. When it is out of this circumstance, replenishment purchase limits its instant responsivity.

Instant responsivity of line optimization is the ratio between finished amount of line optimization and total demand amount in a certain standard interval. Line optimization can be influenced by multiple factors like order quantity, order district distribution and line patency condition and so on.

Instant responsivity of information inquiry is the ratio between successful information inquiry amount and total demand amount in a certain standard interval. Information inquiry can be divided into external inquiry and enterprise internal inquiry. Logistics enterprise should fulfill the basic duties of clients' inquiry. Clients have high expectation to instant response of information inquiry in information age. Internal inquiry is a fundamental condition of improving management performance in logistics enterprise. Therefore, to improve instant responsivity of information inquiry is a basic path to make a logistics enterprise smart.

Instant responsivity of reverse logistics is the ratio between finished amount of reverse logistics and normal amount in a certain standard interval. Since central government put forward “Five in One” integration (economic construction, political instruction, cultural instruction, social instruction and ecological civilization instruction) to build a wild China, reverse logistics volume will be increased rapidly. Smart logistics enterprise should undertake the important historical development task of leading

fashion to increase the instant responsiveness of reverse logistics.

Table 3 shows the instant evaluation index system of logistics enterprise management.

Table 3 Instant Evaluation Index System of Logistics Enterprise Management

Evaluation Index	Level					
	5A	4A	3A	2A	A	Non-A
Instant Responsivity of Vehicle Scheduling	(95%,100%]	(90%,95%]	(85%,90%]	(80%,85%]	(75%,80%]	< 75%
Instant Responsivity of Delivery	(95%,100%]	(85%,95%]	(75%,85%]	(65%,75%]	(60%,65%]	< 60%
Instant Responsivity of Replenishment	(95%,100%]	(90%,95%]	(85%,90%]	(80%,85%]	(75%,80%]	< 75%
Instant Responsivity of Line Optimization	(85%,100%]	(85%,95%]	(75%,85%]	(65%,75%]	(60%,65%]	< 60%
Instant Responsivity of Information Inquiry	100%	(98%,100%]	(95%,98%]	(93%,95%]	(90%,93%]	< 93%
Instant Responsivity of Reverse Logistics	(95%,100%]	(85%,95%]	(75%,85%]	(65%,75%]	(60%,65%]	< 60%

2.4 Intellectual index analysis of logistics enterprise innovation

Whether a logistics enterprise is intellectualized or not depends importantly on if its innovation is intellectualized. Intellectualized innovation can be evaluated from key indexes, such as innovation perceptible degree, innovation network correlation degree, innovation systematization ratio, innovation coordination ratio, and innovation patent registration ratio and utility ratio of innovation technology.

Innovation fruit may appear in different production and management link in various forms in logistics enterprise, but intellectualized innovation fruit must be perceptible since a full perception is an important feature of intellectualized enterprise. Perceptible degree is a proportion that each main link of innovation fruit can be coded, which is decided by the role that innovation fruit play in digital construction.

Innovation network correlation degree is a proportion that innovation fruit can be applied in networking management. Intellectualized logistics enterprise management must be based on internet or local area network. Whether innovation fruit can be networked reflects the innovation orientation and networked level of a logistics enterprise.

Innovation systematization reflects the sustainable innovating capacity of an enterprise in whether its innovation is proceeding orderly and is making up an integral whole. Innovation systematization ratio is the rate that innovation fruit can be ranked into the enterprise’s operating system.

Collaborative innovation is the trend of smart enterprise. Innovation fruit coordination ratio is between achieved fruit amount by a logistics enterprise team and total amount of the whole enterprise, which reflects the collaboration level of an enterprise. Under the circumstance of supply chain management, collaboration is a necessary path to gain competitive advantage in market.

Innovation patent registration ratio of innovation fruit is between patent registration amount of innovation fruit and total amount of innovation fruit of this enterprise. It stands for the enterprise’s level of innovation fruit in this field at home and abroad.

Utility ratio of innovation technology reflects the enterprise’s technological innovation popularization degree. It is the ratio between applied amount of innovation technology and total amount of innovation technology.

Table 4 shows the intellectual analysis index of logistics enterprise innovation.

Table 4 Intellectual Analysis Index of Logistics Enterprise Innovation

Evaluation Index	Level					
	5A	4A	3A	2A	A	Non-A
Innovation Perceptible Degree	(95%,100%]	(85%,95%]	(75%,85%]	(65%,75%]	(60%,65%]	< 60%
Innovation Network Correlation Degree	(90%,100%]	(80%,90%]	(70%,80%]	(60%,70%]	(50%,60%]	< 50%
Innovation Systematization Ratio	(90%,100%]	(80%,90%]	(70%,80%]	(60%,70%]	(50%,60%]	< 50%
Innovation Coordination Ratio	(90%,100%]	(80%,90%]	(70%,80%]	(60%,70%]	(50%,60%]	< 50%
Innovation Patent Registration Ratio	(95%,100%]	(85%,95%]	(75%,85%]	(65%,75%]	(60%,65%]	< 60%
Utility Ratio of Innovation Technology	100%	[98%,100%)	[95%,98%)	[93%,95%)	[90%,93%)	< 93%

3 Wisdom Degree Evaluating Model of Smart Logistics Enterprise

There are mainly 2 methods to make multi-index comprehensive evaluation currently. One is Subjective Evaluating Method. Evaluating expert defines the importance of each index to object and weights it according to his/her experience judgment, represented by Expert Inquiry Marking, Analytic Hierarchy Process, and Fuzzy Comprehensive Evaluation Method. The other is Objective Evaluating Method. To weight it according to the calculation made by index data which reflect objective information, represented by Principal Component Analysis, Factor Analysis, Gray Relational Analysis Grade Method and Artificial Neural Network Method.

Evaluating method of this paper is to screen and define the principal component of smart enterprise operation firstly, then to weight it appropriately according to survey questionnaire and experience observation, which is a combination of both methods mentioned above.

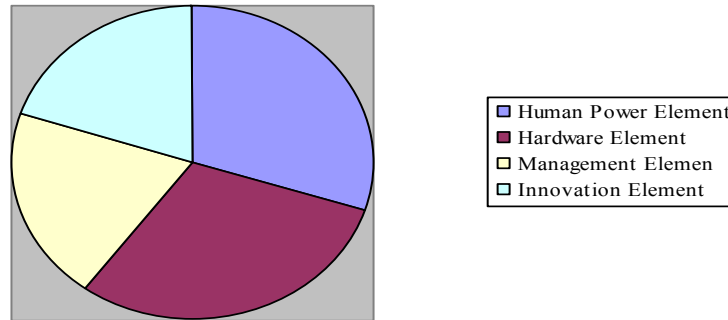


Figure 3 Weight Map of Smart Logistics Enterprise Evaluation Index

Smart logistics enterprise evaluation may be examined in the perspective of human, finance and material traditionally. It may also be evaluated from operation level and management level in modern enterprise. Otherwise, both methods of enterprise's key elements. That is comprehensively evaluating human power element, hardware element, management element and innovation element.

Combined with the wisdom analysis result of logistics enterprise above, 4 first-grade indexes may derive to 6 second-grade indexes, which constitute the evaluation index system of smart logistics enterprise.

The reality of logistics enterprise development in our country is a short establishment time and a growing enterprise scale. So, the principle of weighting is human power element and hardware element occupying 30% respectively, management element and innovation element occupying 20% respectively. The weight is shown in Fig 3.

R stands for human power element, then $R_1, R_2 \dots R_n$ stand for second-grade indexes of human power element. H stands for hardware element, then $H_1, H_2 \dots H_n$ stand for second-grade indexes of hardware element. M stands for management element, then $M_1, M_2 \dots M_n$ stand for second-grade indexes of management element. I stands for innovation element, then $I_1, I_2 \dots I_n$ stand for second-grade indexes of innovation element. E_c stands for comprehensively evaluation index. Therefore, evaluation model of Smart Logistics Enterprise can be listed as following:

$$E_c = 30\%R + 30\%H + 20\%M + 20\%I \tag{1}$$

Among which, $R = \sum_{j=1}^6 R_j, H = \sum_{j=1}^6 H_j, M = \sum_{j=1}^6 M_j, I = \sum_{j=1}^6 I_j$.

4 Wisdom Degree Evaluation of Zhongtong Logistics Group

4.1 Construction situation of ningbo Zhongtong logistics group

Zhongtong Logistics Group, founded in 1996, was one of the pilot units in Ningbo smart city program. It has regular staff of 601 people and relates to over 4800 employee. It is a state AAAA level comprehensive logistics enterprise, key logistics enterprise in Zhejiang Province and in Ningbo, and also a Top 10 logistics enterprise in Ningbo. In June, 2014, it was awarded Top 100 E-commerce Enterprise of Zhejiang Province and Top 10 Enterprise of Cooperative development in E-commerce and Logistics of Zhejiang Province.

4.2 Wisdom degree evaluation of Zhongtong logistics group

With field research to Zhongtong Logistics Group, author made a questionnaire survey to Human Resource Department, General Affairs Department, Operating Department, Market Department and Information Department. Its wisdom degree of evaluation index is listed in Table 5, 6, 7 and 8(In these tables, “√” indicates the current level of Zhongtong Group indexes).

Table 5 Personnel Intelligence Evaluation Index Value of Zhongtong Logistics Group

Evaluation Index		Level					
		5A	4A	3A	2A	A	Non -A
Education Background Distribution	manager at or above middle-level	√	80-90% College Degree	70-80% College Degree	60-70% College Degree	50-60% College Degree	< 50% College Degree
	business staff	√	80-90% High School Degree	70-80% High School Degree	60-70% High School Degree	50-60% High School Degree	< 50% High School Degree
Education Background Matching Rate of Skill Position		√	60-70%	50-60%	40-50%	30-40%	< 30%
Ownership Rate of Logistics Industry Qualification Certificate		> 60%	50-60%	√	30-40%	20-30%	< 20%
Ownership Rate of Computer Level Certificate		> 50%	40-50%	√	20-30%	10-20%	< 10%
Work Shift Times in Current Technical Position		3	√	2	1.5	1	0
Working Life of Engaging Logistics Position (over 3 years)		90%	√	70-80%	60-70%	50-60%	< 50%

The result infers that personnel intelligence evaluation index values of Zhongtong Logistics Group are: $R_1=5, R_2=5, R_3=3, R_4=3, R_5=4, R_6=4$.

Table 6 Hardware Digitization Evaluation Index Value of Zhongtong Logistics Group

Evaluation Index	Level					
	5A	4A	3A	2A	A	Non-A
EDI Utility Ratio	(90%,100%]	(80%,90%]	(70%,80%]	(60%,70%]	(50%,60%]	√
Bar Coding Utility Ratio	100%	> 95%	√	> 85%	> 80%	< 80%
comprehensive operation ratio of GIS/GPS GSM /GPRS /CDMA /3G,etc.	> 90%	> 85%	√	> 75%	> 70%	< 70%
RFID Utility Ratio	100%	> 95%	> 90%	> 85%	> 80%	√
Popularity of ISO9000 Certification	100%	> 90%	√	> 70%	> 60%	< 60%
Utility Ratio of Internet of Things	√	(80%, 90%]	(70%,80%]	(60%,70%]	(50%,60%]	< 50%

The result infers that hardware digitization evaluation index values of Zhongtong Logistics Group are: $H_1=0, H_2=3, H_3=3, H_4=0, H_5=3, H_6=5$.

Table 7 Instant Evaluation Index Value of Management in Zhongtong Logistics Group

Evaluation Index	Level					
	5A	4A	3A	2A	A	Non-A
Instant Responsivity of Vehicle Scheduling	(95%,100%]	√	(85%,90%]	(80%,85%]	(75%,80%]	< 75%
Instant Responsivity of Delivery	(95%,100%]	√	(75%,85%]	(65%,75%]	(60%,65%]	< 60%
Instant Responsivity of Replenishment	(95%,100%]	√	(85%,90%]	(80%,85%]	(75%,80%]	< 75%
Instant Responsivity of Line Optimization	(85%,100%]	√	(75%,85%]	(65%,75%]	(60%,65%]	< 60%
Instant Responsivity of Information Inquiry	100%	√	(95%,98%]	(93%,95%]	(90%,93%]	< 93%
Instant Responsivity of Reverse Logistics	(95%,100%]	(85%,95%]	√	(65%,75%]	(60%,65%]	< 60%

The result infers that instant evaluation index values of Zhongtong Logistics Group Management are: $M_1=4, M_2=4, M_3=4, M_4=4, M_5=4, M_6=3$.

Table 8 Intellectual Analysis Index Value of Innovation in Zhongtong Logistics Group

Evaluation Index	Level					
	5A	4A	3A	2A	A	Non-A
Innovation Perceptible Degree	(95%,100%]	(85%,95%]	√	(65%,75%]	(60%,65%]	< 60%
Innovation Network Correlation Degree	(90%,100%]	√	(70%,80%]	(60%,70%]	(50%,60%]	< 50%
Innovation Systematization Ratio	(90%,100%]	√	(70%,80%]	(60%,70%]	(50%,60%]	< 50%
Innovation Coordination Ratio	(90%,100%]	(80%,90%]	(70%,80%]	(60%,70%]	√	< 50%
Innovation Patent Registration Ratio	(95%,100%]	(85%,95%]	(75%,85%]	(65%,75%]	(60%,65%]	√
Utility Ratio of Innovation Technology	100%	[98%,100%)	[95%,98%)	[93%,95%)	√	< 93%

The result infers that intellectual analysis index values of Zhongtong Logistics Group innovation are: $I_1=3, I_2=4, I_3=4, I_4=1, I_5=0, I_6=1$.

On the basis of results above, put the corresponding values into the formula. We can get the wisdom degree coefficient of Zhongtong Logistics Group:

$$E_c = 30\%R + 30\%H + 20\%M + 20\%I \tag{2}$$

$$= 30\%(5+5+3+3+4+4)/6 + 30\%(0+3+3+0+3+5)/6 + 20\%(4+4+4+4+4+3)/6 + 20\%(3+4+4+1+0+1)/6$$

$$= 1.2 + 0.7 + 0.77 + 0.43 = 3.10$$

The index infers that the wisdom degree coefficient of Zhongtong Logistics Group is 3.10 in June, 2014, which means its wisdom level is between 3A and 4A.

5 Conclusion

From the perspective of logistics enterprises, this paper built the Evaluation Model of wisdom degree of enterprises, and by using this Model, evaluated wisdom degree of Ningbo Zhongtong Logistics Group. With the construction of smart enterprises, the status of enterprise wisdom degree evaluation is gradually strengthened. This research will gradually expand the application space; meanwhile, the Evaluation Model will be more perfect in the empirical process.

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Empirical Research on the Impact of International Trade: Based on the Panel Data of 9 Provinces in China on the Evolution of Regional Industrial Structure

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Abstract: Based on panel data of the 9 provinces such as Beijing, Tianjin and other the northern region, as the hinterland of modern Tianjin port in China, this paper selects these regional industrial structure as dependent variable, selects trade, consumption, foreign direct investment as independent variables, and constructs a semi-logarithmic model and uses it to do empirical research on the relationship between the regional foreign trade and industrial structure since 1990s. Empirical results suggest that the impact on the evolution of regional industrial structure from Tianjin's international trade is asymmetry. Among which the effect on the evolution of industrial structure from import trade is positive, while export trade hinders the industrial structure adjustment.

Keywords: International trade; Industrial structure; Asymmetry; Export-oriented strategy

1 Introduction

The hinterland of modern Tianjin port is mainly the 9 provinces in North and Northwest China including Tianjin, Beijing, Hebei, Shandong, Henan, Shaanxi, Gansu, Shanxi and Inner Mongolia. Large amounts of agricultural and sideline products from were transported to Tianjin port where exported to the international market, and also a lot of manufactured goods from the international market were imported to the hinterland rural market. Therefore, the rapid development of modern Tianjin port trade effectively promoted the process of industrialization in North China, led to the change of industrial structure in immediate hinterland of Tianjin port. This paper attempts to further analyze what foreign trade play role on industrial structure change under the modern market economy.

In recent years, the research on the relationship between international trade and industrial structure is always a hot issue in academic research, and the scholars have gained certain achievements. Those literature can be divided into the following two types of views: a view is that foreign trade has the promotion to the industrial structure. Yang Quanfa(2000) argues that international trade play the role in promoting the first industry development; import can provide more motivation for industrial growth than that of export; service trade, bulk raw materials export and unclassified goods imports can significantly promote the tertiary industry growth. Wu Jinhong (2006) believes that the mutually interaction relationship between international trade and industrial structure. Chen Jianhua, Ma Xiaokui (2009) thinks that there exists a long-run co-integration relationship and a one-way causality between the structure and foreign trade structure. Li Ronglin, Jiang Qian (2010) states that the export and import structure are highly relevant to the industrial structure, the influence of international trade structure to industrial structure is strong in the long run but very weak in the short run.

But the other shows that international trade has no effect or no significant effect on the industrial structure. Wu Haifeng, Liu Guangyan (2004) point out that the relationship between the structure of China's foreign trade and industry not only exists to promote each other, but also to some extent from each other. Yuan Xin (2010) argues China's foreign trade has not been able to effectively promote the upgrading of industrial structure. Zhang Jie, et al. (2013) thinks that although export-led development pattern in China has accelerated the process of industrialization, it will probably inhibit the transformation of industrial structure from industrialization to tertiarization.

Although the academic conclusions are different, but most studies only selected a period of import and export trade data to investigate the effect of foreign trade on the industrial structure adjustment, while ignoring the influence of other variables. This paper selects the related data of foreign trade, FDI and consumption since the 1990s from modern Tianjin Port Hinterland 9 areas such as Tianjin, Beijing and other regions, to test whether foreign trade plays a role in the evolution of industrial structure in history, and to examine the export-oriented trade strategy sustainability from the long-term perspective.

2 Empirical Analysis

Based on the principles of economics, the influential factors on a country's industrial structure

adjustment include its international trade, consumption, investment, industrial policy and institutional factors. In order to study the impact of the structural change from international trade, this paper selects these regional industrial structure as dependent variable, selects trade, consumption, foreign direct investment as dependent variables, selects the ratio of the output value from the secondary and tertiary industries to GDP as independent variable to construct a semi-logarithmic model about their relationship. our specification of the model is:

$$RY_{23it} = \ln EX_{it} + \ln IM_{it} + \ln C_{it} + \ln FDI_{it} + \varepsilon_{it} \quad (1)$$

where RY_{23} represents the industrial structure, EX, IM, C and FDI respectively represent export, import, consumption and foreign direct investment, i and t respectively represent individual and time. In the model, this paper takes the natural logarithm of the other variables except RY_{23} , in order to eliminate the heteroscedasticity in regression model. The relevant data of 9 provinces, such as Beijing, Tianjin, etc, where the value of import and export trade is converted to the value of its currency in Renminbi, according to the current exchange rate, In order to eliminate the influence of price changes, and make corresponding treatment for the related data in 1987-2013 by the CPI. The characteristics of the main variables show in table 1.

Table 1 Main Variables' Descriptive Statistics

	RY_{23it}	$LNEX_{it}$	$LNIM_{it}$	$LNFDI_{it}$	LNC_{it}
Mean	0.836313	11.59185	11.12943	12.2681	6.827032
Median	0.84	11.51646	11.07027	12.72952	6.837541
Maximum	0.99	15.26867	16.13568	15.89949	9.459104
Minimum	0.64	7.562203	6.439947	3.989207	4.522332
Standard deviation	0.088416	1.750018	2.195228	2.216882	1.10982
Observations	198	198	198	198	198
Cross -section	9	9	9	9	9

In order to make empirical conclusion more robust and creditable, In this paper three models such as mixed effects model, entity fixed effects model and random effects model are used to estimate in eviews6.0, the regression results is in table 2.

Table 2 Three Models' Estimation Results

Independent variable	OLS	FE	RE
Constant	0.514424 (17.94369)	0.534680 (31.77585)	0.531576 (23.32825)
$\ln EX_{it}$	0.045103 (5.135597)	-0.013787 (-2.270499)	-0.010879 (-1.811496)
$\ln IM_{it}$	0.020282 (3.525401)	0.016176 (3.264596)	0.018891 (3.915902)
$\ln FDI_{it}$	-0.007801 (-1.925704)	-0.001065 (-0.450992)	-0.001687 (-0.720248)
$\ln C_{it}$	-0.048478 (-7.024635)	0.043134 (5.902970)	0.035344 (5.047057)
F-Test		97.286929 (0.0000)	
Hausman Test			17.971741 (0.0012)
R^2	0.647	0.932	0.932
Adjusted R^2	0.639	0.728	0.627
D.W statistic	0.200811	0.462774	0.462774
F-statistic	88.32	211.79	174.78

Note: Except for the numbers in the brackets below F-test and Hausman-test value are p-value, and the others below the coefficients are t-statistic.

The test results show that entity fixed effect model should be chosen. But it finds that the value of DW is lower, it indicates the possible autocorrefation in the same period of the cross section. So we improve the model with the method of adding the lag of all variables. The final result is Equation (2)

$$RY_{23it} = (0.546 + 0.084) + (0.546 + 0.112)D_2 + \dots + (0.546 - 0.004)D_9, \quad (2)$$

$$- 0.013 \ln EX_{it} + 0.008 \ln IM_{it} + 0.038 \ln C_{it} + 0.008 \ln FDI_{it} + 0.787 AR(1)$$

(11.89) (-2.7) (1.89) (4.76) (3.67) (17.82)

R² = 0.975 F = 526.47 DW = 2.04

where the dummy variable (D2、 D3...， D9) is defined as:

$$D_i = \begin{cases} 1 & \text{if } i \text{ belong to } i \text{ province} \\ 0 & \text{other} \end{cases}, \quad i = 2, 3 \dots, 9$$

In order to further analyze the influence of main variables on the industrial structure change, according to the information from Table 2, the coefficients in model are standardized, the results are as follows.

$$RY_{23it} = -0.265 \ln EX_{it} + 0.206 \ln IM_{it} + 0.475 \ln C_{it} + 0.191 \ln FDI_{it} \quad (3)$$

According to Equation (3), in the selected variables, except for exports, imports, consumption and foreign direct investment has respectively a positive impact on the evolution of the regional industrial structure, in which the largest contribution is consumption, the following by import, but export shows unfavorable to the industry structure adjustment. Therefore, the obvious differences and asymmetry are found in terms of the adjustment of industrial structure for import and export.

3 Result

According to the above analysis, the estimation results show that consumption and FDI in 9 areas have a positive role in the evolution of the industrial structure; and there are differences for import and export in the impact on the industrial structure adjustment, of which there is a positive effect for import trade on the industrial structure adjustment, and there is negative effect for export trade.

Why does export play a negative role on the evolution of industrial structure? The reason is that the export oriented development strategy has the inherent defects in the characteristics of processing trade. Since the 1990s, export has gradually become the engine of economic growth in China, the processing trade become the main form of foreign trade. However, a variety of problems in China's processing trade exist such as the poor imported technological level, value-adding ratio, spreading effect and so on, the export processing growth mode has a negative effect on the advanced industrial structure in China. Therefore the changing of China's processing trade growth mode is urgent.

In contrast, in China the imported products are mainly raw materials, energy products and intermediate products, import trade can create effective demand, accelerate techno-logic progress, facilitate capital accumulation and bring upgrade of industry structure, so import trade has an important role in promoting the adjustment and optimization of the industrial structure.

4 Conclusion

4.1 Although international trade can promote the economic growth of a country or region in a short run, it is not a positive effect on the development of industrial structure in the long run.

The impact on the upgrading of modern industrial structure in North and Northwest China from Modern Tianjin port import and export trade respectively is asymmetric, where import trade has more obvious effect, and the empirical research by the current data also proved this conclusion. With the opening and development of Tianjin port trade in the modern times, the foreign trade had the profound influence on the evolution of the industrial structure in North and Northwest China. In which there is always a positive effect for import trade on the industrial structure adjustments, while this role for the export trade in modern times is weak, and it is negative in the contemporary era. Therefore, although foreign trade can promote the economic growth of a country or region in a short run, it is not a positive effect on the development of industrial structure in the long run. There is an inevitable contact between export of primary products and the modern rural economic stagnation in North China in the 1930s, similarly the “Dutch Disease” and the poverty of Latin American countries are also the results of this export-oriented development strategy. Therefore, the future growth path in China is also balancing the internal and external demands to achieve the transformation of growth mode. To this end, on one hand, it continues to expand production and export through technological innovation, on the other hand, the level of domestic income need to upgrade on the base of productivity improvement in order to change huge potential market demand into reality needs. So China' economy will be sustainable development.

4.2 The export trade has hindered upgrading of the industrial structure, and the extensive

export-oriented strategy is not sustainable.

Since the 1990s, under the support of export oriented strategy, China's large number of processing trade activities bring about the illusion of leading development of China's foreign trade structure, which has no inevitable internal links with China's industrial structure, and the impact from export trade on upgrading of industrial structure is not obvious, and even shows a certain impediment. Thus, we believe that the traditional export-oriented strategy is not sustainable, and some adjustment should be made to achieve the transformation from the extensive, labor-intensive export-oriented strategy to the capital-intensive, diversification of export markets development mode. Therefore, technology-intensive, competitive advantage export-oriented pillar industry group should be cultivated in order to become the leading industry in the intensive export mode; at the same time, China from the following aspects to enhance the utilization of FDI, such as guide foreign industries to invest, attention to personnel training and strengthening technological innovation.

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Selection Criteria, Index and Model of Strategic Emerging Industries in the Third Industrial Revolution

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Abstract: Succeeding the steam and power technology revolutions, the third Industrial Revolution is another significant leap in the history of human civilization, promoting tremendous development of productivity and fundamental changes of industrial structure and social life with the outstanding features of radical innovation, deep integration and wide application in emerging technologies. The paper reveals the profound changes of connotation and extension of the strategic emerging industries in the Third Industrial Revolution, and provides their selection criteria, evaluation index system, and entropy evaluation model. With 32 manufacturing industries and 6 service industries in Hubei province the paper proposes the key strategic emerging industries of Hubei in the Third Industrial Revolution.

Keywords: The Third Industrial Revolution; Strategic emerging industries; Evaluation index system; Entropy evaluation method

1 Introduction

Succeeding the steam and power technology revolutions, the third Industrial Revolution is another significant leap in the history of human civilization. With the outstanding features of radical innovation, deep integration and wide application in the emerging technologies such as digital manufacturing technology, internet technology, renewable energy technology, new material technology, biotechnology, space technology etc., it will promote tremendous development of productivity and fundamental changes of industrial structure and social life, and even the great adjustment of international economic pattern. The Third Industrial Revolution is historically significant for China's national and regional development. In Sept. 2013, President Xi clearly pointed out that a new round of technological revolution and industrial innovation is emerging. Some important scientific problems and crucial techniques have taken on the sign of revolutionary breakthrough, promoting the cross amalgamation and group progress of key technologies and continuously accumulating the energy of breakthrough and innovation. A historical intersection is formed between the forthcoming new round of technology revolution and industrial innovation, and China's accelerating the transformation of economic growth mode, providing a rare opportunity for implementing innovation-driven strategy. Chances are easier missed than seized. If seized, it is an opportunity; if missed, it is a challenge. We must be mindful of potential danger and hold on to and make good use of the opportunities of the new round of technology revolution and industrial innovation. Never wait, nor hesitate, nor slack.

To catch hold of the great historic opportunity of the Third Industrial Revolution, it is necessary to seize and comply with the general trend of its industrial development in the first place. Broadly speaking, its industrial development includes three main trends:

Firstly, low-carbonization. The Third Industrial Revolution sprang up from the background of dual crisis of energy and environment. Green, low-carbon, renewability, and sustainability have become the core essence of its industrial development whose mainstream direction and inevitable choices will include those energy efficient, low-pollution and sustainable businesses such as new energy resources, energy conservation and environment protection, new material, biological medicine, the new generation of information technology, digitalization manufacturing, etc.

Secondly, amalgamation. The industrial development of the Third Industrial Revolution is characterized by multi-industry cross amalgamation with domination of informatization amalgamation. The new generation of information technology is merged constantly with new materials, new energy resources, manufacturing industries, energy conservation and environment protection, logistics, commerce and trade, education, entertainment, finance, etc., promoting upgrading and updating of all walks of life with mutual permeation and support. Meanwhile, by merging new materials into manufacturing, biomedicine and energy conservation and environment protection, biomedicine into agriculture, new energy resources, food service and energy conservation and environment protection, and manufacturing into service, the industry boundaries gradually blur and new industries constantly

emerge.

Thirdly, humanization. As the soul of the Third Industrial Revolution, returning to human-centric values will change the style and philosophy of human production and life in essentiality. People attach more importance to their well-being and life quality, consequently pushing the development of a series of happiness-oriented industries which involve human life and health, convenient traffic, green food, leisure tourism, culture creativity etc.

2 Domestic and Overseas Research Overview

The domestic and overseas research of strategic emerging industries mainly focuses on their demarcation, formation reasons, selection, growth and development procedure, policies etc. The American economist W·W·Rostow (1959) firstly proposed the conception of leading sector and leading industries(Walt Whitman Rostow, 2001). Japan and South Korea gained great fruits by aiding key industries to lead the entire economic growth. Ever since, people have increasingly emphasized those industries with strategic importance. It was A·O·Hirschman (1958) who put forward the conception of strategic industries. He considered strategic industries the same as leading industries, believing that the leading industrial sector is the most compact economic system in the relation of “input-output”(Albert Otto Hirschman, 1991). Paul R· Krugman (2000) proposed two criteria to identify the strategic sector: on the one hand, whether there are high rewards of capital and labor; on the other hand, whether there exists technology spillover effect, namely, external economy(Paul Krugman,2000). Many Chinese scholars have also studies the demarcation of strategic emerging industries. For instance, Li Xiaohua (2010) argued that the strategic emerging industries, with great strategic significance to economic growth, were characterized by strategicness, uncertainty, positive externality, and complexity(Xiaohua Li, 2010). Su Dongshui (2010) suggested the definition of forerunner industries similar to strategic emerging industries as: with great strategic status in national economic system, forerunner industries are some industries or industrial clusters to develop in advance and lead other industries to develop in a certain strategic target direction(Dongshui Su, 2010). After reviewing domestic and overseas research fruits, Liu Hongchang (2011) believed that strategic emerging industries are of great strategic position in national economy and related to the national or regional economic artery and industrial security, and that by deep integration of emerging technology and emerging industries, they are characterized by strategicness, innovativeness, growth, relatedness, guidance quality, and high risks(Hongchang Liu, 2011).

In the State Council’s Decision of Accelerating cultivation and Development of Strategic Emerging Industries approved in Sept. 2010, the strategic emerging industries are defined as: based on great technology breakthrough and development demand, the strategic emerging industries are of knowledge and technology concentration, low material resource consumption, great growth potential, and high comprehensive benefits, which play a significant role in guiding the overall and long-term development of economic society. On the basis of our national conditions and technological and industrial situations, the Decision determines the seven important industries which are to be especially cultivated and developed at the present stage: energy conservation and environment protection, the new generation of information technology, biology, sophisticated equipment manufacturing, new energy resources, new materials, new energy automobile(the State Council,2010).

3 Essential Features of Strategic Emerging Industries

Strategic emerging industries have two essential attributes: strategicness and emergingness.

Table 1 Features and Comparison of Strategic Industries and Emerging Industries

	emerging industries	strategic industries
reasons of emergence or existence	technology innovation, changes of relative cost structure, emergence of new market demand	great strategic position, influence on national economy growth and optimization and upgrading of industrial structure
major performance or features	big differences from original industries in technology, product function, production mode and flow, and raw material	priority in national economy project

The strategic emerging industries are neither emerging ones nor strategic ones. They rest on the deep integration of those two and possess the attributes of both. In the State Council’s Decision of

Accelerating cultivation and Development of Strategic Emerging Industries approved in Sept. 2010, the strategic emerging industries are defined as: based on great technology breakthrough and development demand, the strategic emerging industries are of knowledge and technology concentration, low material resource consumption, great growth potential, and high comprehensive benefits, which play a significant role in guiding the overall and long-term development of economic society. This definition also reflects the main properties of strategic emerging industries:

(1) Wholeness. Strategic emerging industries involve development of the whole national economic society. They promote optimization and upgrading of industrial structure, which plays a key role in seizing the commanding height of industrial competition in the future.

(2) Relevance. Relevance means that those industries are highly related to one another, which makes an apparent influence on supporting and leading the relevant industries along the matched industrial chain.

(3) Knowledge and technology concentration. One of the major reasons for the appearance of strategic emerging industries is technological innovation. Those industries are the fruits of new technology industrialization, and R&D input-output is correspondingly greater.

(4) Low material resource consumption. Development of strategic emerging industries is required to be sustainable. It means resource consumption of unit output is relatively low, which conforms to the resource-saving and eco-friendly notion.

(5) Great growth potential. Strategic emerging industries are also characterized by being able to satisfy and cultivate great demands, and possessing vast developing potential and market size.

(6) High comprehensive benefits. Their comprehensive benefits are embodied in two aspects, technology and economy. Technically, they help to master core technology to gain the regional or national competitive advantage; economically, the benefits lie in contributions to national economy, such as providing employment opportunities, increasing revenue, earning foreign exchange through exports etc.

4 Selection Criteria of Strategic Emerging Industries in the Third Industrial Revolution

The selection criteria of strategic emerging industries in the Third Industrial Revolution are proposed with reference to former research fruits and theories and with the combination of their fundamental features.

(1) Development foundation criterion. As deep integration of new technology and new industries, strategic emerging industries are still in small scale and at the initial stage. When developing strategic emerging industries, a region should make the first breakthrough in fields with best foundation and condition and give priority to industries with some comparative advantage and better comprehensive benefits, to facilitate the rapid growth of strategic emerging industries and finally form strategic pillar industries.

(2) Industrial innovation criterion. Unlike tradition pillar industries, the most important distinction of strategic emerging industries is they no longer rely excessively on such traditional factors as location, capital, resources and environment etc. Their rapid growth and sustainable development mainly depends on innovativeness, including technical innovation, management innovation, and idea innovation brought about by knowledge, intelligence, and technology.

(3) Industrial contribution criterion. Strategic emerging industries should play the great leading role in the overall and long-term development of economic society. Not merely are they the major supporting force in economic growth, but also they make great contributions to employment, livelihood, society, and environment.

(4) Development potential criterion. Accordingly, strategic emerging industries should satisfy the demand of high-growth, which means for quite a long time in the future, they will have vast and steady Markey prospect and development space to maintain their fast growth.

(5) Industry relevance criterion. This criterion is key to measure their influence. Only with stronger correlation effect, overflow effect and spreading effect can one industry facilitate others' development and undertake the important task of promoting industrial structure optimization and adjustment.

When judging whether one or several industries should be regarded as key strategic emerging industries, it is improper to pay attention to whether one single criterion is met. All the four criteria should be considered in a comprehensive way. Only those industries with very high comprehensive level can be viewed as key industry and given priority.

5 Selection Index and Model of Strategic Emerging Industries

5.1 Selection index of strategic emerging industries

According to the conception and features of strategic emerging industries, their selection index system is designed from five perspectives (industrial development foundation, industrial innovation power, industrial contribution, industrial growth potential, and industrial relevance) with their principles and criteria, and availability and maneuverability of index data, as is shown in Table 2.

Table 2 Evaluation Index System of Focus Selection of Strategic Emerging Industries

first level	second level	third level	index
industrial development foundation	industrial scale	proportion of output value	output value of some local industry/local total output value
		proportion of number of enterprises	number of enterprises of some local industry/total number of local enterprises
	industrial concentration	market share	sales volume of some local industry/sales volume of this industry all over the country
		enterprise concentration ratio	proportion of enterprise number of some local industry/proportion of enterprise number of this industry all over the country
		location quotient	output value proportion of some local industry/output value proportion of this industry all over the country
		specialized modulus	employment proportion of some local industry/employment proportion of this industry all over the country
industrial innovation	innovation input	R&D proportion of input	R&D input of some local industry/local total R&D input
		R&D input intensity	R&D funds input of some industry/main business income of this industry
		Per capita R&D input	R&D funds input of some local industry /employment figure of this local industry
	innovation output	labor productivity	output value proportion of some local industry/employment proportion of this local industry
		comparative labor productivity	labor productivity of some local industry/labor productivity of this industry all over the country
		new product sales rate	new product sales volume of some local industry/total sales volume of this local industry
		cost efficiency	profit amount of some local industry/total cost of this industry
industrial contribution	economic contribution	industrial contribution rate	increment of added value of some local industry/increment of local GDP
		Industrial pulling rate	contribution rate of some local industry * local GDP growth rate
	social contribution	employment proportion	employment figure of some local industry/local total employment figure
		tax proportion	tax amount of some local industry/local total tax amount
	export contribution	export proportion	export amount of some local industry/local total export amount
industrial growth potential	growth rate	growth rate of production value	output value growth rate of some local industry within n years
		employment growth rate	employment figure growth rate of some local industry within n years
	market prosperity	growth rate of sales value	sales volume growth rate of some local industry within n years
		income elasticity of demand	sales volume growth rate of some local industry/growth rate of local per capita income
industrial relevance	consumption coefficient	rate of intermediate demand	the ratio between the sum of intermediate demand of each industry from some industry and aggregate demand from this industry
		rate of intermediate input	the ratio between intermediate input of some industry and its total input
	spread effect	Influence coefficient	j industry: average value of the sum of the jth row divided by the sum of each row in Leontief inverse matrix
		response coefficient	i industry: average value of the sum of the ith row divided by the sum of each row in Leontief inverse matrix

5.2 Selection entropy evaluation method of strategic emerging industries

In order to obtain more accurate and reasonable calculating results and to eliminate subjective factors as

much as possible in the evaluation process, entropy evaluation method is adopted for calculation. It is a objective weight method which determines the index weight based on the information size offered by each index of observations. Suppose there are m schemes to be evaluated and n evaluation indexes, forming a data matrix of original index $X = (X_{ij})_{m \times n}$. With regard to some index X_j , the bigger the gap of index value X_{ij} , the greater role this index plays in comprehensive evaluation; if all values of some index are equal then this index plays no role in comprehensive evaluation. In information theory, entropy is to measure uncertainty. The more information there is, the smaller uncertainty, and the smaller entropy; the less information, the greater uncertainty, and the larger entropy. According to features of entropy, randomness and disorder degree of a scheme are judged through calculating entropy values which is used to estimate dispersion degree of some index. The greater its dispersion degree is, the more influence this index has on the comprehensive evaluation. Consequently, on the basis of variation degree of each index, each index weight can be obtained by making using of information entropy to provide basis for multi-index evaluation.

6 Solid Selection Evidence of Strategic Emerging Industries in Hubei Province

According to correspondence coefficients of Hubei industrial sector, service sector, strategic emerging industries and industrial sectors of national economy, the synthesis scores are obtained for each strategic emerging industry, as is shown in Table 3. In the Third Industrial Revolution, Hubei strategic emerging industries include energy conservation and environment protection industry, the new generation of information technology industry, bio-industry, new material industry, sophisticated equipment manufacturing industry, new energy resource industry, and new resource automobile industry.

Table 3 Synthesis Scores and Rankings of Hubei Strategic Emerging Industries

name	synthesis score	ranking
energy conservation and environment protection industry	0.16546	1
the new generation of information technology industry	0.14643	2
Bio-industry	0.07386	3
new material industry	0.05154	4
sophisticated equipment manufacturing industry	0.04485	5
new energy resource industry	0.04166	6
new resource automobile industry	0.00253	7

7 Conclusion

In the Third Industrial Revolution, industrial development is of low-carbon, amalgamation, and humanization. The strategic emerging industries are characterized by such new features as wholeness, relevance, knowledge and technology concentration, low material resource consumption, great growth potential, and high comprehensive benefits. With those new features, this paper proposes the development foundation criterion, industrial innovation criterion, industrial contribution criterion, development potential criterion, and industrial relevance criterion of selecting strategic emerging industries under the background of the Third Industrial Revolution. According to the availability and maneuverability of index data, the selection index system is designed in five aspects of industrial development foundation, industrial innovation, industrial contribution, industrial growth potential and industrial relevance. According to the current condition of Hubei industrial sector and service sector, by using 5-dimensional index system and entropy model, the Hubei strategic emerging industries in the Third Industrial Revolution include energy conservation and environment protection industry, the new generation of information technology industry, bioindustry, new material industry, sophisticated equipment manufacturing industry, new energy resource industry, and new resource automobile industry.

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The Strategy of Rare Earth Value Compensation Based on Trilateral Game*

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Abstract: Value compensation is an important driver of achieving sustainable economy and society development in rare earth resources area. To make reasonable value compensation, a trilateral dynamic game model is built based on the analysis of the government, the third-party compensation appraisal institution and rare earth industry. Analysis shows that the possibility of decision-making conspiracy between the third-party compensation appraisal institution and the rare earth industry can be decreased by increasing their penalty, strengthening the government supervision, and standardizing the value compensation mechanism.

Key words: Value compensation; Conspiracy; Government supervision; Trilateral game

1 Introduction

Rare earth, which is widely used in traditional industries and high-tech fields, is known as the “industrial vitamin”. The survey shows that the high loss of rare earth enterprises occurred in our country in recent years and the rare earth resource has a low price as the Chinese cabbage. The price of rare earth is lower than the value of rare earth. That is not only because we have no voice on the pricing right of rare earth in the international market, but also because our government does not have a comprehensive understanding of rare earth mining industry. The assessment of rare earth cost is lower than its value and then a serious shortage of value compensation has happened. The government introduces a third-party compensation appraisal institution which can evaluate the value compensation exactly of the rare earth mining to solve these questions. The third institution is profitability, and it may generate a conspiracy during the process of the evaluation. In this paper, we analyze the decision action of the three parts by using the trilateral dynamic game model, in order to provide a reference for the three parts in theory.

2 Literature Review

The value of rare earth are composed of mining right value (the cost of exploration and exploitation), ownership value (the cost of users) and the value of environmental right to the local (environmental damage cost). The concepts of value and cost are closely related, the compensation of resource value is the compensation of resource cost (Zhang Yun, 2007). Li and Zhang (2005) consider that the value of mineral resource is belongs to the compensation, and the premise is defining the property right (Li Guoping and Zhang Yun, 2005). Under the condition of socialist economy, the government supervise the industry during it cost calculation by cost method in order to improve the benefits of social and economic. Zhang (2012) propose that the cost method should pay more attention on practice analyze during the mineral resource value, it lack of the normative theoretical framework (Zhang Qian, 2012).

Rare earth is the non-renewable mineral resources. There are many measures to compensate the value of the non-renewable resources, such as: resource tax, resource compensation, the pollution tax, environment compensation fee, etc. The third-party compensation appraisal institution could evaluate the compensation value exactly based on the measures. However, Zhao and Fan (2012) think that the third-party compensation appraisal institution will have a monopoly position once it gain the qualification to evaluate, and they provide an evaluation result that is maybe biased whether the real assessment it is because of the conspiracy. The institution often forget the government regulation that how to carry on the evaluation work independently, fairly and objectively for their own interests. So, we must punish the offenders in order to make them realize the regulation (Zhao Jun, 2012). The institution and the industry would make contractual relationship for long-term cooperation and their own

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interest(Bird.R.C, 2005). Sun and Yu (2010) consider that the contractual relationship is not only based on the value and the reputation of parties, but also is related to the rules of information exchange and being trustworthy, flexible and cooperative during the current cooperation process. It is more important that they cherish the future relationship(Sun Yuanxin and Yu Maojian, 2010). The third-party compensation appraisal institution and rare earth industry are going to conspire based on the long-term cooperation and profit. And a contractual relationship will be established. The government should supervise the two participators to prevent collusion.

3 The Construction and Analysis of Trilateral Game Model

3.1 Behavioral strategy and related economic parameters

The article assumes that all the information in the game is complete, the order of action is successive and every participator knows each other totally.

3.1.1 The decision-making of government

There are two decisions in the compensation model: supervise and no supervise. The government should pay C_1 as the regulation cost. If rare earth industry or third-party compensation appraisal institution have a conspiracy, and the government had supervise their actions, it will earn non-business income (penalty). Instead, the government will lose non-business income (penalty).

3.1.2 The decision-making of the third-party compensation appraisal institution

There are two choices for the third-party compensation appraisal institution when the institution evaluates the compensation value during the rare earth mining. If the third-party compensation appraisal institution choose conspire with rare earth industry, they can earn R_2 but cost C_2 for it. Meanwhile rare earth industry also have two choices: on one hand ,no conspire, the third-party compensation appraisal institution regulated by the government with the punishment of F_2 ; on the other hand, conspire, the third-party compensation appraisal institution regulated by the government with the punishment of $\alpha F_2(\alpha > 1)$. Besides, all of the punishment is given to the government.

3.1.3 The decision-making of rare earth industry

There are two choices for rare earth industry when the third-party compensation appraisal institution evaluates the compensation value during the rare earth mining. It needs to pay C_3 when rare earth claims to conspire; we will also get R_1 as extra income. Meanwhile the third-party compensation appraisal institution have two choices: first is no conspire, rare earth industry regulated by the government with the punishment of F_3 .second is conspire, rare earth industry regulated by the government with the punishment of $\alpha F_3 (\alpha > 1)$. Besides, all of the punishment is given to the government. P_1 is the probability of government regulation . P_2 is the conspiracy probability of the third-party compensation appraisal institution. P_3 is the conspiracy probability of rare earth industry.

3.2 Cost matrix

Table 1 Cost Matrix

Name	①	②	③	④	⑤	⑥	⑦	⑧
Government	$C_1 - \alpha F_2 - \alpha F_3$	$\alpha F_2 + \alpha F_3$	$C_1 - F_3$	F_3	$C_1 - F_2$	F_2	C_1	0
The Third Institution	$C_2 + \alpha F_2 - R_2$	$C_2 - R_2$	0	0	$C_2 + F_2 - R_2$	$C_2 - R_2$	0	0
Rare Earth Industry	$C_3 + \alpha F_3 - R_3$	$C_3 - R_3$	$C_1 + F_3 - R_3$	$C_3 - R_3$	0	0	0	0

The expected cost of government mixture Nash optimality:

$$A = P_1 C_1 + 2(1 - \alpha) P_1 P_2 P_3 (F_2 + F_3) + P_2 P_3 (\alpha - 1) (F_2 + F_3) - 2P_1 P_2 F_2 - 2P_1 P_3 F_3 + P_2 F_2 + P_3 F_3 \tag{1}$$

P_1 is an independent variable, A is a dependent variable. We need to compute the partial derivative with respect to P_1 if the government wants to realize the minimization of cost.

$$\frac{\partial A}{\partial P_1} = C_1 - 2(\alpha - 1) P_2 P_3 (F_2 + F_3) - 2P_2 F_2 - 2P_3 F_3 = 0 \tag{2}$$

The expected cost of the third-party compensation appraisal institution mixture Nash optimality:

$$B = P_2 C_2 - P_2 R_2 + P_2 [P_1 P_3 \alpha F_2 + P_1 (1 - P_3) F_2] \tag{3}$$

P_2 is an independent variable, B is a dependent variable. We need to compute the partial derivative with respect to P_2 if the third-party compensation appraisal institution wants to realize the minimization of cost (that is, the maximization of profit).

$$\frac{\partial B}{\partial P_2} = C_2 - R_2 - [P_1 P_3 \alpha F_2 + P_1 (1 - P_3) F_2] = 0 \tag{4}$$

The expected cost of rare earth industry mixture Nash optimality:

$$X = P_3 C_3 - P_3 R_3 - P_3 [P_1 P_2 \alpha F_3 + P_1 (1 - P_2) F_3] \tag{5}$$

P_3 is an independent variable, B is a dependent variable. We need to compute the partial derivative with respect to P_3 if the rare earth industry wants to realize the minimization of cost (that is, the maximization of profit).

$$\frac{\partial X}{\partial P_3} = C_3 - R_3 - [P_1 P_2 \alpha F_3 + P_1 (1 - P_2) F_3] = 0 \tag{6}$$

The above system of simultaneous equations is solved to arrive at the probability.

$$\begin{cases} \frac{\partial A}{\partial P_1} = C_1 - 2(\alpha - 1)P_2 P_3 (F_2 + F_3) - 2P_2 F_2 - 2P_3 F_3 = 0 \\ \frac{\partial B}{\partial P_2} = C_2 - R_2 - [P_1 P_3 \alpha F_2 + P_1 (1 - P_3) F_2] = 0 \\ \frac{\partial X}{\partial P_3} = C_3 - R_3 - [P_1 P_2 \alpha F_3 + P_1 (1 - P_2) F_3] = 0 \end{cases} \tag{7}$$

To make the description easier to follow, we hold the following hypothesis. First, it is twice as profit that a single participator insists to conspire as the total profit that all participators intend to conspire. It is also twice as punishment that a single party insist to conspire as the total punishment that all participators intend to conspire when the government had supervised, this article supposed that $\alpha=2$. This is to say, more risk, more profit, and more punishment. Second, the third-party compensation appraisal institution and rare earth industry have nearly equal extra income that $C_2 - R_2 = C_3 - R_3$ when they intend to conspire. Third, the punishment have the same amount $F_2 = F_3 = F$ when one of the participators intends to conspire and be supervised by the government. It can be seen from formula (7):

$$\begin{cases} P_2 = \frac{R_3 - C_3 - P_1 F_3}{P_1 F_3} \\ P_3 = \frac{R_2 - C_2 - P_1 F_2}{P_1 F_2} \end{cases} \Rightarrow P_2 = P_3 \tag{8}$$

Making $P_2 = P_3 = P$, and then take it in the formula (2):

$$P_2^* = P_3^* = \sqrt{\frac{1}{4} + \frac{C_1}{(\alpha - 1)4F}} - \frac{1}{2(\alpha - 1)} \quad (\alpha > 1) \tag{9}$$

Setting $\alpha=2$:

$$P_2^* = P_3^* = \sqrt{\frac{1}{4} + \frac{C_1}{4F}} - \frac{1}{2} \tag{10}$$

It can be seen from formula (7):

$$P_1^* = \frac{R_2 - C_2}{(P_3 + 1)F_2} = \frac{R_3 - C_3}{(P_2 + 1)F_3} \tag{11}$$

To put formula (10) into formula (11):

$$P_1^* = \frac{2(R_2 - C_2)}{\sqrt{F_2^2 + 2F_2 C_1 + F_2}} = \frac{2(R_3 - C_3)}{\sqrt{F_3^2 + 2F_3 C_1 + F_3}} \tag{12}$$

It can be seen from the formula (11) that the third-party compensation appraisal institution and rare earth industry will intend to conspire if the probability of government regulation is lower than the probability of Nash optimality. That is $P_1 < P_1^*$, $p_1 < \frac{R_2 - C_2}{(P_3 + 1)F_2}$ or $p_2 < \frac{R_3 - C_3}{(P_2 + 1)F_3}$. Otherwise, they will choose no conspire.

It can be seen from the formula (12) that $P_1 = 0$ if $R_2 = C_2$ and $R_3 = C_3$. The third-party compensation appraisal institution and rare earth industry will not intend to conspire if the extra income is equal to the cost, so that the government has no necessary to supervise. We can also see that $P_1 > 0$ if $R_2 > C_2$ and $R_3 > C_3$, the two will conspire because the extra income is higher than the cost, and the government will increase the probability of regulation. The $P_1 < 0$ if $R_2 < C_2$ and $R_3 < C_3$ is meaningless.

3.3 Model analysis

There are many factors which can be seen from the formula (10) affect the probability of conspire, such as: C_1 is the regulatory cost of government; F is the punishment that one of the participators intends to conspire after the regulation of the government. From the equilibrium: the probability of conspire in the two participators are in direct proportion to the regulatory cost of government under the changeless of the punishment F . The probability of conspire in the two participators are in inverse proportion to the punishment F under the condition that the C_1 is changeless.

From the formula (12), we can see that five major factors have influenced the probability of government regulation: the extra profit (R_2-C_2) of the third-party compensation appraisal institution, the extra profit (R_3-C_3) of rare earth industry, the punishment F_2 of the third-party compensation appraisal institution when supervised by the government, the punishment F_3 of rare earth industry when supervised by the government, and the regulatory cost C_1 of the government. From the equilibrium, we can see that the regulatory probability of the government is in direct proportion to the extra profit (R_2-C_2) and (R_3-C_3) under the condition that the punishment F_2 , F_3 and the cost C_1 are changeless. The regulatory probability of the government is in inverse proportion to the punishment F_2 and F_3 under the condition that the extra profit (R_2-C_2) and (R_3-C_3) and the cost C_1 are changeless. The regulatory probability of the government is in inverse proportion to the cost C_1 under the condition that the punishment F_2 , F_3 , the extra profit (R_2-C_2) and (R_3-C_3) and the cost C_1 are changeless.

4 Conclusions

By the analysis of the cost function of the participators and the influence of each variable to the three major participators, some suggestions to realize the maximum of profit for each part are provided.

From the view of government, the government and the third-party compensation appraisal institution should establish rules and contract norms, which can make the third-party compensation appraisal institution to evaluate the compensation value fees around fairness and equality. And the punishment level for the appearance of the conspiracy to decrease the conspiracy is also need to be increased.

From the view of rare earth industry, reducing the cost during rare earth mining process, integrating industry chain and optimizing the industrial structure, which can reduce the cost by increasing industry concentration and expanding the production scale. The long-term and law-abiding concept is necessary to rare earth industry; good business ethics always reduce transaction cost.

From the view of third-party compensation appraisal institution, the institution should objectively and professionally evaluate the rare earth resources. In the evaluation, the institutions must establish an internal check and review system for assessment results. Right now, the third-party compensation appraisal is a new business, whatever in theoretical research and empirical research. It has a big space to develop.

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The Empirical Study on the Effect of Standardization on Export Trade in Zhejiang Province*

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Abstract: Combined export trade with practical experience of standardization in Zhejiang Province, this paper did an empirical study on the coordinated development of standardization level and exports. After setting standardization-measuring indicators and provincial macro-economic variables, relevant data from 1990 to 2013 were lead into a principal component regression model, analyzed the development situation and ran an empirical test on the effect of standardization on export trade in Zhejiang Province. It draw a conclusion that all the standardization-measuring indicators have made a positive facilitation on Zhejiang's export trade, and the index weight for each indicator was given according to the empirical test.

Key words: Standardization; Export trade; Zhejiang province; Principal component analysis

1 Introduction

Since joining the world trade organization, the internationalization of China's economy has been accelerated. Take export data for example, China's exports have increased from \$266.15 billion in 2001 to \$2.2096 trillion in 2013. It is growing 21.7% per year. And China was the largest country in foreign trade of the world since 2013. However, the expansion of exports partly relied on ways such as increasing production and lowering the price. Export products mostly were traditional products with comparative advantage (primary products and labor-intensive manufactured goods). The extensive growth model makes our country suffered various forms of trade restrictions and trade barriers in the process of expansion of foreign trade. Today the international trade restrictions against China still are the traditional ways such as anti-dumping and countervailing. As the tariffs and traditional non-tariff barriers in international trade constrained and weakened and the influence of the technical trade barriers strengthened in international trade, standards as the major form of the technical barriers are getting more and more attention. Its impact on China's export also cannot be ignored.

As an important part of international trade rules, standards have become an irreplaceable role to guarantee the quality of products, strengthen information symmetry, promote the commodity flow and improve market confidence. Based on these, the standard competition between countries is becoming a mainstream trade competition, and plays an important role in the formation of non-tariff trade barriers. Countries with vulnerable standard will be at a disadvantage in the international competition. Therefore, having a mature and perfect standardization system is not only an important micro dynamic mechanism for the development of China's import and export trade, but also the path from the trade nation to the trading powerful nation for China.

The strategic significance of standardization is recognized and generally emphasized in both academia and industry. Many Chinese and overseas scholars pointed out that the standards have the potential to encourage and discourage the development of international trade at the same time, that is, they have both positive and negative impact on a country's international trade development, which differs from impact from the traditional tariff or most other non-tariff barriers to trade [Blind & Jungmittag, 2005; Moenius, 2004; Dennis & Shepherd, 2007; Blind, 2001]. It is concluded that the standards shared between the import and export countries have a significantly positive relationship with a country's bilateral trade volume via examining 471 industry technical standards in 12 countries from 1980 to 1995 by Moenius. And he proposed that the standards for the unilateral export countries in the importer provide the product quality and reliable information transmission [Moenius, 2004]. It is presented that under the restrained conditions of the presence of highly multinational homogeneity, high cost of product improvement, higher foreign demand price elasticity as well as standard policy implementation effect, international trade with largely accepted imported standards can improve product revenue on the basis of the related literature review of international standards with their compatibility during 50 years by Schmid and Kotulla [Schmid & Kotulla, 2011]. Clougherty and Grajek confirmed

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that the common language, degree of homogeneity among countries etc. are the factors which affect the scale of trade between the two countries by taking ISO9000 standard system along with the panel data regression and co-integration analysis. And they put forward that the powerful members possessing much ISO standards would profit more from standardization, however those small ones think ISO9000 represents one kind of trade barriers caused by the compliance costs [Clougherty & Grajek, 2013]. Hou Junjun investigated the influence of national standard for Chinese trade scale. And he thinks that the current standard lagging behind and the increase of the standard will shrink of China's import and export trade in the short term, but in the long term will be a promotion action [Hou & Ma, 2009]. Xu Jiexiang discovered in the short term the standardization mainly brings negative effect on China's export trade, but would produce positive promoting effect on China's trade in the long run by analyzing the impacts in both long and short term from the perspective of local equilibrium [Xu & Zhang, 2010]. Ge Jing, Wang Yiyi magaged the standards and international trade data among over 60 different industries from different countries during the period 1996-2005, and established the panel data regression model analysis to conclude that there will have different effect and influence mechanism raised by same standards in the developing countries and developed countries and the international trade between developed countries [Ge & Wang, 2009]. Yang Lijuan analyzed the influence of the national and international standards on China's import and export trade after excluding mandatory standards. It is found that the increase of the national and international standards on China's foreign trade has positive influence [Yang, 2012]. Hou Junjun carried on the empirical research with the international trade data of Hunan province, and pointed out that the rise of each of the Hunan standardized index significantly promote the growth of foreign trade of Hunan province. Among them the enterprise standards, the national standards that Hunan participated in revising and existing patents have greater influence on export trade, on the other hand the special funds of standard research, technical committee and local standard stock have a bigger influence on import trade [Hou & Liu, 2012].

This paper takes Zhejiang province for example to analyze impact of standardization on export trade basing on the relevant data of parts of Zhejiang industry. Using principal component regression analysis method to conduct empirical test for evaluating effect of standardization, we get the conclusion that the level of standardization affects export trade in Zhejiang province. And basing on this conclusion, we put forward some feasible suggestions for standardization in Zhejiang province.

2 The Collaborative Development of Export Trade and Standardization in Zhejiang Province

The export trade of Zhejiang province has maintained a rapid development since the Reform and Opening-up. Statistical data shows, Zhejiang's exports started with \$21.89 billion in 1990, ranking fifth among the cities in the east China. In 1997, the exports first hit \$100 billion, and by the next year, Zhejiang surpassed Shandong Province, ranked fourth in the whole country and maintained the ranking until 2010. In 2011, the exports reached \$2163.49 billion, surpassed Shanghai becoming one of the third largest export provinces in China, followed after Guangdong and Jiangsu. During this period, the exports of Zhejiang ranked first place in the east China with a 17.97% average annual increase.

Figure 1 depicts the import and export trade data of Zhejiang province and a general trend of foreign from 1986 to 2013, and we placed the growth curve of national foreign trade for comparison. The chart demonstrates, foreign trade in Zhejiang had experienced a period of rapid expansion, and trade surplus occurred for the growth of exportation was significantly higher than imports in decades. By comparing the growth figure of Zhejiang and the nation's, we can see the two curves share a similar trend of development, but the average annual growth figure in Zhejiang province won the nation's every year since 1990. Zhejiang seized the opportunities of the Reform and Opening-up, and quickly adapted itself to an export-oriented economy after China joint WTO, great achievements have been made in a decade.

The national standard (GB) has the most widely application scope across the country level admitted by STANDARDIZATION LAW OF THE PEOPLE'S REPUBLIC OF CHINA. Due to the influence of national standard is far-reaching, the enterprises or scientific research institutions with technology or research and development ability take an active part in the national standard revision to strengthen the advantages of technology and management for product development.

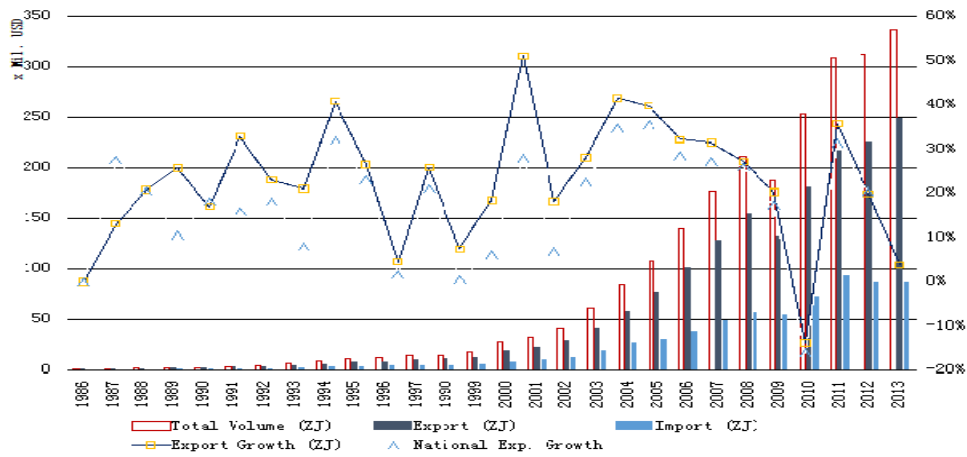


Figure 1 The Scale of Export Trade & Growth Rate of Zhejiang Province

Data source: 1978-2013 China Statistical Yearbook, 1986-2013 Zhejiang Statistical Yearbook, Zhejiang customs statistical bulletin, collected by author.

By the end of 2013, the amount of national standard that enterprises, scientific research institutions, universities and individuals in Zhejiang province have participated in drafting or amending, has been 3284. It ranked the third place behind Shanghai and Jiangsu province in east China area. Figure 2 shows the annual increment and stock of national standard that Zhejiang has participated in drafting and amending.

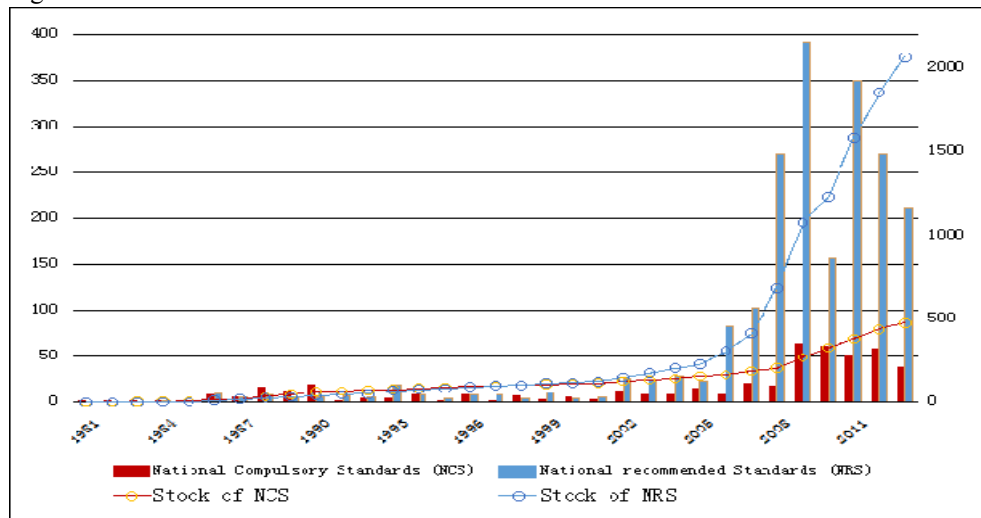


Figure 2 National Standard Increment & Inventory of Zhejiang Province

Data source: National standardization committee of national standard database, standard information service network in Zhejiang province, Zhejiang standard information and quality safety of the public science and technology innovation service platform, data retrieved by author.

Figure 2 illustrates that after joining to WTO, the average annual growth of national standard increment and stock drafted or revised by Zhejiang is significant, particular the number of holding the recommended national standard, is of high-speed growth. The reason is that enterprises and scientific research institutions of Zhejiang province can meet the needs of the diversification of foreign markets, and implementation of standardization strategy of the province. The development of standardization program of Zhejiang province is from passive to active and from weak to strong because of the entry barriers into overseas markets and the improvement of the demands of product quality in domestic market. It's concluded that the amount of national standards positively correlates with Zhejiang's exports.

The industry standard is indispensable scientific guidance and effective means because it

effectively fills the gap of national standard in a particular industry. By the end of 2013, Zhejiang enterprises and other organizations have accumulated participating in drafting or amending 2853 items of industry standards. The top ten industries ranking by the number of possessed standards in Zhejiang province are respectively as follow: JB, machinery, 26%; QB, light industry, 23%; HG, chemical industry, 12%; FZ, textile industry, 11%; SN, commodity inspection, 10%; YY, medicine industry 4%; JT, traffic, 4%; GA: public safety, 4%; SB, business, 3% and NY, agriculture, 3%. Considering the above industries from the aspect of standard stock, they are the top ten standard advantage industries, and in fact they cover machinery, textile, chemical fiber, clothing, low-voltage electrical appliances, bearing gear, stationary that are all important and advantaged industries of Zhejiang province.

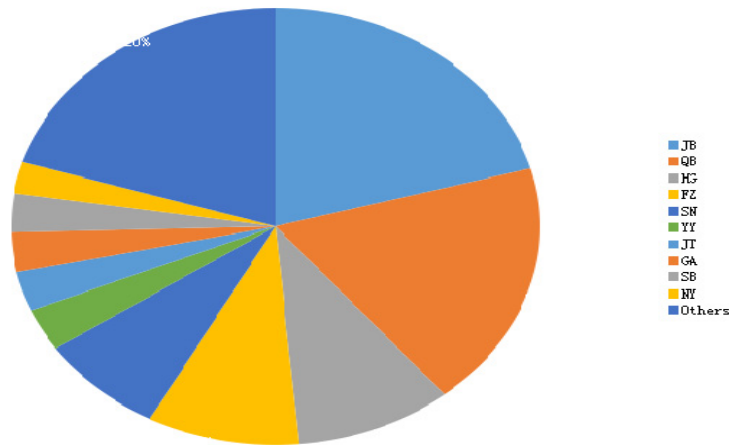


Figure 3 Industrial Standard Distribution of Zhejiang Province

Data source: Standard information service network in Zhejiang province, Zhejiang province standard information and quality safety of the public science and technology innovation service platform, arranged by author.

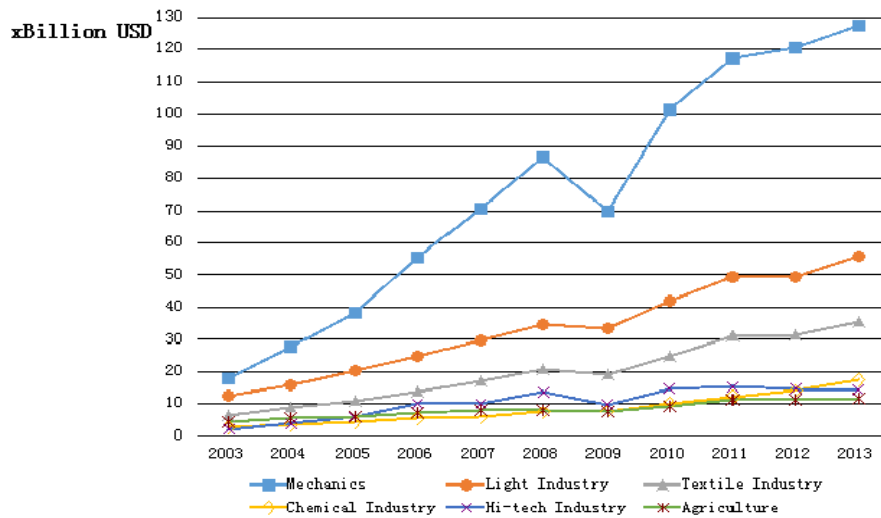


Figure 4 Exported Product Categories of Zhejiang Province

Data source: 2004-2014 Zhejiang Statistical Yearbook, summarized by author.

Figure 3 and Figure 4 shows, in Zhejiang, the industries with higher standardization level are of larger export scale, so that standardization level of one industry can improve its export scale. Mechanical and electrical products, textile and clothing industry, agricultural and sideline products are the ones of the largest exports in Zhejiang, specifically, the annual exports account for more than 80% of Zhejiang province exports. These industries accounted for 72.97% in the national and provincial standardization technical committee of Zhejiang province. The establish of standardization committee at all levels, working group or secretariat shows that this region has great advantages and influence in the field of one industry in the provincial or nationwide. Organizations' leadership should be fully brought

into play, so as to improve the level of technology and standardization in Zhejiang export trade by applying standards in exports. Besides, the standard proportion of industries, such as machinery, light industry, chemical industry, textile, agriculture, has reached 81.04%. These industries almost cover Zhejiang's advantage industries, that means, Zhejiang's traditional advantageous industries are also the ones of standard advantages, and the ones occupied the most part of exports in Zhejiang province.

3 Empirical Test

This paper setup principal component regression model to examine the relationship between standardization level and export trade in Zhejiang Province. We select standardization-measuring indicators and provincial macro-economic data as independent variables, Provincial exportation figures as dependent variable, the result suggests that all the standardization-measuring indicators have positive effect on Zhejiang's export trade, and the index weight for each indicator is given according to the empirical test.

3.1 Variables selection

The amount of export is the direct embodiment of the level of foreign trade and international competition ability in a country or a region. Exports data from 1991 to 2014 in Zhejiang Province were selected as a description of Zhejiang's export trade development level.

STANDARDIZATION LAW OF THE PEOPLE'S REPUBLIC OF CHINA defines China's standard system as four hierarchy: national standards, industry standards, local standards and enterprise standards. Through literature review, the former measuring the relationship between standardization and foreign trade always used the stock of national standards the country or region participated in drafting or amending to measure the level of standardization. This empirical method is one-sided. We should take industry standards, local standards and enterprise standards the region participated in drafting or amending into account as well. However, enterprise standard is amended by themselves and the implementing scope is also the enterprises themselves. The function of these enterprise standards is limited for the whole industry. Besides, considering that there is a large amount of private enterprises in Zhejiang Province, the content of enterprise standards appear unavoidably repetition even conflicts in the amending or revising process. And declaration of implementing and abolishing a enterprise standard is in charged by the technical supervision department of county level, maybe has different statistical caliber and insufficient data. So we won't add the enterprise standard stock to the econometric model as an independent variable in this paper. In general, we use the stock of national, industry, local standard drafted or amended by Zhejiang province as the main descriptions of standardization development indicators.

In addition to the standard stock, the enhancement of regional scientific and technological innovation plays a significant role in promoting export performance and the grade of export products. We select the stock of patents have been granted every year, annual research funding to measure the level of technological innovation in Zhejiang Province. Patents stock is an important indicator to show the degree of activity of regional technology; annual research funding is an important driving force for technological development, adequate research funding support helps carry out research and standardization work more efficiently.

Imports and exports of an area would be affected by many factors, so we add some auxiliary variables in order to interpret export trade development more objectively. Foreign direct investment (FDI) is a potential factor in the promotion of exports, FDI can adapt to the international market demand, improve product quality and expand product export, while foreign-funded enterprises uses low-cost host artificial as well as incentives, combined with their high technology, improve product market competition force, and thus boost exports. Gross Domestic Product (GDP) is a description of economic growth indicator, when the increase of the gross national product of a given area significantly more than people's consumption demand, there will be a large number of products and services selecting export, therefore the growth of GDP can promote the expansion of exports, while economic growth can lead to improvement of the economic structure, to bring more economic benefits for the industry. Average exchange rate (EXR) is a tool to measure the purchasing power in the international of country's currency, the exchange rate decline indicates the currency appreciation, exports have been hampered, the exchange rate raise will stimulate exports. Consumer price index (CPI) is a measurement of inflation in a region, CPI rise, eroding purchasing power, reducing household demand for consumer goods, manufacturers would increase foreign exports.

In summary, we select six indicators, including national standard, industry standard, local standard,

patents, stock of technical committees in Zhejiang, the input of standardization of research funding, and four economic comprehensive indicators, including foreign direct investment, gross domestic product, the average exchange rate and consumer price index, to establish a multiple variables regression model with above indicators data and Zhejiang export trade data, try to give a demonstration support of the relationship between the level of standardization and export trade in Zhejiang province.

3.2 Model building

Principal component analysis (PCA) was first proposed by statisticians Karl Pearson in 1901. It is a statistical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components. The number of principal components is less than or equal to the number of original variables.

This paper established a multivariate liner regress model based on Zhejiang’s data of export as the dependent variable and all scales of standard stock, patents, research input, macro-economic parameters as independent variables. The original multivariate regression model is as follows:

$$EX_t = C_t + a_1GB_t + a_2HB_t + a_3DB_t + a_4ZL_t + a_5JF_t + a_6TC_t + a_7FDI_t + a_8CPI_t + a_9GDP_t + a_{10}EXR_t + \mu_t \quad (1)$$

EX_t refers to exports of Zhejiang province in t year, C_t is intercept, a_i is the coefficient of corresponding variable, μ_t is error term. GB_t is national standard stock, HB_t is industry standard stock and DB_t is local standard stock of Zhejiang Province in t year. ZL_t is patent stock of Zhejiang in t year. JF_t refers to the research funding used for standard research in t years. TC_t is the quantity of technical committees at all levels in Zhejiang province. FDI_t is foreign direct investment of Zhejiang province in t year. CPI_t is the consumer price index in t year. EXR_t is average rates in t year. GDP_t is the gross national product (GNP) of Zhejiang province in t year.

3.3 Empirical analysis

First of all, it is necessary to standardize the original data. Then we use SPSS21.0 software for principal component analysis. Table 1 shows that the characteristic value of first principal component was 7.09 with the 70.904% total variance explained contribution. The characteristic value of second principal components was 1.412 with an explained contribution of 14.117%. The contribution rate of the first two principal components already reached 85.021%, so we choose the first and second principal component to establish the model.

According to Table 2, we see that the first principal component gets greater loading on variables such as GB, HB, DB, ZL, JF, FDI and GDP, it represents the levels of standardization and economic. The second principal component contains the levels of consumption and exchange rate.

We can get the following equations of two principal components from the corresponding rotated factor loading matrix and coefficient matrix of composition score:

$$F1_t = 0.186 * ZGB_t + 0.162 * ZHB_t + 0.017 * ZDB_t + 0.181 * ZZL_t + 0.16 * ZJF_t + 0.033 * ZTC_t + 0.104 * ZFDI_t + 0.062 * ZCPI_t + 0.138 * ZGDP_t - 0.178 * ZEXR_t \quad (2)$$

$$F2_t = -0.166 * ZGB_t - 0.077 * ZHB_t + 0.332 * ZDB_t - 0.151 * ZZL_t - 0.051 * ZJF_t + 0.332 * ZTC_t + 0.132 * ZFDI_t - 0.357 * ZCPI_t + 0.029 * ZGDP_t + 0.488 * ZEXR_t \quad (3)$$

Adding ZEX(Standardized Value of Exports) with F1 and F2 to use the multiple linear regression analysis, then we can obtain the regression equation of the principal component as follow:

$$ZEX = 0.00000064 + 0.97 * F1 + 0.217 * F2 \quad (4)$$

T value	42.191	9.435
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Here F value is 934.541, the adjusted coefficient of determination is 0.988, which directs that the model’s goodness of fit is very well. After looking up the particular table, we know the upper limit of D-W is 1.546 while N equals 24 and K equals 2. Our D-W value is 1.891 less than the upper limit, that means there is no autocorrelation in random error terms of this regression equation. Thus, two principal components can significantly explain the changes in exports of Zhejiang Province.

We can obtain the weight coefficient of each variable in the standardized multiple regression equation. Intercept has been ignored, as it is always zero in the regression equation of the principal component. We can obtain the standardized multiple regression equation as follows:

$$ZEX = 0.144 * ZGB + 0.140 * ZHB + 0.089 * ZDB + 0.143 * ZZL + 0.144 * ZJF + 0.104 * ZTC + 0.130 * ZFDI - 0.017 * ZCPI + 0.140 * ZGDP - 0.067 * ZEXR \quad (5)$$

Table 1 Principal Component Extraction

Com- ponent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	total	% of Va	Cumulative %	total	% of Var.	Cumulative %	total	% of Var.	Cumulativ e%
1	7.090	70.904	70.904	7.090	70.904	70.904	6.639	66.390	66.390
2	1.412	14.117	85.021	1.412	14.117	85.021	1.863	18.631	85.021
3	.901	9.012	94.032						
4	.509	5.087	99.119						
5	.058	.580	99.699						
6	.019	.190	99.889						
7	.007	.068	99.957						
8	.003	.026	99.983						
9	.002	.015	99.998						
10	.000	.002	100.000						

Table 2 Rotated Loading Matrix of Main Components Factors

	Component	
	1	2
Zscore(GB)	.982	-.022
Zscore(HB)	.958	.106
Zscore(DB)	.626	.646
Zscore(ZL)	.970	-.003
Zscore(JF)	.985	.152
Zscore(TC)	.725	.668
Zscore(FDI)	.895	.406
Zscore(CPI)	-.136	-.570
Zscore(GDP)	.961	.265
Zscore(EXR)	-.431	.637

Table 3 Coefficient Matrix of Component Score

	Component	
	1	2
Zscore(GB)	.186	-.166
Zscore(HB)	.162	-.077
Zscore(DB)	.017	.332
Zscore(ZL)	.181	-.151
Zscore(JF)	.160	-.051
Zscore(TC)	.033	.332
Zscore(FDI)	.104	.132
Zscore(CPI)	.062	-.357
Zscore(GDP)	.138	.029
Zscore(EXR)	-.178	.488

According to the above equation, we know the degree explanations of each explanatory variables for the dependent variable. GB, HB, DB, ZL, JF, TC, FDI, GDP these seven quotas forward promote the exports of Zhejiang Province while the increase of EXR and CPI inhibit the exports of Zhejiang Province.

Considering the contribution rate of each standardization indicator, the rank of them is GB > JF > ZL > HB. GB, HB, DB are standardization index at three levels we select in this paper. Every 1% of growth would relatively bring 0.144%, 0.14% and 0.089% positive output on Zhejiang exports. Among them, national and industry standards play more important role than the local one, for the latter's limitation effective range of position, implementation and impact within the very area. The impact coefficient of ZL, JF and TC is 0.143, 0.144 and 0.104. If considering the above six indicators as the level of standardization, that means standardization level increases 1%, exports will increase 0.764 %. Therefore, standardization level has a significant influence on exports. Moreover, FDI and GDP raising 1% will bring 0.13% and 0.14% increase for exports. It shows that these two indicators have a positive correlation with exports.

CPI and EXR have a negative impact on exports. Inflation of prices rise the company costs, so that the product will lose price advantage. It is a little unexpected that exchange rate brings some negative impact to the export of Zhejiang Province. One of explanations is: in Zhejiang Province, the main competition advantage of export product is prices, the prices which is substantially lower

than the price of the same class local product in the importing countries cause that the importing countries adopt anti-dumping investigation or other trade protection measures to restrict import; price advantage of export product will be more obvious while exchange rate rises and RMB depreciates; thus the rise of exchange rate will enhance the risk that importing countries may adopt anti-dumping investigation to the export product of Zhejiang Province; consequently, the rise of exchange rate may cause slight decline of the export of Zhejiang Province.

4 Conclusions

In this paper, we measure the standardization level of Zhejiang province with the factors such as national standards and industry standards. We consider the standardized level as explanatory variables, and introduce other indicators which affecting the export trade of Zhejiang province. Finally we build a regression model by the method of principal component analysis. According to the results of empirical test, we get a clear conclusion that standardization level of Zhejiang province plays a positive role in promoting export trade. Different standards have different effects on promoting export trade. The strongest is national standards, next in order are industrial standards, and local standards are the weakest. At the same time, the stock of patents, the number of standard committees at all levels and input funding of scientific research also have positive effects on export trade in Zhejiang province.

Test results show that the increase of standards stock can promote the expansion of export trade, structure optimization and the rise of interest. Zhejiang province need to encourage enterprises to carry out independent research and development vigorously in the field of standard and improve the technological level of the standards at all levels. Standard committees at all levels must play active roles in building linkage mechanism of technology development, standards establishment and standards promotion on the base of existing levels of technology development and production capacity. And committees need to actively guide non-enterprise organizations and enterprises to carry on technological innovation and to participate in the draft and revision of international and domestic standards so as to short the cycle of standard revision, actively follow the trends of international advanced technology and international standards.

Standard of the international competition is related to the interest distribution of the export trade, and it is the necessary means of getting the trade initiative. Export enterprises should promote independent intellectual property rights in standards and strengthen international competitiveness of standards. Participate in the activities of the international standard actively and strive for voice of the international standard are the way for enterprises in Zhejiang province to improve trade position, transform our passivity into initiative, strive for more trade profits. Compared to the flourishing development of domestic standard system revision activity in recent years, the case of enterprises in Zhejiang province involving in the revision of international standard system is not much. In addition to the agriculture and acoustic, there are not international technology subcommittees of machinery, light industry, chemical industry, textile and other traditional advantage industries settling down. That shows the advantage industries in Zhejiang province has not formed the real international influence, industry standards have no initiative in the international market. Therefore, enterprises should be guided by innovation to improve their research and development capabilities and independent intellectual property. Then enterprises try them best to involve in the drafting and revision of international standards, launch international advanced level of products and train specialists in the field of standardization to grasp standards initiative and effectively improve the terms of the export trade.

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Research on the Performance Evaluation of Logistics Service in Private Express Industry Based on AHP

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Abstract: With the rapid development of economic, China's private express industry is using its own advantages to achieve remarkable results. However, in the course of development, the industry highlights a lot of problems, and these issues affect the development and expansion of China's private express industry. Based on this background, this paper analyzes the performance evaluation system of logistics service for private express industry, presents the principles about building the index, and constructs new performance evaluation index system.

Key words: Private express industry; AHP; Logistics service performance; Performance evaluation

1 Introduction

In recent years, as the fast development of China's economy, consumption has been growing. In 2013, total sales of consumer goods in China rose close to 13.1 % compared with 2012 according to the nation bureau of statistics. In addition, with the continuous development of Internet technology and mobile terminal technology, the scale of online shopping population is also increasing. IResearch data show that China's online shopping transactions in 2013 reached 1.85 trillion yuan, up 42.0%. That such a large-scale online shopping population greatly boosted the development of the offline of private express delivery companies.

At present, China's private express delivery industry has entered a rapid development period. According to the data of National Post Web site, China's express delivery business volume reached 9.2 billion, an increase of 60.0%, and the courier business income reached 1,430 yuan, an increase of 36.0%. China's private express delivery industry is growing rapidly. However, China's private express delivery industry, which has been attacked by express delivery giants internally and externally, has long relied on the price war in the low-end market access to a place of survival, which is not conducive to improving the level of business and brand image. The most effective way to break through the tight encirclement is to find a performance evaluation system suitable for private enterprises' characteristics, analyze its existing problem in the various links, and improve logistics performance. This paper establishes the logistics performance evaluation index system of express enterprises through the investigation of several private express delivery enterprises. In order to help private express companies give an accurate evaluation of their own logistics service, and improve China's logistics services of private express, this paper uses Analytic Hierarchy Process to find out the key factors of indexes.

2 Literature Review

At present, there are many articles about service performance research, which mainly focus on the definition of service performance and the research of evaluation model and theory. The Chinese scholars, from multiple perspectives, primarily describe the development situation and its characteristic on domestic express industry.

The Finnish scholar Gronroos (1982) and the American scholar Parasuraman, Zeithaml & Berry (1985) brilliantly described the concept of service performance, and constructed the evaluation system model. What's more, they conducted a thorough study on the concept and structure of service performance. Bienstoeck, Mentzer & Bird(1997) set up the physical distribution performance evaluation system (DPSQ), including a total of 15 indicators which could be divided into three dimension: time reliability, availability and environmental conditions. Later, Mentzer, Flint & Kent (1999) extended the DPSQ, they carried out an in-depth investigation on American large third party logistics enterprises--Defense Logistics Agency and its customer. Then they came to the conclusion that there were 9 factor can influence Logistics Service Quality(LSQ), and put forward the logistics service performance evaluation model(LSQ), which contained dimensions, related to 25 indicators. Moreover, Chinese scholars such as Wang Zhitai, Tian Yu (2004), Liu Mingfei (2006), Zhou Yaoyang (2007) and Zheng Bing (2007) probed into the LSQ to a variable extent.

Directing at domestic characteristics, Chinese scholars have set up a different performance

evaluation system on local logistics service performance, which use various methods and techniques. But, the research on the performance of logistics service performance of private express industry in China is still insufficient. Comprehensive application of various evaluation methods and learn from each other in the private express industry logistics service performance evaluation also does not see more.

3 The Logistics Performance Evaluation Index System of Express Enterprises

3.1 Principles of establishing the logistics service performance evaluation system

All the evaluation index system should be designed in following some basic principles. According to the characteristics of customer service and the current situation of the development of evaluation system for the private courier enterprises in China, the performance evaluation system should be established in following five principles.

1) Specific and realizable principle

The various index involved in evaluation index system should base on the actual situation of the private courier enterprises and get from the actual situation of logistics operation. Meanwhile, the index must have certain operability and can be more easily to judge.

2) Objective and measurable principle

It should combine of quantitative and qualitative, and design some scientific and reasonable evaluation index.

3) Multi-channel and all-round evaluation principle

It should collect as much information as possible and execute a multi-channel and comprehensive evaluation. Meanwhile, it needs to use combination of the superior assessment, peer assessment, subordinate assessment, staff assessment and so on.

4) Hierarchical principle

In order to in-depth analysis, the evaluation levels of the evaluation index system should be separated in accordance with the importance degree of the private courier enterprise logistics process. Meanwhile, the selection of index in every level should be focused, and the key performance index should be focused on analysis.

5) Dynamic long-term principle

To establish the index system should not be restricted to the current situation of the private courier enterprise. The index system should change with the change of economy, market and private courier enterprise management. In addition, the different patterns courier enterprises that have different logistics operations should have the different index system of logistics service performance.

3.2 The index system of logistics service performance evaluation

As the principle of performance evaluation index system and standard is clear, the index system can be designed now. Based on strategic target of express enterprise customer service, combined with strategic management theory, system management theory and stakeholder theory, through analyzing the influence factors of customer service and other related factors, this paper gets a four-dimensional structure of evaluation system which including logistics operation service dimension, logistics marketing service dimension, logistics quality service dimension and logistics support service dimension.

3.2.1 Logistics operation service dimension

Logistics operation service system is function performance form of the logistics service. As the types of express companies may be different and the owner of express companies engaged in different industries or nature, the operational service system may be different. But typical logistics operation service systems have similarities which are composed of three links: transport activity, warehousing activity and distribution activity.

1) Transport activity index system

It is the process that express enterprise transports owner's products from the production base to express enterprise distribution center in the regional market. The main performance indicators include: goods timely delivery rate, transportation loss and accident frequency.

2) Warehousing activity index system

In order to make the owner prepare product smoothly and transferred to the customer expediently. The express enterprise takes four stages of activities which including receiving, storage, loading and picking to deal with the most products in the distribution center. The main performance indicators include: import and export timely delivery rate, inventory accuracy.

3) Distribution activity index system

After the owner and its customers realize the commodity exchange, the activities which deliver products from distribution center to customers is defined as distribution activity, in short-distance transport within the enterprise market in a given area. The main performance indicators include: distribution accuracy, cargo damage rate.

3.2.2 Logistics marketing service dimension

Logistics marketing management system can make a satisfactory effect to customer and drive bidirectional regulation of the sales and service. Marketing management has a direct impact and effect on logistics operation service system, logistics quality service system and customer satisfaction. Marketing activities are started in the research and analysis of the market, aim at achieving the purpose of corporate earnings through meeting customer demand better than competitors. Private express enterprise is no exception. As a result, logistics marketing service index system can be mainly evaluate from two aspects that the market competitiveness and profitability which formed by carrying out the logistics marketing.

1) Market competitiveness index system

This index system mainly reflects the capacity that enterprise provides logistics service products to meet customer requirements better than competitors, its indicators mainly reflects in: ratio of new customers, customer repurchase rate and market share.

2) Profitability index system

It refers to profitability of logistics service product and customer profitability of its service which are provided by the third party logistics enterprise. The main indicators mainly reflect in: main service product profitability, main customer profitability.

3.2.3 Logistics quality service dimension

Logistics quality service system is the main aspects of customer service satisfaction evaluation which is composed of customer expectations and perception of service quality. And in order to make the customer satisfied, maintain its loyalty and keep its buying behavior, enterprise need to make the customer to perceive logistics service quality and realize that the logistics service product can create value for it. So the quality of logistics service system has an important influence on customer satisfaction. Logistics service quality is the comparison results between customers expected and perception of the services, and the decisive factors of it are reliability and reactivity.

1) Reliability index system

Reliability refers to the enterprise completes correctly promised service which reflects reliable and real performance. The index system is mainly reflected in: order processing accuracy, settlement accuracy and delivered goods in good condition rate.

2) Reactivity index system

Reactivity is refers to the enterprises ready to provide customers with quick, efficient service at any moment which reflects the degree of promptness and helpfulness and includes service punctuality. The index system is mainly reflected in: handle customer complaints timely, urgent order completion rate.

3.2.4 Logistics technology support service dimension

Logistics technology support for the logistics service system function mainly displays in improving the business activities operation mode and operation processes. The aim of it is to improve the operation efficiency and the effect of various business functions. In marketing activities, in order to achieve the innovation of the marketing activity, the application of "soft technology", especially the use of information technology can make the marketing activity cognizes the needs of customers more precisely and responds to the needs of customers more quickly and effectively, which can provide the most suitable logistics service products and more value to the customer's demand. The support function for the quality of logistics service system mainly displays in "hard technology". And through customer's perception of physical equipment, the logistics service quality can increase.

There are three conclusive logistics technology support service indexes: network scale, hardware facilities and after-sales service. The network scale which is the nature of express service determines an express company must have a site network of wide regional coverage, tightly managed which is the foundation of the express company to provide express service. Hardware facilities mainly refers to the transportation, selection, delivery tools and the number and level of warehousing facilities. After-sales service refers to the response to express enterprise dealing with customer complaints, compensation, dissolving crisis ability, etc.

In conclusion, the indicators which affect the performance of private express enterprise logistics service can be concluded (Table 1).

Table 1 Private Express Enterprise Logistics Service Performance Evaluation Index System

	First level index U_i	Secondary level index U_{ij}
Private express enterprise logistics service performance evaluation index system	Logistics operation service U_1	goods timely delivery rate U_{11}
		transportation loss and accident frequency U_{12}
		import and export timely delivery rate U_{13}
		inventory accuracy U_{14}
		distribution accuracy U_{15}
		cargo damage rate U_{16}
	Logistics marketing service U_2	ratio of new customers U_{21}
		customer repurchase rate U_{22}
		market share U_{23}
		main service product profitability U_{24}
		main customer profitability U_{25}
	Logistics quality service U_3	order processing accuracy U_{31}
		settlement accuracy U_{32}
		delivered goods in good condition rate U_{33}
		handle customer complaints timely U_{34}
		urgent order completion rate U_{35}
	Logistics technology support service U_4	network scale U_{41}
		hardware facilities U_{42}
		after-sales service U_{43}

4 Evaluation of Private Express Enterprise Logistics Performance by AHP

Logistics service performance evaluation of private express enterprise must follow certain principles, use scientific methods of analysis, and put forward the effective solution of future development through the analysis of the specific content for the private express enterprise logistics service performance. Analytic Hierarchy Process is such a method system, by which the goal of enhancing logistics service performance is decomposed into several elements. Based on this, form a hierarchy model of factors according to the relationship, come to the importance weight of each factor relative to the overall goal, find out the key factors and improve logistics service performance.

4.1 Determine the importance weight of first level index relative to the target layer

Through questionnaire survey and interviews with relevant experts, combined with related literature, take the pairwise comparison method, and score (1-9 point) for the importance weight of first level index relative to the target layer. Thus, the judgment matrix of the importance of first level index relative to the target layer is as follows:

$$A = \begin{pmatrix} 1 & 1/2 & 1/4 & 2 \\ 2 & 1 & 1/2 & 4 \\ 4 & 2 & 1 & 6 \\ 1/2 & 4 & 1/6 & 1 \end{pmatrix}$$

The feature vector $WA = (0.275 \ 0.513 \ 0.074)^T$

$\lambda_{max} = 4.01$, $CI = 0.003$, $RI = 0.9$, $CR = CI/RI = 0.004 < 0.10$, conformance test.

4.2 Determine the importance weight of secondary level index relative to first level index

1) Logistics operation service system

$$U_1 = \begin{pmatrix} 1 & 2 & 3 & 4 & 1/2 & 1/4 \\ 1/2 & 1 & 2 & 3 & 1/4 & 1/6 \\ 1/3 & 1/2 & 1 & 2 & 1/5 & 1/7 \\ 1/4 & 1/3 & 1/2 & 1 & 1/6 & 1/8 \\ 2 & 4 & 5 & 6 & 1 & 1/2 \\ 4 & 6 & 7 & 8 & 2 & 1 \end{pmatrix}$$

The feature vector $WU_1=(0.139 \ 0.082 \ 0.053 \ 0.036 \ 0.257 \ 0.432)^T$.

$\lambda \max=6.114$, $CI=0.023$, $RI=1.24$, $CR=CI/RI=0.018<0.10$, conformance test.

2) Logistics marketing service system

$$U_2 = \begin{pmatrix} 1 & 1/2 & 1/5 & 2 & 3 \\ 2 & 1 & 1/3 & 4 & 6 \\ 5 & 3 & 1 & 6 & 8 \\ 1/2 & 1/4 & 1/6 & 1 & 2 \\ 1/3 & 1/6 & 1/8 & 1/2 & 1 \end{pmatrix}$$

The feature vector $WU_2=(0.241 \ 0.516 \ 0.073 \ 0.045)^T$.

$\lambda \max=5.087$, $CI=0.022$, $RI=1.12$, $CR=CI/RI=0.019<0.10$, conformance test.

3) Logistics quality service

$$U_3 = \begin{pmatrix} 1 & 4 & 1/4 & 1/3 & 2 \\ 1/4 & 1 & 1/6 & 1/4 & 1/2 \\ 4 & 6 & 1 & 2 & 6 \\ 3 & 4 & 1/2 & 1 & 4 \\ 1/2 & 2 & 1/6 & 1/4 & 1 \end{pmatrix}$$

The feature vector $WU_3=(0.051 \ 0.457 \ 0.278 \ 0.078)^T$.

$\lambda \max=5.150$, $CI=0.037$, $RI=1.12$, $CR=CI/RI=0.033<0.10$, conformance test.

4) Logistics technology support services

$$U_4 = \begin{pmatrix} 1 & 3 & 1/4 \\ 1/3 & 1 & 1/7 \\ 4 & 7 & 1 \end{pmatrix}$$

The feature vector $WU_4=(0.211 \ 0.084 \ 0.705)^T$.

$\lambda \max=3.032$, $CI=0.016$, $RI=0.58$, $CR=CI/RI=0.028<0.10$, conformance test.

From the above calculation, the results are as follows:

The weight of goods timely delivery rate $U_{11}=0.138*0.139=0.0192$;

The weight of transportation loss and accident frequency $U_{12}=0.138*0.082=0.0113$;

The weight of import and export timely delivery rate $U_{13}=0.138*0.053=0.0073$;

The weight of inventory accuracy $U_{14}=0.138*0.036=0.0049$;

The weight of distribution accuracy $U_{15}=0.138*0.257=0.0355$;

The weight of cargo damage rate $U_{16}=0.138*0.432=0.0596$;

The weight of ratio of new customers $U_{21}=0.275*0.125=0.0344$;

The weight of customer purchase rate $U_{22}=0.275*0.241=0.0663$;

The weight of market share $U_{23}=0.275*0.516=0.1419$;

The weight of main service products profitability $U_{24}=0.275*0.073=0.0201$;

The weight of main customer profitability $U_{25}=0.275*0.045=0.0124$;

The weight of order processing accuracy $U_{31}=0.513*0.136=0.0698$;

The weight of settlement accuracy $U_{32}=0.513*0.051=0.0262$;

The weight of delivered goods in good condition rate $U_{33}=0.513*0.457=0.2344$;

The weight of handle customer complaint timely $U_{34}=0.513*0.278=0.1426$;

The weight of urgent order completion rate $U_{35}=0.513*0.078=0.0400$;

The weight of network scale $U_{41}=0.074*0.211=0.0156$;

The weight of hardware facilities $U_{42}=0.074*0.084=0.0062$;

The weight of after-sales service $U_{43}=0.074*0.705=0.0522$.

Sorting of secondary level indexes' weight in the logistics service performance can be seen in Table 2 by comparison.

Table 2 Evaluation Index Sort of Weight in Private Express Enterprise Logistics Performance

index	U ₃₃	U ₃₄	U ₂₃	U ₃₁	U ₂₂	U ₁₆	U ₄₃	U ₃₅	U ₁₅	U ₂₁
weight	0.2344	0.1426	0.1419	0.0698	0.0663	0.0596	0.0522	0.0400	0.0355	0.0344
sort	1	2	3	4	5	6	7	8	9	10

5 Conclusion

From the analysis above, these indexes like the delivered goods in good condition rate, handle customer complaints timely, market share, order processing accuracy and customer repurchase rate etc. occupy the greater weight. Therefore, private express industry should mainly focus on these aspects to improve their own conditions and service levels, so as to occupy a greater market share in the express market.

This paper provides an overview of logistics performance in private express industry, presents the principles about building the index, and constructs new performance evaluation index system. Although as objective, rigorous, and credible as possible in the process of the study, there are still limitations and consequent deviation inevitably, such as subjectivity of expert scoring. Subsequent studies can further follow up to address these issues.

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Research on Industrial Technology Innovation Strategic Alliance Life Cycle

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Abstract: Industrial technology innovation strategic alliance has great advantages and positive impact on different aspects of the enterprise thus has been the focus of business and management academic circles both at home and abroad. This research utilizes the method of modeling, proposes the transplantation of life cycle theory model to industrial technology innovation strategic alliance. The perspective of this research is that the life cycle of industrial technology innovation strategic alliance is similar but also different with the enterprise life cycle. Based on this, this paper builds a life cycle model of industrial technology innovation strategic alliance. The conclusion that the alliance will reflect different evolution characteristics, when the industrial technology innovation strategic alliance is in different evolution period is given in the end.

Key words: Industrial technology innovation; Strategic alliance; Life cycle; Evolution; Model

1 Introduction

Strategic alliance is defined as two or more than two independent economic entity, for the common strategic target, form a benefit-sharing and risk-sharing loose network organization through a variety of contract arrangement, equity arrangement or the tacit understanding between each other (Luiz & Rodrigo, 2009). Strategic alliance is a product of the new technology and the new competition which means wide range of applications of computer and network technology and cooperation in the competition of companies. Industrial technology innovation strategic alliance is a technology innovation cooperation organization which based on the enterprises development needs and the common interests of the parties, aiming at improving industry's capacity for independent innovation, choosing a legally binding contract as the security, and composed by the enterprise, university, research institutions or other organizations jointly (Liu Zhiying & Wang Dandan, 2013). Strategic alliance has great advantages and positive impact on different aspects of the enterprise, such as to accelerate new product development, reduce product costs, promote enterprise mutual learning and be convenient into other markets, etc. Therefore it has been the focus of business and management academic circles both at home and abroad. However, it is also extremely unstable, for example, when considering about alliance liquidation, mergers of members and alliance reorganization, the instability ratio of strategic alliance is as high as 30% ~ 50%. And it also can be reflected by the phenomenon of high failure rate and short life cycle of strategic alliances, even the increase of its number is fast. As a result, the research on strategic alliance instability and its life cycle become an important task to managers.

2 The Theory of Enterprise Life Cycle

The enterprise life cycle is a theory combination of evolution, which refers to the analogy of enterprise organization and living organisms and the organization is seen as a living organism. The theory is that enterprise is similar with any living organisms, experiencing from the birth, growth, maturity, recession and other process in its ecological environment (Stephen, 1997). And each stage, enterprise will compete for acquiring and outputting resources in the outside ecological environment, complete their metabolism and change its organic structure to realize the organization growth. In other words, the enterprise life cycle theory points out that enterprise development is a process of several stages, and study the characteristics and problems of each stage in the process.

2.1 The traditional enterprise life cycle theory

There is a representative enterprise life cycle model was proposed in 1995, which considering the enterprise scale impact in enterprises life cycle (Figure 1). The enterprise life cycle model chooses the scale of enterprise as the ordinate, which divides the scale of enterprise into two cases which includes large and medium-size enterprises (MLEs) and small enterprise (Small). Besides, development stage is chosen as the abscissa, which divides the enterprise life cycle into Courtship period, Seeking-survival period, Development period, Maturity period, Recession period and transformation period (Chen Jiagui, 1995). The model describes the business mode of three kinds of growth: low-development type, the

normal development and advancing development. Low-development type refers to the enterprise was small when it sets, after years of growth and development, has not become large and medium-sized enterprises. The normal development type refers to the small business over a period of time growth, the quality is improving and the strength is increasing, then grow to a large and medium-sized enterprises. Advancing development refers to the enterprise is born in large and medium-sized enterprises which has high starting point and strong strength. This kind of situation is related with socialization and diversification of stocks right in large companies which are modern and social, as well as the springing of institutional investors and legal investors. The above three growth ways can generalize the actual situation which have strong ability of explanation.

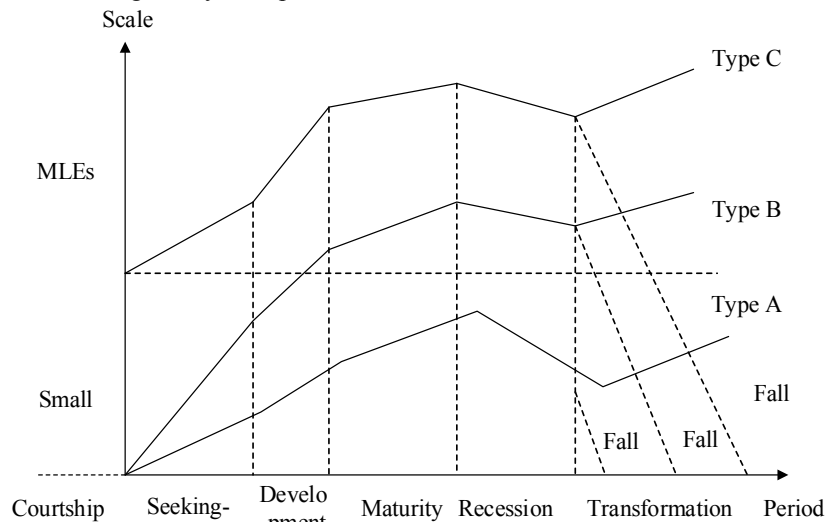


Figure 1 The Model of Enterprise Life Cycle

Many scholars have done a lot of study on enterprise life cycle, while many enterprises life cycle model appeared. These models have different stages, the descriptors of each stage is also different, thus there is no a phase model of authority can be widely accepted.

2.2 The transplantation to industrial technology innovation strategic alliance

Everything has its own life cycle. In essence, the enterprise life cycle theory is the successful transplantation from biology theory and research methods to economics. It is also a kind of economic research method innovation. Then industrial technology innovation strategic alliance as a kind of loose network organization, which means organized-markets and market-oriented organization, also has its own life cycle. Industrial technology innovation strategic alliance is a technology innovation system which made up of many technological innovation (Juan-Pablo, 2002). The features of industrial technology innovation system are entirety, relevance, objectivity and environment adaptability. Every technology innovation in the alliance does not have its own effect, its occurrence and development and its impact on entirety depend on the occurrence and development of other technology innovation, industrial technology innovation strategic alliance is integral (Clive Savory & Joyce, 2015).

The life cycle of industrial technology innovation strategic alliance is different with the enterprise life cycle. The enterprise life cycle is very obvious, which is the whole process of an enterprise which includes generation, development and destruction. And the life cycle of strategic alliance depends on enterprises' quantity, quality and strategy as well as the whole process of entire alliance which includes generation, development, maturity and destruction. Compare with a single enterprise life cycle, the life cycle of industrial strategic alliance is longer, but definitely not a simply accumulation of single life cycle. But the life cycle of industrial technology innovation strategic alliance is a process of enterprise belong to the alliance, which includes formation, development and end, based on technology innovation chain.

3 A Life Cycle Model of Industrial Technology Innovation Strategic Alliance

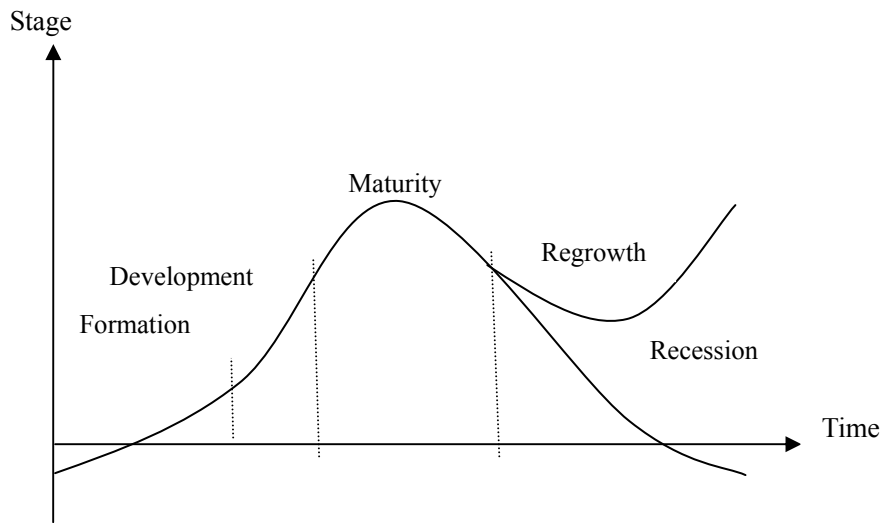


Figure 2 A life Cycle Model of Industrial Technology Innovation Strategic Alliance

Similar with the process of any organization from produce to destruction, industrial technology innovation strategic alliance also follows evolution law of life cycle. A life cycle of industrial technology innovation strategic alliance is shown in figure 2. From the point of the standard life cycle theory, industrial technology innovation strategic alliance will go through several stages, which include formation, development, maturity and recession. However, when risk can be effectively evade and seizing new development opportunity, or able to continuously innovate, the alliance will go into the next round before recession stage or in the process of recession, so that develops and successes to achieve regrowth.

4 The Characteristics in Different Evolution Period

When the industrial technology innovation strategic alliance is in different evolution period, the alliance will reflect different evolution characteristics which can be shown in Table 1.

Table 1 Different Evolution Characteristics in Different Evolution Period

Evolution period Characteristic	Formation	Development	Maturity	Recession	Regrowth
Alliance scale	Little number of members, few leading industrial enterprises	Enterprises, universities, institutions enter, alliance expands rapidly	Large number of members, structure stable, efficient operation industrial chain	Parts of members quit alliance, the numbers decline, alliance disorganizing	Alliance recombines, screen and absorb new members, or maintain existing scale
Competition and cooperation in members	Loose cooperation	Loose cooperation to close cooperation	Close cooperation to moderate competition	Loose cooperation, unhealthy competition, or relieve cooperation relationship	Close cooperation
Innovation activity and innovation level	Focus on little members innovation, low collaborative innovation level	Focus on alliance collaborative innovation, innovation level heighten	Emphasize the whole industry innovation, Industrial innovation advantage forms, higher innovation level	Collaborative innovation effect declines, insufficient innovation motive power	New collaborative innovation effect forms, technology breakthrough realizes

In the growth phase of the industrial technology strategic alliance, alliance members have close cooperation and develop technical innovation activities. The main problems in this stage are lack of sustained investment resources in the alliance innovation activities, especially money, cooperative disputes and changes of alliance members, low alliance innovation efficiency, alliance innovation achievement transformation difficulty and so on. When the technology of industrial technology alliance is mature, a large number of innovation achievement is produced, industrialization degree is higher, and structure and operation is relatively stable, the alliance enters the mature stage. The major problems may exist in the mature stage are that some of the successful experience of the pilot alliance failed to spread widely or failed to play its role in the demonstration and radiation of the entire industry, at the same time, there are some obstacles in the commercialization of the alliance innovation. When the alliance members emerge the phenomenon such as division and lack of trust, technology and products aging, market shrinkage, alliance profits decline, it has tended to decline and ability of sustainable development is insufficient. And the future direction of the alliance is not clear, if it can seek new breakthrough or alliance successful transformation, the alliance will enter regrowth stage.

5 Conclusion

Industrial technology innovation strategic alliance is the main organizational form in the future. It not only guides the industry technology innovation, but also has become an important competition science and technology means between countries and region which plays an important role in the led industrial innovation. The research on the alliance life cycle has important meaning for the study of industrial technology innovation strategic alliance which can promote the competitiveness of industry too. A life cycle model of industrial technology innovation strategic alliance which is similar with the traditional model but still has differences is given in this research, and illustrate characteristics in different evolution period. But as the enterprise is different and its environment is changeable, the life cycle may be dynamically changing which still needs more study.

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On Development Modes and Policies for the Strategic Emerging Industries in China

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Abstract: Strategic emerging industries are developing fast in China. Development strategies and policies have been set up in key provinces and cities. On the perspective of regional factors and based on the relevant research results, this paper proposes three development modes for strategic emerging industries: feature development, comprehensive development and coordinate development. It further proposes measures for fiscal policy, industrial policy, financial policy and personnel policy in promoting strategic emerging industries.

Key words: Strategic emerging industry; Development mode; Development measure

1 Introduction

Strategic emerging industries grew fast in 2013 when the overall economy was weak. Their growth rate is higher than that of traditional industries, and part of the industry growth rate is about twice of the overall growth of the industrial economy. Many provinces and cities issued strategic emerging industry development strategies and policies, and vigorously promoted the development of strategic emerging industries. They attach great importance to developing strategic emerging industries and aim to seize the future industry heights. They implement the innovation-driven strategy, and focus on the breakthrough and innovation in technology of key industries. They implement special projects, attract talents, provide financial security and foster the market of strategic emerging industries. To further understand and foster strategic emerging industries, the study of their development modes and policies has theoretical and practical significance.

2 Review of the Present Research

2.1 Research of development modes of the strategic emerging industries

On the perspective of the life cycle and technology level, Wang Lizheng (2011) analyzed the relatively suitable development modes of strategic emerging industries at different stages of development and pointed out several issues about selecting the appropriate modes of development.(Wang Lizheng, 2011)Zhong Qingliu considered that the pushing strategy of strategic emerging industries should adhere to the priority of research, and at the same time maintain the innovation-driven rather than investment-driven.(Zhong Qingliu, 2010)

2.2 Research of development policies

Liu Cheng analyzed the characteristics and fundamental roles of industrial policies, and learn from the national industrial policies that promote the development of emerging industries practiced by Japan, the European Union, the United States and South Korea, he put forward that how to play the positive role of industrial policy measures in fostering the development of strategic emerging industries.(Guo Xiaodan and Song Weijia , 2011) From six aspects: industrial and technological policies, market development policies, international cooperation policy, investment and financing policy, tax policy, specific policies, Zhang Yuzhe(2011) sorted and evaluated the policies of strategic emerging industries supported by various ministries in recent years.(Huang Xingting and Yang Yu, 2011) Cheng Yu (2011) treated the wind industry as a specific research object, and researched the policy system and policy path of Denmark, Germany, the United Kingdom, the United States, the Netherlands. These five countries are full of wind energy developing wind energy industry. He put forward that when our country developing wind industry, first of all, it is not only to emphasize the technological innovation, but also need to build strategic industrial system and regulatory regime; secondly, he proposed that we should provide sufficient time and opportunity for learning and growth of new industries; finally we should win political support and social recognition.(Shen Junxi, 2011) Li Shu considered that the emerging industry in China is still in its infancy, and it is facing many problems and development difficulties. The emerging industry urgently needs government's guide and support. We should develop and implement technology policy about strategic emerging industries, vigorously promote the product market cultivation, pay more attention to personnel

training, and promote industrial development and infrastructure construction to improve the external environment. (Liu Cheng, Gu Qiang, Dong Ruiqing, 2011)

3 Development Modes of Strategic Emerging Industries

Judging from different perspectives, China's development modes have different categories listed as follows:

(1) Based on the relationship between strategic emerging industries and traditional industries, there are two modes to foster and develop strategic emerging industries. The first is to support a fully independent strategic emerging industries and the second is to develop strategic emerging industries based on the transformation of traditional industries.

(2) Based on the perspective of industry life cycle, industry life cycle can be divided into four phases: birth, growth, maturity and decline. Depending on strategic emerging industries' different characteristics in technology system, innovative modes, leading design, industrial scale and market environment. The development modes can be divided into four corresponding modes in four stages.

(3) Based on the technical level and viewed from the status of the industrial core technology in the world, the development modes can be divided into two types: one is the mode that technology leads development and the other is the mode that technology follows development.

From a regional perspective, and according to the development situations of seven emerging industries in different regions in China, the paper proposes a development measure in accordance with geographical characteristics which is different from the past strategic emerging industry development pattern. This new measure can be divided into three modes based on the perspective of regional factors: feature development, comprehensive development and coordinated development.

3.1 Feature development

Feature development refers to the selection of major industries preferentially from seven industries rather than emphasizing the balanced development of seven industries, which can ultimately form the feature industry in the region which is based on related material and technical resource and combined with the natural resources of their own.

Currently, west of China is the distinctive model of feature development. With 10 years' implementation of the west development strategy, the western development has made great achievements. In 2012, as the statistics of national strategic emerging industry shows, the proportion of increased value of the west in the new field of energy was 48.87%, which led the country level and the share of the eastern, central and northeast regions were 25.59%, 22.43% and 3.11%. The western region is rich in new energy and renewable energy resources like geothermal and solar energy, wind power, etc. We should combine the development of strategic emerging industries with the build of national energy base and resources deep processing base. We should do the technological construction for the traditional resource and energy industry in the western region. In the western region, we can build coal, hydropower, integrated oil and gas development bases, construct medium-sized geothermal stations, develop solar energy heat utilization project and solar photovoltaic utilization project, construct medium-sized wind power project base and develop rapidly the new energy industry in the western region. Among them, Qinghai province has regarded solar power, wind power industry and other new energy industries as the primary areas of development of new industries. From 2011 to 2015, Qinghai will maintain the growth rate of new energy industry more than 20%. In the year of 2015, the industrial added value of solar energy, wind power and other new energy industry reached above 15% accounted for the promotion of the province's industrial added value. Since the build of the first-stage project in August 8, 2009, millions of kilowatts of wind power base in Jiuquan has gradually been one of the world's largest wind power project so far and it becomes the logo engineering in the area of our country's new energy.

3.2 Comprehensive development

Comprehensive development means that the seven strategic emerging industries are covered at the same time so as to make the effective development by leaps and bounds. relying on science and technology, human resources, and environmental advantages of the region.

In the course of developing strategic emerging industries, the typical area practicing the comprehensive development mode is the coastal area in eastern China. In 2012, in the area of energy-saving and environmental protection industry, new generation of information technology industry, biological industry, high-end equipment manufacturing, new energy industry, new material industry, new energy automotive industry in the country respectively accounted for 62.34%, 73.05%, 50.22%, 61.67%, 28.13%, 40.60% and 31.46%, in all the strategic emerging industries accounted for 65.41% which is more

than half of the country’s total share. The strategic emerging industries in the eastern region are not only large in the developing scale, but also have deeper degree of development than any other regions.

Table 1 The Distribution of Strategic Emerging Industries in Four Regions in 2012 (Unit: %)

Region	Environmental protection industry	New generation of IT industry	Bio-industry	High-end equipment manufacturing	New energy industry	New materials industry	New energy automotive industry	All strategic emerging industries
East	62.34	73.05	50.22	61.67	28.13	40.60	31.46	65.41
Central	19.79	10.52	19.48	14.16	24.14	37.65	63.46	13.80
Northwest	11.17	11.56	22.45	14.83	42.83	17.89	1.30	14.97
Northeast	6.70	4.86	7.84	9.34	4.90	3.86	3.78	5.82

In 2010, Jiangsu, Zhejiang and Guangdong, three eastern provinces, have been fully covered by seven industries. Five eastern provinces like Beijing, Tianjin and Fujian have covered six industries. The total investment of various industries in the eastern provinces is much higher than the Midwest; the related industries’ projects which have a large amount of investment were most concentrated in the east. Meanwhile, some prefecture-level cities in the eastern provinces usually develop the same industry, and degree of concentration of the same industry is higher than that of the Midwest. Take the Guangdong province as an example, in 2013, the industry added value of the strategic emerging industries in Guangdong Province is 317.77 billion Yuan which is up 8.1% over last year accounting for 12.4% in the above-scale industrial share of the province. The output value of industrial sales is 1.26674 trillion Yuan which is an increase of 10.5%. The export delivery value is 464.264 billion Yuan which is an increase of 5.1%. Its profit is 97.869 billion Yuan which is an increase of 17.5%. The province has formed new industries which are included in new display, software, bio-medical, new materials, new generation of communications and LED, etc. The annual output value of these industries is hundreds of billions. Pearl River Delta region has been a place gathering national semiconductor lighting, new display, solar photovoltaic and bio-pharmaceutical industry. Among them, Guangzhou became the information, software, biotechnology, new materials industry base; Shenzhen became a national industrial base of electronic information, biomedicine, e-electric vehicles; Shenzhen, Foshan, Dongguan, Heyuan and other places became the gathering base of the solar photovoltaic industry. In the aspect of core technology, some key technologies in the key areas like electronic information, new energy, high-end equipment manufacturing, and environment have achieved a breakthrough. Only in 2010, the high-end new electronic information, new energy vehicles and LED have achieved more than 1800 patent applications including more than 300 patents and more than 50 breakthrough technologies. Metamaterials, neutrino, genome, stem cells have gotten to the international advanced level.

3.3 Coordinated development

Coordinated development is a mode that is between the feature development and comprehensive development. It combines the feature development and comprehensive development. First, there is the consensus for the comprehensive development of the entire region, then the region can be divided into several sub-regions, with advantages combined and preferentially develop one or several industries in the sub-region, which can form the industrial chain. This mode can ultimately get to the simultaneous development of the entire region. As the table shows, there are four stages in the coordinate development mode. Take the Central China as an example:

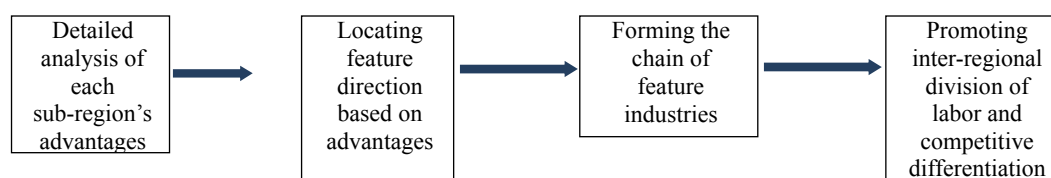


Figure 1 Coordinated Development

First, the sub-regions should analyze their own advantages. Generally, the target area can be divided into several sub-regions according to the administrative units. The central area can be divided into six sub-regions: Hubei, Hunan, Jiangxi, Anhui, Shanxi and Henan. The advantages and characteristics of

each sub-region can be identified. The comparative advantage may come from resources, on the other hand, it may also come from the long-term accumulation. Sometimes it is not easy to identify, so we should combine with the overall situation of the country, the central region, have a deep and comprehensive analysis about the advantages and lay the foundation for a proper position.

Second, the comparative advantages should be combined to give a position to the feature direction of strategic emerging industries. For example, if an area has the advantage of resources, we can focus on improving the level of resource utilization and go into the technology, the higher value-added downstream sectors. Hunan Province is rich in bauxite, magnesium, sulfur, iron, kaolin, and other non-ferrous metals and non-metallic mineral resources, and it has an initial formation of the advanced battery materials, hard materials, metals and new materials. In an area which has the advantages in equipment manufacturing, we can focus on the higher technological content of new equipment in the field of traffic to lay their own direction. Such as key enterprises in Nanchang, Jiangxi Province: Changhe Aircraft Industry Group, Hongdu Aviation Industry Group. For biotechnology and other high-tech industries, we need some urban centers like Wuhan, Changsha, and Zhengzhou which are more developed in financial and human capital. These cities have some senior elements of foundation, and for those cities which are not sufficient in elements should be assessed that whether they have sufficient support stamina.

Third, special industrial chain should be created to avoid isolated development. Developing feature industries, viewed from the long-term competitiveness, we should focus on building characteristic industry chain. The cities in the central area developing strategic emerging industries should avoid the development of an industry in isolation. They should regard the downstream businesses as one and create a complete industrial chain. We can gather downstream businesses, upstream businesses of the same industry, and service enterprises to the neighboring region in the form of building industry clusters, which can form the industry chain with the local characteristics, thus creating the overall competitiveness of the industry.

Fourth, inter-regional division of labor and differences in competition should be promoted. The current relatively backward infrastructure, couple with the existing financial system and performance evaluation mechanism result in a lack of industrial division of labor and cooperation between the central cities. The traditional industries and emerging industries have similar problems. This requires speed up infrastructure construction, facilitate regional connectivity, lower cost of cooperation. It also needs to change the concept of development. Based on comparative advantages, the existing institutional mechanisms should be gradually reformed to adapt to the trend of regional cooperation and development. And ultimately it will get to the coordinated development of the six provinces of seven strategic emerging industries.

4 Development Policies for Strategic Emerging Industries

Strategic emerging industries are often new with uncertainty and risks. To avoid their market failure, the government needs to choose the proper policies for strategic emerging industries. The government also needs to adjust, regulate and constrain the market to achieve optimal allocation of industrial resources and to enhance industrial competitiveness. The government can regulate policies from the four aspects: taxation, industry, finance and human resources.

4.1 Fiscal policy

Government should establish the funds of strategic emerging industry development, build a stable financial investment growth mechanism, increase financial investment, practice innovation, make efforts to support the development of key technologies and innovation development of major industries, let the major innovations become industrial products, construct major demonstration projects and innovation capacity buildings. Government should regulate specific practicing programs of financial incentive policies of strategic emerging industries; take some supporting ways such as: interest payments on loans, interest subsidies, free grants, debt and investment. We should strengthen the combination of financial money and financial capital; provide all support for technology development, industrialization, platform construction, major projects, industry clusters, market development, etc. We should improve the efficiency of government procurement for strategic emerging industries, improve government procurement assessment methods, give the preferential treatment of new products to strategic emerging industries. We should stimulate government procurement and ordering system of strategic emerging industry of independent innovation, increase the size of government procurement for strategic emerging industries to avoid repeated purchases and increasing costs. We should regulate tax incentive directory to support the development of strategic emerging industries, specifically divide the sectors and segments of

supported strategic emerging industries and turn the direction of tax incentives of company to industry. We should increase the types of indirect tax. By accelerating depreciation expense deduction, the reserve funds, we can reduce the burden of the corporate tax to promote the development of strategic emerging industries. We should focus on tax incentives of venture capital of strategic emerging industries. We can give tax incentives from corporate income tax, personal income tax and value added tax to increase venture capital power given by domestic and foreign capital for the development of strategic emerging industries.

4.2 Industrial policy

Government should foster technological innovation and the ability of achievement transformation, and accelerate the construction of industrial technology development system that is business-oriented and has the forms of engineering (technology) research centers, engineering labs, (business) laboratory, enterprise technology center. We should vigorously promote independent innovation transformation and improve the mechanism of results release to encourage universities and research institutes to transfer to the technological achievements of business, to encourage scientific and technological personnel to carry out independent innovation achievements in industry activities. We should establish and improve intermediary service system, develop research and development service, business services, technology trade, intellectual property rights and technological achievements. We should actively undertake industrial transfer in Europe, America, Japan, Korea and other key countries and regions, and enhance the scale and level of industrial transfer. We should support the backbone enterprises of strategic emerging industries to go out, establish the production and marketing base, explore the international market, and establish the partnership with foreign well-known enterprises. We should integrate the resources of existing innovation platform, accelerate the large body of scientific research institutions like industrial technology research institute to guide them to transfer into a large comprehensive organization. We should improve the opening mechanism of the relevant market. Strengthen the corporation between the central enterprises, Chinese Academy of Science and multinational corporations, deepen the accessing reform of private investment, optimize government service environment, encourage enterprises to invest strategic emerging industries and explore and improve the opening and sharing mechanism of innovation platform management.

4.3 The monetary policy

Government should promote banking institutions, guarantee agencies, venture capital firms, insurance companies to set up the development financial alliance to promote the development of strategic emerging industries. Banking institutions should increase credit support for strategic emerging industries, implement the prime lending rate policy and avoid floating in principle. We should encourage the credit business innovation like product orders (contracts), equity, intellectual property rights setting arrived (pledged) rights and ensure that we can meet the effective business credit needs. Security agencies should focus on supporting the development of strategic emerging industries, and guarantee to meet the demand on equal conditions. For government supporting projects, various financial institutions should regard them as the key supporting projects, and banking institutions should increase credit support. Venture capital funds, guarantee funds, insurance and other capital allocations should be followed, which should play the linkage effect to reduce investment risk. We should further improve the market system and support qualified enterprises to seek financing by listing on the stock market. We should promote the construction of the OTC securities market to meet the needs of start-ups in different stages. We should improve the transfer board between the different levels of the market, gradually realize the organic link between the various levels of the market. We should develop the bond market, expand SME collective bonds and the issue size of notes, actively explore the development of high-yield bonds with low credit rating and a private placement of convertible bonds and other financial products, and steadily advance corporate bonds, enterprise bonds, short-term financing bonds and medium-term notes development and broaden the way of the corporate debt financing.

4.4 Personnel policy

Government should vigorously promote the development of major engineering talent and implement the policy of specific treatment. We should perfect the discovery and assessment mechanism of high-level overseas talent and to build "Overseas Talent Dynamic Information Library" and "Talent Assessment Industry Expert Database". We should focus on introducing the originals of high-end, core technology in the industry, the manager of large project, system integration, advanced technology, enterprise management innovation to create a Shanghai state-level overseas talents innovation base with core competitiveness. Combined with the law and characteristics of the building of strategic emerging industry talent, we should adhere to open, equitable, competitive, merit selection principles of nurturing talent,

explore the establishment and improvement of selection mechanism and create a good atmosphere that is conducive to all kinds of talents to stand out. We should vigorously promote the leading talent, strategic and emerging industries of excellence, highly skilled talents and technological innovation of outstanding team and other personnel and team selection activities and establish and improve the selection mechanism. We should strengthen and improve the system of experts recommend. We should improve professional personnel competency assessment system; we should emphasize the selection and development of non-public corporate personnel and further broaden the channels of personnel selection. We should improve the talent training mechanism: "market-oriented, the government-supported". We should encourage and support enterprises and social organizations to establish personnel fund related to strategic emerging industries and arrange some funds in major industrial project funding for training. We should create conditions to encourage talents to participate in academic activities and keep track of technological development and update their knowledge. We should guide enterprises to play advantages of higher education institutions, secondary education and vocational training, help companies improve business-service capability and quality personnel. We should intensify personnel training and industrial docking efforts. Around of the line of strategic emerging industries development, we can promote the "talent + project" training mode and promote the "school-enterprise union" action with business-oriented, market-oriented, a link of industry, academia, research, and application. We should accelerate the pace of industrialization in the practice of innovative talent cultivation, technology research and development; accelerate the transformation of scientific and technological achievements to build a technology innovation platform.

5 Conclusion

Strategic emerging industries are playing a key role in new economic development. For a sustainable economic growth to take root in China, it is necessary to understand the need and urgency for developing these industries. The paper studies the status quo of current practices of strategic emerging industries in the major regions in China. It proposes four development modes and gives suggestions for government policy support. It is hoped that more research will be conducted in this area to help the healthy development of strategic emerging industries in China.

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Impact Formation Factors on Industry Cluster of China's General Aviation

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Abstract: By analyzing the germination factors and enrichment factor in the germination stage and the enterprise aggregation stage of the general aviation industry cluster formation process combined with the characteristics of general aviation industry, the research explores typical factors influence on industry cluster start from scratch and from one to more enterprises in the cluster and through the structured model certifies the factors .

Key words: General aviation industry cluster; Germination; Enrichment

1 Introduction

By attracting to implementation of the nation's low altitude airspace uncontrolled policy for private aircraft after 2015, many areas across the country are in the planning and construction of Aviation Industrial Park, to the general aviation industry cluster development in the region, as the local area bring social and economic development in the new growth pole. General aviation industry chain is long and complex. There are three main types of general aviation industry park in the present development. The first one is the whole industry chain cluster integration of R&D, manufacturing and operations. The second one is the R&D and manufacturing cluster as the main business. The third one is the operation cluster as the main business. The General Aviation Complex for Love-flying in China is a example^[1].

Industry cluster is an effective regional economic organization form of industrial development. Industry cluster is the development direction of general aviation industry. Based on a study of the germination of Latvia industry cluster, Kulakova (2014) concluded that there are 5 stages of cluster formation process^[2]. From the conclusion of 5 stages, it can be seen that the industry cluster's formation and development is a two stages process, start from scratch and from one to more. The formation process from scratch is a process of germination. This process is influenced by the "compulsory factor" and "endogenous factor". The compulsory factor refers to the process of the system side and the policy promoting the germination process. The endogenous factor refers to the industrial foundation for the existence of historical reasons. Compulsory factor is the factor promoting the germination by means of the system and policy. The endogenous factor is the factors that industry base of germination by the reason of the existence of history. From one to more process is a process of enterprise aggregation. This process is influenced by the "enrichment factor".

General aviation industry has the characteristics of high technical barriers, high policy barriers, high industry correlation and high network dependent. These characteristics have brought new problems to the research of the formation of the industrial clusters. The paper will analyze the germination factors and enrichment factor in the germination stage and the enterprise aggregation stage of the general aviation industry cluster formation process combined with the characteristics of general aviation industry. The aim of the research is to explore typical factors influence on industry cluster start from scratch and from one to more enterprises in the cluster and and through the structured model certificate the factors.

2 The Research Background and Assumptions

It is necessary to consider the formation of general types of industrial clusters to form industrial clusters of general aviation industry, but also to follow the characteristics of the general aviation industrial development. Results from the domestic and foreign experts and scholars from different angles of industrial cluster research explain, research mainly from the industrial cluster theory, national strategy theory, comparative advantage theory and externality theory. The new classical economist Alfred Marshall (1890) put forward the external economic theory, pointed out the reason in the same industry enterprises relying on the regional industrial clusters is the external economic agglomeration brings^[3]. In the global and marketly today, the development of industrial clusters has been unable to develop in isolation, and the development trend of industrial clusters is no longer confined to the regional lock in the past, while the regional interaction and dynamic locking greatly limits the network

innovation resources industrial cluster creation, therefore existing external resource dependence determines single network of industry cluster and regional network and cross regional network the linkage between clusters and clusters, outside links greatly promoted among the industrial cluster's network connection, making a single cluster network diversified into the development of clusters, clusters with cluster external environment developing close access to resources, fundamental facilities sharing, supporting environment, so network externality is significant, and this depends on the network externality in the general aviation industry is particularly evident.

Abbott Young Allyn (1996) considers the inherent relationship between the division of labor, the production of the production and the increasing returns mechanism^[4]. Dynamic interactive relationship exists between the social division of labor, the cluster and the industrial chain. Yan Bei War (2013) put forward the concept of cluster industry chain. It is pointed out that the cluster industry chain is engaged in a combination of a certain industry factors of production, resources and geographical spatial factors, economic entities in the economic activities in the process of mutual association, the formation of network organization based on competitive and cooperative relations^[5].

According to Webber's (1909) classification of influencing factors of industrial location, these factors are divided into two types, namely, the agglomeration factors and regional factors. Agglomeration factors refers to only and common features of industry related factors in the formation of industrial clusters, such as specialization degree of division of labor, industrial chain length, degree of industrial linkage, the preferential policy for the industry and so on, and these factors determines the industry in the region is gathering or dispersing; location influencing factors is refers to the formation factors of industrial clusters only related with geographic conditions^[6], in the general aviation industry as general aviation resources, consumer demand for navigation and innovative entrepreneurial culture, regional technological innovation, regional general aviation infrastructure and so on, these factors due to differences in regional conditions caused the formation and development of cluster in certain areas.

And Porter (1998) proposed diamond theory, established a diamond model, pointed out factor conditions, demand conditions, related and supporting industries, enterprise strategy, enterprise structure and competition, and the government and opportunities are the impact factors of the formation, development and upgrading of industrial clusters^[7].

Synthesizing the results of these studies, this paper argues that the influencing factors in the formation of China's general aviation industry should include two categories, germination factors which decide the formation of industrial clusters of and enrichment factors which decide the cluster gathering or dispersing. The germination factors include traditional industry foundation(industrial atmosphere, the foreground of the industry)and government function, and the enrichment factors include competence of investment(governmental capital, civil capital), market promotion(operation market, consumer market), location condition(airspace environment, infrastructure), collaborative business of industrial chain(length,correlation degree) and driving of industrial value chain (resource allocation, rule-driven). Therefore, according to Porter's evaluation method to the cluster^[8], this study uses the two indicators of integration density and scale to evaluate the formation of China's general aviation industrial cluster, and then put forward the following hypotheses:

Hypothesis 1: Germination factors and enrichment factors have a positive correlation.

Hypothesis 1a: More solid traditional industry foundation and positive government function has a positive effect of competence of investment, market promotion and collaborative business of industrial chain.

Hypothesis 1b: Better location condition and more strong driving of industrial value chain lead to more solid traditional industry foundation and positive government function.

Hypothesis 2: More positive correlation between germination factors and enrichment factors benefits for the formation of China's general aviation industry.

Hypothesis 3: Germination factors has a positive effect of the formation of China's general aviation industrial cluster.

Hypothesis 3a: More solid traditional industry foundation and positive government function owe to higher integration density of China's general aviation industrial cluster.

Hypothesis 3b: More solid traditional industry foundation and positive government function owe to larger scale of China's general aviation industrial cluster.

Hypothesis 4: Enrichment factors has a positive effect of the formation of China's general aviation industrial cluster.

Hypothesis 4a: Higher competence of investment, stronger market promotion, better location condition, more collaborative business of industrial chain and stronger driving of industrial value chain

owe to higher integration density of China's general aviation industrial cluster.

Hypothesis 4b: Higher competence of investment, stronger market promotion, better location condition, more collaborative business of industrial chain and stronger driving of industrial value chain owe to larger scale of China's general aviation industrial cluster.

Table1 The Variables

Germination Factors	Enrichment Factors
Traditional industry foundation (industrial atmosphere, the foreground of the industry)	Competence of investment (governmental capital, civil capital)
	Market promotion (operation market, consumer market)
	Location condition (airspace environment, fundamental facilities)
Government function	Collaborative business of industrial chain (length, correlation degree)
	Driving of industrial value chain (resource allocation, rule-driven)

3 The Data and Results

This sample belongs to the cluster level, and the required data can not be totally obtained from publicly available information, so this study uses a questionnaire survey, while valid questionnaires collected to establish the title entry database, then making a reliability test, validity testing and structural equation modeling analysis and fitting work. Analysis software SPSS for windows 13.0 and LISREL 8.7 version, are used in this study. The questionnaire is overall designed in accordance with a combination of qualitative and quantitative methods based on Likert 5 point scale, which designed 1 “strongly disagree”, 2 “disagree”, 3 “can not be determined”, 4 “consent”, 5 “strongly agree”.

This study distributed 200 questionnaires, 154 of which were recovered, and the recovery rate was 77%. Research purposes strictly excluded the part does not meet the requirements or information missing, more serious questionnaires, 142 valid questionnaires, with a total effective rate of 71%.

Validity questionnaire items used in this study are mostly from the literature, and finalize the questionnaire, expert consultation, pre-test and fix part of the formulation and content of the questionnaire, therefore the questionnaire has considerable the validity of the content, but also able to meet the requirements of building a validity. However, taking into account the unique nature of the object of study as well as cross-cultural factors, the paper still use confirmatory factor analysis to test the construct validity of the scale by LISREL 8.7 statistical software. At the same time, this study using Cronbach's coefficient to test the reliability of each scale. Indicators are shown in Chart 2, are within an acceptable range, indicating that the study sample data with the theoretical scale good fit. In addition, due to no ready meter used to the index of driving of industrial value chain, exploratory factor analysis based on extracting characteristic roots greater than 1 4 items (71.4% explained degrees) to construct a single dimension scale.

Table 2 Reliability and Validity of Variables

Index	Traditional industry foundation	Government function	Competence of investment	Market promotion	Location condition	Collaborative business of industrial chain	Driving of industrial value chain	Integration density	Scale
<i>CFI</i>	0.989	0.964	0.966	0.945	0.990	0.980	0.990	0.955	0.970
<i>GFI</i>	0.975	0.957	0.988	0.958	0.987	0.979	0.941	0.979	0.977
<i>AGFI</i>	0.970	0.976	0.968	0.954	0.983	0.972	0.887	0.913	0.954
<i>RMSEA</i>	0.065	0.072	0.056	0.052	0.074	0.076	0.056	0.074	0.062
$\chi^2(df)$	29.71(24)	14.284(8)	8.218(6)	11.673(7)	49.68(27)	16.965(8)	17.776(10)	9.336(6)	18.29(9)
<i>Cronbach's α</i>	0.85	0.87	0.83	0.84	0.90	0.85	0.80	0.83	0.81

The study used statistical analysis software LISREL8. 7 to examination and found that the overall model shown in Chart 3, considering the basic fit standard of the model, the factor loadings of each latent variable in this study were between 0.5 and 0.95, and have reached a significant level. Thus, it can be certain that the model generally consistent with the requirements of the basic adaptation standard. In addition, this paper used the indicators of overall fit to test the goodness of the observed data fit with the theoretical model, specific results are as follows: $\chi^2 = 51.80$, $df = 45$, $RMSEA = 0.055$, $90\% RMSEA =$

(0.009, 0.085), CFI = 0.97, GFI = 0.93. The parameters were within the acceptable range, which can be considered good fit of the overall model of this study. Path coefficients and parameters in Chart 3 on the theoretical model assumptions were summarized.

Table 3 Path Coefficients and Parametric Assumptions

Path	Path coefficients	P	Parametric assumptions	Results
γ_{11}	1.02*	0.031	Assumption 1a	True
γ_{12}	0.71*	0.040	Assumption 1a	True
γ_{13}	0.85*	0.021	Assumption 1b	True
γ_{14}	0.61*	0.012	Assumption 1a	True
γ_{15}	0.73*	0.036	Assumption 1b	True
γ_{21}	1.17*	0.024	Assumption 1a	True
γ_{22}	0.22*	0.011	Assumption 1a	True
γ_{23}	0.56*	0.030	Assumption 1b	True
γ_{24}	1.34***	0.000	Assumption 1a	True
γ_{25}	-0.24*	0.021	Assumption 1b	False
β_{11}	0.98***	0.000	Assumption 3a	True
β_{12}	0.28**	0.003	Assumption 3a	True
β_{21}	1.11*	0.033	Assumption 3b	True
β_{22}	2.21*	0.045	Assumption 3b	True
α_{11}	1.17*	0.023	Assumption 4a	True
α_{21}	2.14*	0.018	Assumption 4a	True
α_{31}	0.26*	0.026	Assumption 4a	True
α_{41}	0.23	0.768	Assumption 4a	NA
α_{51}	3.13*	0.031	Assumption 4a	True
α_{12}	1.22**	0.005	Assumption 4b	True
α_{22}	1.24*	0.013	Assumption 4b	True
α_{32}	0.78**	0.007	Assumption 4b	True
α_{42}	0.96*	0.042	Assumption 4b	True
α_{52}	0.61*	0.022	Assumption 3b	True

4 Conclusion and Outlook

On the basis of the existing research, through the establishment of the theoretical models and hypotheses, the study verify germination factors and enrichment factors have a positive correlation, and more solid traditional industry foundation and positive government function has a positive effect of competence of investment, market promotion and collaborative business of industrial chain. Though better location condition and more strong driving of industrial value chain lead to more solid traditional industry foundation, but more strong driving of industrial value chain can not owe to positive government function. That may be because local governments occasionally take own strategies which are not fit for the overall value chain. Thus, the hypotheses “germination factors has a positive effect of the formation of China’s general aviation industrial cluster”, “enrichment factors has a positive effect of the formation of China’s general aviation industrial cluster”, are certificated true. While there is not proof of collaborative business of industrial chain owing to the integration density of general aviation industry. And from the results, the indicator γ is bigger where β and α is bigger, so the hypothesis 2 is verified true.

However, there are limitations on the following aspects: Firstly is the sample selection that data source enterprise area is too concentrated, which limited the amount of sample recovery; secondly is variable selection that the research model has not yet considered the situational elements, which will be the next direction; further research on China's general aviation industrial cluster will focus on the mechanism of the impact factors operating, which can be considered more basic and applied research studies.

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Research on the Calculation Indicator System of the Cultural Creative Industry Cluster Degree*

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Abstract: At present, the field of theoretical research has not reached an agreement on a unified standard of the indicator system of the industry cluster degree. This paper summarizes the existing studies of industrial clusters and built up the calculation indicator system of the cultural creative industry cluster by using the general designing principles. An exclusive calculation indicator system in terms of the static and dynamic indicators is built on base of the industrial characteristics. It provides the calculation criteria from the macro and micro perspectives. The quantitative results can grasp the industrial inherent regularity and reflect the regional technology spillovers of the industry cluster.

Key words: Cultural creative industry; Industry cluster; Cluster degree; Calculation indicator

1 Introduction

Measuring the cluster degree is the foundation of quantitative researches in the study of industry clusters. Generally speaking, the measurement indicators of the industry cluster degree include the accessibility of various resources within a specific area, the spillovers among enterprises in the cluster and the natural advantages of the location and so on. However, due to the impact of different economic development levels and other social and cultural factors, the indicators of the industry cluster degree are various in different regions. At present, there is no agreement on a unified standard of the indicator system of the industry cluster degree in the field of theoretical research in the world.

The study of the calculation indicator system of the cultural creative industry cluster is still in the exploratory stage. Only a few scholars in China such as Zhou Guoliang^[1](2010), Bao Feng^[2](2013) made the systematical research in this aspect.

2 The Summary of Calculation Methods to General Industry Cluster Degree

At present, there are two categories of measure methods of the regional industry cluster degree: the qualitative analysis and the quantitative analysis. Lots of literatures have discussed on the measurement of cluster degree^[3]. As Krugman^[4](2000) used the method of Gini Coefficient to estimate the degree of the U.S. manufacturing clusters. Elson and Glaeser (1997) refused to use the Gini coefficient because it does not take into account the differences in the scale size of enterprises, so they proposed a new indicator, which considering the differences of the industrial organizations^[5]. Michelle Porter^[6](2004) proposed the criteria to evaluate different types of industrial clusters, which include the geographical scope, the number of companies, association degree of the lateral and vertical correlation, value-added activities, stages of development and the innovative environment^[7].

All the identification methods above have their own advantages and disadvantages. It is apparently the single use of one approach can't meet the research objectives.

3 Designing Static Indicators for the Cultural Creative Industry Cluster Degree

According to Professor Michael Porter', the industrial cluster is 'a group of companies which are geographically close to each other and exist in a specific industrial area with their commonalities and complementarities linked'. The two basic preconditions for the formation of the industry cluster are the geographical proximity and industrial links. Therefore, to identify a regional industry cluster must meet two criteria: first, the sufficient number of industrial enterprises gathered in the geographic area. Second, industrial enterprises and affiliates in the cluster have close contact. This article made an analysis of the connotation, characteristics and the formation factors of the cultural creative industry cluster, which is

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followed by the calculation indicator system from a macro and micro perspectives.

3.1 The calculation from the macro perspective

From a macro perspective, the calculation indicators include Space Concentration Index of the Cultural Creative Industry, Hirschman - Hefoyinde Index (HHI) of the Cultural Creative Industry and Gini coefficient of the Cultural Creative Industry.

3.1.1 Space concentration index of the cultural creative industry (CRn)

CR_n is an important indicator to measure the degree of the competition in a given market. It is about the ratio of some total value (such as output, number of employees, fixed assets, etc) of the largest companies to that of the whole industry. It represents the concentration ratio and the degree of competition within an industry, and can be used in the analysis of the judgment of geographic areas where the cultural creative industry cluster locates in. The calculation methods as follows:

$$CR_n = \frac{\sum_{i=1}^n X_i}{\sum X_i} \tag{1}$$

‘Xi’ represents the market share of the output, employees’ number, fixed assets of company ‘i’; ‘ $\sum_{i=1}^n X_i$ ’ represents the total market share of the output, employees’ number, fixed assets of the largest enterprises; ‘ $\sum X_i$ ’ represents the overall market share of the total output value, the total number of employees, the total fixed assets in the certain region; ‘n’ represents the total number of regions which accounts for over 60 percent of the total market by the descending order of its market share. The value of CR_n lies in the scale of 0 to 1. CR_n is simple and practical, but it can’t consider all enterprises and the market distribution; so the calculation result will varied with the number of selected companies.

3.1.2 Hirschman-Hefoyinde index of the cultural creative industry(HHI)

HHI index is a key indicator to measure the market structure and the industrial structure in Industrial Economics. It gives the better reflect of the degree of industrial concentration by calculating the uneven disparities. HHI of the Cultural Creative Industry is calculated as follows:

$$HHI = \sum_{i=1}^N (X_i / X)^2 = \sum_{i=1}^N S_i^2 \tag{2}$$

‘Xi’ represents the scale of company ‘i’ in the industry; ‘X’ represents the total scale of the industry; ‘N’ represents the total number of companies in the industry; ‘Si’ represents the market share of company ‘i’ (i=1,2,...N) in the industry. The value of HHI lies in the scale of 0-1. Using the HHI can be a supplementary method to obtain more accurate and comprehensive results.

3.1.3 Correlation coefficient of the cultural creative industrial chain (LD)

The industrial extension is an important standard to judge whether the industry cluster is formed.

Therefore, the correlation coefficient ‘LD’ reflects the activities among enterprises in the upstream and downstream industry chain. Its calculation is as follows:

$$LD = Ri / R \quad (0 < LD < 1) \tag{3}$$

‘Ri’ represents the output of the cultural creative industry in the region ‘i’; ‘R’ represents the total output of the tertiary industry in the region ‘i’. The value of LD lies in the scale of 0-1. The more the result tends to the maximum, the more active and dynamic the cultural creative industrial chain is.

3.2 The calculation from the micro perspective

From the micro perspective, we can explore the concentration degree of the industrial scale and elements in a specific area. Location Quotient (LQ) is proposed firstly by P. Haggetndt. It reflects the strengths and weaknesses of the particular industrial sector, and also figures out the image of its position and function in the whole region. The value of LQ is calculated as follows:

$$LQ_{ij} = \frac{X_{ij} / \sum_j X_{ij}}{\sum_j X_{ij} / \sum_j \sum_i X_{ij}} \tag{4}$$

‘X_{ij}’ represents one of the main economic indicators of the industry ‘i’ in the region ‘j’; ‘ $\sum_i X_{ij}$ ’ represents the total output of the every industry in the region ‘j’; ‘ $\sum_j X_{ij}$ ’ represents the total output of the industry ‘i’ in every region; ‘ $\sum_j \sum_i X_{ij}$ ’ represents the total output of the every industry in every region.

If LQ<1, it indicates that the level of specialization in the area under the overall level of the region. The industry cluster in the region has not yet formed; If LQ=1, it indicates that the level of specialization in the area equals to the overall level of the region; If LQ>1, it indicates that the cultural creative industry cluster has been formed. For the calculation indicators of the cultural creative industry cluster degree, a selection of indicators that are LQ_{FA}, LQ_{TO}, LQ_{PT}, and PDR_{ij}.

3.2.1 The location quotient of fixed assets of the cultural creative industry (LQ_{FA})

$$LQ_{FA} = \frac{FA_{ij} / FA_j}{FA_i / FA} \quad (5)$$

'i' represents the cultural creative industry; 'j' represents the region 'j'; 'FA_{ij}' represents the fixed-asset investment of the cultural creative industry in the region 'j'; 'FA_j' represents the total fixed-asset investment in the region 'j'; 'FA_i' represents the fixed-asset investment of the cultural creative industry in the whole region (larger than the region 'j'); 'FA' represents the total fixed-asset investment in the whole region (larger than the region 'j');

If $LQ_{FA} > 1$, it indicates that the cluster has been formed in the region 'j'; If $LQ_{FA} > 1.12$, it indicates that the degree of cultural creative industry cluster in the region 'j' is in a high level;

3.2.2 The location quotient of total output of the cultural creative industry (LQ_{TO})

$$LQ_{TO} = \frac{TO_{ij} / TO_j}{TO_i / TO} \quad (6)$$

'i' represents the cultural creative industry; 'j' represents the region 'j'; 'TO_{ij}' represents the total output of the cultural creative industry in the region 'j'; 'TO_j' represents the total output of all industries in the whole region (larger than the region 'j'); 'TO_i' represents the total output of the cultural creative industry in the whole region (larger than the region 'j'); 'TO' represents the total output of all industries in the whole region (larger than the region 'j');

If $LQ_{TO} > 1$, it indicates that the cultural creative industry cluster has been formed in the region 'j'; If $LQ_{TO} > 1.12$, it indicates that the degree of cultural creative industry cluster in the region 'j' is in a high level;

3.2.3 The location quotient of potential talents of the cultural creative industry (LQ_{PT})

Because creative talents are the major factor to the formation and rapid development of the cultural creative industry cluster, so the author designs the following indicator for the potential innovative talents of cultural and creative industry cluster.

$$LQ_{PT} = \frac{PT_{ij} / T_{ij}}{PT / T} \quad (7)$$

'i' represents the cultural creative industry; 'j' represents the region 'j'; 'PT_{ij}' represents the total number of students who major at the Culture Industry in the region 'j'; 'T_{ij}' represents the total number of employees in the cultural creative industry in the region 'j'; 'PT' represents the total number of students who major at the Culture Industry in the whole region (larger than the region 'j'); 'T' represents the total number of employees in the cultural creative industry in the whole region (larger than the region 'j');

If $LQ_{PT} > 1$, it indicates that the cultural creative industry cluster has strong potential capability for the further development in the region 'j' because of the cluster of the potential talents.

3.2.4 The ratio of the participation degree in the cultural creative industry (PDR_{ij})

The formation of the cultural creative industry cluster is inseparable from the consumer demands and participation of the public. So the author designs the following indicator for the participation degree in the cultural creative industry.

$$PDR_{ij} = PD_{ij} / PD \quad (8)$$

'i' represents the cultural creative industry; 'j' represents the region 'j'; 'PD_{ij}' represents the participation degree in the culture industry in the region 'j'; 'PD' represents the total participation degree in the cultural creative industry in the whole region (larger than the region 'j');

The calculation of PD_{ij} can be varied with the sources of data and specific characteristics of different regions. It cover lots of cultural and creative activities, such as the circulation number in public libraries or cultural centers, the number of visitors in museums, the attendance of art performances and the annual number of published books and newspapers. If $PDR_{ij} > 1$, it indicates that the cultural creative industry cluster in the region 'j' has strong impetus because of the high level of participation degree in the public.

4 Designing Dynamic Indicators for the Cultural Creative Industry Cluster Degree

The processes of clustering are dynamic and changing continually, so this section of research is about the dynamic indicators of the cultural creative industry cluster degree. Making the hypothesis that

the study period is $[T_1, T_2]$. 'i' represents the cultural creative industry; 'j' represents the region 'j'; the output of the cultural creative industry in the region 'j' at the beginning of the study period is P_{ij1} , and it turns to P_{ij2} at the end of the study period. CI_{ijt} represents the degree of the cultural creative industry cluster in the region 'j'. Let:

$$S_{ijt} = \sqrt[n]{P_{ij2} / P_{ij1}} - 1, S_{it} = \sqrt[n]{\sum_{j=1}^n P_{ij2} / \sum_{j=1}^n P_{ij1}} - 1 \quad (9)$$

(S_{ijt} represents the average growth rate of the cultural creative industry cluster in the region 'j'; S_{it} represents the average growth rate of the cultural creative industry cluster in the nationwide.)

Therefore, $CI_{ijt} = S_{ijt} / S_{it}$.

When $S_{it} > 0$, the average growth rate of the cultural creative industry cluster in the nationwide is in the growth stage. Then:

If $CI_{ijt} > 1$, it indicates that the degree of the cultural creative industry cluster in region 'j' is in the growth stage, but the growth rate is less than the national level. If $CI_{ijt} < 0$, it indicates that the degree of the cultural creative industry cluster in region 'j' is in the shrinking stage.

When $S_{it} < 0$, the average growth rate of the cultural creative industry cluster in the nationwide is in the decelerating stage. Then:

If $CI_{ijt} > 0$, it indicates that the degree of the cultural creative industry cluster in region 'j' is in the shrinking stage. If $CI_{ijt} < 0$, it indicates that the degree of the cultural creative industry cluster in region 'j' is in the growth stage, and the growth rate belongs to the leading level in the nationwide.

5 Conclusions

The paper selects the quantitative methods according to the research purposes and the characteristics of the industry, and then builds a comprehensive quantification system of measurements. This system provides the criteria of the calculation of industry cluster degree from the macro and micro perspectives. The calculation results reflect the spatial characteristics and the regional technology spillovers of the industry cluster. As a quantitative analysis method, the calculation indicators can give us the clear rational knowledge of the evolution laws of the cultural creative industry clusters.

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Coupling and Optimizing the Development Path and Environmental Policy of Hubei Laser Industry Based on Path Creation Theory in China

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Abstract: At present, the main factors that limit the development of laser industry in Hubei Province is its weak capacity for independent innovation, which severely holdbacks the development of laser such high-tech industries, therefore, it's very necessary for Hubei laser industries to create an Independent innovation development path.

Key words: Hubei Laser Industry; Path Creation; Negative lock-in

1 Introduction

The “negative lock-in” effect in path dependence and self-reinforcement seriously fetter industrial formation and development, so in order to seize the opportunity of the international economic situation and to better promote the development of industry, the “negative lock-in” state formed in industrial upgrading is supposed to be broken and making path creation come into being. Joseph A. Schumpeter is the first economist who discussed the “path creation”. The “creative destruction” concept put forward by him answers the questions concerned in the path dependence^[1]. The “creative destruction” means that the process of path creation actually is a course of an organization's continuously breaking through the existing boundaries, system, technology constrains and so on in the organization. Garud and Karnoe(2001)^[2] are the most famous scholars in such field. They defined the concept of path creation and held that the economic agents like entrepreneurs treat history as the original material and put it into consideration in a complex process in which the economic agents act in accordance with systematic procedures and social cognition and the history plays an influential but not a decisive role. They held that breaking through the path is a process of “mindful deviation” and such process is the core content of the path creation theory. The path creation doesn't mean that the entrepreneurs are able to make strategic choices that free of constraint; on the contrary, they are embedded into the organization that they jointly established and mindfully deviated from. “Mindful deviation” means that the entrepreneurs not only have the ability to break themselves out from the existing structure, but also to mobilize the collective staff, although they may encounter resistance and inert on the course of path creation efforts^[3].

Scholars hold that when path independence theory fails to explain the choosing process of technology or system paths, the path creation theory can take the place. The path independence theory denies history's decisive influence in fatalism and emphasizes the Adaptive function among innovative subjects and between the subjects and environment. Pham(2007)^[4] believed that there are five principals followed in the path creation course . They are technology determine norm, mindful deviation norm, real-time influence norm, mutual recognition and interdependent norm and smallest misunderstanding norm. Schienstock(2011)^[5] thought that five interacted modules are included in the process of path creation. The first one is “New opportunity window” relevant to new technology-organization normal form; the second one is the promising new business and new markets; the third one is pressure from the external social - economic factors; the fourth one is the critical transformative event; the fifth one is people's willing to change things. As a whole, path's generation, last, termination and new path's come into being these four phases are the dialectical unity of subjective initiative role played by path's natural formation and economic subjects. Sydow(2009)^[6] pointed out that entrepreneurs play a critical role on the course of path breakthrough or creation. When strategic rigidity appears in an organization or the organization confronted with survival threat, enterprise policymakers are bounded to spend time and efforts in learning and searching more likely intervention plans on the path so as to break away from the path independence or realizing path unlocking.

2 Methodology

2.1 Relevant models of path creation

From the path independence model, it can be told that once the path independence forms, the industry will develop along the given course and technology and system are likely to enter the track of

benign cycle, gain a rapid optimization and shape into positive lock-in effects; it might down along the original wrong path and even be locked in some invalid state, forming negative lock-in effect, for which “unlocking” is a must, therefore, we should transform to path creation from path independence and break the “lock-in” in effect. The path creation model shows in figure 1. Garud and Kanoe will break the “mindful deviation” the path independence concluded. As for phase III, the organization can deviate from the existing path through the mindful action to unlock so as to break the original path independence.

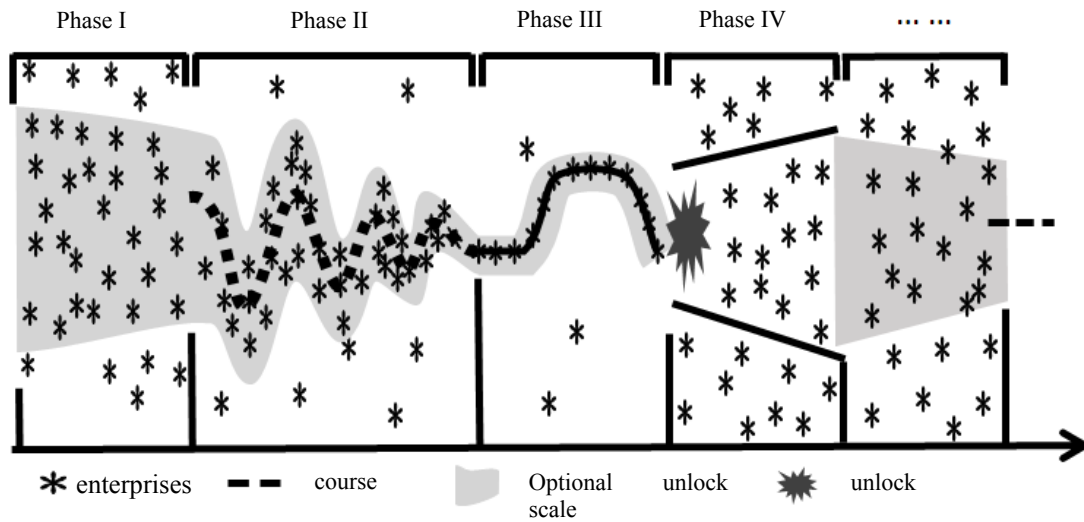


Figure 1 Path Creation Models

2.2 Hubei laser industry’s development path and the modeling and emulation of environmental policy

(1) Logistic model

Biology usually uses the logistic model to describe the population growth pattern whose increase speed accelerates at the very beginning and when the speed reaches some value, it will slow down growth until zero and at last stop rising. Sometimes, it also uses the logistic model to describe the interaction between populations. According to the domestic and overseas scholars’ studies, the industry’ path is also in line with such pattern. For example, a first developed technology’s unit cost will gradually decrease after other technologies’ transitions including self-accumulation, self-reinforcing and scale reward these three phrases. At the same time, the learning effect and coordination effect as well as the adaptive expectations of people to further popularity activated from the technology of popularity and unceasing seepage will lead to the technology make the constant increase positively cycle through the first mover advantage of the first impressions are most lasting. And another more advanced and high-efficient new technology might fall into industry dilemma because of being applied into the market in a later time and doesn’t earlier occupy a certain market share, and may lock-in some kind vicious cycle and be unable to extricate themselves. Hence, path independence and popularized technologies existing in technology transition are inefficient.

(2) Relations between Hubei laser industry path independence and path creation

By the equation (3.3) to (3.6) and (4.1) - (4.4), figure 2 shows the relations between laser industry path independence and path creation:

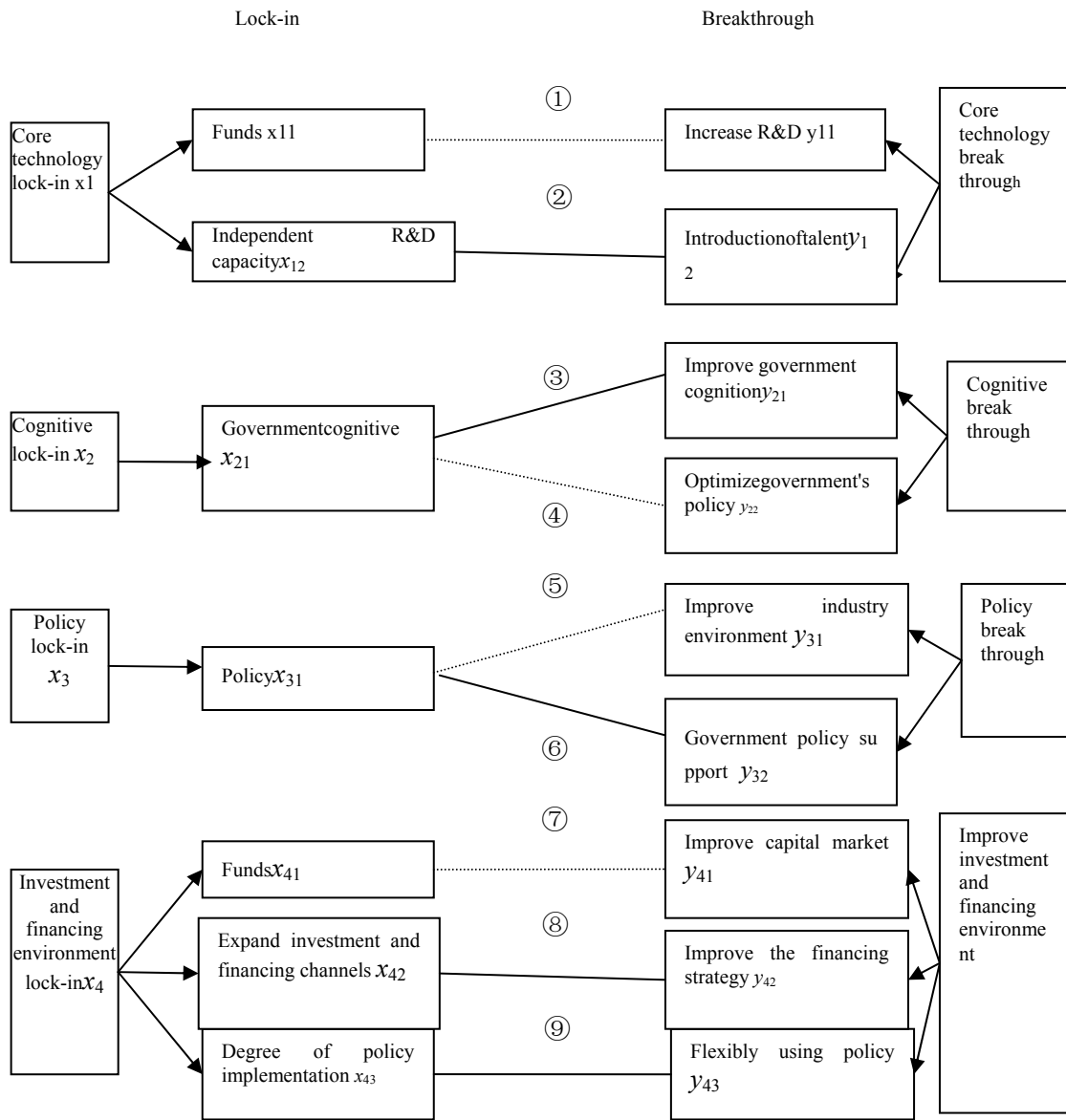


Figure 2 Relations Between Hubei Laser Industry Path Dependence and Path Creation

(3) Experts' evaluation

The full line in Table 1 shows the strong relativity between locking factor and breakthrough factor, that is ②, ③, ⑥, ⑧ and ⑨ directly breakthrough for the locking factors; the dotted line shows the weak relativity, that is ①, ④, ⑤ and ⑦ breakthrough the locking factors through approaching strategy and sustainable development path. Figure 1 shows the influence the locking factors broken through in the path creation plays on the ones in path independence by experts evaluation.

As shown in Table 1, if we set the locking factors respectively as x_{11} , x_{12} , ... , x_{43} , and breakthrough them from the direction of its corresponding breakthrough factors, the rate of change of locking factors is the degree of influence the breakthrough factors exert on the locking factors represented by the degree of relation.

Table 1 Expert's Measuring Scale

No	Locking factors	Breakthrough locking factors	Degree of relation (1 point scale)
①	Funds x_{11}	talents	0.1
②	independent R&D capacity x_{12}	R&Dinput	0.3
③	Governmental cognitive x_{21}	Improve governmental cognitive	0.2
④		Optimize governmental policies	0.1
⑤	Policy x_{31}	Improve industrial environment	0.1
⑥		governmental policies support	0.2
⑦	Funds x_{41}	Improve capital market	0.1
⑧	Investment and investing channel x_{42}	expand investment and financing channels	0.2
⑨	Degree of policy implementation x_{43}	Flexibly using policy	0.1?

3 Results and Discussion

Above all, Hubei laser industry has formed four kinds of lock-in: core technology lock-in, cognitive lock-in, policy lock-in and investment and financing environment lock-in. Hubei laser industry corresponding to the lock-ins take core technology lock-in breakthrough, cognitive lock-in breakthrough, policy lock-in breakthrough and investment and financing environment lock-in breakthrough these four combined strategies. Ahokangas and the others(1999)^[65] also put forward a evolution model from the structure description of cluster and divided the development of the regional clusters into origin and emergence, increase and convergence and maturity and adjusting these three phases. The research, from the perspective of cycle and scale, makes a unified exploration on the path evolution of Hubei laser industry and filters out available, scientific and reasonable path.

(1) Core technologies lock-in and breakthrough evolution

Technology Logistic equation: $x_1(t) = r_1 x_1 (1 - \lambda_1 x_1)$

Technology lock-in equation: $x_1(t) = r_1 (\sigma_{11} x_{11} + \sigma_{12} x_{12}) [1 - \lambda_1 (\sigma_{11} x_{11} + \sigma_{12} x_{12})]$

Technology breakthrough equation: $x_1(t) = r_1 (\rho_{11} y_{11} + \rho_{12} y_{12}) [1 - \lambda_1 (\rho_{11} y_{11} + \rho_{12} y_{12})]$

Basic conditions: $\rho_{11} + \rho_{12} > \sigma_{11} + \sigma_{12}$, $\rho_{12} > \rho_{11}$

Evolutionary parameters:

$r=2$; $b=0.9$; $x=[0.1 \ 0.2]$; $y=[0.11 \ 0.21]$; $cx=[0.1 \ 0.2]$; $cy=[0.12 \ 0.31]$

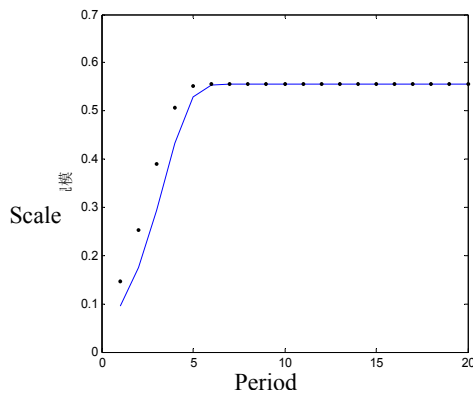
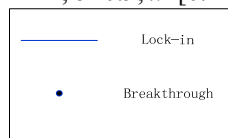


Figure 3 Technology Lock-in and Breakthrough Evolution

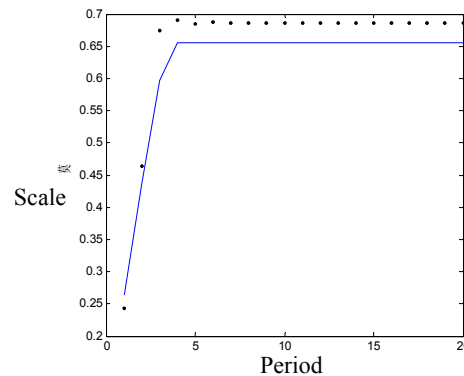


Figure 4 Cognitive Lock-in and Breakthrough Evolution

(2) Cognitive lock-in breakthrough evolution

Cognitive Logistic equation: $x_2(t) = r_2 x_2 (1 - \lambda_2 x_2)$

Cognitive lock-in equation: $x_2(t) = r_2 (\sigma_{21} x_{21}) [1 - \lambda_2 (\sigma_{21} x_{21})]$

Cognitive breakthrough equation:

$$x_2(t) = r_2 (\rho_{21} y_{21} + \rho_{22} y_{22}) [1 - \lambda_2 (\rho_{21} y_{21} + \rho_{22} y_{22})]$$

Basic conditions: $\rho_{21} + \rho_{22} > \sigma_{21}$, $\rho_{21} > \rho_{22}$

(3) Policy lock-in and breakthrough

Policy logistic equation: $x_3(t) = r_3 x_3 (1 - \lambda_3 x_3)$

Policy lock-in equation: $x_3(t) = r_3 (\sigma_{31} x_{31}) [1 - \lambda_3 (\sigma_{31} x_{31})]$

Policy breakthrough equation: $x_3(t) = r_3 (\rho_{31} y_{31} + \rho_{32} y_{32}) [1 - \lambda_3 (\rho_{31} y_{31} + \rho_{32} y_{32})]$

Basic conditions: $\rho_{31} + \rho_{32} > \sigma_{31}$, $\rho_{32} > \rho_{31}$

Evolutionary parameter: $r=2$; $b=0.8$; $bx=0.8$; $by=0.81$; $rx=2.7$; $ry=2.71$; $ix=0.7$; $iy=[0.27 \ 0.28]$; $cx=0.45$; $cy=[0.4 \ 0.5]$

(4) Investment and financing environment lock-in and breakthrough evolution

Investment and financing environment Logistic equation: $x_4(t) = r_4 x_4 (1 - \lambda_4 x_4)$

Investment and financing environment lock-in equation:

$$x_4(t) = r_4 (\sigma_{41} x_{41} + \sigma_{42} x_{42} + \sigma_{43} x_{43}) [1 - \lambda_4 (\sigma_{41} x_{41} + \sigma_{42} x_{42} + \sigma_{43} x_{43})]$$

Investment and financing environment breakthrough equation:

$$x_4(t) = r_4 (\rho_{41} y_{41} + \rho_{42} y_{42} + \rho_{43} y_{43}) [1 - \lambda_4 (\rho_{41} y_{41} + \rho_{42} y_{42} + \rho_{43} y_{43})]$$

Basic conditions: $\rho_{41} + \rho_{42} + \rho_{43} > \sigma_{41} + \sigma_{42} + \sigma_{43}$, $\rho_{42} > \rho_{41}$, $\rho_{43} > \rho_{41}$

Evolutionary parameter: $r=2$; $b=0.8$; $bx=0.7$; $by=0.7$; $rx=3$; $ry=3.1$; $ix=[0.7, 0.2, 0.6]$; $iy=[0.27 \ 0.6 \ 0.28]$; $cx=[0.45 \ 0.2 \ 0.5]$; $cy=[0.4 \ 0.45 \ 0.5]$

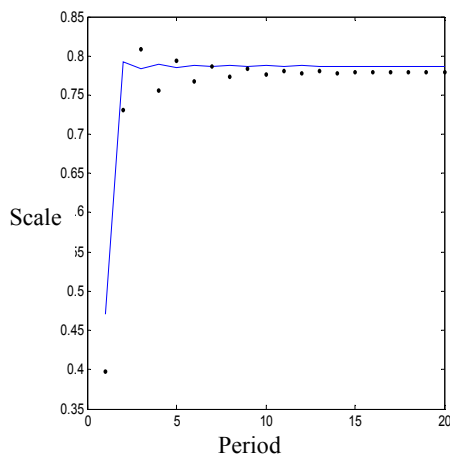


Figure 5 Policy Lock-in and Breakthrough Evolution

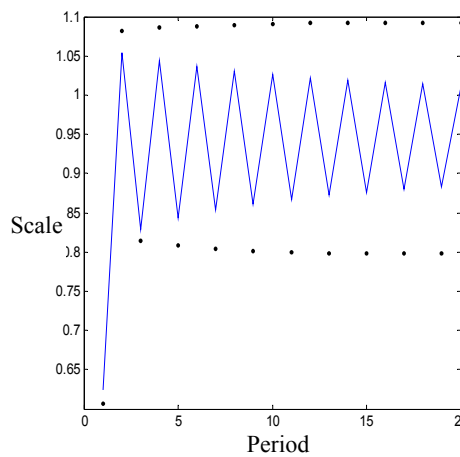


Figure 6 Investment and Financing Environment Breakthrough Lock-in and Breakthrough Evolution

4 Conclusion

First, we should improve the human resource culture system. The laser industry is a kind of professional and knowledge-intensive industry which strongly depends on the technological talents, therefore, absorbing and cultivating comprehensive high-quality talents who have skillful science and technology techniques, solid professional knowledge and outstanding management ability is the foundation of improving independent innovation ability of high-tech industries. Second, increase investment. The laser industry is a high and new technology industry so adequate funding for research

expenditure lays the foundation of its development. If the research funding is not adequate then the new core techniques are hard to gain and the whole industry's development will be affected. Last but not least, strengthen technological innovation system construction. The cultivation of the core technologies is the key to improve the independent innovation of the laser industry and there are two ways can be taken: one is that some products can rapidly realize the industrialization production through importing technology or manufacturing equipments and strengthen the production capacity of manufacturing a complete set of equipment so as to cultivate core techniques; the other is that developing new products and forming new industry, at the same time putting efforts on importing, digesting and absorbing, developing own manufacturing facilities as well as continuously developing own core technologies on the basis of its own core technology gained. Its own core technology are supposed to be formed covering the all links of the laser industry chain including components, laser devices, integrated laser devices and laser technology application, so as to make industry layers collaborate with each other and form a benign circulation.

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National Innovation Systems and Developing Countries: A Critical Review of Literature

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Abstract: Developed over the past three decades, the national innovation system concept (NIS) has been widely used by both scholars and policy makers to explain how interactions between a set of distinct, nationally bounded institutions supports and facilitates technological change and the emergence and diffusion of new innovations. This concept provides a framework by which developing countries can adopt for purposes of catching up. Initially conceived on structures and interactions identified in economically advanced countries, the application of the NIS concept to developing countries has been gradual and has coincided-in the NIS literature-with a move away from overly macro-interpretations to an emphasis on micro- level interactions and processes, with much of this work questioning the nation state as the most appropriate level of analysis, as well as the emergence of certain intermediary actors thought to facilitate knowledge exchange between actors and institutions. This paper reviews the NIS literature chronologically, showing how this shift in emphasis, while offering insights to how new technologies are selected, developed, and diffused, has also diminished somewhat the importance of both institutions, particularly governments, and the process of institutional capacity building. In doing so, the paper suggests that more recent literature on intermediaries such as industry associations may offer valuable insights to how institutional capacity building occurs and how it might be directed, particularly in the context of developing countries where governance capacities are often lacking, contributing to less effective innovation systems, stagnant economies, and unequal development.

Key words: National innovation systems; Development; institutional capacity; Intermediaries; Industry associations

1 Introduction

Innovation, understood as the recombination of existing ideas or the generation of new ideas into new processes and products is widely viewed as the main driver of growth in modern capitalistic economies. In most accounts, the national innovation system (NIS) concept is described as that set of national institutions which contribute to generation and diffusion of new technologies and which provide the framework within which government and firms negotiate policies to influence the innovation process.

The gradual inclusion of developing countries within the NIS discussion has coincided with several interrelated shifts in the NIS literature occurring over the past three decades: (1) a move away from macro institutional explanations to a focus on specific system processes, (2) a more recent emphasis on the role of intermediary and non-governmental actors in this regard, and (3) the increasing internationalization of the NIS concept.

The aim of this paper is to provide a comprehensive review of the NIS literature, seeking to characterize and explain these changes and their implications within the context of a limited yet growing body of work on the role of intermediaries, particularly industry associations, in developing countries. In doing so, it suggests that an emerging emphasis on such intermediaries in developing countries offers valuable insight on linkages between the often disconnected processes – within the NIS literature – of technology creation and diffusion and processes of institutional capacity building and governance.

2.1 National innovation system: early concepts and approaches

Derived in part from the ideas of List and his concept of *national systems of production*, the NIS concept was first proposed by Freeman as a response to the *Washington consensus* and to the neoclassical approaches to growth. In this way, the NIS concept has always been intrinsically linked to public policy. For Freeman and others, technological change and innovation are central to economic growth – a notion Freeman pointed to as obvious since the industrial revolution and already well established by Schumpeter. Furthermore, innovation, in this view, is understood as not only the work of individual firms, but as a collective endeavor, requiring diverse and substantive sets of knowledge, resources and expertise. As such, different countries will have different capacities for innovation. Unlike the neoclassical view of growth, therefore, the NIS concept argues that governments and collective activities can and do play a central orchestrating role in the generation and diffusion of innovation in a

national economy. Freeman (1987) made this point quite clear in his analysis of Japan's post-war 'catching up' policy. In other words, institutions matter: they can create and support an environment through which collective knowledge and resources can be more easily exchanged for the pursuit of new ideas and opportunities, in what are increasingly complex and inherently uncertain enterprises.

Some early studies correspond to work that looks at the role of intermediaries, but not from an innovation systems perspective. Looking primarily at firm based collaboration, this work views intermediaries as performing three primary functions. First, the function of *information collection and information exchange* through respective networks. In this role, intermediaries scan for network related information (e.g. actors, activities, and trends within a network and possibly outside it), collect and package this information, and then share it with network members. Such information might include current and emerging technologies, new products and processes, changing regulation, and potential partners and competitors. Second, in sharing information with network members, intermediaries can directly contribute to the *construction or development of a said network*. By bringing similar and/or complementary actors together, the intermediary acts as an important network selection mechanism, both in determining, to some degree, which actors can enter and maintain a position in the network and, in doing so, facilitating the technological transfer and diffusion of certain technologies within the network over alternative technologies. In this construction role the intermediary can also contribute to the collaborative culture and structural characteristics of the network, encouraging certain network norms (e.g. frequency and modes of interaction between members).

Finally, once a collaborative relationship between network members are established, intermediaries can then help *manage and develop* those relationship, *facilitating the collaboration process*. They may do this by recognizing the changing collaborative needs of the parties and facilitating both parties in identifying and meeting those respective needs, thus furthering the development of the relationship. In doing so, the intermediary may become both the point of contact and venue for initiating and conducting meetings between the respective parties as collaboration becomes more direct and/or complex.

2.2 New conceptual boundaries and process dynamics of NISs

While the NIS concept took hold as a policy prescription for catching up and was further bolstered by the popularity of Porter's (1990) theory of 'the competitive advantage of nations', early concepts of the NIS came under increasing criticism for being too vague, open to misinterpretation, and too inclusive to the point of being impractical, as well as concerns that the national emphasis of the concept missed what was felt as the more important underlying processes through which innovations actually come about. As a result, several concepts were developed that while ground in innovation systems theory, and ideas of collective learning and path dependency, considered innovation "at other levels of the economy than the nation state". As mentioned previously, the first of these was the *technology systems* approach proposed by Carlsson and Stankiewicz which begins with a particular technology and looks at what actors and institutions influence its development and diffusion. The second was the sectoral systems of innovation approach developed by Breschi and Malerba (1997) who argued that innovation could be best understood by looking at a set of products and a distinct set of agents who interact through networks in the development, production and sale of those products. These agents hold sector specific knowledge and their interactions are influenced by institutions that may have both local and international dimensions. Importantly, Breschi and Malerba argued that looking at innovation at the sector level offered greater insight to how sectors and thus sets of technologies interact and change over time.

The third approach was the regional innovation systems (RIS) concept which proposes that innovation is best understood as a local or regional phenomenon where interactions, knowledge exchange and learning occur between geographically proximate actors and institutions which are bounded to a particular location. The RIS concept is based on the observations that high-tech innovative activity tends to agglomerate in a select number of high capacity metropolitan regions – home to high tech industries, research universities, financial and legal institutions, government agencies, and highly skilled labor – and that the tacit and asymmetric knowledge flows that characterize innovation are best communicated through face-to-face interaction which co- location facilitates.

2.2.1 Functions, process dynamics, and politics

Moving beyond the mainly structural framework offered by the NIS concept, approaches to innovation systems such as those above looked to not only how innovation systems facilitate the emergence and diffusion of innovation, but the extent to which such systems are effective in doing so. To this end, Jacobsson and Johnson (2000) proposed a *functions approach* to innovation systems which set out to first identify the primary functions of an effective innovation system and to then determine the

relative importance of various functions and related interactions pertaining to both the innovation process and the growing capacity of a particular innovation system. What was somewhat novel about this approach is that while it was applied primarily to *technology* innovation systems (i.e. the micro systems level), the set of functions eventually identified can potentially be used for understanding innovation systems at different levels of analysis, from technology and sectoral systems up to the regional and national systems of innovation. Based on a number of previous studies that have taken a functions approach to innovation systems propose a list of seven primary functions that effective innovation systems support: (1) entrepreneurial activities; (2) collective learning; (3) knowledge diffusion through networks; (4) technology selection/promotion; (5) market formation; (6) resource mobilisation; and (7) technology legitimacy/overcoming resistance. Importantly, positive fulfilment of these functions and interactions between them are viewed as leading to virtuous cycles of innovative activity, whereas a lack of any one function fulfilment or interactions can lead to system inefficiencies and failure (e.g. an inability to overcome incumbent resistance to a new and improved technology).

In verifying the set of above functions, studies by Bergek and Jacobsson (2008) employ a historical event analysis method to essentially map the events, interactions, and processes involved in particular technology innovation systems in the successful development and commercialisation of various clean technology innovations in Germany (e.g. biofuels and solar cell technology). Both of these studies found similar trajectories and patterns regarding system functions and interactions: (1) responding to exogenous events and trends (e.g. global warming and competitive forces), governments introduce incentives (e.g. tariffs, subsidies, funding) to encourage investment in particular technology areas; (2) these incentives stimulate entrepreneurial activity resulting in experimentation, knowledge exchange, and the development of nascent technologies and production systems – from which an initial yet limited market emerges; (3) aiming to improve viability and expand markets for these new technologies, entrepreneurs and industry, through the auspices of *industry associations and advocacy groups*, successfully lobby government for more incentives and institutional changes; (4) this success decreases uncertainty which encourages further investment, resource mobilization, and subsequent market growth. In some cases, virtuous cycles are punctuated by vicious cycles (e.g. initial regulation proves ineffective) requiring additional industry lobbying and subsequent policy correction.

From these technology innovation system case studies, three important notions regarding institutional interactions within innovation systems can be derived. First, the successful emergence, development, and commercialization of new technologies is the result of interactions and linkages between micro firm level processes and macro-level institutions: interactions that both purposively, and recursively link firm level processes to broader industry activities and government policies – demonstrating that technology innovation systems both shape and are influenced by a broader yet highly active national innovation system. In these case studies, it is government, at the national level, that initially stimulates entrepreneurial activity and then responds to the needs of nascent technology producers and the demands of a fragile yet emerging market. Second, while not the focus of these studies, it is *industry associations* that are identified as lobbying government on behalf of entrepreneurs and industry for greater incentives and advantageous market conditions – although not identified as such, these are industry associations playing the role of *institutional intermediaries*. Finally, the presence and interplay of both virtuous and vicious cycles demonstrates that politics and negotiations between institutions, as evidenced by the activities of industry associations, are both inevitable and central as processes through which institutions are informed, policy adjustments are made and incentives gained, industry standards are set and favorable market conditions created.

2.2.2 Applying NIS to rapidly emerging economies and less developed countries

While the majority of studies on innovation systems during this period looked at different levels of analysis other than the nation state (technology, sectoral, and regional innovation systems), and focused primarily on such innovation systems in the advanced economies of the North, a concerted shift toward the application of the NIS concept to developing countries was also occurring. Much of this involved studies that moved away from the newly industrialized economies of East Asia to focus on the large and rapidly emerging economies of China, India, and to a lesser extent Brazil. These three countries, particularly China and India, emerged rapidly as global economic powers following consecutive government policies toward greater economic liberalization: China's 'open door' policies of the late 1970s and market reforms in the 1980s and 1990s, and India's liberalization policies beginning in 1991. Although the actual policies employed by these two countries differed somewhat due to different historical and national contexts, the strategies employed for 'catching up' purposes were very similar. These included: greater openness to foreign trade and foreign direct investment, the denationalization of

certain industries (China), the opening up of indigenous industries to global competition, and greater support for private enterprise and entrepreneurial activity; along with co-current policies toward the technological development, maturation, and the global orientation of indigenous industries. These liberalization policies are very reminiscent of the catching up strategies employed earlier by Japan and the newly industrialized countries of East Asia.

In looking at the economic liberalization efforts and subsequent NISs of China and India, several points are worth further consideration. For both China and India, the state has played a significant role in carrying out reforms and shaping the innovation system. It might be argued however, that China's innovation system, the product of a single political party and a tendency toward central planning, relies very much on downward streams of information (i.e. the government acting upon macro generated information and the institutional strengths and bureaucratic biases of the state and its agencies), whereas India's innovation system, residing within a far more pluralistic state and devolved regional powers, might rely much more on upward streams of information (i.e. the government acting more upon information from both industry and civil society). As a result, China might be less capable than India in meeting the needs of rapidly changing and increasingly complex industries such as ICT and biotech, hampering its efforts to establish and grow such industries domestically. On the flipside, however, India's pluralism may allow certain industries or actors to dominate upward streams, influencing government policy to their benefit, yet to the disadvantage and underdevelopment of the wider economy.

These structural and political differences may have implications for how China and India engage and react to external flows of knowledge, capital, and commerce. Along the lines of Gu and Lundvall's argument above, it is possible that China's more top-down NIS may better protect the interests of indigenous industry at the expense of absorbing and developing radical innovations from abroad, whereas India's NIS, while possibly more capable of integrating global R&D flows, may do so at the expense of its indigenous industries. This raises questions as to how and to what extent the integration of foreign knowledge and technology into a NIS is informed and negotiated, particularly given the prominence of global interactions and interdependences exhibited by most high-tech sectors.

2.3 Internationalization of NISs and industry associations in developing countries

The concurrent ideas that NISs exist within and interact with an increasingly global economic system and that, within this context, different NISs will exhibit different capacities for innovation and competitiveness go back to the earliest iterations of the NIS concept. Within the NIS literature, the term internationalization or the globalization of the NIS concept is used in three ways, and these often interchangeably. The first is the notion that the NIS concept, conceived initially on frameworks identified in already developed countries can be transferred to the context of developing countries. While transferability is a long standing notion, its application to developing countries is a more recent trend. The second notion refers to the related and common practice in the literature of comparing the NISs of different countries – much of this between countries of the developed North. The third notion concerns the extent to which a country's NIS is characterized by global linkages and interactions (i.e. open to external knowledge flows). An example in the early literature is international interaction and global standard setting between leading research universities.

2.3.1 Industry associations and developing countries

As discussed previously, literature that purposively connects industry associations to NIS is limited and remains desperate among many existing threads; even though studies on technology innovation systems have identified industry associations as playing a prominent role in the innovation process. In applying the NIS concept to developing countries, however, it is apparent, as Kshetri & Dholakia, (2009) argue, that (1) governments are subject to considerable structural changes (i.e. these are not static institutions), (2) governments will be stretched to meet the growing needs of a relatively poor but increasingly upwardly mobile population (see Frankel, 2006), and as a result (3) governments will often “lack resources, expertise and legitimacy required in developing new templates and monitoring industry behavior”. In such contexts, they argue, industry associations “are likely to be more effective and efficient institutions” in articulating industry needs, mobilizing resources and working with government to develop and implement new regulatory frameworks.

As such, a recent study by Kshetri and Dholakia looked at the role of industry associations in India, explaining how India's National Association of Software and Services Companies (NASSCOM) facilitated the development of India's offshoring industry. According to this study, NASSCOM was particularly effective in articulating, both to the Indian government and the public, the supposed economic benefits of the offshoring industry by establishing a dissemination and diffusion network

involving government agencies, policy makers, member companies, and various social organizations (i.e. legitimizing the industry). NASSCOM also leveraged this network to actively participate in the development and enforcement of industry standards and practices (i.e. setting industry norms and behavior), gaining industry favorable tax incentives, and played a significant role in shaping India's intellectual property right laws. Kshetri and Dholakia argue that central to NASSCOM's success was the positioning and use of 'elite' members and officials (highly experienced and visible members of industry with deep government connections) to lead outreach and lobbying efforts, and an effective strategy of working with the Indian judicial system and courts – rather than central government agencies – “to enforce the substance of legal claims”. In the case of working directly with the courts, NASSCOM supposedly did this due to the perceived weaknesses of the courts regarding commercial and copyright law, and the probable lack of judicial oversight by a resource stretched central government; a prominent example of an industry association stepping in to fill a regulatory void, and initiating institutional reform.

Another study on industry associations in India by Arocena and Sutz (2007) also looked at the role and effectiveness of NASSCOM, but in comparison to the early efforts of industry associations promoting India's burgeoning biotech sector. According to this study, the biotech industry associations played a similar role to what NASSCOM did for outsourcing and ICT, including lobbying for tax incentives, working with government to strengthen the regulatory environment, setting industry standards, and shaping intellectual property laws. For knowledge diffusion among members, like NASSCOM, the biotech industry associations organize “seminars, workshops, fact sheets, participating in trade fairs and registering presence in key markets of export interest like the US etc.” Arocena and Sutz argue, however, that the major biotech industry associations at the time, the Association of Biotechnology-Led Enterprises (ABLE) and the All India Crop Biotechnology Association (AICBA) suffered early on from competing interests within their memberships and between the two associations, with ABLE viewed as representing only the interests (tax, regulatory, and export) of a select number of pharmaceutical companies located in Bangalore to the expense of the broader industry. As a result, the biotech industry was not as effective, initially, as the ICT industry, led by NASSCOM, in lobbying for incentives and in delivering benefits to a majority of its members. Despite differences, both case studies reveal strong politics of development. It is clear that NASSCOM and ABLE work closely with the state to promote innovation policy reforms which will have positive impact on their members' activities. Liberalization and integration with the world economy are two of these reforms.

3 Conclusion

This paper has sought to critically review the literature of NIS, focusing on industry associations. In doing so, it has identified three major shifts which can guide our conceptual understanding of the role of such associations in innovation and development. First of all, an early yet extensive body of work that captures the structures of national innovation systems and the interactions between various actors. During this period, ideas from innovation and evolutionary theory such as collective learning and path dependency were applied, although most studies at this time present innovation systems as presently comprised (static) and from a macro-level perspective. While looking almost exclusively at developed countries, NIS studies on both developed countries and newly industrialized countries at the time showed insightful differences between countries regarding incentives and competencies. While some reference is made to intermediaries as institutional actors, their role and function in the NIS is not concretely identified.

Secondly, a later wave of NIS literature questioned both the macro-approach of earlier studies and the importance of innovation systems as a solely national concept. As such, this literature developed concepts of technology, sectoral, and regional innovation systems. This diverse work placed a growing emphasis on processes, relation and spatial dynamics between actors leading to insight as to how new technologies arise, develop and diffuse and to how innovation systems evolve over time. In this literature, the role and contribution of industry associations begins to emerge, particularly regarding advocacy and lobbying. This period also saw an increasing number of studies looking at the NISs of emerging economies such as India, Brazil, and China along with developing countries such as Indonesia and the Philippines, although much of the emphasis here is on sectoral systems of innovation.

Thirdly, a subset of more recent literature shows a growing emphasis on the internationalization of innovation systems, looking more closely at the role and activities of MNCs and the prominence of global knowledge flows and markets. For developing countries, this raises questions and opportunities

concerning global linkages as mechanisms for building innovation capacities, as well as questions of autonomy, influence, and control. This coincides with a growing literature on innovation within certain high-tech sectors such as ICT and biopharmaceuticals occurring in emerging powers such as India and South Africa. Within this literature, there is increasing yet limited work on the role of industry associations in developing countries (e.g. ICT in India), but a significant gap remains as to the diverse set of functions and activities that these industry associations actually perform.

In conclusion it might be said that although the NIS literature has so far paid little attention to the role of industry associations in innovation, the current shift towards emerging economies and less developed countries requires more systematic investigation of these institutional intermediaries and their role in influencing politics of development. Only this way we can achieve better understanding of innovation institutions in developing countries.

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Developing Innovative Products in China's Consumer Electronics Market: From Customer-Oriented to Value-Driven Marketing

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Abstract: Consumer behavior changes have led to changes in company marketing practices. Today's marketers have to pay closer attention to people's behavior and needs in order not to lose relevance especially in high growth markets and industries such as Consumer Electronics. The Purpose of this paper is to first analyze the approaches used by Chinese consumer electronics companies to develop innovative products and finally propose a framework for the integration of value-driven marketing practices. The paper adopts a multiple case study approach and finds that the most successful innovators are deep need seekers, market readers and sometimes technology drivers who value customer needs satisfaction and infuse service value into brand value. We draw as a conclusion that the integration of value-driven practices through business model transformations and new business perspectives should enhance the companies' product-related and non product-related differentiation capabilities and creativity, Customer Engagement and more importantly lead to enhanced product innovation capabilities, business model innovation, brand reinforcement and better customer experience.

Key words: Innovation; Value-driven Marketing; China; Consumer Electronics

1 Introduction

To survive and have a good positioning in the industry they are evolving, companies need fundamental ways to generate new ideas and bring them to the market. New product development and innovation enable companies to gain competitive advantage by conceiving and creating revolutionary, state-of-the-art products and services for new or extra uses. With the fast changing business environment and a tough competition centered in the newest technology, developing and providing the right innovative products in the consumer electronics industry has become a great challenge for marketers. The basis for competition has fundamentally moved from product or price to process or service value where deeper levels of engagement and more connection make a successful product. On one hand, in order to satisfy their needs, the marketing team is supposed to use the companies' resources and capabilities to solve the customers' problems by getting inside their imaginations. On the other hand, the marketing department's core functions may recently have encountered a shift from understanding and satisfying the customer needs to understanding what will captivate them. Over the past 60 years, marketing has moved from being product-centric (Marketing 1.0) to being consumer-centric, Marketing 2.0 and today, marketing has seemingly evolved from customer-oriented to value-driven (from Marketing 2.0 to Marketing 3.0) in response to the new dynamics in the environment (Kotler et al, 2010). It has become more crucial to bring variety and create deep and meaningful value to customers' lives instead of only looking for what the customer wants because sometimes the customer does not really know what he wants and is willing to be surprised. Is there a fundamental alteration in the approaches used by Chinese companies to develop innovative consumer electronics products? How can value-driven marketing be beneficial to Chinese companies in the development of innovative consumer electronics products?

This paper builds on Kotler's theory about value-driven marketing and analyzes the approaches used by Chinese companies to differentiate themselves from the competitors in the development of new but innovative products in the consumer electronics market and finally proposes a conceptual framework that highlights the benefits of combining deep researches on customers needs with customer needs anticipation and value-driven marketing practices.

2 Literature Review

2.1 From customer-oriented (marketing 2.0) to value-driven marketing (marketing 3.0)

According to Kotler et al. (2008), customer-oriented marketing departments study customer needs and wants in well defined market segments with the major responsibility of identifying and interpreting marketplace change. More than any other group in the company, they must be trend and opportunity seekers. They allocate marketing effort in relation to the long-run profit potential of the targeted segment

by developing winning offers for each target segment which enables to find the right products for the customers. However, Narver et al (2004) argue that understanding and meeting customers' expressed needs will lead to low-level innovations; that high level innovation is possible if the focus is on customers' latent needs. Moreover, according to some critics such as Kotler's, the consumer-centric approach implicitly assumes the view that consumers are passive targets of marketing campaigns; that consumer empowerment will lead to highest levels of innovation.

In 2010, Kotler, in cooperation with Hermawan Katajaya and Iwan Setlawan, presented his latest marketing findings where the key aspect is the advancement from consumer-oriented marketing to value-driven marketing, a radical move from product or price as the basis for competition, to process or service value. According to Kotler (2010), there is a major rethinking of marketing which is having a profound impact on the behavior of producers and consumers because of 1) the restoration of confidence and economic growth after the recent financial meltdown, 2) the economic power rapidly shifting to emerging countries that are experiencing higher rates of growth than the rich countries and 3) the technology shifting from the mechanical world to the digital world.

Marketing has therefore come to an era, in which horizontal communication and values like honesty, originality and authenticity become important: Marketing 3.0 or the values-driven era (Kotler et. al, 2010). In fact, Marketing 3.0 relies heavily on the marketers' ability to sense human anxieties and desires, which are rooted in creativity, culture, heritage, and the environment. In other words, it includes principles to drive deeper levels of engagement and connect more completely with consumers (Kotler et al., 2010) in order to deliver more value.

Table 1 Evolution and Comparison of Marketing Concepts

	Marketing 1.0 Product-centric Marketing	Marketing 2.0 Customer-oriented Marketing	Marketing 3.0 Value-driven Marketing
Objective	Selling products	Satisfying and retaining the customer	Make the world a better place
Enabling forces	Industrial Revolution	Information Technology	New wave technology
How companies see the market	Mass buyers with physical needs	Smarter customer with mind and heart	Whole human with mind, heart and spirit
Key marketing concepts	Product development	Differentiation	Values
Company marketing guidelines	Product specification	Corporate and product positioning	Corporate, vision, values
Value propositions	Functional	Functional and emotional	Functional, emotional and spiritual
Interaction with consumers	One-to-many Transaction	One-to-one relationship	Many-to-many collaboration

2.2 New product development and innovation in the Chinese consumer electronics industry

New Product Development (NPD) is usually considered as a preliminary step in product or service development because it involves stages that must be completed before the launching of the product in the market. However, it is a broader field dealing with the design, creation and marketing of new products. New products are vital to the growth and prosperity of most manufacturing firms (Cooper and Kleinschmidt, 1987). NPD can be a way to improve an already established product in order to keep up with market trends and changes or a way to compete with particular products or services through innovation. Zhongguancun, considered as China's Silicon Valley, provides an innovation-driven environment that enables the development of world-class innovative products and the implementation of new technologies (Van der Toom, 2013). The Booz and Company 2013 China Innovation Survey contradicts a piece of conventional wisdom that innovation in China tends to focus on copying and making incremental improvements to existing products. In fact, the survey has showed that Chinese companies, to a higher degree than most global competitors, pursue the same kind of innovation strategies that are practiced by the world's most successful innovators, notably companies based in Silicon Valley. As Chinese companies become more competitive in innovation, they increasingly worry about potential obstacles to further innovation growth. The areas of concern include difficulties in understanding market needs, particularly in the industrial sectors (Booz and Co., 2013). Consumer electronics (CE) being electronic equipment intended for everyday use typically include mobile market, fitness and health tech, smart devices, gaming devices, computer hardware, computer software, and digital distribution. Competition in the consumer electronics market is tough and sometimes customers do not always know what they want; they love to be surprised. Therefore, the challenge in innovation is

not only technical but also commercial for the development of affordable new versions of products.

Should companies still do deep research about customer needs before launching new products or should they develop new products based on brand new concepts?

Is Customer needs satisfaction a sufficient approach to develop and launch innovative products in the Chinese consumer electronics market? If consumers are well informed and can easily compare several similar product offerings that all can satisfy their needs, what should marketers do to become a particular magnet for clients and prospects? How can value-driven marketing enhance Chinese consumer electronics companies' innovation capabilities?

3 Research Methodology

A descriptive study of the business models, innovation level, product offerings, and marketing practices of top ten ranked innovative companies in the Chinese consumer electronics industry was conducted. As a research strategy, a multiple case study approach has been used. To collect data, a qualitative search and multiple-source secondary data approaches was adopted in order to get multiple sources of evidence. The data have been collected from company releases, articles, newspapers, management journals, industry data, established theories, company reports, government institutions, and industry surveys. The data were analyzed using content and thematic analysis.

4 Chinese Consumer Electronics Companies: Approaches to Innovative Product Development

The Booz and Co. 2013 China Innovation survey posed a series of questions about the innovation strategies that companies are pursuing, using the taxonomy developed over the last eight years in Strategy&'s Global Innovation 1000 study, which slots innovators into three categories: Need Seekers (superior end-user understanding), Market Readers (creating value through incremental innovations), and Technology Drivers (leveraging R&D investments to drive both breakthrough innovation and incremental change, in hopes of meeting the known and unknown needs of their customers via new technology). The 2013 China Innovation Survey shows that a much higher share of Chinese companies are following the Need Seeker strategy. Fully 44 percent of the Chinese companies surveyed see themselves as conducting activities that make up the Need Seeker strategy. Chinese companies also favor different innovation tools. For example, at the ideation stage, they are making greater use of customer-focused tools such as direct customer observation and end-user/customer focus groups with less use of feedback from sales/customer support, and technology road mapping.

Table 2 Innovative Chinese Consumer Electronics Companies

Companies	Sources of Innovation	Product or Service
Business Model Innovators		
Xiaomi	Pricing strategy reinvention of the smart phone business model Partnership with Google to offer creative and valuable products	The Red Rice sold out in less than 90 seconds and piling up more than 7 million preorders MiPad, the first tablet featuring Nvidia's Tegra K1 mobile processor
Haier	Customer needs anticipation Customer feedback Customer observation Employee self organization	Tianzun air conditioner Sweet potatoes and fruits washing machine for peasants Mini-refrigerator with a computer desk for students
Tencent	Internet user intelligence Micro innovation Execution excellence	WeChat, the fifth-most-used Smartphone app worldwide in 2014
Altering the Customer's Way of Life		
Baidu	From software to hardware	Xiaodu iErmu, a Wi-Fi-controlled camera for monitoring children, aging parents, or pets from afar
Geak	Wearable-tech pioneer	Smartwatch and novel Geak ring
Phantom	Focused product line and Affordable price points Addressing consumer concerns about air pollution	App-controlled EcoTower for air clearing in Beijing Energy-efficient lightbulbs
Haier	Making home appliances connected to a network and then through a smartphone application	U+ system, for air quality supervision

Technology Drivers		
Hisense	New Generation TV	ULED TV and VIDAA2 TV
LeTV	Full package of services	The platform + content + terminal + devices +application combo
Inspur	Program Combination	I50, a portable TV that adopts Android 4.2 system
Vivo	New technology Product Development	Xplay3S, the world's first smartphone with a 2k HD screen and Quad HD panel Smart Touch and Smart Motion

5 Conceptual Framework for Value-Driven Marketing Integration

Through Customer-driven marketing practices, companies can continuously gather and evaluate ideas for new products, product improvements, and services. Thanks to that “sense-and-respond” philosophy (Kotler et. al, 2009), customer-driven marketing can be a source of innovation. However, if marketers are to respond to the environment and consumer behavior changes in order to differentiate their offers from the competition and be more creative by delivering innovative solutions to meet human needs through sustainable principles, they ought to integrate value-driven marketing practices and communicate their values to the customers and collaborate with them. This process usually requires business model transformations, refined business processes and new business perspectives that are necessary to enhance the brand’s mission. A clearly defined brand mission that provides great value and connects emotionally should lead to a good brand reputation, which participates to the enhancement of customer engagement. Engaged consumers may co-create experience and value, and contribute to organizational innovation processes and consumer loyalty (Hoyer et al., 2010; Prahalad and Ramaswamy, 2004; Brodie et al., 2011).

5.1 Sources of innovation in value-driven marketing: collaboration and co-creation

Collaboration can be a new source of innovation. Companies must collaborate with one another, with the shareholders, the consumers, competitors, trade magazines, media, government agencies, advertizing agencies, universities and commercial laboratories, distributors and suppliers. They can share similar sets of values and desires and give suggestions about new product possibilities (concepts, techniques and materials). For instance, inviting the customer to participate as a co-creator in the company’s development of products and communications is a powerful method for business leaders to differentiate their companies from competitors, all the while creating more value for customers. Therefore, we believe that the combination of customer-oriented marketing practices with value-driven marketing practices should lead to enhanced product innovation capabilities, business model innovation, brand reinforcement and better customer experience.

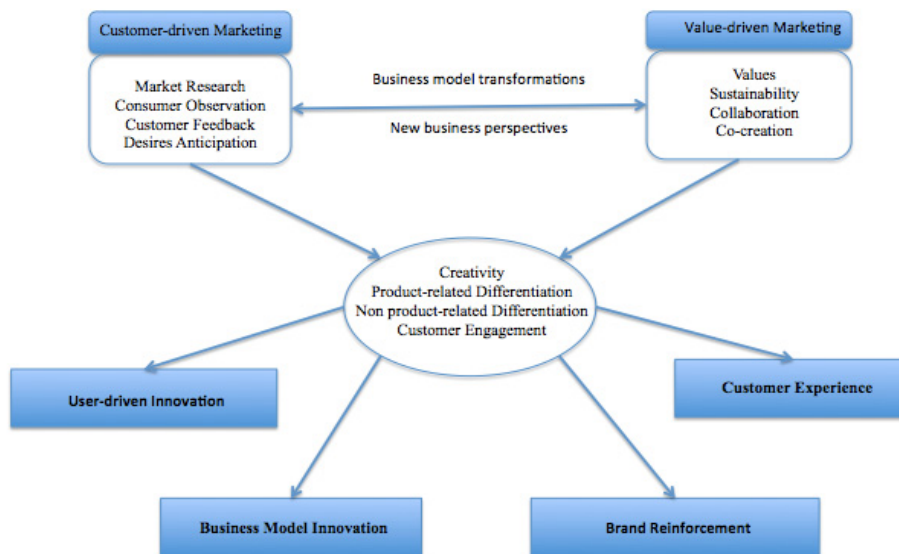


Figure 1 Conceptual Framework

-User-driven Innovation: provides better product innovation capabilities. It is characterized by the development of customer-driven models that focus on a participatory approach to user involvement in the design of new products and services such as customer participation platforms, multiple stakeholder interactions and virtual customer experience environments.

- Business Model Innovation will become as important as technological innovation (Chesbrough, 2006). The business model is the main way for a business to create value for its customers and captures some piece of that value for itself. Value-driven marketing requires changes in the business model which means the way the product or the service is offered to the market. Business model innovation implies a deep communication of the values to the employees, which can lead to Entrepreneurial Innovation. For example, Haier's autonomous project teams that self-organize.

- Brand Reinforcement is enabled by a sound communication of the company's mission and values that convey the meaning of the brand to the customers in terms of offerings, core benefits as well as the uniqueness of the offerings. New products and relevant marketing program changes can have an impact on the product success.

- Customer Experience is all about creating an integrated experience for the customer. How the customers feel when they interact with the company and its offerings greatly depend on the company's efforts to tie emotional bonds with the customers. Co-creating and co-designing with customers can increase the customer lifetime value (CLV).

6 Conclusion

Marketing is still about developing segmentation, choosing the target segment, defining the positioning, providing the four Ps, building brand around the product and having an acute insight of consumer needs and a new product development that suits the market. However, the fast changing business environment and consumer empowerment and risks related to new technologies have created certain alterations in marketing practices. In addition to its basic functions, Marketing consists nowadays of implementing a whole package of product and service proposal ranging from the product itself, useful accessories, an ongoing information service provision, to customer feedback and co-creation. Most of the companies studied know how to create value for their customers. Some of the companies implicitly develop some value-driven practices in the way they empower their customers and the way they connect with them through brand equity, social responsibility and social media. However, they are not very focused on new innovation sources such as open innovation, collaborative marketing, and co-creation.

We believe that both customer-driven and value-driven marketing are necessary to deliver superior value to the customer. Successful value-driven marketing practices cannot be implemented without the basics of customer-driven marketing. In a market like China, the fragmentation of customer needs across the vast country make it more and more important to understand the customers' needs in order to tap into demand in lower-tier cities. This paper thus proposes a model for the integration of both practices. However, further empirical research is needed to determine the relationship between product innovativeness, co-creation and customer experience or the impact of value-driven practices on business model innovation or brand reinforcement.

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Study on the Evaluation of City Innovation Ability in Beijing

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Abstract: The construction of innovative city is the most important way to improve the core competitiveness of the city. A scientific evaluation, which can accurately and objectively reflect a city's innovation oriented construction level, so as to promote the sustainable development of the innovative city. This paper builds the evaluating indicator of innovation ability of city from four aspects. Then, it builds the model of evaluation on innovation ability of city by principal component analysis. Finally, we evaluate the innovation ability of Beijing in the last ten years based on the statistical data and relevant information of the National Bureau of statistics.

Key word: Innovative city; Innovation ability; Evaluation; Principal component analysis

1 Introduction

Innovative city is an important pillar of the innovative country, is the center of the regional innovation system. Innovation ability is a comprehensive reflection of the knowledge and technology development of the city, which is the key to the sustainable and healthy development of city economy, it is of great significance for the evaluation of city innovation ability^[3]. Evaluate the innovation ability of a city objectively and correctly, has a special significance for the development of urban development strategy, the choice of development goals and the cultivation and promotion of competitive advantage.

At present, many cities in China are in the initial stage of the transition to a innovative city. In the competition of innovative city development, a clear direction of development will avoid blindly arrogant. Study on city innovation ability, is conducive to the strengthening of the city's understanding of their own situation, clear the gap between the cities of the same kind, thus for the sustainable and healthy development of the innovative city provide reference^[5]. Therefore, to strengthen the study of urban innovation ability is conducive to the construction and development of innovative cities and the realization of the national construction innovation system.

2 The Status of Evaluation Study of City Innovation Ability

Innovative city is a kind of city which mainly depends on the development of science and technology, knowledge, talent, culture, system, idea and so on. It has a wide influence and plays a leading role. Among them, the concept of innovation is the guide, knowledge innovation is the condition, the cultural atmosphere innovation is the foundation, the science and technology innovation is the core, the innovation talented person is the power, the system innovation is the safeguard.

In terms of city innovation ability evaluation index system, foreign scholars hasn't been studied directly, the related research only European Innovation Scoreboard and Hudgens knowledge competitiveness index system slightly representative. In China, scholars mainly based on the regional innovation ability evaluation index system to analyze innovation ability of city. Today, domestic research on innovative city evaluation system mainly concentrated on urban innovation capability, but also did not form comprehensive evaluation research. The research of city innovation capability evaluation is initial and there are many defects.

First, the selection of the evaluation index in the evaluation system is diversity and each has its own merits but no specific criteria^[6]. Secondly, the domestic evaluation study is based on two aspects: classification evaluation and comprehensive evaluation. The evaluation results of these two methods will be misleading to the target of the construction of innovative city. For example, classification evaluation allows a single index repeated, it will exaggerate the role of this indicator and guide the city to focus on building in this aspect^[8]. The structure of comprehensive evaluation system is more comprehensive, but often partial to amplify the influence of the science and technology innovation in evaluation and ignore the construction of other non innovative elements. Finally, the existing studies are mainly quantitative indicators, lack of qualitative indicators, and the system of innovation, cultural innovation and other indicators of quantitative, will produce an unfair evaluation results^[6].

Through the scientific and quantitative assessment of the innovation ability of Beijing, the government can provide the decision-making for the government to carry out the innovation project and measure the effectiveness of city innovation system, the progress of the project to carry out real-time

feedback; It can be helpful for the decision makers to discover the problems in time, and help to formulate effective policy control the situation and to guide the direction of follow-up work.

3 Principal Component Analysis

Principal component analysis(PCA) is probably the most popular multivariate statistical technique and it is used by almost all scientific disciplines. Its origin can be traced back to Pearson and Karl who apply it to the study of non random variable, but its modern instantiation was formalized by Hotelling who extended it to random variable research^[2]. The basic idea of PCA is to establish the original variables which are inter-correlated, then reduce the dimensionality of a data set consisting of a large number of interrelated variables, while retaining as much as possible of the variation present in the data set. In this process, the total variance of the variables is constant, and the new variables are sorted in descending order, and the greater the proportion of the variance contribution rate is, the more the role of the comprehensive evaluation.

Using principal component analysis method to determine the weights has the following advantages: 1) extract the most important information from the data table and eliminate the influence between evaluation criteria; 2) can reduce the workload of the index selection; 3) when we use PCA to analyze the problem, according to the size of the variance, the principal component is arranged in sequence depend on the size of the variance, we just use the first few retain most of the variation present in all of the original variables that can reduce computational effort^[9].

PCA calculation steps are as follows: 1) the original data standardization transformation; 2) Calculate the Correlation Matrix of sample; 3) calculate the correlation matrix eigenvalues and eigenvectors; 4) calculate the contribution rate of each variation; 5) Rescale Principal Components(PCs) and choose the number of PCs according to the cumulative contribution from quasi extracting principal component; 6) using the principal component of evaluation to make a comprehensive analysis.

4 Evaluation Indicators System of Innovation Ability of City

4.1 The principle of choosing evaluation indicators

The establishment of the evaluation system of urban innovation ability should follow the principle of scientific, systematic, representative and operational^[9]:

1) Scientific principle. Index set must be based on the premise of scientific nature, the meaning of the index should be clear, and the calculation method can be used to reflect the connotation and extension of innovation system. It should be from the actual situation of the city, and can basically meet the domestic and international urban evaluation of the general standard requirements.

2) Systematic principle. It must make a comprehensive reflection of the innovation, must take into account its systematic, integrity. Not only should include government investment in innovation, but also related to the political, economic, institutional and cultural and so on.

3) Representative principle. In the selection process of the index, try to select the typical, which can represent a certain area and overlap with the other indicators less indicators.

4) Operability principle. Innovation is a full range of dynamic changes in the process. Such as people's life style, spirit and value of the change is difficult to use accurate data measurement. Therefore, evaluation index should be determined from the practical point of view, the evaluation index must comparable and can be measured and available in reality.

4.2 The establishment of evaluation indicators system

In many of the city's innovation ability evaluation index system, the different evaluation system has different emphases, which involves a variety of indicators. In order to measure the city innovation ability scientifically, objectively, accurately and reasonably, this paper puts forward the evaluation index system of the urban innovation ability to reflect the systematic, operational and representative. On the basis of reference to the research on the evaluation index system of innovative cities both at home and abroad, starting from Innovation resources, innovation carrier, innovation environment, innovation output, 12 representative indexes were selected, and the corresponding statistical evaluation index system was established. Including culture, education, science, technology, infrastructure, comprehensive economic indicators of a total of 12, as it shown:

X_1 —Population(Million)

X_2 —GDP (Billion);

X_3 —Per capita GDP (yuan);

- X_4 —The number of technology people (Ten thousands);
 X_5 —Large and middle scale Industrial enterprise research number(%);
 X_6 —The books number of public library per million(copies);
 X_7 —Authority for patent (item);
 X_8 —Invention patents accounted for the proportion of patents(%);
 X_9 —the proportion of R&D expenditure account for GDP (%);
 X_{10} —Industrial output value of high tech industry(billion);
 X_{11} —Third industry specific gravity(%);
 X_{12} —The local technology and education financ allocate account for the total (%).

5 Case Study

The dataset that has been used in our case study has been obtained from Beijing statistical yearbook, science and Technology Statistics Yearbook. We have chosen 2004-2013's data in study and use SPSS17.0 statistical software to extract the main factor and calculate the score. In this way, we can have a comprehensive and systematic evaluation of Beijing urban innovation capability. The original data is shown in Table 1.

Table 1 Original Data

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
2004	1492.7	6033.2	40916	201.8	29.2	2.31	9005	35.71	0.0525	1873.8	67.8	13.8
2005	1538	6969.5	45993	249.1	38.0	2.36	10100	34.42	0.0545	2604.1	69.7	14.2
2006	1581	8117.8	51722	242.1	38.3	2.39	11238	34.38	0.0533	3449.4	71.9	19.8
2007	1633	9846.8	60096	275.8	39.1	2.41	14954	32.26	0.0535	3850.4	73.5	17.1
2008	1695	11115	64491	265.6	39.7	2.42	17747	36.50	0.0558	3805.1	75.4	17.9
2009	1755	12153.0	66940	302.0	16.2	2.49	22921	39.95	0.055	4193.0	75.5	17.4
2010	1961.9	14113.6	73856	270.0	15.2	2.35	33511	33.45	0.0582	4988.0	75.1	15.5
2011	2018.6	16251.9	81658	300.2	24.8	2.50	40888	38.84	0.0576	5831.6	76.1	15.4
2012	2069.3	17879.4	87475	314.6	26.7	2.69	50511	39.87	0.0595	6643.3	76.5	17.3
2013	2114.8	19500.6	93213	322.2	29.1	2.51	62671	33.02	0.0608	7088.1	76.9	15.2

First, in order to avoid the influence of dimension and order of magnitude, the standard treatment of raw data is needed. The new variable is described by $ZX_1, ZX_2, \dots, ZX_{12}$

Second, using SPSS17.0 software as an analysis tool, through Analyze - Correlate - Bivariate tool, we can establish the variable correlation coefficient matrix as shown in Table 2.

Table 2 The Correlation Matrix

	ZX1	ZX2	ZX3	ZX4	ZX5	ZX6	ZX7	ZX8	ZX9	ZX10	ZX11	ZX12
ZX1	1.00	0.99	0.98	0.85	-0.53	0.72	0.97	0.26	0.96	0.97	0.85	-0.06
ZX2	0.99	1.00	1.00	0.90	-0.46	0.78	0.98	0.27	0.95	0.99	0.89	0.00
ZX3	0.98	1.00	1.00	0.91	-0.44	0.78	0.96	0.25	0.94	0.99	0.92	0.06
ZX4	0.85	0.90	0.91	1.00	-0.36	0.82	0.83	0.33	0.80	0.90	0.91	0.17
ZX5	-0.53	-0.46	-0.44	-0.36	1.00	-0.22	-0.43	-0.41	-0.43	-0.39	-0.39	0.24
ZX6	0.72	0.78	0.78	0.82	-0.22	1.00	0.74	0.60	0.67	0.80	0.72	0.26
ZX7	0.97	0.98	0.96	0.83	-0.43	0.74	1.00	0.19	0.96	0.97	0.77	-0.13
ZX8	0.26	0.27	0.25	0.33	-0.41	0.60	0.19	1.00	0.16	0.22	0.31	0.15
ZX9	0.96	0.95	0.94	0.80	-0.43	0.67	0.96	0.16	1.00	0.93	0.79	-0.14
ZX10	0.97	0.99	0.99	0.90	-0.39	0.80	0.97	0.22	0.93	1.00	0.88	0.08
ZX11	0.85	0.89	0.92	0.91	-0.39	0.72	0.77	0.31	0.79	0.88	1.00	0.33
ZX12	-0.06	0.00	0.06	0.17	0.24	0.26	-0.13	0.15	-0.14	0.08	0.33	1.00

The criteria we take into account for the number of the retained components are: the cumulated contribution percent in variation explained by the retained components should be higher than 85% and the eigenvalues of each retained component should be higher than 1.

We choose Analyze – Data Redution – Factor in SPSS to determining the number of principal component. As shown in Table 3, the dimension reduction results show that the eigenvalues of the first 3 components are greater than 1, and the cumulative contribution rate is 91.898%, that is, about 92% of the total variance can be explained by 3 potential components. In Table 4 are indicated the data after factors' rotation.

Table 3 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.392	69.930	69.930	8.392	69.930	69.930
2	1.463	12.192	82.122	1.463	12.192	82.122
3	1.173	9.776	91.898	1.173	9.776	91.898
4	.575	4.790	96.688			
5	.187	1.560	98.248			
6	.130	1.085	99.333			
7	.046	.386	99.719			
8	.020	.168	99.886			
9	.014	.114	100.000			
10	4.88E-16	4.069E-15	100.000			
11	1.37E-16	1.141E-15	100.000			
12	-1.18E-16	-9.81E-16	100.000			

Table 4 Rotated Component Matrix

	Component		
	1	2	3
ZX1	.960	.190	-.154
ZX2	.981	.174	-.059
ZX3	.984	.160	-.002
ZX4	.897	.237	.167
ZX5	-.334	-.619	.515
ZX6	.734	.446	.321
ZX7	.961	.097	-.177
ZX8	.106	.943	.151
ZX9	.949	.062	-.197
ZX10	.988	.114	.030
ZX11	.881	.225	.251
ZX12	.038	.094	.921

The data in Table 5 lead to the final conclusions on the factorial structure of the analyzed variables, as follows:

1)The first principal component in $X_1, X_2, X_3, X_4, X_6, X_7, X_9, X_{10}, X_{11}$ have a large load. These 9 indicators mainly reflect the comprehensive strength of the city's innovation from social, economic, scientific and technological this four aspects, it can be interpreted as the city's comprehensive strength of innovation.

2)The second principal component is strength on X_8 , can be interpreted as the regional innovation ability.

3)The third principal component in X_5, X_{12} have a large load, can be interpreted as innovation investment.

Dealing with the data in Table 4, each data divided by the square root of the corresponding

eigenvalues, the corresponding principal component score can be obtained in this way.

After calculating the scores of the principal components, using comprehensive factor score formula: $\sum F = (F_1 \times f_1 + F_2 \times f_2 + F_3 \times f_3) / (f_1 + f_2 + f_3)$, to calculate the comprehensive score. The principal component is arranged in sequence depend on the comprehensive principal values and the score is the basis for the evaluation of the innovation ability of Beijing City.

Table 5 The Scores and Order of Components

	F1	Rate	F2	Rate	F3	Rate	F	Rate
2004	-4.1327	10	-2.175	9	-1.7	9	-3.6141	10
2005	-2.9454	9	-2.307	10	-0.837	7	-2.6364	9
2006	-2.3676	8	-1.757	7	2.0099	1	-1.821	8
2007	-1.4	7	-1.948	8	0.9494	3	-1.2228	7
2008	-0.6617	6	-0.545	6	1.4155	2	-0.4252	6
2009	0.44368	5	2.2519	2	0.4998	5	0.68955	4
2010	1.01761	4	0.1875	5	-1.749	10	0.61314	5
2011	2.27775	3	2.0721	3	-0.498	6	1.95514	3
2012	3.7249	2	3.305	1	0.8571	4	3.36411	1
2013	4.04348	1	0.9161	4	-0.947	8	3.09765	2

As shown as table 6, the comprehensive score of innovation ability in Beijing is increasing. That since 2004, Beijing's urban innovation ability is continuously enhanced.

From the innovation index data and comprehensive score of the calendar year, the total social investment for R&D is increasing accounted for the proportion of GDP, the increasing number of patents and invention patents accounted for the proportion of patents expose that the quantity and quality of the innovation result is increased; The proportion of people engaged in scientific research has been increasing, which shows that the innovation and Entrepreneurship Talent team continues to grow. Enterprises as the main body of the urban innovation system is gradually strengthened, the innovation environment is improving, and the total output value of high-tech industry is increasing, and the output of innovation is increasing. On the whole, the realization of the innovative city in Beijing is the highest, and it has a few characteristics: 1) science and technology resource intensive, R & D strength; 2) the market is perfect, open degree is high; 3) knowledge creation and flow ability is outstanding, have a strong education and research institutions innovation ability.

6 Conclusion

The article establish the evaluation model by principal component analysis and get the method of how to evaluate the innovation ability of city. The evaluation result show that the construction of innovative city in Beijing is still insufficient; independent innovation ability is not enough and enterprise has not yet become the subject of independent innovation. The increase in the number of enterprises has not led to the number of enterprises in the development of the R&D sector. At the same time, the innovation system and mechanism need to be improved

On the results of the above evaluation, the following suggestions are put forward for the development of innovation ability in Beijing:

1) Government should support and encourage enterprises to increase investment in science and technology, and build a new organization system which is the main body of enterprises^[10]. We have to focus on accelerating the transformation of scientific and technological achievements into productive forces, efforts to improve the innovation ability of enterprises.

2) The government can provide help for the enterprise financing, provide project support for the development of enterprises, the implementation of tax incentives and other ways to increase investment in science and technology innovation activities.

3) The government should encourage foreign R & D institutions and local colleges, research and development institutions and enterprises to carry out extensive exchanges and cooperation. Build clusters innovation network, strengthen coordination and cooperation between enterprises, universities, research

institutions and intermediary organizations to create a better environment for innovation.

4) Take the enterprise as the leading, form the University and scientific research organization to participate in the research and the mechanism. In order to achieve scientific and technological information sharing, large-scale equipment sharing, technology exchange information sharing platform for regional innovation system, accelerate the process of enterprise innovation.

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GMM Model-Based Study on the Impact of Housing Prices on Residents' Consumption in the Yangtze River Delta Region

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Abstract: In recent years, China's real estate prices have become the focus of public attention. Based on the theories related to housing prices and residents' consumption, the present paper has collected the relevant data from the Yangtze River Delta region of China for the period from 2002 to 2013, and applied the dynamic panel GMM model to carry out empirical study on how housing prices affect residents' consumption. However, it has been found that the impact of the housing prices on the residents' consumption in the Yangtze River Delta region of China has two-way effects.

Key words: Housing prices; Residents consumption; GMM model; The yangtze river delta region

1 Introduction

With the development and improvement of China's market economic system reform, the real estate industry expands rapidly. Since the beginning of the 21st century, China's spending power in the real estate industry has been growing, and housing prices have been constantly rising. For example, household consumption expenditure per capita for urban residents in 2002 was RMB 624.2, whereas household consumption expenditure per capita for urban residents rose to RMB 1745.1 in 2013 (Figure 1). Meanwhile, with the growth of consumer demand, the growth rate of China's real estate market prices is striking. For example, the average housing price in China increased from RMB 2250 per square meter for 2002 to RMB 6237 per square meter in 2013 (Figure 2). The average growth rate of housing prices was 8.88%, and the growth rate even reached 17.76% in 2004 when housing prices continued on the upward trend. Due to the impacts of the Financial Crisis, housing prices generally fell by 1.65% in 2008, although the growth rate was reversed by 23.18% in the following year. Since then, the growth rate has been steady. The Yangtze River Delta region is known for its strong economic strength, but it was once speculated as one of the regions with the worst real estate bubbles. It can be seen from Figure 1 and 2 that the changes of average residents' consumption and housing prices in the Yangtze River Delta region are in line with those in the other parts of China. Or, in other words, these two factors continue on the upward trend in general, and a certain relationship should exist between residents' consumption and housing prices. Therefore, studies on the impacts of real estate prices on residents' consumption in the Yangtze River Delta region have strong practical significance because they could help local government control policies related to the real estate industry more efficiently, guide reasonable consumption tendency, and promote a stable and healthy economic development in the Yangtze River Delta region.

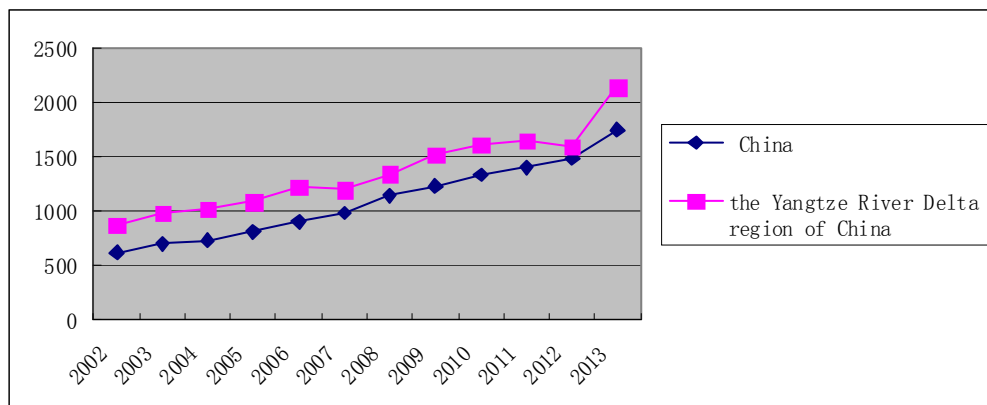


Figure 1 Data of Average Household Consumption Expenditure per Capita for Urban Residents from 2002 to 2013 (unit: RMB)

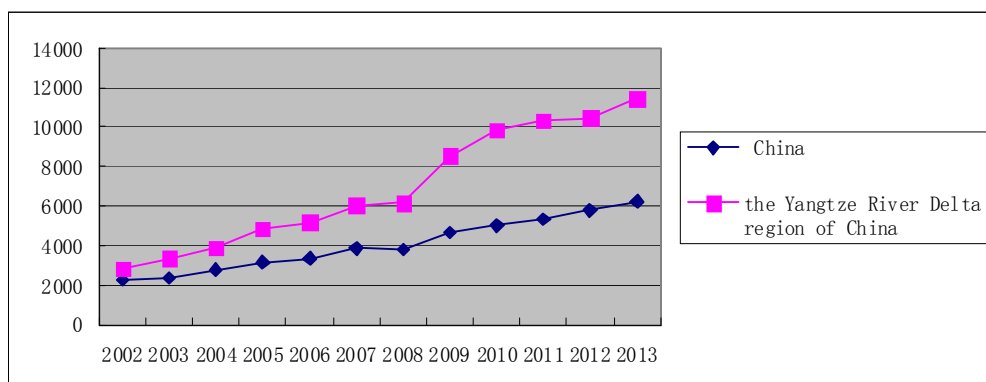


Figure 2 Data of Average Selling Prices of Commercial Housing from 2002 to 2013(unit: RMB)

2 Literature Review

Domestic and foreign scholars have done a lot of empirical studies on the impacts of housing prices on residents' consumption, with three major perspectives established regarding the relationship between these two factors, namely, the presence of a promoting relationship, the presence of an inhibitory relationship, and a non-significant relationship.

2.1 The promoting relationship

Through empirical studies on the U.S. Real Estate Market, Shiller and Case (2003) found that increases in housing prices could lead to the growth of residents' consumption. Chen (2006) carried out some empirical research, and the results showed that increases in housing prices could significantly promote residents' consumption. Using some provincial-level panel data, Li Yong-Gang, Gao Bo and Zhang Peng (2013) established some simultaneous equation models to study the relationship among land supply, housing prices and residents' consumption, and found that housing prices imposed a significant and positive impact on residents' consumption.

2.2 The inhibitory relationship

Engelhardt (1996) did some empirical studies on the impacts of changes in housing prices on the consumption decisions made by homeowners, and found that increases in housing prices did not significantly contribute to the rise in consumption expenditure. However, when housing prices fell, residents' consumption significantly decreased due to the decrease of housing prices. Li Yin and Zhan Shi-Hong (2011) established a VEC model for empirical analysis purpose, and found that changes in real estate prices and household consumption expenditure were negatively correlated. Kuang Wei-Da (2011) used a two-stage model based on aspects of housing prices and consumption expenditure, and tested the impacts of changes in housing prices on housing and non-housing consumption. They found that changes in housing prices imposed a negative impact on the two types of consumption.

2.3 A non-significant relationship

The study by Poterba (2000) showed that an increase in real estate wealth would not affect consumers' decisions. Lin Xia and Jiang Yang (2010) found that the wealth effect of rising housing prices was not significant when regression analysis was applied. Dai Ying-Jie and Zhou Kui-Sheng (2012) used FAVAR model to test the relationship between housing prices and consumer behavior, and draw the conclusion that the wealth effect could not be identified.

Through a review of empirical literature by domestic and foreign scholars, it is clear that these findings are not consistent. Also, since the method of ordinary regression analysis is commonly applied, pseudo-values for regression analysis exist. Meanwhile, due to the reason that the real estate market has strong regional characteristics, and China's economic development is uneven, it is not surprising that housing prices vary greatly in different regions of China, and there is a general lack of reference value in terms of household income for different regions. Therefore, the present paper studies the impact of housing prices on residents' consumption in the specific Yangtze River Delta region with practical significance.

3 Empirical Design

3.1 Data source

The present paper takes the Yangtze River Delta region as its study object, and the study was

carried out from 2002 to 2013. The data such as household consumption expenditure per capita, average selling prices of commercial real estate and household disposable income per capita are obtained from sources such as “China Statistical Yearbook”, “Statistical Yearbook of Jiangsu Province”, “Zhejiang Statistical Yearbook”, “Shanghai Statistical Yearbook”. For the aspect of household consumption expenditure per capita, household consumption expenditure per capita of urban residents is used as the indicator. Average selling prices of commercial real estate are measured as the sales volume of commercial real estate divided by the corresponding sales areas. For the aspect of household disposable income per capita, household disposable income per capita of urban residents is used as the indicator.

3.2 The establishment of dynamic models

The basic regression model for panel data is:

$$y_{it} = \alpha y_{it-1} + \beta X_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

Where y_{it} represents an explained variable, X_{it} represents an explanatory variable or another control variable, μ_i represents the regional effect, reflecting the fixed effect of each studied region, and ε_{it} represents the residual error. Since one major defect of static models lies in that they assume the explained variables are maintained in a relatively stable path, such model specifications might be incorrect. Therefore, the present study uses dynamic models instead. Dynamic models can reveal the dynamic change of the explained variable. Arellano-Bond applied the GMM method, and found that such method could help overcome problems inherent in equations that individual fixed effects might exist. Here first-order differential treatment is applied to equation (1) to get the following equation:

$$\Delta y_{it} = \alpha \Delta y_{it-1} + \beta \Delta X_{it} + \Delta \varepsilon_{it} \quad (2)$$

It can be seen from equation (2) that individual fixed effects could be effectively removed. Given that the two-way causal relationship might exist between studied variables, the present study further processes variables with the possibility of endogenous issues. Arellano-Bond emphasized that when GMM was used for estimation purpose, model specification and the effectiveness of instrumental variables should be reasonably judged. Therefore, the general Arellano-Bond and Sargan tests are applied in the present study. With the consumption function model as the basis, the present study makes a few improvements.

$$C_t = \alpha + \beta Y_t \quad (3)$$

By taking the logarithm of both sides of the equation (3), data fluctuations could be removed:

$$\ln C_t = \alpha + \beta \ln Y_t + \mu_t \quad (4)$$

In order to test whether housing prices would affect residents' consumption, the consumption variable, HP , was introduced to the equation (4), with the equation modified as:

$$\ln C_t = \alpha + \beta \ln Y_t + \gamma \ln HP_t + \mu_t \quad (5)$$

This present study uses dynamic panel data. According to the principle of GMM model specification, in order to test whether a non-linear relationship exists between housing prices and residents' consumption, $(\ln HP_{it})^2$ should be included in the model with further modification to establish a dynamic GMM model as shown below:

$$\ln C_{it} = \alpha + \lambda \ln C_{it-1} + \beta \ln Y_{it} + \gamma \ln HP_{it} + (\ln HP_{it})^2 + \mu_i + \varepsilon_{it} \quad (6)$$

Where the subscript i represents different cross-sectional unit; the subscript t represents different time period; C_{it} represents average household consumption expenditure per capita currently; C_{it-1} represents average household consumption expenditure per capita previously; Y_{it} and HP_{it} are explanatory variables, for which Y_{it} represents average household disposable income, and HP_{it} represents average selling prices of commercial real estate; μ_i represents the stochastic error. Given that the impacts of housing prices on residents' consumption might have some lagging effect, the data of the capital stock from the previous year are used to characterize HP variable.

4 Results of Empirical Analyses

The present study uses dynamic panel data models(6) to test the dynamic impacts of housing prices on residents' consumption in the Yangtze River Delta region, with statistical descriptions of major variables shown in Table 1:

Table 1 Statistical Table of Major Variables

Variable	Sample size	Mean	Standard deviation	Minimum	Maximum
$\ln C$	240	7.16	0.42	6.54	7.95
$\ln Y$	240	9.94	0.31	9.01	10.69
$\ln HP$	240	8.70	0.55	7.56	9.71

With the application of GMM method and the use of STATA12.0 software, model (6) is specifically implemented to do the estimation work for the Yangtze River Delta region, Zhejiang, Jiangsu and Shanghai, respectively, with results shown in Table 2.

Table 2 The Regression Output

Variable	The Yangtze River Delta region		Jiangsu		Zhejiang		Shanghai	
	Parameter	T value	Parameter	T value	Parameter	T value	Parameter	T value
$\ln C_{it-1}$	0.591***	9.81	0.461**	2.37	0.352*	1.86	0.657***	10.13
$\ln Y_{it}$	0.413*	1.82	0.314*	1.67	0.217**	1.99	0.613**	2.38
$\ln HP_{it}$	0.396*	1.95	0.412*	1.89	0.219***	6.95	0.451*	1.75
$(\ln HP_{it})^2$	-0.084**	2.56	-0.16*	1.76	-0.032**	2.17	-0.051*	1.83
α	2.374***	4.26	0.957*	1.71	0.989**	2.33	0.267***	7.476
AR(1)	0.06		0.071		0.13		0.064	
AR(2)	0.041		0.035		0.037		0.019	
Sargan test	0.053		0.075		0.064		0.081	
Wald test	0.0000		0.0000		0.0000		0.0000	

note: ***, **, * means statistical significance is attained at 1%, 5% or 10% level.

It can be seen from the test results (shown in Table 2) that although model residuals contain first-order serial correlation, second-order serial correlation is absent. The results of Sargan test showed that the selection process of instrumental variables is reasonable, and over-identification problem does not exist. Meanwhile, a long-term stable relationship exists among $\ln C$, $\ln Y_{it}$ and $\ln HP_{it}$, with the output of regression analysis statistically significant. However, as a specific city sample belongs to the Yangtze River Delta region, the impacts of these two factors on residents' consumption could display some level of differences, and this is especially true for the case of measured coefficients that correspond to housing-related variables. For example, these coefficients have shown totally different dynamic processes.

4.1 Residents' disposable income

The coefficient for the Yangtze River Delta region is 0.413, indicating that an increase of RMB 1 in income leads to an increase of RMB 0.413 in consumption. This pattern is not only consistent with the principle that income level determines consumption ability in Economics, but also indicates a positive relationship between rising income and residents' consumption. In the present study, Shanghai has the highest coefficient value (0.613). Therefore, in comparison to Jiangsu and Zhejiang, residents from Shanghai own higher proportions of disposable income, which are then used for consumption purpose.

4.2 Housing prices

For the Yangtze River Delta region, the estimated coefficient of housing price variable is statistically significant at the 10% level. Also, the reason why some squared terms are negative is that an inverted U-shaped pattern exists between housing prices and residents' consumption in this region, which suggests that the magnitude of the change in housing prices has imposed a major positive impact on residents' consumption. However, a negative changing trend is also possible after the magnitude of the change has reached a certain level. Overall, the patterns found in Shanghai, Zhejiang and Jiangsu are consistent, the real estate market in the entire Yangtze River Delta region has remained active, and fluctuations of housing prices have promoted the wealth effect and residents' consumption. However, once housing prices continue to rise until they surpasses the limit of disposable income, and when the speculative component occupies a large proportion, the real estate market is then prone to bubble, resulting in a heavy financial burden on residents. Also, the positive wealth effect of housing price fluctuations on residents' consumption could be counteracted, diminished, or even reversed.

5 Conclusion and Suggestions

5.1 Conclusion

For the Yangtze River Delta region, a two-way causal relationship exists between housing prices and residents' consumption, which indicates that reasonable household demand has played a certain role in propelling housing prices. Meanwhile, surging housing prices could further intensify market bubbles. Therefore, although the positive wealth effect brought by household demand in terms of propelling housing prices deserves more attention, the negative side effects of rising housing prices on residents' demand should not be ignored, and this requires us to pay more attention to the two-way causal relationship between housing prices and residents' consumption in the Yangtze River Delta region.

5.2 Suggestions

5.2.1 An increase of expected household income through multiple ways

On the one hand, since the actual consumption ability varies in the Yangtze River Delta region, the minimum wage could be increased to different levels so that the proportion of household income keeps burgeoning, and residents' ability to deal with the rising housing prices could be enhanced. On the other hand, the development and improvement of social security and public services in the Yangtze River Delta region could effectively protect low-income consumers. Finally, the implementation of reasonable credit policies for low-income populations could provide them with more employment opportunities, increase their income levels, and enhance their spending power. Meanwhile, by using tax leverage, tax policies could be adjusted to favor low-income populations in order to further reduce income inequality.

5.2.2 A reasonable guidance for establishing an objective attitude towards commercial real estate consumption

It is essential to provide a reasonable guidance for establishing an objective attitude towards commercial real estate consumption. On the one hand, media propaganda could be used to help those people in blind pursuit of commercial housing. For example, young people who just leave the campus are encouraged to rent apartments first before they make a well-planned purchase. By doing so, their consumption potentials could be reasonably released, and their spending power could be effectively enhanced. On the other hand, the government could introduce some reasonable policies to encourage diversification in consumption. For example, the government could develop the housing security system, with public renting houses, cheap renting houses and talent apartments as the major component. Meanwhile, the approach of small apartment building is encouraged so that different levels of demand could be met, and people could determine their spending power based on their income levels. Also, the gradual transition process could not only help maintain relatively stable housing prices, but also help promote the positive wealth effect of housing prices on residents' consumption.

5.2.3 The development of strategies for managing different housing prices

Due to the complexity of China's real estate market, although the government of the Yangtze River Delta region has released a series of regulation policies, such as purchase and load limit policies, in order to reasonably control housing prices, the desired results haven't been met yet. Therefore, based on development characteristics of Yangtze River Delta, specific strategies aiming at managing housing prices should be developed by the government. For example, increased efforts in controlling cities with high housing prices could help ensure housing prices to return to a reasonable range, and prevent the inhibiting effect of high housing prices on residents' consumption. Meanwhile, the growth rate of housing prices for cities with median-level housing prices could be slowed down to ensure a stable development of the real estate market, and cities with low-level housing prices are encouraged to meet reasonable household demand in order to promote the healthy development of the real estate market.

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Total Factor Productivity of Chinese Industry: Based on Färe-Primont Productivity Index

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Abstract: Improving the total factor productivity (TFP) is a fundamental guarantee for the realization of economic transformation and sustainable development. This paper takes a new approach to investigate the TFP of Chinese industry. We discuss the advantage of Färe-Primont (FP) index to calculate TFP and differences from other indexes. Using the panel data of Chinese provincial areas in 29 provinces covering a 14-year period (1999-2012), we calculate the TFP of Chinese industry. The results showed that: (1) TFP of Chinese industry is low overall; (2) TFP growth is largely powered by technological progress and it exceeds the decline in mix efficiency in 2008-2012, also, technical efficiency improvement is negligible; (3) There are significant differences in the growth rate of industrial TFP among the northeast, the east, the central and the west. The development of the eastern region is unbalanced and it has obvious technical advantages compared with other parts of China.

Key words: Färe-Primont TFP index; Regional differences; Technological progress

1 Introduction

Industry occupies an extremely important status in the national economy. The level of industrial development of a country, directly determines the level of technology and economic development of the country. In 2014, Chinese industrial output value is 22799 billions, accounted for 35.82% of GDP, an 18% increase from a year earlier.

With the Chow (1993) as the symbol, the TFP of Chinese economy has gradually become a hot issue for many domestic and foreign scholars¹. They use different data to measure the growth of TFP in China, the growth of industrial TFP, influence factors of TFP growth. Meng Lingjie (2004) analyzed the provincial data from 1952 to 1998 using the DEA-Malmquist index. He pointed out the TFP growth is mainly derived from the improvement of technical progress in the whole period. It exceeds the decline in productivity which is determined by pure technical efficiency and scale efficiency². Zhongxiu Zhao (2010) believed FDI has a positive effect on Chinese industrial productivity, and the contribution of FDI to productivity is enhanced by its interaction with Chinese human capital³. Guo Qingwang (2006) applied the nonparametric DEA-Malmquist index approach to estimate TFP growth, efficiency change and the rate of technological progress from 1979 to 2003. He believed disparities of provincial economic growth are large and have been increasing owing to the relatively increasing disparities of TFP growth especially the rate of technological progress⁴. Most previous studies used Malmquist TFP index. There are some flaws: Malmquist TFP index isn't multi-plicatively complete or transitivity. This means it can't be used to make multi-temporal and/or multi-lateral comparisons of TFP and efficiency reliable. In recent years, some scholars apply the Färe-Primont index to calculate TFP index. Xingjian Hong (2014) analyzed Chinese TFP between 1995 and 2012 by Färe-Primont index⁵. Sanzidur Rahman (2012) applied the Färe-Primont index to calculate TFP indices for agriculture in 17 regions of Bangladesh covering a 61-year period (1948-2008)⁶. No scholars have analyzed China's industrial productivity by FP index so far.

Characteristics and innovation of this paper is that we use the latest approach of measure and decomposition of TFP: Färe-Primont index. Färe-Primont index are economically-ideal in the sense that they satisfy all economically-relevant axioms and tests from index number theory, including an identity axiom and a transitivity test. This means they can be used to make reliable multi-temporal (i.e., many period) and/or multi-lateral (i.e., many firm) comparisons of TFP and efficiency. Laspeyres, Paasche, Fisher, Malmquist-*hs*, Malmquist-*it* and Hicks-Moorsteen indexes all fail the transitivity test and can generally only be used to make a single binary comparison (i.e., to compare two observations only). For more details on the importance of index number axioms and tests, see O'Donnell (2011b)⁷.

The purpose of this paper is using FP index to analyze TFP of Chinese industry. It decomposes the TFP index into six finer components: technical change, technical-, scale- and mix-efficiency changes, residual scale and residual mix-efficiency changes. Decomposition of the components of TFP changes

into finer measures of efficiency corrects the existing literature’s blame of a slow growth in technical efficiency as the main cause of poor TFP growth in China.

2 Methodology

The Färe-Primont index number approach is developed using the aggregate-quantity framework, which does not rely on the availability of price data and does not require any assumptions concerning either the degree of competition in the product markets or the optimizing behaviour of firms (O’Donnell, 2012a,c). The analytical procedure involves the DEA linear program (LP) to estimate the production technology and associated productivity and efficiency levels: (i) technical change (measuring movements in the production frontier); (ii) technical efficiency change (movements towards or away from the frontier); (iii) scale efficiency change (movements around the frontier surface to capture economies of scale); and (iv) mi efficiency change (movements around the frontier to capture economies of scope) (O’Donnell, 2010, 2011b, 2012c).

2.1 The färe-primont index of total factor productivity

The productivity of a single-output single-input firm is almost always defined as the output-input ratio. O’Donnell (2008) generalizes this idea to the multiple-output multiple-input case by formally defining the total factor productivity (TFP) of a firm to be the ratio of an aggregate output to an aggregate input. Let $x_{it} = (x_{1it}, \dots, x_{Mit})'$ and $q_{it} = (q_{1it}, \dots, q_{Nit})'$ denote the input and output quantity vectors of firm i in period t ($q_{it} \in R_+^J$ and $x_{it} \in R_+^K$). Then the TFP of the firm is (O’Donnell, 2010):

$$TFP_{it} \equiv \frac{Q_{it}}{X_{it}} \tag{1}$$

Where $Q_{it} = Q(q_{it})$ is an aggregate output, $X_{it} = X(x_{it})$ is an aggregate input and $X(.)$ and $Q(.)$ are non-negative, non-decreasing and linearly homogeneous aggregator functions. The associated index number that measures the TFP of firm i in period t relative to the TFP of firm h in period s is (O’Donnell, 2011a, b):

$$TFP_{hs,it} \equiv \frac{TFP_{it}}{TFP_{hs}} = \frac{Q_{it} / X_{it}}{Q_{hs} / X_{hs}} = \frac{Q_{hs,it}}{X_{hs,it}} \tag{2}$$

Where, $Q_{hs,it} = Q_{it} / Q_{hs}$ is an output quantity index and $X_{hs,it} = X_{it} / X_{hs}$ is an input quantity index. Thus, TFP growth can be expressed as a measure of output growth divided by a measure of input growth. DPIN estimates the production technology (and associated measures of productivity and efficiency) using DEA LPs. DEA is underpinned by the assumption that the (local) output and input distance functions representing the technology available in period t take the form (O’Donnell (2011b)):

$$Q(q_{it}) = D_0(x_0, q_{it}, t_0) \tag{3}$$

$$X(x_{it}) = D_1(x_{it}, q_0, t_0) \tag{4}$$

Where q and x are vectors of input and output quantities and $D_0(.)$ and $D_1(.)$ are the output and input distance functions. The Färe-Primont TFP index is given by (O’Donnell, 2011b):

$$TFP_{hs,it} = \frac{Q_{hs,it}}{X_{hs,it}} = \frac{D_0(x_0, q_{it}, t_0) D_1(x_{hs}, q_0, t_0)}{D_0(x_0, q_{hs}, t_0) D_1(x_{it}, q_0, t_0)} \tag{5}$$

2.2 Measures of efficiency

The following finer measures of efficiency change are computed by decomposing TFP changes. These efficiency measures are defined and explained with reference to two production frontiers: a mix-restricted production frontier (when the mixes of outputs or inputs are held fixed) and an unrestricted production frontier (when both input and output mixes are allowed to vary), where each point refers to a combination of aggregate input and output (Figure 1, adapted from O’Donnell, 2012b):

$$\text{Input-oriented technical efficiency } ITE_{it} = \frac{Q_{it} / X_{it}}{Q_{it} / \bar{X}_{it}} = \frac{\bar{X}_{it}}{X_{it}} = D_1(x_{it}, q_{it}, t)^{-1} \leq 1 \tag{6}$$

$$\text{Input-oriented scale efficiency } ISE_{it} = \frac{Q_{it} / \bar{X}_{it}}{\tilde{Q}_{it} / \tilde{X}_{it}} \leq 1 \tag{7}$$

$$\text{Input-oriented mix efficiency } IME_{it} = \frac{Q_{it} / \bar{X}_{it}}{Q_{it} / \hat{X}_{it}} = \frac{\hat{X}_{it}}{X_{it}} \leq 1 \tag{8}$$

$$\text{Residual input-oriented scale efficiency } RISE_{+it} = \frac{Q_{it} / \hat{X}_{it}}{Q_{it}^* / X_{it}^*} \leq 1 \tag{9}$$

$$\text{Residual mix efficiency } RME_{it} = \frac{\tilde{Q}_{it} / \tilde{X}_{it}}{Q_{it}^* / X_{it}^*} \leq 1 \tag{10}$$

Where $TFP_t^* = Q_{it}^* / X_{it}^*$ denotes the maximum TFP that is possible using the technology available in period t , $\bar{Q}_{it} \equiv Q_{it} D_0(x_{it}, q_{it}, t)^{-1}$ is the maximum aggregate output possible when using x_{it} to produce a scalar multiple of q_{it} ; $\bar{X}_{it} \equiv X_{it} D_1(x_{it}, q_{it}, t)^{-1}$ is the minimum aggregate input possible when using a scalar multiple of x_{it} to produce q_{it} ; \tilde{Q}_{it} and \tilde{X}_{it} are the (output-mix and input-mix preserving) aggregate output and input quantities at the point of mix-invariant optimal scale (MIOS), which refers to a point where a ray through the origin is tangent to the mix-restricted production frontier; \hat{Q}_{it} and \hat{X}_{it} are the aggregate output and input obtained when TFP is maximised subject to the constraint that the output and input vectors are scalar multiples of q_{it} and x_{it} , respectively. (O'Donnell, 2012b).

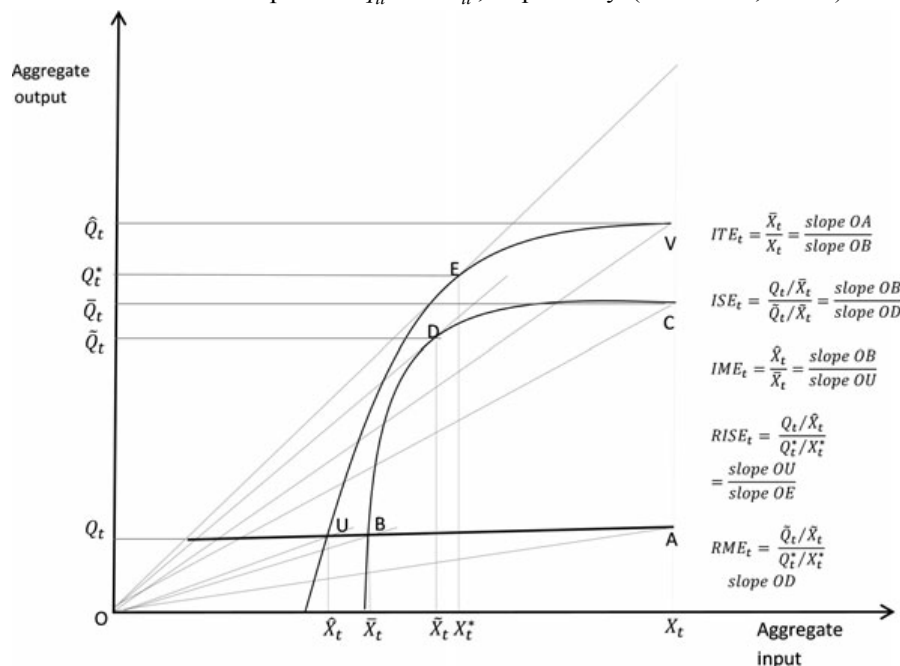


Figure 1 Technical, Scale and Mix Efficiency of a Multi-input Multi-output Firm

Equation (6) presents the most common measure of the input-oriented technical efficiency, that is, the minimum aggregate input possible to produce a given level of aggregate output (slope OA/slope OB). The scale efficiency in equation (7) is the commonly used measure, which shows efficiency derived due to economies or diseconomies of scale (i.e. by varying operation size) and is expressed here as the ratio of TFP at a technically efficient point to TFP at an associated point of MIOS (slope OB/slope OD). Mix efficiency in equation (8) is a measure of the potential change in productivity when restrictions on input and output mix are relaxed. Mix efficiency depends on the economies or diseconomies of scope in input use. The pure mix efficiency is closely related to the familiar concept of cost-allocative efficiency. This is the ratio of TFP at a technically efficiency point on the mix-restricted frontier to TFP at a point on the unrestricted frontier (slope OB/slope OU). Residual scale efficiency in equation (9) is the ratio of TFP at a technically efficient and mix-efficient point to TFP at a point of

maximum productivity, which is a scale effect (slope OU/slope OE). However, the term residual is used here to reflect the fact that although all points on the unrestricted frontier are mix efficient, each has different input and output mixes. Finally, the residual mix efficiency is the ratio of TFP at a point of MIOS to TFP at a point of maximum productivity. This involves movement from an optimal point on the mix-restricted frontier to the optimal point on the unrestricted frontier, which is a mix effect (slope OD/slope OE). The term residual is used because such movement also involves a possible change in scale (for full details, see O'Donnell, 2012b).

2.3 The components of TFP change

The TFP indices expressed in terms of aggregate quantities as in equation (2) are multiplicatively complete. O'Donnell (2011b) presents the decomposition of TFP changes in the aggregate quantity space as follows:

$$TFPE_{it} = \frac{TFP_{it}}{TFP_t^*} = ITE_{it} \times ISE_{it} \times RME_{it} \quad (11)$$

$$TFPE_{hs,it} = \left(\frac{TFP_{it}^*}{TFP_s^*} \right) \left(\frac{ITE_{it}}{ITE_{hs}} \right) \left(\frac{ISE_{it}}{ISE_{hs}} \right) \left(\frac{RME_{it}}{RME_{hs}} \right) \quad (12)$$

3 Data

This paper covers a 14-year period (1999-2012) in 29 regions of china. Considering the availability and representation of data, this paper does not include Tibet, Hainan, Hong Kong, Macao and Taiwan. Many existing empirical studies have indicated that the difference between data sources and processing methods is one of the important reasons for the difference of the results. In the light of the majority of literature, this paper takes the number of employees every year as a labor input (in Ten thousand). Fixed assets-net value also is a input which represents capital investment level. For price index of investment in fixed assets, since there are no complete data for provincial price index of investment in fixed assets, we use national price index of investment in fixed assets in 1999-2012. We adjust initial value of fixed assets to the the year 1999 which is the base period. We choose gross industrial output value (in million) as a output since this measure is preferable to value a regional's economies of industrial.

All initial data used in the paper are taken from the China Industry Economy Statistical Yearbook (1999-2012), Chinese Statistical Yearbook (1999-2012) and web site of China's national bureau of statistics.

4 Empirical Results

The results shown in Table 1 reveals that average growth rate of TFP level is estimated at 10.39%, technical efficiency level at 1.11%, scale efficiency at 0.54%, residual-scale-efficiency at 0.75%, residual- mix efficiency level at 0.06%, and technology progress is 10.38%. The implication is that China is doing well in terms of technology progress and pure efficiency but not on mix efficiency or scale efficiency, that is, the ability to derive economies of scope by changing optimal input and output mixes. According to the system clustering (table 2), TFP of Chinese industry can be divided into three stages: a sustained and stable growth in 1999-2003. We believe that the new industrialization strategy choice of old industrial base in the northeast of plays an role more or less. The growth rate of TFP reached to 16.6% in 2003. From 2004 to 2008, TFP was fluctuated in growth and got the maximum value 19.6% in 2007. However, mix efficiency declined at an annual rate of 6.2%. The implication is that China managed to maintain technical efficiency and scale efficiency in this period, but could not sustain mix efficiency change. In other words, managers are unable to derive economies of scope by changing input or output mixes optimally in their production process. The inability to decompose the components of TFP changes into such finer measures of efficiency led the previous studies to incorrectly blame a decline in technical efficiency (Shen Neng, 2007) as the main cause of poor TFP growth in China¹³. The third stage is 2009-2012. China is not immune from the global crisis the economy has already slowed, TFP was fallen by about 1.9%. The decline of TFP in the third stage is mainly due to the decline in technical efficiency and scale efficiency.

Table 1 TFP Change and Components(year-on-year,DPIN 3.0s)

	dTFP	dTFPE	dOTE	dOSE	dROSE	dRME	tech
2000	1.090332049	1.090411327	1.005029217	1.03553433	1.088346833	1.048365669	1
2001	1.097082478	1.097013717	1.02074425	0.997324556	1.074898907	1.075137831	1
2002	1.131893749	1.023382867	1.013300651	0.997305799	1.011021687	1.012814478	1.106493506
2003	1.166359547	0.938166225	0.986432764	0.99431838	0.953915883	0.959928329	1.243192488
2004	1.477800237	1.172228818	1.092874839	1.039644388	1.063319819	1.028748739	1.260574018
2005	0.891519668	0.891495324	0.915739766	1.024283586	0.982813122	0.954388511	1
2006	1.103551652	1.072293057	1.040967884	1.006469771	1.025091527	1.018228088	1.029059317
2007	1.195755697	0.659352544	1.06495912	0.956281097	0.608846555	0.642175276	1.813682678
2008	0.995202331	0.995279209	1.002554556	0.992419639	1.011712835	1.019989291	1
2009	1.029381353	1.029295633	1.019706704	1.03509544	0.999880517	0.96183219	1
2010	1.099873462	1.099868338	1.037171921	1.012736287	1.058918239	1.044130678	1
2011	1.153712951	1.153787039	1.026668318	1.006399398	1.121329469	1.112307009	1
2012	1.022472834	1.022466729	0.929575062	0.977419881	1.105362402	1.130158409	1
Average	1.103924143	1.017502916	1.011123218	1.005373754	1.0075327	1.000586036	1.103785858

Table 2 System Clustering of Chinese Industry(SPSS 19.0)

Two categories	1999-2003	2004-2012		
Three categories	1999-2003	2004-2008	2009-2012	
Four categories	1999-2003	2004-2006	2007-2008	2009-2012

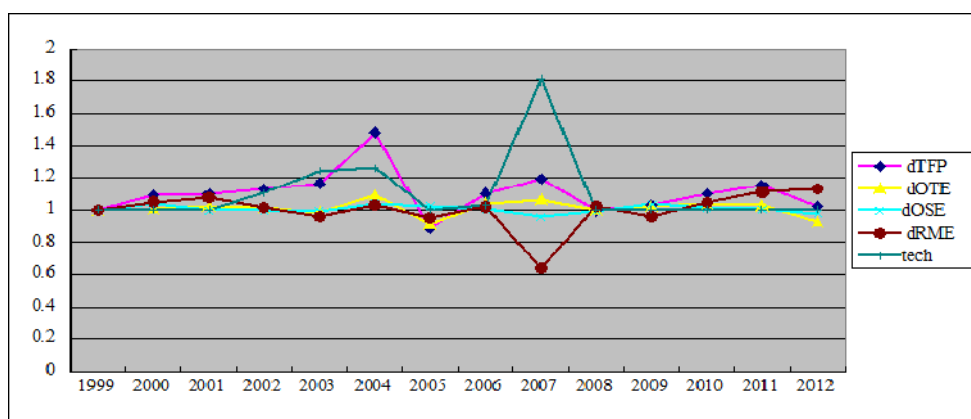


Figure 2 Trend of TFP Change and Its Components

DPIN3. 0 can be downloaded in <http://www.uq.edu.au/dpin/cepa/economics.php>

The main driving force of the growth of Chinese industrial TFP is the advances in technology from the year 2002 (Figure 2). As the productivity changes have been decomposed into finer measures than conventionally reported in the literature, it is possible to correctly isolate the component (i.e. mix-efficiency change) that is actually falling. China joined the world trade organization (WTO) in Dec 10, 2002. On one hand, the technological spillover effect of FDI has promoted the technical level of Chinese industrial sector. On the other hand, the development of high-tech industry in China has played a positive role in the transformation of traditional industries. The status of the information technology industry is becoming increasingly important, thus accelerating the improvement of the overall technological progress of Chinese industry. The average level of TFP of Chinese industrial is 11.19 and its contribution is 42.44 (table 3).

Table 3 TFP Growth and Contribution(%)

	TFP growth	Industrial growth	Contribution
2000	9.033204917	14.32032335	63.07961557
2001	9.708247804	20.9992389	46.231427
2002	13.18937488	40.17220294	32.83209264
2003	16.63595469	28.43089075	58.51365981
2004	47.7800237	41.78693344	14.3420198
2005	-10.8480332	24.73577498	-43.85564315
2006	10.35516524	25.82051868	40.10440443
2007	19.57556969	27.98207809	69.95752649
2008	-0.479766932	25.20077083	-1.903778798
2009	2.938135331	8.087473293	36.32945946
2010	9.987346231	27.40762175	36.44003235
2011	15.37129506	20.85316672	73.71204221
2012	2.247283419	8.650022465	25.98008766
Average	11.19183083	24.18823201	42.4433035

In order to compare the difference of industrial TFP in different regions, on the basis of the existing analysis results, we further divide China into four major regions: the east, the west, the northeast and central. We estimates the TFP changes of Chinese provinces according to FP index method, and then get the total average. There are some differences in the level of TFP in the four regions. Table 4 shows that in promoting industrial growth of TFP, the four regions is consistent with the country: mainly caused by technical progress. Overall, Chinese industrial productivity is low. TFP in the eastern region at a level of 0.27, is significantly higher than that in other regions. On the whole, the level of TFP in decreasing order is the east, northeast, central and the west. Compared with other regions, the eastern has no significant difference in scale efficiency, but its technical efficiency is much higher than others. This shows that the eastern has obvious technical advantages. The STDEVA of the east is 0.06, this meas the East is more imbalance in development compared with other regions. Although this paper analyzes the industry in this sector, it still reflects the regional gap of economic development since 1999. The root cause of this difference lies in the difference of the TFP (mainly caused by technological progress and technical efficiency). Therefore, improving the TFP will be the key to promote the growth of Chinese industrial (Especially the improvement of technical efficiency). However, as the differences in the level of economic development, industrial structure and other aspects of the industry, relevant policies should be different in the formulation .

Table 4 Average TFP and Decomposition in Various Regions

	Average TFP	OTE	OSE	STDEVA	2012 average
Northeast	0.209447619	0.655038095	0.96562619	0.034616124	0.363233333
East	0.271010582	0.889698209	0.945691718	0.056229596	0.425633333
Central	0.203079762	0.632397619	0.950164286	0.030653967	0.255663636
West	0.166062987	0.665195455	0.866947403	0.031738384	0.368866667

5 Conclusion

Chinese industrial TFP has a fluctuated growth over the past 14 years and technology progress is the driving force. However, the negative effect of the technical efficiency can not be ignored, which shows that Chinese industrial growth have relied heavily on technological progress. There are significant differences in the growth rate of industrial TFP among the northeast, the east, the central and the west. The development of the eastern region is unbalanced and it has obvious technical advantages compared with other parts of China.

The above conclusions are important for the Chinese government to make regional development strategies and relevant policies. It is obvious that the Chinese government should consider provincial characteristics while making regional development strategies. We give the following suggestions. First, to narrow the gap of regional economic growth, China needs to pay attention to the improvement of technical efficiency and scale efficiency. Various policies to promote technology transfer to the central and western regions will improve the efficiency of the technological progress. At the same time, China can't ignore the environmental problems and should strive to promote all-round, coordinated, and sustainable economic and social development. For developed regions, they should focus more on raising technological efficiency so as to ensure long-term sustainability for their industry economic growth. Second, developing enterprises' ability of independent innovation and cultivating strategic emerging industries will positively contribute to technical change and technical efficiency. Finally, increased investment in extension will enable some managers to address their failing to derive economies of scope by applying optimal input and output mixes from their production process. China needs enterprise-reform measures aimed at increasing average enterprise size by reorganization and merger, which will significantly influence TFP growth as well as various efficiency measures as it is the most dominant determinant of TFP growth. Especially in some competitive industries, encouraging and guiding the potential expansion of enterprises through mergers and acquisitions and other ways can quickly expand industry scale. To promote concentration, the Chinese government should create a good financing environment directly and indirectly, the conditions for the accumulation of development, and give more support through tax and industrial policies.

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Mode Section of Purchasing New Luxury in China

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Abstract: Compared with expensive, prohibitive and old traditional luxury, mass production, mass consumption and ordinary commodity, combined with domestic and international authoritative “new luxury” literature, further explores the “new luxury” differs from traditional luxury, The innovation of this study is: On the basis of existing studies on the channel of new luxury goods, more consumers choose to purchase common approach advantages and disadvantages, analyze the main factors affecting consumer channel choice.

Keywords: New luxury; Purchase approach; Factor

1 Introduction

“new luxury” is a kind of “supplementary type” product with superior quality, strong functionality and acceptable price, which are sought after by consumers in recent years. China is becoming the world’s most important and fast-growing “new luxury” consumer market, the industry inside and outside has paid increasingly close attention to the “new luxury”.

From the perspective of the audience, this study combined domestic and international authoritative “new luxury” literature, further explored the difference between “new luxury” and traditional luxury, product characteristics and classification. the innovation of this research is: base on basic researches about new luxury channel, compare advantages and disadvantages of consumers purchase, analyze the main factors affecting consumer channel choice.

2 Characteristics of the New Luxury

The products in people’s lives and service of certain products are defined as “new luxury”, compared to similar products, it has better quality, better design, better taste, and in stark contrast to ordinary products so that consumers yearn it, though expensive, it does not like prohibitive veteran luxuries. Though widely cited, This definition is not good enough to distinguish the distinction between “new luxury” and “old luxury” in the traditional sense and “general merchandiset” hat is non-luxury. With respect to the top consumer products and old luxury for showing off, new luxury is a new class of goods with great quality, high prices, mass production, superior technology. In new concept of luxury goods, “luxury” indicates a high degree of shape recognition, brand premium; “new” represents new attention and moderate ration. New luxury emphasize the connotation and technology, industrial design and technology details which could reveal the brand’s high quality and high taste. Product demand based on the emotional needs, keeping up with fashion and trends, expensive, between the ordinary and the old luxury consumer goods, providing consumers sophisticated integration of super value and premium. Thus, based on the literature and theoretical analysis, this article intends to define “new luxury” as “high identification, good quality with moderate brand of premium.”

Table 1 Compare of New Luxury and Traditional Luxury

category	new luxury	traditional luxury
influence	emotional involvement	little
pay ability	tolerant	unique
price	premium	more expensive
quality	above medium	top material manual
social base	value driven	pyramid top

The biggest difference between the new luxury and traditional luxury is that emotional factors inherent in the new luxury can stimulate consumer emotional appeal. The new luxury is always based on the emotional needs, it might just meetconsumers’ emotional purchase needs at a certain time, or a certain brand faithand weak planning.

3 New Luxury Purchase Pattern Analysis

Traditional luxury is of high tariffs, abroad consumption is the trend. The current Chinese luxury consumption is increasingly going abroad, the high cost of tariffs make consumers more willing to go abroad to spend. According to the “2013 luxury consumption,” the survey data show that China’s consumers who buy luxury goods abroad accounted for 57%; through purchasing channels accounted for 23%; the domestic luxury store is 20%. It is visible that abroad consumption of luxury goods has become a trend of high consumers. In the new luxury goods sector, since consumers generally have a certain sensitivity to price, in the choice of a variety of channels, they will show greater subjectivity, assess the advantages and disadvantages of each channel, as well as rely more on the network to collect information.

Table 2 Advantages and Disadvantages

	Purchase channel	advantages	disadvantages
offline channel	exclusive store	Authentic guarantee ,buy and get	high price
	Outlet	authentic guarantee	out of season commodity
	abroad purchase	low price	overall high purchase price
online channel	Purchase professional	convenience, affordable	risky
	aboard online shopping	authentic guarantee	more time and effort
	domestic shopping website	uncertain preferential price	convenience, need to wait

Overall, the off-line purchase has better quality and less risk, the disadvantage is the higher price. The on-line purchase got relatively favorable price, but the risks are great, it takes more time and effort, two approaches both have advantages and disadvantages, how to choose depends on consumers’ sensitivity to price and consumers’ willingness to spend more time and effort, and risk tolerance.

4 Purchase Influencing Factors

According to the analysis of literature and the investigation of new luxury industry, factors can be divided into three types: product type, customer type, purchase risk.

4.1 Product type

Product type determines the impact on channel information of purchase decision. The products are divided into search products and experience products. “Search type” product is one that consumers have already understood main characteristics of goods before purchase. “Experience” products means that consumers need to experience the main characteristics of goods in order to understand (such as: perfumes, cosmetics, etc.). The “Search products” is defined as the properties of which have been known by consumer before the purchase, it is a new kind of luxury that does not need the ground feel, and it is easier to obtain information via the Internet so that consumers can make purchase decisions. And the “experience products” is defined as that only through direct experience could consumer understand the main properties of the product, it is not easy to understand product attributes from the information search process.

Since the price of new luxury goods is more expensive than ordinary commodity, so consumers have become more rational in consumption, they will do some advance information gathering. Consumers’ price sensitivity of the product determines the choice of channels, those who are not sensitive to price will choose to buy directly in the store, price sensitive and English familiar young consumer will pay more time and energy to compare price difference of different channels, by means of global shopping platform to complete a time-consuming and complicated purchase behavior. For more price sensitive and unwilling to spend too much time customers, they usually choose to pay more money to get from purchasing professional, miss some middle process, which can buy the Heart of merchandise as well.

4.2 Consumer type

According to the above four categories of severe new luxury groups, we find that some inherent law, which is not difficult to find that ways influencing consumer purchase choice are price sensitivity, brand quality requirements, information channel, time and energy, and so on. Non price sensitive consumers can select quick and direct channels, and the price-sensitive choose to pay a certain portion of time and energy in order to pay less money and get equal value of goods or services. High quality requirements consumers choose low risk purchase, price sensitive, brand requirements, quality requirements consumers choose lower risk channels.

4.3 Perceived risk factors

Risk is an important factor in consumer choice of channels. The study found that many consumers do online information search, and the final purchase is completed in the traditional physical store, the emergence of this phenomenon is because of perceived risk of consumer shopping behavior.

Most of the new luxury consumer have high requirements of brand and quality, so it is particularly important to weigh the possible risks facing channels and channel choice. Consumers cannot foresee perceived risk consequences of their actions, resulting in unhappiness, consumers will held certain prior purchase target, when consumers cannot determine which best matches the risks arising from the target; or after the purchase behavior, they cannot achieve the desired objectives and lead to bad consequences.

5 Conclusion

Most of the new luxury goods can meet the emotional needs of consumers, consumers' emotional needs are high, New Luxury companies must understand the emotional needs of consumers, and tap the potential demand of consumers, find the right product positioning.

In dual-channel context, the new luxury should establish official brand sales network, provide consumers with genuine commitment and quality assurance and reduce the risk of online shopping channels, improve after-- service mechanism, combine the online store, such as the online purchase product got quality or repairing problems, customer can go directly to the nearest store.

Due to the limitations of the physical store, there is still a majority of consumers who cannot go to the store to buy a new luxury, in order to meet the needs of this population and to retain the customers who do online shopping or buy through purchasing professional, the new luxury brand should pay more attention to two channel selection modes under consumer trends, to develop their own online shopping channel, through its own propaganda to strengthen regulatory and quality assurance of network sales, at the same time, launch promotion and publicity activities in the occasional time.

In the future, consumers will tend to choose convenient, efficient, low risk shopping channels, enterprises should gradually establish a network platform which can match personnel development.

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Research on the Model of the Industrial Cluster Synergy Development

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Abstract: Industrial cluster synergy development is one kind of important economic phenomenon around the world. This paper investigated the problems about the synergy development of industrial cluster in Wuhan City Circle (WCC). The guideline about making government planning was proposed. The developmental model of key industrial elaborate cultivation and basic platform support was built according to the industrial cluster theory, regional synergy development theory and so on. The model of the industrial cluster synergy development in WCC was obtained in this paper. Meanwhile, the research results can also give a model and reference to industrial cluster development in other areas.

Key words: Industrial cluster; Synergy innovation; Wuhan city circle; Development model

1 Theoretical Review about Industrial Cluster Synergy Development of Cross-Regional City Circle

1.1 The review of industrial cluster theory

The concept of “industrial cluster” was first proposed by Michael E. Porter, who was a professor in Harvard University and an expert on management, with the aim of defining the phenomenon of area concentrated production^[1]. In subsequent work by Pike(1992)、Wright(1996)、Rofins(1997), similar definitions of industrial cluster were proposed. The main part of industrial cluster was enterprise or organization. The characteristic of industrial cluster was all enterprises with the similar geographical position and sharing certain partnership or resource. And the aim of industrial cluster was to improve the market competitiveness. Domestic research started relatively late, the definitions of industrial cluster were proposed by Zeng Zhonglu (1997)、Wei Jiang (1999)、Xu Kangning (2001)、Xu Changle(2009). All those definitions were similar. The definition of industrial cluster which was proposed by Liu Youjin、Huang Lucheng(2001) was different from the traditional concept of cluster industry. They thought industrial cluster was not generalized industry but some specific industries including computer industry, facsimile industry, medical device industry and so on^[2]. According to the definition proposed by different scholars, this text believes integrated industrial cluster must have several typical characteristics including: ① Industrial cluster is an aggregation of related business organization, non-business organization and support organization in a certain field. ② All enterprises are area concentrated in industrial cluster and the relationships between each enterprise are cooperative, complementary and competitive. ③ The aim of industrial cluster is building integrated industry chain and value chain, improving the core competence and cultivating the competitive advantage of the whole industry in specific region. ④ Industrial cluster is one kind of intermediate organization, which is more stable and flexible than that of market.

1.2 The formation mechanism of industrial cluster synergy development of city circle

The theoretical basis of synergy development is synergetic theory. The ultimate aim of synergy development is synergy innovation. The synergy development is a collaborative process which can't be achieved by only one element. All the innovative elements, which come from enterprises, colleges or public research institutions, cooperates with each other very well according to complicated non-linear interactions. Industrial cluster synergy development of city circle is the process of innovative ecosystem, which consists of industry chain, technology chain and innovation chain of the industrial cluster inside the city circle.

The aim of industrial cluster synergy is to improve the efficiency of cluster system, cluster subsystem and the environment of cluster system and enhance the advantage of cluster system. All enterprises inside the cluster system combine together via resource synergy, system synergy, competition synergy and aggregation synergy modes. Because of information and resources sharing between different enterprises, all enterprises can not only increase the advantage of scale effect, but also improve the efficiency and flexibility of production. Meanwhile, the knowledge collaboration becomes more convenient and the knowledge renewal becomes faster, which leads to spillover effect of knowledge. The advantage of all enterprises in industrial cluster will appear gradually in terms of production cost,

production efficiency and innovation speed, which is due to the result of synergistic effect.

The formation of city circle industrial cluster needs to go through three main stages including aggregation, integration and cluster. The enterprise expands regionally within the city circle in the early stage of industrial cluster development. A lot of small and middle enterprises with specialization aggregate in the city circle but the cooperative relationships between different enterprises are unstable. This is the initial form of industrial cluster. With the development of economic integration within city circle, the number of aggregated small and middle enterprises increases continuously. The frequent cooperation about technology and production chains is carried out between different enterprises. And some small and middle enterprises start to look for the support from other enterprises, colleges and scientific research institutions. This is the integration stage of city circle industrial cluster. With the development of small and middle enterprises, a reasonable, stable and benign collaboration network of city circle has been built. The relationship between the enterprises inside and outside of city circle is stable. The number of value creation activity increases and the industry chain, technology chain and knowledge chain expand constantly. Till then, the city circle industrial cluster has been built and the synergistic effect starts to take effect on knowledge, technology, production and value.

2 The Existing Problems During the Synergy Development of Wuhan City Circle Industrial Cluster

In 2004, the government of Hubei province of China launched an official document named “the opinions about several issues involving the construction of Wuhan economic circle” and clearly put forward the concept of constructing Wuhan city circle. In 2005, No. 10 state document proposed that the Wuhan city circle was the first city circle among the four city circle in Central China. Wuhan City Circle (WCC), also named “1 + 8 City Circle”, includes: Wuhan city, Ezhou city, Huanggang city, Xiaogan city, Xianning city, Xiantao city, Tianmen city and Qianjiang city. Wuhan city is in the geographic center of WCC. The area of WCC is less than 1/3 of Hubei provincial area, the population of WCC is 1/2 of Hubei provincial population and the GDP of WCC is 60% of Hubei provincial GDP. Wuhan city is the center of WCC and Huangshi city is the sub-center of WCC. On December 7 2007, WCC was approved as the comprehensive experimental zone for resource efficient and environmental friendly reforms by the State Council. During 10 years’ development, WCC has experienced every stage of city circle development. The economy of WCC has grown fast and comprehensive strength of WCC has increased obviously. However, compared with other city circle in China, there are still certain gaps between WCC and those city circles in terms of urban agglomeration size, center city size, urban system, intercity linkage, industry development, city attraction and sustainable development.

2.1 Lack of macro-cooperation between government and enterprise in the development of WCC industrial cluster

Nowadays, there are six main industrial clusters in WCC including mechanical manufacturing, new energy, high-tech industry, agricultural products processing, light textile and environmental protection. Except the industrial clusters of light textile and agricultural products processing, the core enterprises of other four industrial clusters are located in Wuhan city. The division of labor in city circle is not clear and united coordination as well as coupled motion is absent, which undermines the radiation effect of WCC industrial cluster. Meanwhile, the cooperation and communication between other 8 cities except Wuhan are absent and the division and cooperation system between different cities has not been built. The governments of different cities in WCC should play their own roles to make the cooperation more efficient by building a good environment of economy. However, until now, the effective cooperation between the governments and enterprises is missing and the development direction of WCC industrial cluster is not clear. Meanwhile, the efficient talent flow is impeded by district barrier, which is supposed to appear in industrial cluster development. The talent localization phenomenon is obvious in WCC and the high-level talent flow is not smooth. The majority of the talents comes from their own area, which is due to the regional economic difference in WCC or different talent policy in WCC. All these mentioned factors can affect the development of industrial cluster. The problem of talent flow can’t be solved only by enterprise themselves.

2.2 Lack of effective value-cooperation in WCC industrial cluster

Nowadays, there are some problems appearing in WCC industrial cluster such as small, loose and weak. The scale and the structural hierarchy of the whole industry are small and low. Only opto-electronic information industrial cluster is competitive and influential. The other industrial clusters are in the initial stage of aggregation. The structural hierarchy of the whole industry in WCC is low and

the productions of the most of enterprises are in the low-end of the value chain, which affects the vertical collaboration of all enterprises in different industrial clusters. The only way to gain competitive advantage is decreasing the cost of production. For example, the core enterprises of biological medicine industrial cluster gather in Wuhan city. As the risk of research on application is relative high, the research and development inputs of all enterprises are cautious. Therefore, the research and development parts with high additional value are deficient in industry chain and most of products need to be import from other developed area in China such as Jiangshu and Zhejiang provinces. The aim of industrial cluster is to build value chain but WCC is lack of the value of synergy. Based on the current situation, the industrial cluster only appears in the economic development zone and high-tech development zone and the phenomenon of “only enterprise but no industry” still exists in some industrial fields. Most of the enterprises prefer doing their business by themselves to working together. The small and middle enterprises which offer specific services to the big enterprises are not professional and inadequate, which leads to “big and complete” phenomenon appearing or not closely linkage between sales department and production department in those big enterprises.

2.3 Lack of mutual-cooperation between enterprises and institutes of WCC industrial cluster

Lack of mutual-cooperation is reflected in two aspects. First, the cooperation between enterprises themselves is inadequate. This is because there is no platform for enterprises in WCC to communicate and cooperate. Even in the same city, the cooperation between enterprises is not enough. Different enterprise can not share their knowledge and technology as well as share some common utility. Second, the cooperation between enterprises, colleges, research institutions, financial institutions and public service agencies is inadequate. The researches and developments of colleges and institutions are not market-oriented, that is why the research results can not realize industrialization. The technical problems of enterprises can not be solved by their own research department. Meanwhile, a difficulty in financing always hinders the development of small and middle enterprises that need capital. However, all financial institutions prefer to loan their money to big companies. The structural imbalances exist in all kinds of supply and demand relations. The unfavorable cooperation between enterprises and institutions hinders the competitiveness of the whole industrial cluster.

3 The Model of the Industrial Cluster Synergy Development in WCC

3.1 Making a planning in order to optimize the direction of industrial cluster synergy development

In terms of industrial cluster synergy development, the government needs to play a role on macro-management besides the effort of enterprises and relevant institutions. Therefore, the government of Hubei province of China must make a programmatic planning on guideline of WCC industrial cluster development as soon as possible. In this guideline, the advantages and resources of 1+8 cities in WCC need to be optimized by overall coordination firstly. The advantage industries in different cities need to be exerted efficiently and combine organically. The better-targeted industrial cluster, the development of collaborative innovation and the stable value chain are built in WCC. Secondly, the University-Industry Cooperation should be carried out between different cities and industries by government guidance according to the innovation system of industrial cluster. WCC has many universities and scientific research institutes. However, the phenomenon of talent drain always happens in WCC, which is due to industrial cluster differentiation and the broken talent chain. In order to overcome this weak point, WCC should build basic research and development platform to solve the common problems in industry and promote regional innovation by developing talent cluster and strengthening collaboration between industry and colleges. At last, developing the core enterprises of different industries should be encouraged in government planning. The innovation model of synergy development named “core enterprises + small and middle enterprises + public research institutions” should be built according to the integrated and collaboration production system, which is led by the core enterprises in certain industry.

3.2 Elaborate cultivation of six leading industrial clusters with the aim of three-dimensional development in WCC

Based on the identified six industrial clusters in Hubei province, all the limit resource in WCC should be gathered on these six industrial clusters. First, four industrial clusters including mechanical manufacturing, new energy, high-tech industry and environmental protection are the priority projects which should be developed simultaneously. This is because there are some advantages in these four industry fields in Hubei province and these four industry fields are the state key industries and strategic emerging industries. It is a good opportunity to develop these four industries. In order to build the fourth

pole of economic growth in China, WCC needs not only to exert the effect of the existing high-tech industry system, but also to maintain momentum of development via continual system and technology innovation. A cooperative and innovative system should be built and the communication between different enterprises should be encouraged in these industrial clusters. The core competitiveness of enterprises will be improved by exerting high-tech and the regional industrial integration system should be built by extending industry chain and forming characteristic industrial cluster. Second, agricultural products processing and light textile industrial clusters should be developed as the secondary key industrial cluster. In terms of layout of agricultural products processing and light textile industrial clusters, the traditional conception of taking Wuhan as a core needs to be broken up. By comprehensive considering the requirement of industry characteristics and economic benefits on cooperation factors such as human resource, public research and etc., other cities such as Xiaogan city and Huangshi city can be chosen as a priority selection to fully develop the advantage of industrial infrastructures and form industrial clusters. In summary: Wuhan East Lake High-Tech Development Zone should be chosen as the core region to develop mechanical manufacturing, new energy, high-tech industry and environmental protection industrial clusters. Meanwhile, Huangshi city, ezhou city, huanggang city and xianning city should form industrial agglomeration zone of these four industrial clusters and develop coordinately. The other core city in WCC such as Xiaogan city should be chosen as the core region to develop agricultural products processing industrial cluster. Meanwhile, the adjacent areas such as Wuhan Wujiashan Cross-strait Scientific Industrial Park, Qianjiang city, Xiantao city and etc. should form industrial agglomeration zone of this industrial cluster. Huangshi city should be chosen as the core region to develop the light textile industrial cluster. Meanwhile, Xianning city, Tianmen city and etc. should form industrial agglomeration zone of this industrial cluster. The comprehensive development of different industrial clusters will be realized from aggregation “point” to integration “chain” and then to cluster “face”.

3.3 Developing three main platforms and leading efficient development of industrial cluster in WCC

In order to provide high quality service to industrial cluster in WCC, three main platforms need to be developed. The first one is to develop “Knowledge sharing platform”. This platform is dominated by colleges and scientific research institutes. The boundaries of different knowledge are broken and the transmission of knowledge becomes accurate and easy via moderate exploration of compensation service. More enterprises in different industrial clusters can share industry frontier knowledge, solve the industry common problems economically and obtain optimal benefit with the help of synergy innovation of different industrial clusters. The second one is to develop “Technology sharing platform”. This platform is dominated by core enterprises. The research public platform is built in different industrial clusters via combining powerful companies. The paid use of research results is carried out according to the contributive proportion of enterprises. This platform can lift efficiency of research and development in the whole industry, shorten research period, increase transformation efficiency of technology, avoid wasting on the same project and improve competitiveness of the whole industrial cluster. The third one is to develop cooperation platform with the aim of vertical cooperation by organizing “government, college and enterprise” together. Based on the efficient cooperation platform of “government, college and enterprise”, the periodic information collection system for supply and demand of talent and information exchange and broadcast system of industry frontier are built. Meanwhile, the information exchange platform is improved and the information publishing normality mechanism of talent’s supply and demand is formed. In a word, in order to improve the industrial cluster synergy development in WCC, on the one side, the cooperation between colleges, research institutes and enterprises needs to be carried out and the function of multi-body cooperation needs to be realized between colleges, research institutes and enterprises. On the other side, industry association needs to be built with the aim of guiding the cooperation between different industrial clusters in different cities.

4 Conclusion

“Wuhan City Circle” is not only the economic engine of “central rise” strategy, but also the strategic node connecting the economic circle of Pearl river delta, Yangtze river delta, around Bohai sea and western region of China. WCC should take its historical mission to perfect market economy system in China. The core task of WCC is to fully develop industrial cluster in this circle. The research results of this paper can provide reference for improving industrial cluster development of city circle and give certain reference function for developing industrial cluster in central and western regions of China.

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An Analysis of Product Development Investments

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Abstract: As product complexity and market competition have dramatically increased, firms find it important to gain competitive advantages in terms of their product development processes. It becomes especially important to make the optimal investments of product development, in order to select appropriate product development strategies. In this paper, we propose a means of optimising the product development plan using product development net revenues obtained from R&D investments. The optimization mechanism of this product development model is provided. Finally, our model is used in a case, to show its application in product development decision-making.

Key words: Product development; Optimisation; Decision-making; Model

1 Introduction

Product development is a broad field of endeavour that deals with the design, creation and marketing of new products. Sometimes it is referred to as new product development (NPD), a discipline that focuses on developing systematic methods for guiding all the processes involved in getting a new product to market. There are two parallel paths involved in the NPD process: one involves idea generation, product design and detail engineering; the other involves market research and marketing analysis. Companies typically see new product development as the first stage in generating and commercialising new products within the overall strategic process of product life cycle management that is used to maintain or grow their market share^[1,2,3].

From the early 1980s, the research emphasis is on the role of new product development (NPD) as a potential source of competitive advantage in the technology and innovation management literature. Most measures of product development performance are based on end-result outcomes that characterize overall project performance such as customer satisfaction, time-to-market, development cost, or product quality^[4,5]. The measures focusing on financial and sales are profit, financial break-even point, return on investment, and sales. Internal operational measures relate to cost and the proficiency of NPD process. Other measures include innovativeness, quality, technological success, creation of new market, market share, time to market, and customer satisfaction. The performance measures are utilized against how well the product meets the company's planned objectives. While the majority of studies used multi-items to measure product success or failure, other studies used uni-item measures^[6,7,8]. Griffin and Page identified five categories of 16 core-measures: customer acceptance (unit sales, market sales, revenue, revenue growth, customer acceptance, customer satisfaction), financial performance (margin, profitability, break-even time, IRR/ROI), product-level (cost, launched on time, product performance level, quality, speed to market), firm-level (percent of sales by new products), and program-level measures^[9,10,11]. While a considerable body of research has focused on the product development problems in the convenient optimisation model and its application in R&D investment arrangement are still necessary to be researched^[12,13,14].

Because of the importance of product development investments, we will develop mathematic models to optimise the product development investment arrangement. The optimisation goal is net revenue. Finally, our model is used in a case to show its application in product development investment decision-making.

2 Quantitative Analysis of Product Development Investments

We assume a competitive environment with a constant increase rate of competitive product performance. We assume the product performance is decided by one or more competitors; in particular, we assume that product performance is additive over the new product's developmental stages. The additive assumption is reasonable if the new product can be structured into modules and if teams are well coordinated. We assume the customer utility function for product performance is a log function, and we also assume the product development time-horizon is divided into some equal periods; in fact, the length of each period is one year. Investments in product development are made at the beginning of each period.

Some symbols are explained below:

Q_0 : Product performance in period 0.

t : A positive integer.

Q_t : Product performance in period t .

l_t : Size of the development team at stage t .

α : Labour productivity parameter, $\alpha \in (0,1)$.

k : Capital productivity parameter.

c_t : Development cost at stage t .

c_t^* : Optimal development cost at stage t .

c_t^{opt} : Optimal development cost at stage t .

w : Human wage rate.

S_t : Market share at stage t .

S_t^{opt} : Optimal market share at stage t .

Q : Competitive product performance level at period 0.

θ : Increase rate of competitive product performance level at each period.

N_t : Product demand at period t .

P : Price of product.

Z_t : Total net profit at stage t .

Z_t^{opt} : Optimal net profit at stage t .

$\beta : k / w^\alpha$.

T : the whole period under consideration.

The performance contribution per activity is analogous to a Cobb-Douglas production function^[15]. According to that function, the labour productivity parameter is between 0 and 1. The formulation assumes that the performance of each task improves only by conducting work on it. We have

$$Q_1 = Q_0 + k l_1^\alpha \tag{1}$$

$$Q_t = Q_{t-1} + k l_t^\alpha \tag{2}$$

$$c_t = w l_t \tag{3}$$

Because the customer utility function for product performance is log function, we have

$$S_t = \frac{Q_t}{Q_t + (1+\theta) Q} = \frac{Q_{t-1} + k l_t^\alpha}{Q_{t-1} + k l_t^\alpha + (1+\theta) Q} \tag{4}$$

Therefore, we can have

$$Z_t = P N_t S_t - c_t = P N_t \frac{Q_{t-1} + k l_t^\alpha}{Q_{t-1} + k l_t^\alpha + (1+\theta) Q} - w l_t \tag{5}$$

Because $\beta = k / w^\alpha$, we have

$$\frac{d Z_t}{d c_t} = \frac{P N_t \beta \alpha (1+\theta)^t Q c_t^{\alpha-1}}{(\beta c_t^\alpha + Q_{t-1} + (1+\theta)^t Q)^2} - 1 \tag{6}$$

Let $\frac{d Z_t}{d c_t} = 0$; we then have

$$\beta \sum_{m=1}^t c_m^\alpha + Q_0 + (1+\theta)^t Q = \sqrt{p N_t \beta \alpha (1+\theta)^t Q c_t^{\alpha-1/2}} \tag{7}$$

Because $0 < \alpha < 1$, we know c_t^* does exist, where $E = Q_{t-1} + (1+\theta)^t Q$. We can know

$$\begin{aligned} \frac{d^2 Z_t}{d c_t^2} &= p N_t \alpha \beta (1+\theta)^t Q \frac{(\alpha-1) c_t^{\alpha-2} (\beta c_t^\alpha + Q_{t-1} + (1+\theta)^t Q)^2}{(\beta c_t^\alpha + Q_{t-1} + (1+\theta)^t Q)^4} \\ &\quad - p N_t \alpha \beta (1+\theta)^t Q \frac{2\alpha \beta c_t^{2(\alpha-1)} (\beta c_t^\alpha + Q_{t-1} + (1+\theta)^t Q)}{(\beta c_t^\alpha + Q_{t-1} + (1+\theta)^t Q)^4} \tag{8} \\ &< 0 \end{aligned}$$

So, c_t^* is the optimal investment cost at stage t.

Three parameters in Formula (7)— α , β and Q —can be estimated using solving method and historical data.

3 An Example

As an example, U Software Ltd. has been devoting itself to bringing optimal management practices based on state-of-the-art IT technology (including communication technology) to management and business innovation activities of its clients; it has been a leading supplier of proprietary enterprise management/ERP software, service and solutions. The financial data of U Software is shown in Table 1.

Table 1 U Firm Financial Data (RMB hundred million)

t	0	1	2	3	4	5	6	7
R&D investment (c_t)	0.28	0.43	0.57	0.90	1.14	1.47	1.49	1.69
Market share (S_t)	22.7%	15.9%	16.8%	17.6%	18.4%	20.4%	21%	20.6%
Operating profit (Z_t)	0.2633	0.5011	0.6291	0.5154	0.3415	0.4707	0.5785	1.2963

From the company data, considering the economic environment, we let $\theta = 0.16$. Considering that ERP software became the main product from the period 0, we let $Q_0 = 0$. We know $P^*N_t = (Z_t + c_t)/S_t$, so the values of P^*N_t are shown in Table 2.

Table 2 Value of pN_t Each Year (RMB hundred million)

t	0	1	2	3	4	5	6	7
P^*N_t	2.393	5.856	7.138	8.042	8.052	9.513	9.85	14.5

Using the data from t=0 to 6, the required parameters are estimated; we have $\alpha = 0.209$, $\beta = 0.203$ and $Q = 1.94$. The root mean square error (RMSE) is 0.031, the sum of square error (SSE) is 0.0058 and the correlation coefficient (R) is 0.9. At t=7, we can have $c_7^{opt}=0.037$, $Z_7^{opt} = 2.75$, $S_7^{opt} = 0.192$. Compared with the actual data at t=7, we can learn that after optimisation, market share and cost decreased, but the profit improved greatly.

From Formula (7), we initially get c_1^{opt} , then c_2^{opt} to c_7^{opt} . The results are shown in Table 3.

Table 3 Optimal R&D Expenditure (RMB hundred million)

t	1	2	3	4	5	6	7
c_t^{opt}	0.055	0.053	0.04	0.038	0.032	0.034	0.046

Suppose $S_0 = 0$ when t = 0. All results of profit and market share are provided in Tables 4 and 5.

Table 4 Optimal Product Development Profit (RMB hundred million)

t	1	2	3	4	5	6	7
Z_t^{opt}	0.2202	0.5038	0.74	0.8316	1.052	1.118	1.647

Table 5 Market Share After Optimisation

t	1	2	3	4	5	6	7
S_t^{opt}	0.047	0.078	0.097	0.108	0.114	0.117	0.118

4 Conclusion

From the above results, we can know that the system product development cost decreased and market profit improved greatly, following profit optimisation. From Tables 3-5, we can conclude that if the enterprise's R&D expenditure is large at each stage of developing a new product, although it will have the advantage of a higher market share, its profit level is not always high. In order to have a good R&D investment efficiency, the enterprise should arrange its R&D expenditure properly.

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The Selection of Strategic Emerging Industries in the Face of the Third Industrial Revolution

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Abstract: The third industrial revolution is another major leap after steam technology revolution and power technology revolution during the history of human civilization. Its main indicators are the major innovation, deep integration and wide application of emerging technologies to promote the great development of productivity and fundamental changes of industrial structure and social life structure. This paper reveals the connotations of strategic emerging industries in the third industrial revolution, the deep changes of extension, the criteria of choices of strategic emerging industries, evaluation index system and evaluation model of entropy. Combined with 32 manufacturing industries and 6 service industries in Hubei province, this paper proposes the key points of strategic emerging industries in Hubei province during the third industrial revolution.

Key words: The third industrial revolution; Strategic emerging industries; Evaluation index system; Entropy method

1 Introduction

In the context of the third industrial revolution, major scientific and technological innovations will promote the great development of social productivity and lead to significant changes in industrial structure and structure of social life. In the process of developing strategic emerging industrial planning, it is vital to select suitable strategic emerging industries according to its features of regional resources and economy. Combined with the basic features of strategic emerging industries, this paper proposes the criteria of selecting strategic emerging industries in the third industrial revolution and designs the index system of selecting strategic emerging industries.

2 Industrial Development Trend During the Third Industrial Revolution

The third industrial revolution is another major leap after steam technology revolution and power technology revolution during the history of human civilization. Its main indicators are the major innovation, deep integration and wide application of emerging technologies such as digital manufacturing technology, the Internet technology, renewable energy technology, new materials technology, biotechnology, space technology and so on. They will promote the great development of productivity, fundamental changes of industrial structure and social life structure and great adjustment of international economic pattern. The third industrial revolution is historically significant for China's and regional development. In September 2013, the general secretary Xi Jinping clearly said "a new round of technological and industrial revolution is emerging, and some important issues of science and key core technologies have achieved the revolutionary breakthrough, which promotes the integration of key technologies, group development and continuous accumulation of reform energy. The emerging new round of technological and industrial revolution integrates with the accelerated economic development of China historically, which provides great chance for implementing innovative and driving strategy. Chance is fleeting. What can be seized is opportunity, and what cannot be seized is challenge. We should enhance our awareness of crisis, grasp and make good use of new round of technological and industrial revolution rather than wait or get relaxed."

To seize the historical opportunity of the third industrial revolution, we must first grasp and follow the industrial development trend of the third industrial revolution. Generally speaking, there are three major trends of industrial development during the third industrial revolution: first is low-carbon. The third industrial revolution is emerging under the double crisis of energy and environment. Green, low-carbon, renewable and sustainable industry is the core nature of the industrial development of the third industrial revolution. The sustainable industries of low energy consumption and low pollution such as new energy, energy-saving and environmentally friendly, new material, biopharmaceutical, new information technology and digital manufacturing industry are the mainstream direction and inevitable choices of the industrial development of the third industrial revolution. Second is integration. The major feature of industrial development of the third industrial revolution is integration of information and the

cross integration of various industries. The new information technology, new material, new energy, manufacturing industry, energy-saving and environmentally friendly industry, logistics, commerce, education, entertainment and finance integrate continuously with mutual penetration and support to promote continuous upgrading of industries. At the same time, new material and manufacturing industry, biopharmaceutical and energy-saving and environmentally friendly industry continuously integrate, biopharmaceutical industry and agriculture, new energy, restaurant, and energy-saving and environmentally friendly industry continuously integrate, the manufacturing industry and service industry integrate continuously, which makes the industrial boundary obscure and allows the emergence of new industries. Third is people-oriented. People-oriented value is the soul of the third industrial revolution, which will bring fundamental changes to human's way of production and life and thoughts. People focus more on healthy and quality life, which will promote the development of happiness-oriented industries, including human life and health, convenient transportation, green food, leisure and tourism, cultural and creative industries.

3 Domestic and Foreign Research Review

The domestic and foreign research of strategic emerging industries focuses on the definition, development reasons, selection, growth, development and policies of strategic emerging industries. The American economist W.W. Rostow (1959) first proposed the concept of leading sector and leading industry (Rostow, 2001). Japan and South Korea have made great achievements in promoting the overall economic development by supporting key industries. Since then, people begin to focus more on the strategic industries. A.O. Hirschman (1958) first proposed the concept of strategic industry who regards strategic industry and leading industry as the same concept. He argues leading industry presents the closest economic system in the relationship of "input – output"(Hirschman, 1991). Paul R. Krugman (2000) argues there are two criteria of recognizing strategic departments by research: first is whether there is higher capital or labor return rate; second is whether there is spillover effect, namely external economy (Paul R. Krugman,2000). There are a lot of studies of defining strategic emerging industries by domestic scholars. For example, Li Xiaohua (2010) argues that the strategic emerging industries are of great strategic significance for economic development. They are strategic, uncertain, positively external and complex (Li Xiaohua & Lv Tie, 2010). Su Dongshui (2010) defines the leading sector similar to strategic emerging industries: leading industry is industry or industrial group which plays an important strategic role in national economic system with advanced development to guide other industries to develop towards a strategic goal. Liu Hongchang (2011) combines with the domestic and foreign research results and argues that strategic emerging industries occupy an important strategic position in national economy and they are related to regional or regional economic growth and industrial security. They are the deep integration of emerging technology and industries with the features strategy, innovation, growth, relevance, orientation and risk (Liu Hongchang, 2011).

In "Decision on Accelerating Cultivating and Developing Strategic Emerging Industries of the State Council" approved in September 2010, it defines strategic emerging industries as: strategic emerging industries are based on major technological breakthrough and development needs to lead the economic and social long-term development with intensive knowledge and technology, less consumption of material resources, great growth potential and good comprehensive benefits. They are based on our national conditions and industrial basis to confirm the seven major industries to cultivate and develop: energy saving, new generation of information technology, biotechnology, high-end equipment manufacturing, new energy, new materials, new energy vehicles and other industries (The State Council, 2010).

4 Selection Criteria of Strategic Emerging Industries in the Third Industrial Revolution

Strategic emerging industries are based on major technological breakthrough and major development needs to lead the economic and social long-term development with intensive knowledge and technology, less consumption of material resources, great growth potential and good comprehensive benefits. It contains features of wholeness, relevance, intensive knowledge and technology, low consumption of material resources, great growth potential and good comprehensive benefits. Based on the previous outstanding research results and theories and combined with the basic features of strategic emerging industries, this paper proposes the selection criteria of strategic emerging industries in the third industrial revolution.

4.1 Development basis

Strategic emerging industries are a deep combination of emerging technology and emerging

industry at the early stage of development with a small scale. The regions should make breakthroughs in fields with the most basic and greatest condition and first develop industries with comparative advantages and good comprehensive benefits when developing strategic emerging industries in order to promote the rapid growth of strategic emerging industries and develop strategic pillar industries.

4.2 Industrial innovation

Strategic emerging industries are different from traditional pillar industries mostly because they are not too dependent on the traditional elements of location, funding, resources and environment. Their rapid growth and sustainable development mainly depends on innovation, including the technological innovation brought by knowledge, intelligence and technology, management innovation, concept innovation and so on.

4.3 Industrial contribution

Strategic emerging industry should lead the long-term development of economy and society. They should not only be the major supportive force of economic development but contribute to employment, people’s life, society, environment and other aspects.

4.4 Development potential

Development potential means strategic emerging industries should meet the high requirements of growth with broad and stable market prospect and development space and rapid growth in the future period.

4.5 Industrial relevance

Industrial relevance is key to evaluating the influence of strategic emerging industries. Only the industries with strong relevance, spillover effect and diffusion effect can promote the development of other industries to assume the great responsibility of promoting the optimization and adjustment of industrial structure.

When evaluating whether one industry or several industries should be developed as the strategic emerging industries or not, we should not just focus whether they meet one criterion or not but comprehensively consider the four criteria. Only the industries with high comprehensive ability can be given priority to development.

5 Selection Index and Model of Strategic Emerging Industries

5.1 Selection Index of Strategic Emerging Industries

According to the concept and features of strategic emerging industries and combined with the principles, criteria, the accessibility and operability of index data of strategic emerging industries, it designs the index system of selection of strategic emerging industries from industrial development basis, industrial innovation, industrial contribution, industrial development potential, industrial relevance as shown in Table 1.

Table 1 Evaluation Index System of Selection of Strategic Emerging Industries

Class A	Class B	Class C	Index
Industrial Development Status	Industrial Scale	Output proportion	Output of a local industry/local overall output
		Enterprise proportion	Enterprise number of a local industry/overall number of local enterprises
	Industrial Agglomeration	Market share	Sales of a local industry/ national sales of the industry
		Enterprise concentration degree	Enterprise proportion of a local industry/national proportion of the industry
		Location entropy	Output proportion of a local industry/national output proportion of the industry
		Specialization coefficient	Employment proportion of a local industry/national employment proportion of the industry
Industrial Innovation	Innovation Investment	R&D investment ratio	R&D investment ratio of a local industry/overall local R&D investment ratio
		R&D investment degree	R&D investment amount of a local industry/revenues of main business of the industry
		R&D investment per capita	R&D investment amount of a local industry/ employment number of the local industry
	Innovation Output	Labor productivity	Output proportion of a local industry/employment proportion of the industry
		Comparative labor productivity	Labor productivity of a local industry/national labor productivity of the industry
		Sales rate of new products	Sales of new product of a local industry/total sales of the local industry
		Utilization ratio of cost	Profit of a local industry/total cost of the industry

Industrial Contribution	Economic Contribution	Industrial contribution ratio	Incremental of a local industry/local GDP growth
		Industrial influence ratio	Contribution of local industry/local GDP growth rate
	Social Contribution	Employment proportion	Employment number of a local industry/total number of local employment
		Tax proportion	Tax of a local industry/total local tax
Export Contribution	Export proportion	Exports of a local industry/local total exports	
Industrial Development Potential	Growth Rate	Output growth rate	Output growth rate of a local industry with n years
		Employment growth rate	Employment growth rate of a local industry with n years
	Market Prospect	Sales growth rate	Sales Growth of a local industry within n years
		Income elasticity of demand	Sales growth rate of a local industry within n years/ local per capita income growth rate
Industrial Relevance	Consumption Index	Intermediate needs	Ratio of the sum of intermediate needs of a certain industry by various industries against the total demands of the industry
		Intermediate input	Intermediate input/ overall input of an industry
	Spread Effect	Influence coefficient	j industry: sum of j line of Leontief inverse matrix divide the average of the sum of each line
		Reaction coefficient	i industry: sum of i row of Leontief inverse matrix divide the average of the sum of each row

5.2 Entropy Method of Selection of Strategic Emerging Industries

In order to make the calculation results more accurate and reasonable and eliminate subjective factors as much as possible in the evaluation process, this paper adopts the entropy method. It is an objective weighting method which determines the index weight according to the information size provided by index observation. There are M programs to evaluate and N evaluation indexes to develop the original data matrix. As for an indicator, the greater the gap of index is, the greater role of this indicator will play in overall evaluation. If the indexes of an indicator are equal, the indicator plays no role in overall evaluation. In information theory, entropy is a measurement of uncertainty. When the volume of information is larger, the uncertainty will be smaller, as well as the entropy; when the volume of information is smaller, the uncertainty will be greater, as well as the entropy. According to the features of entropy, the randomness and disorder degree of a program and the dispersion degree of an indicator can be judged by evaluating the entropy. The greater the dispersion degree of the indicator is, the greater impact of the indicator on overall evaluation will be. Therefore, we can make use of information entropy based on the degree of variation of the indicators to calculate the weight of various indicators and provide basis for the overall evaluation of various indicators.

6 Empirical Data of Selection of Strategic Emerging Industries in Hubei Province

According to Hubei industrial sector, service sector and the corresponding coefficient of strategic emerging industries and sectors of national economy, this paper works out the overall score of all the strategic emerging industries as shown in Table 2. Under the third industrial revolution, Hubei strategic emerging industries are energy saving and environmentally friendly protection industry, new generation of information technology industry, biological industry, new material industry, high-end equipment manufacturing industry, new energy industry and new energy vehicle industry.

Table 3 Overall Scores and Ranking of Strategic Emerging Industries in Hubei Province

Name of strategic emerging industries	Overall Score	Ranking
Energy saving and environmentally friendly industry	0.16546	1
New generation of information technology industry	0.14643	2
Biological industry	0.07386	3
New material industry	0.05154	4
High-end equipment manufacturing industry	0.04485	5
New energy industry	0.04166	6
New energy vehicle industry	0.00253	7

7 Conclusion

This paper studies the choice of strategic emerging industries in the third industrial revolution. Through the analysis of industrial development trend in the third industrial revolution, this paper constitutes a set of selection index system of strategic emerging industries from industrial development basis, industrial innovation, industrial contribution, industrial development potential and industrial relevance. Then this paper conducts an empirical analysis of strategic emerging industries in Hubei Province by entropy method.

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The Construction of Evaluation Index System of Regional Collaborative Innovation Driven by National Innovation

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Abstract: The Regional synergy innovation driven by national innovation has become the focus of theoretical research, therefore, building a perfect regional synergy innovation capability evaluation index system helps to measure and analyze the regional collaborative innovation ability. In this article, we take the scholars of the existing theoretical research as basis to analyze the theory of collaborative innovation. According to scientific and practical nature and the system principle, we divide regional collaborative innovation capacity into five indices: innovation support ability evaluation index, knowledge Innovation ability evaluation, configuration of knowledge evaluation index, applying evaluation index and innovative environment supporting capacity evaluation. Through these five aspects, this article constructs a complete regional synergy innovation capability evaluation index system. In the end, we come to the conclusion that evaluation index system of scientific calculation methods could be further verified, and figure out several effective measures for strengthening regional collaborative innovation ability in our country.

Key words: Regional collaborative innovation ability; Cooperative innovation ability evaluation index; Construction of evaluation index system

1 Introduction

1.1 Research purposes

With the implement of "Thirteenth five year plan", we take the innovation-driven development strategy as a major strategic when information technology, biotechnology, new energy technology, new materials technology and some cross-integrated technology are triggering a new round of technological revolution and industrial revolution.

Therefore, the construction of synergy innovation ability evaluation index system can effectively evaluate regional economy, showing that prominent contradictions existing in the process of regional economic development. Then we put forward corresponding improvement measures and suggestions in order to promote country's overall economic health and sustainable development.

1.2 Literature review

Chinese scholars' researches on regional synergy innovation have been widely studied related influence factors and dynamic mechanism of the development of collaborative innovation, and capacity for development planning and evaluation, and many other aspects. This article forces the researches on evaluation index system for national innovation-driven regional synergy innovation ability, and reviews the articles in recent three years:

Xiong Xiaogang^[1](2013) pointed that for effective integration of regional innovation system is an important way to promote development of cross-regional economy, at the same time analyzed the influence factors of coordinated development of regional innovation system. Then he integrated the scholar's research conclusion "three factor theory" and "four force effect theory", at the same time put forward a number of coordinated development of regional innovation promoting measures. Yan Junzhou^[2](2013) said that innovation can play a key role in view of the national macro-economic environment, then took Henan province as example to propose independent innovation strategies can be implemented. In February, Qi Shaoping^[3](2013) made a study on motive mechanism of regional collaborative innovation, focused on the macro development trend of science and technology innovation in China, and pointed out that cooperative innovation is at the heart of the area elements and resources effective gathering and symbiosis. Therefore regional synergy innovation system mechanism reform, which reflects through a new service mode, profit distribution, capital investment and assessment and monitoring, is particularly important, He Ling^[4](2013) had a detailed study of the regional assessment mechanisms for collaborative innovation, on the basis of relevant theoretical background, she pointed out that regional collaborative innovation is formed by five elements: innovation resource protection, configurability, application of knowledge innovation ability, knowledge, and innovation supporting capacity of the environment. At the same time, Li Lin^[5](2013) took the form of empirical

research on the evaluation index system of regional innovation synergy and analyzed their application. He noted that the regional collaborative innovation is an important factor in considering regional collaborative innovation. The literature built the regional collaborative innovation synergy degree evaluation system from four aspects: collaborative innovation subject form and quantity, innovation mechanism guarantee, innovation degree of organization and coordination, technology knowledge flow. When it comes to 2014, Gao Lina^[6](2014) researched on the innovation of regional cooperative mechanism and spatial characteristics, and found out that the flow of innovation body is the mainly the formation of collaborative innovation. Innovation of market transactions and knowledge flow promotes regional collective learning process. What's more, the spatial distribution of innovative elements make collaborative innovation partner selection with local features, so spatial interaction is obvious, which is an important mechanism to drive the overall economic growth. In the same year, Zhao Jiandong^[7](2014) studied collaborative innovation development planning based on the perspective of regional industry analyses production, then figured out that synergy innovation can break efficiency, scientific research institutions, enterprises R&D department dispersed closed state. Therefore we can establish more pattern, deeper cooperation to form regional innovation system in order to promote regional economic development. Then he took a college's item in Guangdong province as example to do the case planning analysis, which has certain effectiveness.

Above are reviewed from the related theories of regional collaborative innovation, collaborative elements, innovation ability assessment and evaluation system to build the research of this paper.

2 The Relevant Theories of Regional Synergy Innovation Ability

2.1 Synergetic theory

Synergetic theory was advanced by Germany physicist Hawking. He believes that various systems containing multiple subsystems within, and each subsystem contains multiple elements, most of which are in constant evolution and development. The core idea of synergy is to produce an orderly system structure and make the system add value through synergy. To achieve the goal of synergy, the subsystems and subsystem elements must collaborate with each other, even turn to causal relationship. In that case can the whole system eventually produce orderly structure.

2.2 Triple helix theory

Coexistence of the main innovations can be achieved. Regional synergy power depends on the collaboration between innovation subjects of win-win or multi-win. Common development among each subject is the power source of university and regional collaborative innovation. The construction of collaborative innovation motivation mechanism can also be inspired from the triple helix theory. In the 1990 of 20th century, United States scholars Henry and Roy made the triple helix theory, it was based on interaction among government, enterprise and university. This kind of interaction creates innovation power, which leads to encouraging triple helix relationship. Regional collaborative innovation subjects come from government, university and enterprise, but triple helix theory lies in market-bond. Building the institutional environment of innovation can not only interactively integrate innovation elements, but also provide theoretical support for the alternate growth of regional synergy subjects.

2.3 Drive theory

Innovation "potential" has been played. Drive theory means that when the organism's needs were not met, drive stimulus would produce within organism. This drive stimulus causes an organism needs met within, operation needs to be met. Then it disappears, through internal digestion or degradation, it appears again. So, drive theory is always called 'Drive reduction theory' or 'On the need to meet'. This kind of drive force can be divided into the primary drives and later acquired drives. Suppose that we take the main regional collaborative innovation as an anthropomorphic research, then we can find out that social organization also applies to drive theory. As the main subject of regional innovation in business, government, universities and research institutes have their own original drive on organization attribute. Productivity, profit growth, dissemination of knowledge, culture and innovation are all regarded as the demands, and this diversity of needs has polar complementary. If the government can organize it together to form the regional community of collaborative innovation will drive the timely release and zoom, the requirements of various innovation main body will receive different levels of satisfaction. At the same time, due to the strategic objective of enhancing innovation, later acquired drives will appear. From the categories view, we can classify regional collaborative innovation drives into knowledge-driven, market-driven and government-driven.

3 Construction of Evaluation Index System for Regional Synergy Innovation

3.1 The principles of building evaluation indicators

(1) The principle of combining scientific and practical

The principle of scientific means selecting indicators supported by relevant theories, and combining the comprehensiveness and relevance of indicators in order to make the index reflect their abilities faithfully. But setting of indicators should combine with innovation practices, especially national conditions and interior features of this region. In a word, setting of indicators should reflect the region's innovation ability and development potential.

(2) System integrity principle

Setting the indicator system should be reviewed from systematic view. Indicator system ought to reflect the systematic, gradation characteristics. Because regional innovation system is composed of several subsystems organic, this decided the innovation ability of systemic characteristics. But to evaluate the ability, the setting indicator system must be systemic. It should reflect the following several abilities comprehensively and systematically: innovation resources, knowledge creation, interaction and sharing of knowledge, knowledge application and innovation environment.

(3) The principle of combining static and dynamic

Innovation ability evaluation indicators must reflect the current situation of regional innovation and scale characteristics on the one hand. On the other hand, they should take the differences of regional demographic and spatial range into consideration, what's more the potential for further development. Therefore, setting indicators has to take three types of indicators into account. One is absolute indicator(gross) to reflect the size, another is relative value indicators (per capita quantity or ratio) to consider the differences of regional demographic and spatial range, the last is growth rate indicators to reflect regional development potential.

3.2 Construction of evaluation index system

Previous results combined with this research theme, from the perspective of “Innovation is the creation, transfer and application of knowledge” to construct a theory of collaborative innovation capability evaluation index system of regional frameworks:

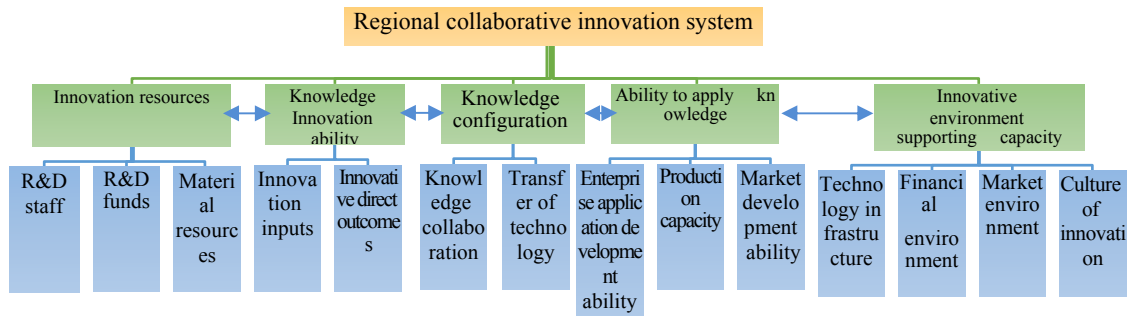


Figure 1 Theoretical Framework of Regional Cooperative Innovation Capability Evaluation Index System

Table1 Innovation Resources Support Ability Evaluation Indexes

Domain layer	Evaluation index name	Variable identification	Unit
Human resources	The number of professional and technical personnel per ten thousand people	K1	Person/ten thousand people
	College degree or above per ten thousand people	K2	Person / ten thousand people
	Average years of schooling	K3	Year / person
Funding resources	Local government investment in science and technology	K4	One hundred million yuan
	Fiscal investment in science and technology / Local fiscal expenditure	K5	%
	Foreign capital investment	K6	Ten thousand yuan
Material resources	Scientific equipment acquisition costs	K7	Ten thousand yuan
	R&D additional personnel and equipment per person fee	K8	Ten thousand yuan / person
	Scientific research and comprehensive technical services newly increased fixed assets / whole society assets	K9	%

(1) Innovation resources support ability evaluation index

Innovation resources, which are premise and condition of regional innovation, are to reserve resources for innovation. All these activities are built on the basis of resources. The evaluation of innovation resources supports ability inextricably to evaluate the level of protection of relevant elements for the foundations of regional innovation activities. Specifically, financial resources should be evaluated from three aspects: government and corporate investment in science and technology, and other sources of investment in science and technology.

(2) Knowledge innovation ability evaluation index

From a certain perspective, knowledge innovation is the start point of regional innovation activities. If there is no knowledge innovation, the subsequent link of regional innovation cannot be completed, it can't bring new products and the generation of economic performance finally. Concentrated manifestation of knowledge innovation is the fundamental research and experimental development (R&D). We can use R&D spending relative to GDP ratio in order to reflect direct funding for knowledge innovation strength. In terms of organizational inputs, we can use a number of researches and development institutions to reflect. On the direct scientific and technological achievements of knowledge innovation, basic carrier or manifestations of direct outcomes are the following four aspects: patent of invention, scientific research projects, research papers and science and technology achievement award. Indicators were set up from these aspects to evaluate results of direct output of knowledge innovation.

Table 2 Knowledge Innovation Ability Evaluation Indexes

Domain layer	Evaluation index name	Variable identification	Unit
Knowledge innovation investment	Number of scientists and engineers of R&D per ten thousand people	K10	Person / ten thousand people
	Research and development (R&D) personnel full-time equivalent	K11	Person/year
	R&D spending relative to GDP ratio	K12	%
	Number of research and development institutions	K13	a
Innovative direct outcomes	Number of employment invention patent ownership per ten thousand people	K14	Item/ten thousand people
	Institutions of higher learning R&D project number	K15	Item
	Number of R&D activities personnel number of scientific papers per ten thousand people	K16	Article/ ten thousand people
	Won a national science and technology achievement award item number	K17	Item

(3) Knowledge configuration capability evaluation index

Configuration is a kind of promoting knowledge in different ways of interaction among innovation subjects. To create the knowledge to successfully reach its demands, or to make various different innovation have full exchange between the nature and structure of knowledge in the subject, links must be configured through knowledge to achieve this goal.

Knowledge distribution manifestation can be divided into direct and indirect market-based trading mechanisms of technology transfer. Technical cooperation refers to enterprises, universities, research institutes and other relevant innovation around to get some technical knowledge and cooperation between research and development, during the process of cooperation to promote the flow of knowledge and knowledge value increment. Evaluation of technical cooperation capacity can mainly through four indicators: same province different units working papers published, universities and research institutes of scientific research funds in enterprise funding ratio, number of scientific research project research and development of college and enterprise cooperation, number of joint scientific research institutes and enterprises to apply for a patent for invention. Technology transfer mainly refers to take direct way of market transactions engaged in technology trade to make the technical flow from suppliers to the demand side. By means of this kind of configuration, achieve the purpose of flow and sharing of knowledge. Hence, the knowledge configuration ability evaluation indices can be built as follows:

Table 3 Knowledge Configuration Capability Evaluation Indexes

Domain layer	Evaluation index name	Variable identification	Unit
Knowledge collaboration	Number of authors with province exclusive units of scientific papers	K18	Paper
	Registered capital is provided by the end of part of enterprises with foreign investment	K19	Millions of dollars
	Universities and research institutes in the activities of science and technology funds from enterprises the proportion of funds	K20	%
	Number of college and enterprise cooperation and development of scientific research project	K21	Item
	Scientific research institutes and enterprises jointly apply for a patent for invention of growth	K22	%
Technology transfer	Technical market transaction	K23	Ten thousand yuan
	Industrial enterprises above designated size foreign technology import amount	K24	Ten thousand yuan
	R&D personnel to foreign transfer of patent and royalty per ten thousand people	K25	Ten thousand dollars /ten thousand yuan

(4) Knowledge application ability evaluation index

The key subject of knowledge application is enterprise. If there are no enterprises, universities, research institutes and other organizations to apply new knowledge, scientific and technological achievements cannot be effectively transformed into real economic efficiency. In other words, if there is no application of knowledge, science and economy will always be in a state of two sheets of skin, then any advance in technology in regional economy would play a less important role in promoting.

From internal enterprise process analysis of innovation, there must be three basic links to successfully accomplish whole process of enterprise internal knowledge application: application development, production and manufacturing and market development, which can truly achieve ultimate fusion of scientific research and economic development. The application ability of enterprises' upstream basic knowledge can be expressed through three aspects: internal expenditures R&D funding, number of new product development projects, enterprises are applying for patents. Based on the above analysis, construct evaluation indicator of the ability to apply knowledge series.

Table 4 Knowledge Application Ability Evaluation Indexes

Domain layer	Evaluation index name	Variable identification	Unit
Enterprise application development capabilities	Spending on Enterprise R&D sales revenue share	K26	%
	Number of new product development projects of large and medium industrial enterprises	K27	Item
	Number of large and medium industrial enterprises patent application	K28	Item
Production capacity	Equipment used in production and operation of industrial enterprises above the designated size price	K29	Billion yuan
	Level of investment in technological transformation of industrial enterprises above designated size	K30	Tenthousand yuan
	Proportion of original equipment for production and management of electronic control equipment	K31	%
Marketing capabilities	Industrial enterprises above the designated size and new product sales revenue	K32	Billion yuan
	Exports of products of industrial enterprises above designated size	K33	Billion yuan

(5) Innovative environment supporting capacity evaluation

Environment of innovation can be divided into hard and soft environment. Innovation infrastructure is representative of the hard environment, including physical and technological infrastructure. Physical infrastructure includes transportation, communication facilities, etc. Technological infrastructure including technical standards, technical databases and so on. Soft environment reflects from laws and policies, demand, quality of personnel, as well as creative and cultural aspects. At the same time, many factors cannot be precisely quantified in the soft environment. Looking for alternative indicators, we can only do quantitative analysis indirectly. Here, using tens of thousands of patent applications as a measure of employment indicators.

Table 5 Innovative Environment Supporting Capacity Evaluation

Domain layer	Evaluation index name	Variable identification	Unit
Infrastructure	Number of libraries	K34	a
	Hundreds of household computer ownership	K35	a/ Hundreds of families
Financial environment	Number of venture capital firms in the region	K36	a
Market environment	Government expenditures	K37	Ten thousand yuan
	Residents' consumption level	K38	Ten thousand yuan
Culture of innovation	Employees of patent applications per ten thousand people	K39	Item/ten thousand people

4 Conclusion

Synergy innovation has already become the non-ignorable form of world economy and science and technology development. To fully mobilize and coordinate the resources can effectively realize regional dimensions of collaborative innovation, which is the inevitable outcome and important content of deepening regional cooperation. The same time, synergy innovation can break the university, scientific research institution, enterprise R&D department's disperse and closed state, then establish more deep cooperation and form regional innovation system, promote the development of regional economy. This article is under the reality that the State's innovation-driven economy relies on innovation for sustainable development, so it's important to strengthen regional collaborative innovation and put forward regional collaborative innovation capability evaluation index system. Then the related data can be found in reference books such as "China Statistical Yearbook on Science and technology", "High-tech industry development in China", "Report of regional innovation capability of China", "Yearbook of Chinese scientific and technical papers statistics and analysis", "Almanac of China's finance" and so on. At the same time, methods can be applied to systematically and objectively evaluate the regional economy, such as DEA, fuzzy mathematics method, method of measurement of composite systems, etc.

We can strength regional synergy innovation capacity under the case of innovation-driven, except for construction of the evaluation index system in order to reduce the uncertainty of innovation activities. There are also four aspects of activities to strengthen it as follows:

- (1) Respect the law, promote collaboration, and strengthen regional synergy innovation.
- (2) Open and interact, improve level, enhance the exchange of innovation.
- (3) Find the right path, and foster venture.
- (4) To strengthen investment, optimize the configuration.

This paper has no empirical analysis due to time and space factors. By entering appropriate data and applying a few models, we can provide domestic situation of regional economic development. And depending on the characteristics of regional economic development to put forward proposals for economic development and measures, which can help our country's economic development presents a balanced, coordinated and sustainable situation. As a result, we can realize the leaping development of economy.

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Leading Industry Selection of Modern Service Industry in Wuhan Based on Entropy Method

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Abstract: Leading industry selection deeply affects the regional industrial structure adjustment and upgrading, how to choose the appropriate leading industry is a hot issues of regional economic research, also a realistic problem urgently to be solved. This paper focuses on the leading industry selection of modern service industry in Wuhan. Through establishing the leading industry selection model from four aspects: industrial basis, industrial innovation, industrial linkage, industrial potential, and calculating indicators with entropy method, the paper determines financial industry, modern logistics industry and modern business industry as the leading industries of modern service industry in Wuhan at present stage. At last, some corresponding countermeasures and suggestions are put forward.

Key words: Leading industry; Modern service industry; Selection model; Entropy method

1 Introduction

In recent years, Wuhan puts forward the strategic task of breakthrough development of modern service industry. Along with the Jiangnan District and East Lake national independent innovation demonstration zone have been approved the “National Service Industry Comprehensive Reform Pilot Area” and “National Modern Service Pilot”, the development of modern service industry in Wuhan is entering into a new historical period. However, the structural imbalance of Wuhan modern service industry is gradually emerged. As we know, modern service industry has many industry categories which have many differences, such as the development level, the degree of correlation, the important degree, the development potential and so on. Therefore, choosing the appropriate leading industry to lead the modern service industry develop orderly is an urgent subject.

Studies on leading industry start in Japan and western countries. The American economist Rostow (1959) first puts forward the concept of “leading sector” and he believes that “leading sector” is the key sector with high growth rate which has two features: first, it’s a source of innovation can rapidly introduce the technology innovation; second, it’s a “diffusion point” can produce a greater demand to other sectors^[1]. Japanese economist Makoto Shinohara (1994) puts forward that “the income elasticity of demand” and “the rate of increase in productivity” are the core factors to judge whether an industry belongs to mainstay industry or not^[2]. Hirshman (1998) proposes that due to the scarcity of resources, no region or country can develop all the industry commonly. Governments should make reasonable choices to promote the limited resources into the key areas^[3]. Li Na and Wang Fei (2012) analyze the evolution of China's leading industry from 1992 to 2005 based on the proportional growth deviation method^[4]. Wang Chunyan (2013) believes that technology innovation, resources endowment, industrial policy and infrastructure construction are the main factors affecting the development of leading industry^[5]. Zhou Zhenhua (2014) puts forward that the “growth potential”, “shortage of the elasticity of substitution” and “bottleneck effect” are the important factors affecting the leading industry selection^[6].

In summary, although researches on leading industry are very rich, they focus on national economic areas or regional economic areas, few takes the modern service industry as the research object. Therefore, the paper has certain theoretical significance.

2 Regional Leading Industry Selection Model

The paper draws on the outstanding research achievements and puts forward the four benchmarks of leading industry selection.

The first benchmark is industrial basis. It refers to the leading industry should have a larger scale and higher level, can form a strong influence on regional economy.

The second benchmark is industrial innovation. It refers to the leading industry should be different from the traditional industry which heavily relies on location, capital, policy, resources and environment factors, the leading industries should be derived by innovation, including knowledge, intelligence, technology innovation, management innovation, concept innovation and so on.

The third benchmark is industrial linkage. It is a key measure of leading industry influence. Only with strong correlation effect, spillover effect and diffusion effect an industry can be regarded as leading industry.

The fourth benchmark is industry potential. It refers to the leading industry must comply with the requirements of high growth, in the next period of time should have broad, long-term, stable market prospect and development space.

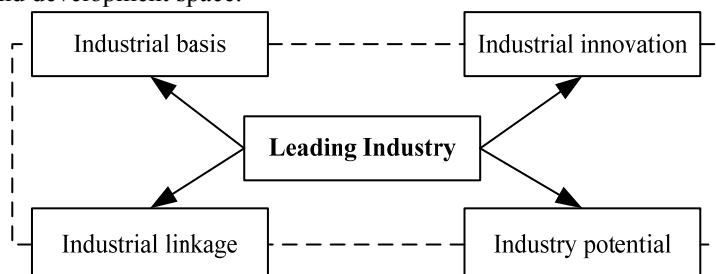


Figure 1 Benchmarks of Leading Industry Selection

According to the selection benchmarks of regional leading industry, the paper constructs the indicators of leading industry selection. The first class indices contain industrial basis, industrial innovation, industrial linkage and industry potential. The second class indices contain industrial scale, industrial agglomeration, innovation input, innovation output, consumption coefficients, spread effect, growth rate and market prospect. See table 1.

Table 1 Indicators of Leading Industry Selection

First class indices	Second class indices	Third class indices
Industrial basis	Industrial scale	The proportion of output value (X_1)
		The proportion of employment (X_2)
	Industrial agglomeration	Concentration of enterprises (X_3)
		Specialization coefficient (X_4)
		Location entropy (X_5)
Industrial innovation	Innovation input	The proportion of R&D staff (X_6)
		The proportion of R&D funds (X_7)
	Innovation output	Workers compensation rate (X_8)
		Labor productivity (X_9)
Industrial linkage	Consumption coefficients	Intermediate demand rate (X_{10})
		Intermediate input rate (X_{11})
	Spread effect	Influence coefficient (X_{12})
		Sensitivity coefficient (X_{13})
Industry potential	Growth rate	Value added growth rate (X_{14})
		Employment growth rate (X_{15})
	Market prospect	Income elasticity of demand (X_{16})

3 Data and Methodology

According to the Wuhan City Statistical Yearbook 2014 and the first and the second economic census results, the paper collects and calculates the relevant data of various industries in the service industry in Wuhan.

To be clear, because public management, resident services and other services data are difficult to be obtained, and their scale and influence are small, so the paper does not consider them, only considers the modern logistics industry (contains transportation and warehousing) (I1), information service industry (I2), modern business industry (contains wholesale and retail) (I3), accommodation and catering industry (I4), financial industry (I5), estate (I6), education industry (I7), culture and entertainment industry (I8).

Table 2 Data of Service Industry in Wuhan

Industry Indictor	I ₁	I ₂	I ₃	I ₄	I ₅	I ₆	I ₇	I ₈
X ₁	0.140	0.069	0.255	0.087	0.163	0.153	0.102	0.031
X ₂	0.135	0.031	0.206	0.066	0.036	0.072	0.111	0.023
X ₃	1.384	1.231	2.577	2.188	0.558	2.663	0.464	1.177
X ₄	0.962	1.017	0.936	1.417	1.017	0.884	1.116	1.604
X ₅	1.104	1.158	1.297	1.240	0.712	1.606	1.653	1.180
X ₆	2.395	0.375	0.953	1.058	1.440	0.934	1.864	0.674
X ₇	1.146	1.135	1.221	1.098	0.899	1.243	1.305	1.591
X ₈	1.016	1.281	0.679	0.590	1.735	0.943	1.098	0.925
X ₉	1.875	4.070	2.231	2.393	8.109	3.871	1.668	2.388
X ₁₀	0.415	0.326	0.485	0.363	0.570	0.760	0.161	0.714
X ₁₁	0.512	0.326	0.261	0.576	0.339	0.298	0.290	0.432
X ₁₂	1.018	1.011	1.005	0.974	1.021	0.960	0.957	1.053
X ₁₃	0.987	0.949	0.979	1.007	1.137	1.039	0.923	0.981
X ₁₄	0.087	0.183	0.123	0.113	0.168	0.127	0.210	0.173
X ₁₅	22.85	15.486	9.672	10.64	3.055	9.465	17.04	6.461
X ₁₆	0.028	0.014	0.044	0.011	0.025	0.020	0.017	0.008

At present, research on leading industry selection, factor analysis and AHP are most common [7]. However, factor analysis need sample size is more than five times of variables, limitation is relatively large; AHP method is simple and practical, but it has disadvantages of subjective.

In order to make the result more accurate and reasonable, and in the evaluation process as far as possible to eliminate the subjective factors, the paper uses entropy method to calculate. The entropy method is a kind of objective weighting method, according to the information provided by the indicators to determine the index weight [8].

Suppose there are m programs, n indicators, the matrix, the concrete steps are as follows:

- (1) Calculating index proportion. (i=1, 2, ..., n; j=1, 2, ..., m)
- (2) Calculating index entropy, $k=1/$
- (3) Calculating index coefficient.
- (4) Calculating index weight.
- (5) Calculating comprehensive score of each program.
- (6) Comparing the comprehensive score of each program, and choose the best program.

4 Results

Through calculation, the paper obtains the index weight of leading industry selection. See Table 3.

Table 3 Index Weight of Leading Industry Selection

First class indices	Second class indices	Third class indices
Industrial basis (0.236)	Industrial scale (0.137)	The proportion of output value (0.05)
		The proportion of employment (0.087)
	Industrial agglomeration (0.189)	Concentration of enterprises (0.064)
		Specialization coefficient (0.09)
		Location entropy (0.035)
Industrial innovation (0.267)	Innovation input (0.096)	The proportion of R&D staff (0.056)
		The proportion of R&D funds (0.041)
	Innovation output (0.170)	Workers compensation rate (0.059)
		Labor productivity (0.112)
Industrial linkage (0.244)	Consumption coefficients (0.121)	Intermediate demand rate (0.042)
		Intermediate input rate (0.079)
	Spread effect (0.123)	Influence coefficient (0.064)
		Sensitivity coefficient (0.059)
Industry potential (0.163)	Growth rate (0.096)	Value added growth rate (0.047)
		Employment growth rate (0.049)
	Market prospect (0.067)	Income elasticity of demand (0.067)

From Table 3, we can see that the most important indicator is industrial innovation, especially innovation output, it indicates that the leading industry must have strong innovation capability; the second is industrial linkage, it measures the influence of one industry to other industries; the third is industrial basis, especially the industrial agglomeration, it indicates that leading industry should be the advantage industry which has strong competitive advantage and clustering effect; the last is industry potential, it predicts the industry's vitality in the future.

Through calculation, the paper obtains the comprehensive score of service industry in Wuhan.

Table 4 Comprehensive Score of Service Industry in Wuhan

Industry	Index	Comprehensive score	Ranking
Financial industry		0.4672	1
Modern logistics industry		0.4507	2
Modern business industry		0.4429	3
Culture and entertainment industry		0.4106	4
Estate industry		0.3780	5
Accommodation and catering industry		0.3760	6
Education industry		0.3180	7
Information service industry		0.3085	8

From Table 4, we can see that the top three position are: financial industry, modern logistics industry and modern business industry; the 4-7 position are: culture and entertainment industry, estate position, accommodation and catering position, education position; the last position is information service position, although it is technology intensive and potential, due to the small scale, it should belong to strategic emerging industry.

Generally speaking, the number of leading industry is 2~3. Therefore, the paper determines financial industry, modern logistics industry and modern business industry as the leading industries of modern service industry in Wuhan at present stage.

5 Conclusions

The selection of leading industry deeply affects regional industrial structure adjustment and upgrading. The paper puts forward the selection benchmarks of regional leading industry from four aspects: industrial basis, industrial innovation, industrial linkage and industrial potential. According to the selection benchmarks, the paper constructs the indicators of leading industry selection and uses entropy method to calculate the comprehensive score of the service industry in Wuhan. Finally, the paper determines the leading industries of modern service industry in Wuhan are financial industry, modern logistics industry and modern business industry. And corresponding countermeasures and suggestions are put forward as the following.

5.1 Building the Midwest financial services center

First, around the Wangjiadun Financial Street and Optics Valley financial harbor, centralize banking, securities, insurance and other financial industries to promote financial park construction, build a modern financial services gathering platform.

Second, improve the financial organization system, actively introduce and cultivate the headquarters of financial institutions.

Third, broaden the field of financial services, promote financial product diversification and financial instruments innovation, and enhance the agglomeration function.

5.2 Building the national modern logistics center

At present, the primary task is to promote the traditional transportation and warehousing industry upgrade to modern logistics industry.

First, improve infrastructure, build a information platform and a nationwide high-speed, transport-linked, three-dimensional logistics network system.

Second, according to the "logistics base headquarters, logistics parks, logistics centers, distribution centers," speed up construction of the park, focusing on planning, "one port, six parks, eight centers".

Third, through tax breaks, expand financing channels and other policy measures, support local logistics companies and introduce international logistics business headquarters.

5.3 Building the national modern business center

First, through information technology, guide the traditional wholesale market transformation to modern market.

Second, through modern management methods, guide the traditional retail formats transition to the modern mode.

Third, optimize the layout of commercial outlets and build a multi-level business gathering system.

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Evaluation of Hi-Tech Zone Development Level from Endogenous Function and Collaborative Innovation Ability Dimensions: An Empirical Analysis of National High-Tech Zones*

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Abstract: Hi-tech zones play important roles in driving Chinese economic development, upgrading the industrial structure and promoting regional innovation. Current researches treat high-tech zone as a “black box” and ignore high-tech zone’s inner structures. This paper constructs an indicator system from endogenous function dimension and collaborative innovation ability dimension to make comprehensive evaluation of 56 national hi-tech zones with factor analysis and cluster analysis. The result of factor analysis and cluster analysis shows that: (1) Chinese national high-tech zones’ overall strength is still weak, most of which are 33 high-tech zones in “double-inferior” situation; (2) high-tech zones’ system function does not match their collaborative innovation capability; (3) Development level of national high-tech zones faces a serious differentiation. Based on these, this research provides differentiation policy suggestions to different hi-tech zones which is of great significance in policy making.

Key words: High-tech zones; Endogenous function; Collaborative innovation ability; Evaluation

1 Introduction

Up to now the number of national hi-tech zones is more than 56. There is no doubt that hi-tech zones play important roles in driving Chinese economic development, upgrading the industrial structure, attracting foreign investment and promoting regional innovation. After the prosperity derived from policy driven period, high-zones lacked the driving force of development facing the danger of deterioration of high-tech industry. The root cause for this deterioration is that high-zones lack sustainable innovation capability and dynamic adaptability. According to review the research status quo of industry cluster innovation, many researchers’ work is focusing on analyzing the fundamental source and sustainable power of cluster collaborative innovation ability at knowledge level^[1,2]. Presently, researches mainly focus on the process of single enterprise’ network-innovation in specific cluster^[3].

This paper explores development problem of high-tech zones from cluster body level on the basis of the development status quo of Chinese national high-tech zones. The high-tech zone is a kind of institutional arrangement, its internal development mechanism lies in industrial cluster, and its source of driving economy development consists in the effective coordination of all resources in the cluster and the economies of scale and collaboration effect among subjects. Throughout the development history of high-tech zones, almost all the high-tech zones fail to form reasonable industrial clusters. In order to understand deeply of national high-tech zones’ development status quo, this work aims at evaluating quantitatively development level of national high-tech zones through establishing high-tech zones development indicator system using factor analysis and cluster analysis, inducing development trend of national high-tech zones and providing some targeted guidance for national high-tech zones.

2 Analysis Frameworks and Evaluation Indicator System Construction

Industry cluster derives from a famous British new classical economist Marshall’ Industrial district theory. The notion of Industry cluster is put forward by Michael Porter. He points out that industrial cluster is a group of enterprises and associated institutions which are interconnected and geographically close each other, and they belong to a particular industry and associate together owing to the commonality and complementary (Porter.M.E, 2002). WANG Jici considers that Industry cluster is constructed by amount of professional companies and related support institutions which are agglomerated flexibly within a certain geographical range. These organizations become an intensive cooperative network which is rooted in local social and cultural environment (WANG Jici, 2001). WEI Jiang and GE Chaoyang deem that industry cluster is a spacious industrial organization which comes from perfect industrial chains and industrial association (GE Chaoyang&WEI Jiang, 2003). From these notions, we can find that some characteristics of cluster: first, a lot of organizations agglomerate; second,

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industrial chains are the key part for agglomeration; third, there are connections between industries and then a spatial organic organization carrier forms.

Unfortunately, current researches treat high-tech zone as a “black box”(Giblin&Majella,2011). The evaluation of high-tech zones’ performance is still result-oriented and ignores structures of high-tech zones. This situation may result in some problems: (1)fail to Insight into the structure of the innovation system itself ;(2) ignores the collaboration effect between system elements;(3)cause deviation to the evaluation for high-tech zones’ performance. In order to make an objective evaluation and overcome the result-oriented mistake, this paper builds a indicator system which agree with the structure of high-tech zones ,measure the endogenous coordination function of high-tech zones ,collaborative innovation ability and correlation between them and analyze high-tech zones’ defects and deficiencies from endogenous perspective.

On the basis of the notion of high-tech zone innovation system, we can find that(1) high-tech zone innovation system is an innovation network which is consist of firms, universities and other support institutions;(2) high-tech zone innovation system’ collaboration is not a simple accumulation of elements but an reasonable integration among various elements;(3)the key function of high-tech zone innovation system is to promote collaborations among system members and create collaborative innovation ability from supportive context. Therefore we can conclude an analysis framework of high-tech zone innovation system’s endogenous function and collaborative innovation ability. See Figure 1.

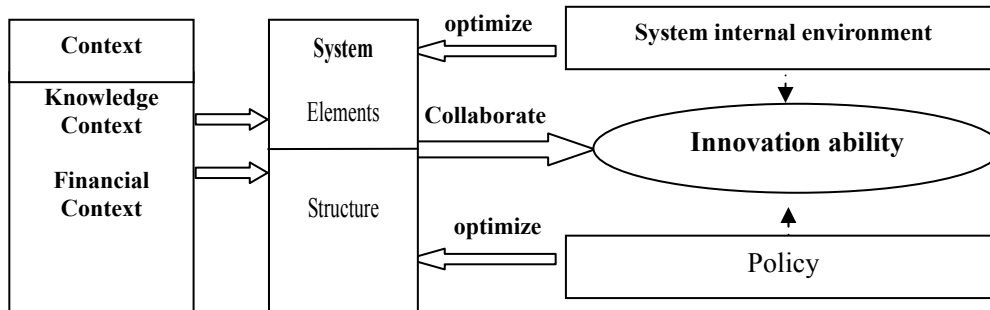


Figure 1 Analysis Framework of High-tech Zone Innovation System

Table 1 Indicator System

Frist class indicators	Second class indicators	Third class indicators
Endogenous Function	System Elements	V ₁ Number of Registered Enterprises
		V ₂ Intramural expenditure of funds on R&D in high-tech zone
		V ₃ Intramural expenditure of funds on R&D per firm
		V ₄ Number of R&D activities personnel in high-tech zone
		V ₅ Number of R&D activities personnel per firm
	System Structure	V ₆ Industrial connection degree
		V ₇ Enterprises density in the same industry
	Knowledge Context	V ₈ Number of research publishes by regional universities and institutes
		V ₉ Number of patents in regional universities and institutes
		V ₁₀ Expenditure of funds on R&D in regional universities and institutes
		V ₁₁ Number of R&D activities personnel in regional universities and institutes
	Financial Context	V ₁₂ The total venture investment
Collabrative innovation ability	Economic Performance	W ₁ Industrial added value in high-tech zone
		W ₂ Net profit in high-tech zone
		W ₃ Gross Industrial Output Value in high-tech zone
	Social Benefit	W ₄ Number of Employees
		W ₅ Per capita income
		W ₆ Taxes in high-tech zone
	Cluster Growth Performance	W ₇ Technology income
		W ₈ The growth rate of net profit
		W ₉ The growth rate of technology income
		W ₁₀ Return on Assets

According to the notion of industry cluster and high-tech zones' connotation, this research builds a evaluation indicator system from high-tech zone innovation system's elements (e.g. firms and support institutions)、 structure (e.g. industry chains and value chains) and relations among innovation subjects. This indicator system includes two part: endogenous function part and collaborative innovation ability part. According to previous researches and the collaboration's connotation, the indicator system includes 33 endogenous function indicators and 19 collaborative innovation ability indicators. Owing to availability of data, we optimize indicator system, finally we get an indicator system with 23 indicators which is scientific and logical. See table 1.

3 Empirical Analysis

3.1 Data Collection

This paper collects 56 national high-tech zones' data in 2014 according to the indicator system. These data is collected from *China Statistical Yearbook of High-tech industry (2015)* and *China Statistical Yearbook on Science and Technology (2015)*. In order to avoid errors result from data' s different dimensions, this paper makes dimensionless processing to these data with statistical standardization method.

3.2 Data Analysis

3.2.1 Factor Analysis

This article explores high-tech zone innovation system's collaborative innovation ability by Statistical Product and Service Solutions (SPSS) 20.0. According to SPSS analysis, endogenous function and collaborative innovation ability's KMO values respectively are 0.831 and 0.759, both of them are above 0.6, which means all indicator simples' inner reliabilities are pretty good. In addition, Bartlett test's p-values are 0 which means simples' inner validities are pretty good. (See table 2) Therefore, in accordance with Bartlett test and KMO values, simples are suitable for factor analysis.

Table 2 KMO & Bartlett test

Indicator		Endogenous function	Collaborative innovation ability
KMO value		0.634	0.767
Bartlett test	Approx. Chi-Square	162.926	195.605
	df	55	45
	Sig.	0.000	0.000

On the basis of simples' correlation matrix, we can get factor eigenvalues and contribution rate of accumulated variance. (See table 3). There are 3 eigenvalues above 1 in endogenous function part, and there 2 eigenvalues above 1 in endogenous function part. The contributing rates of cumulative sums of squares in these two parts respectively are 84.782% and 80.635%. That means all variables can explain most information and simples can reflect the fact. So we get 3 common factors in endogenous function part and 2 common factors in collaborative innovation ability part.

Table 3 Total Variance Explained

factor	Endogenous function			Collaborative innovation ability		
	rotation sums of squares loadings			rotation sums of squares loadings		
	eigenvalue	% of Variance	Cumulative %	eigenvalue	% of Variance	Cumulative %
1	4.777	43.423	43.423	6.325	63.253	63.253
2	2.631	23.916	67.340	1.738	17.382	80.635
3	1.919	17.442	84.782			

According to factor analysis result (see table 4), in endogenous function part, the first common factor has higher loadings in V1、 V2、 V4、 V7、 V10. These indicators mainly reflect scale of input to high-tech zone innovation system, so the first common factor can be named as Investment Scale factor. The second common factor has higher loadings in V9、 V11、 V12. These indicators mainly reflect the support of knowledge context and financial context to the high-tech zone innovation system, so the second common factor can be named as Context Support Factor. The third common factor has higher loadings in V3、 V5. These two indicators mainly reflect the innovation investment of enterprises in high-tech zone innovation system, so the third common factor can be named as Element Collaboration

Factor.

In collaborative innovation ability part, the first common factor has higher loadings in W1、W2、W3、W4、W5、W6. These indicators mainly reflect the economic performance and social benefit of high-tech zone, so the first common factor can be named as Output Performance Factor. The second common factor has higher loadings in W8、W9、W10. The return on assets (ROA) shows the percentage of how profitable a company's assets are in generating revenue. Net profit can compare companies' performance in the same industry. These indicators mainly reflect the development trend of high-tech zone innovation system, so the second common factor can be named as Operation Level Factor.

Table 4 Rotated Component Matrix& Component Score Coefficient Matrix

Endogenous function							Collaborative innovation ability				
indicator	Rotated Component Matrix			Component Score Coefficient Matrix			indicator	Rotated Component Matrix		Component Score Coefficient Matrix	
	1	2	3	1	2	3		1	2	1	2
V1	0.9	-0.264	0.23	0.161	-0.105	0.117	W1	0.815	0.18	0.158	0.108
V2	0.879	-0.014	0.439	0.158	-0.006	0.222	W2	0.968	-0.066	0.188	-0.039
V3	-0.084	0.351	0.787	-0.015	0.299	0.297	W3	0.923	0.102	0.179	0.061
V4	0.89	-0.064	0.404	0.16	-0.026	0.205	W4	0.934	-0.294	0.181	-0.176
V5	-0.122	0.306	0.621	-0.022	0.28	0.314	W5	0.932	0.284	0.064	0.471
V6	0.573	-0.417	-0.238	0.103	-0.166	-0.12	W6	0.96	0.012	0.187	0.328
V7	0.892	-0.344	0.172	0.16	-0.137	0.087	W7	0.172	-0.314	0.17	-0.189
V8	0.042	0.367	-0.289	0.147	0.146	-0.146	W8	-0.064	0.644	-0.012	0.146
V9	0.343	0.674	-0.535	0.115	0.188	-0.271	W9	0.05	0.705	0.01	-0.003
V10	0.82	0.548	-0.148	0.008	0.218	-0.075	W10	0.145	0.871	0.028	0.523
V11	0.415	0.764	-0.051	0.164	0.065	-0.026					
V12	0.355	0.633	-0.596	0.064	0.251	-0.302					

In line with the component score coefficient matrix and collected data, SPSS can calculate automatically common factors' scores, and then we rank 56 national high-tech zones according these scores(see table 5).For sake of convenience, the names of high-tech zones are abbreviated.

Table 5 High-tech Zone Rank

name	total	Rank	total	Rank	name	total	Rank	total	Rank	name	total	Rank	total	Rank
BJ	1.730	1	3.104	1	WF	-0.025	25	0.039	21	HZ	-0.094	32	0.008	23
TJ	0.089	20	0.282	12	WH	-0.037	26	-0.120	29	NB	-0.220	39	-0.251	35
SJZ	0.157	18	0.116	16	ZZ(He)	-0.061	28	-0.045	25	HF	0.796	5	0.631	7
BD	-0.741	54	-0.654	52	LY	-0.412	45	-0.401	43	FZ	-0.455	48	-0.549	48
TY	-0.517	49	-0.428	45	WH	0.438	8	0.617	8	XM	-0.136	35	-0.076	28
BT	-0.065	29	-0.179	33	XF	-0.106	33	-0.133	30	NC	-0.357	42	-0.366	41
SY	0.031	21	0.081	17	CS	0.184	15	0.244	13	JN	-0.045	27	0.053	19
DL	-0.217	38	-0.135	31	ZZ(Hu)	0.121	19	-0.315	37	QD	0.021	23	0.046	20
AS	0.326	11	0.198	14	XT	0.026	22	-0.351	39	ZB	0.172	16	0.165	15
CC	1.217	3	1.305	3	GZ	0.311	12	0.512	10	CD	0.675	6	0.673	6
JL	-0.656	52	-0.495	47	SZ	1.343	2	0.857	4	MY	-0.716	53	-0.685	53
HEB	-0.435	47	-0.356	40	ZH	-0.224	40	-0.256	36	GZ	0.335	10	-0.471	46
DQ	0.191	14	0.068	18	HZ	-0.566	50	-0.616	51	KM	-0.074	30	-0.182	34

SH	0.920	4	1.370	2	ZS	0.169	17	-0.072	27	XA	0.615	7	0.857	5
NJ	0.415	9	0.588	9	FS	-0.081	31	-0.021	24	BJ(Xi)	-0.393	44	-0.387	42
CZ	-0.126	34	-0.144	32	NN	-0.374	43	-0.401	44	YL	-0.834	55	-0.989	56
WX	0.210	13	0.362	11	GL	-0.602	51	-0.697	54	LZ	-0.431	46	-0.583	50
SZ	-0.137	36	0.032	22	HN	-0.170	37	-0.583	49	WLMQ	-0.859	56	-0.905	55
TZ	0.013	24	-0.047	26	CQ	-0.342	41	-0.316	38					

3.2.2 Regression Analysis

To illustrate qualitatively there is a relevance between endogenous function indicators and collaborative innovation ability indicators, we make regression analysis to these collected data. In regression analysis, endogenous function's factors are treated as independent variable and collaborative innovation ability's factors are treated as dependent variable.

According to the result of regression analysis, in regression coefficient's T test, $p=0$, which means regression coefficient is not 0. In residual's T test, $p=0.89 > 0.05$, which means residual can be treated as 0. Therefore endogenous function has a significant impact to collaborative innovation ability, and regression function is

$$Y=1.22X$$

In regression analysis, $R^2=0.924$ which is very close to 1, and that means the degree of fitness is quite high. Scatterplot is as follow. See figure 2

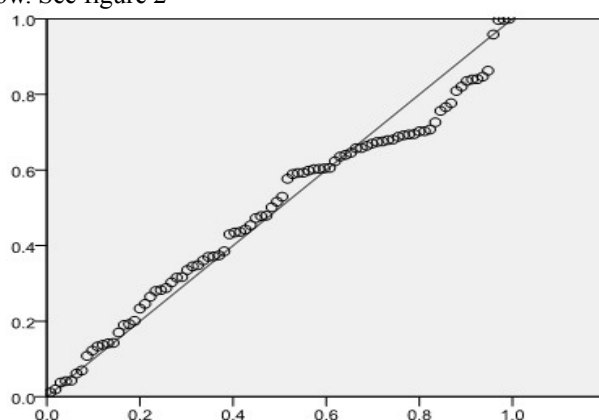


Figure 2 Scatterplot

3.2.3 Cluster Analysis

On the basis of above research, we have known that there is a strong relevance between endogenous function and collaborative innovation ability. To figure out the strength of high-tech zones in these two aspects, this paper makes a double dimensions cluster analysis. The double dimensions cluster analysis consists of 2 hierarchical cluster analysis. Two dimensions are endogenous function and collaborative innovation ability. We keep the number of cluster as 4. 4 stands for 4 classes from good to poor.

According to the result of cluster analysis (see figure 2), in endogenous function dimension, Beijing is the first class which means Zhongguancun high-tech zone's inner structure is quite reasonable and it has a great development potential. The second category includes Shanghai, Xi'an, Wuhan, Nanjing, Shenzhen, Changchun, Hefei, Chengdu, Guangzhou and Guiyang. The third category includes Qingdao, Zhuzhou, Zhongshan, Tianjin, Shijiazhuang, Anshan, Daqing, Wuxi, Zibo and Changsha. The rest high-tech zones are in the fourth category. In collaborative innovation ability dimension, Beijing is still the first class. The second category includes Shanghai, Xi'an, Wuhan, Nanjing, Shenzhen, Changchun, Hefei and Chengdu. The third category includes Jinan, Shenyang, Tianjin, Shijiazhuang, Anshan, Daqing, Wuxi, Zibo, Guangzhou and Changsha. The rest high-tech zones are in the fourth category.

Putting two hierarchical cluster analysis results into a coordinate system (see figure 3). This figure vividly illustrates all national high-tech zones development status quo. The first quadrant is cut into 16

sections. When high-tech zone is in section 1、section 2、section 5 and section 8, that means this high-tech zone’s inner structure matches its collaborative innovation ability, in other words, this high-tech zone is in equilibrium. Similarly, when high-tech zone is in other sections, which means this high-tech zone’s inner structure and collaborative innovation ability are in discordance. This high-tech zone is out of equilibrium. According to the result of cluster analysis, most high-tech zones are in equilibrium, but their overall strength is weak.

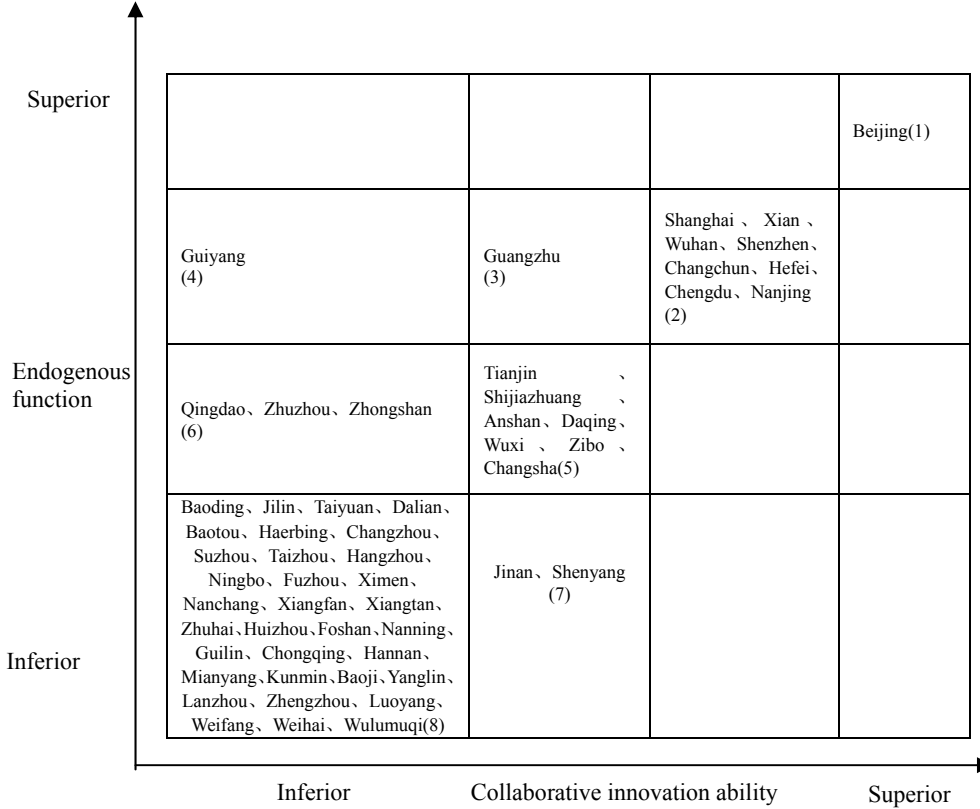


Figure 3 Cluster Analysis Result

4 Results

Based on the above analysis national high-tech zones’ overall strength is still weak. In 56 national high-tech zones there are 33 high-tech zones in “double-inferior” situation which means these 33 national high-tech zones’ endogenous function and collaborative innovation ability both are inferior. There are only one high-tech zone in “double-superior” situation——Beijing. Other high-tech zone are at medium level. According to the result of cluster analysis and factor analysis, Constraints can be found as follow.

(1) High-tech zones with superior endogenous function and inferior collaborative innovation ability (in section3、4and 6). These kind of high-tech zones usually have problems in operation level factor and output performance factor. That means these high-tech zones do not reach the scale economies effect. Although these high-tech zones have reasonable inner structure, incomplete industrial chains severely obstruct the output ability. That is the reason why is this kind of high-tech zones with superior endogenous function and inferior collaborative innovation ability. Only by completing industrial chains, inviting more investment can strength of endogenous function be improved.

(2) High-tech zones with inferior endogenous function and superior collaborative innovation ability (in section7). Taking Jinan high-tech zone as an example, its endogenous function is inferior, but collaborative innovation ability is relatively good. This situation reflects that the development of Jinan high-tech zone relies on input such as R&D funds and human resource, and that means Jinan high-tech zone is still in the stage of resource diving. Although resource diving mode can maintain Jinan high-tech zone’s development, this development is not sustainable. When resources is of shortage, Jinan high-tech zone’s development will be sluggish. Therefore this kind of high-tech zones should strengthen the cooperation with local universities and institutions improve the relation among firms in high-tech zones

and encourage the co-R&D activities among universities and firms.

(3) High-tech zones with inferior endogenous function and inferior collaborative innovation ability (in section 8). Most of national high-tech zones are in section 8. Their endogenous function and collaborative innovation ability both are inferior. Taking Jinan high-tech zone as an example, its investment scale factor and element collaboration factor are in lower ranked locations, which means enterprises in this high-tech zone “enjoy” a low R&D investment, lack knowledge resources provide by local universities. Lack of collaboration among innovation subjects is main obstacles in endogenous function dimension. For this kind of high-tech zones, therefore, government should strengthen the support to enterprises’ innovation, build the platform to innovation subjects making them collaboration. On the other hand, government should accelerate to realize regional economic integration, embed high-tech zones in global R&D network and knowledge network.

5 Conclusion

This paper constructs a two-dimension indicator system to evaluate the endogenous function and collaborative innovation ability of national high-tech zones with cluster analysis, factor analysis and regression analysis. According to the result, Chinese national high-tech zones’ overall strength is still weak. In 56 national high-tech zones there are 33 high-tech zones in “double-inferior” situation. On basis of evaluation, this research puts forward some suggestion to 3 kinds of high-tech zones, which have great reference value.

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Effects of Culture on Service Encounters & Customers' Satisfaction

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Abstract: This paper refers to an important discussion of effects of culture on customer satisfaction keeping in view the service encounters. For many researchers and marketers, customer satisfaction has become a critical success factor and carries an important aspect of business process. Culture is believed to be an important social influence which has significant impact on consumers and the way they behave. Authors assert that culture is a prominent part of social interactions while customers' involvement with others in business. Customers shape up their perception on service quality primarily during the service encounters because of embedded features of services as intangible and inseparable. Using the content analysis technique and view of literature, Geert Hofstede's Model for cultural differences offers a practical roadmap. However, for a firm operation in cross cultural environment, a deep down further analysis of other local cultural dimensions are helpful for better customer interaction. Today's service firms should be aware of the importance of adapting services to the new culture, while maintaining the core service quality standard. Especially for high intangible and high contact services, good employee-customer interactions are key, and a better understanding of how to adapt service delivery behavior to the values of major cultural groups are highly beneficial to service firms.

Key Words: Culture; Inter-cultural; Customer Satisfaction; Service Encounters; Services Outsourcing

1 Introduction

Market globalization is one of the most important changes that have impacted the services marketing over the past 25 years. Enormous opportunities emerged for services marketing organizations to expand across geographical boundaries (Knight, G, 1980-1998). Market globalization also triggered multiculturalism that resulted in increase in international immigrants living within a country (Riddle, D, 1992). World trade organization data 2012 shows estimated services turnover in \$ 4.25 trillion value and 24% contribution in overall global trade.

As with globalization and wide presence of multinationals across world, managers are increasingly engaged in cross cultural work environment and therefore, these progression exhibit challenges to the management practices because managers behavior acceptance would greatly differ by culture & country. The complexity in multiculturalism and managers' job is to deal with effectively in a service organization is a focal point of this concept paper.

Intense heterogeneity level in Services results as high level of customization in service encounters. Because of this, a unique approach is usually used. Since, services are clearly distinguished from manufacturing products primarily based on tangibility factor. Therefore, these are regarded as intangible, untouchable and cannot be stored. Due to the perish ability of the services, usually, are consumed as it gets produced. One of the main concerns when marketing services within multicultural countries or internationally is the fact that the intangible and inseparable characteristics of services are particularly affected by the cultural influences.

2 Literature Review

Many authors and marketers understand and believe that customer satisfaction is the most critical aspect for any firm. Since, it is logical frame that customer satisfaction will eventually result in customers' retention and loyalty to the product or services a firm offer with continuous stream of revenue. Many firms devise & execute their marketing activities with an ultimate goal of customer satisfaction, a key area that convey the strong connection between multiple staged buying behaviors of the customers. Authors⁷ suggest that positive word of mouth from customer side is only possible through pleasant and satisfied experience with product or service. Such experiences further motivate customers on repeat buying or to try the other product mix or line extensions of the same firm and explicitly share the information with their closed one. Communication strategy with a blend of cultural norms become more important particularly Societies that are closely knitted with a group of people just like Pakistan where social relations are stronger and wider and as a result, dissatisfied customers quickly switch to other product or services and spread a negative word of mouth. In such market dynamics, firms get

trapped into enormous pressure to continuously strive in improving their services and products or both.

Culture is defined as a society’s entire way of life and its products. A society which has shared culture composed of individuals. A several implications are observed like culture is learned and shared, at the same time it is non-material as well as material. For many reasons, a man kind is so successful because of cultural significance and its impact on daily life. Culture is believed to be an important social influence which has significant impact on consumers and the way they behave and is a prominent part of social interactions while customers’ involvement with others in business^{1,2,8}. Due to the inherent features of services as intangible and inseparable, customers shape up their perception on service quality primarily during the service encounters. Although there are several factors that influence an overall customer satisfaction like how well service provider understand the customer problems and ready or tailored made solutions. However, in a cultural perspective, social interaction becomes an important determinant in customer satisfaction during a service encounter⁹. Service encounter refers to a situation when a customer and a service provider come into contact¹⁰. Inter-cultural interactions happen when customer and services provider who interact with each other are from different cultural back ground. Thus cultural differences do affect behaviors, expectations and resulted customers’ satisfaction during such service encounters.

In order to examine how customer service is influenced by culture, Professor Geert Hofstede’s 5 Dimensional Model for cultural differences³ offers a practical roadmap. Research, also by others, has shown that services are affected by the cultural dimensions. The 5 dimensions in this model (power distance, individualism vs. collectivism, masculinity vs. femininity, uncertainty avoidance and long-term vs. short-term orientation) represent common issues in the cultural systems of countries and are centered on five fundamental areas of human behavior. The partly emphasis in this article is on the dimensions like, power distance, individualism vs. collectivism, masculinity vs. femininity and uncertainty avoidance because their effects are more immediate. Following caption are some of the examples of comparing Pakistan with developed & developing countries.



Figure1 Comparison of Cultures by Geert Hofstede

(Source: <http://geert-hofstede.com/countries.html>)

The above caption is good explanation to the cultural differences exist among comparative countries. We may refer to examples of call centers or IT help line that most of the western companies are outsourcing to Indian or Asian countries. These call centers’ agent are directly dealing with the customer in a service encounter with diverse cultural back ground and expectations.

The above discussion from literature provides a sufficient background of the issue and hence is helpful in assessing the effects of culture on service encounters and resulting in the impact on customer satisfaction.

3 Pakistan’s Culture

Pakistan’s population is exceeding 180 million with a growth rate 1.47% and is ranked as sixth most populous country with an area covering 796,095 KMs and has a 1,046 KMs coastline along the Arabian Sea and the Gulf of Oman in the south and is bordered by India to the east, Afghanistan to the west and north, Iran to the southwest and China in the far northeast. Ethnic divide of Pakistan includes Punjabi, Sindhi, Pashtun (Pathan), Baloch, Muhajir (immigrants from India at the time of partition and their descendants). Islam is the official and widely practicing religion with Muslim 97% (Sunni 77%, Shi’a 20%) and minorities are 3% of population including Christian, Hindu, and other (inc. Sikh). Urdu is the only official language of Pakistan. English as 2nd language is mostly spoken in Pakistani elite, private corporate and most of the government ministries.

The extended family is the basis of the social structure and individual identity. Loyalty to the family comes before other social relationships, even business. Nepotism is viewed positively, since it guarantees hiring people who can be trusted¹¹. The family is more private than in many other cultures. It is considered inappropriate to ask questions about a Pakistani’s wife or other female relatives. Families are quite large by western standards, often having up to 6 children.

Pakistan is a hierarchical society. People are respected because of their age and position. Older people are viewed as wise and are granted respect. Pakistanis expect the most senior person, by age or position, to make decisions that are in the best interest of the group. Greetings are therefore often between members of the same sex. Men shake hands with each other. Once a relationship is developed, they may hug as well as shake hands. Pakistanis take their time during greetings and ask about the person’s health, family, and business success. Pakistani names often include a name that denotes a person’s class, tribe, occupation, or other status indicator.

Pakistanis do not require as much personal space as most western cultures. As such, they will stand close to you while conversing and you may feel as if your personal space has been violated. Do not back away. Pakistanis are generally indirect communicators. Direct statements are made only to those with whom they have a long-standing personal relationship. Pakistani maintains indirect eye contact while speaking.

Pakistanis prefer to converse in a non-controversial manner, so they will say they “will try” rather than admit that they cannot or will not be able to do something. Silence is often used as a communication tool. Pakistanis prefer to do business in person. They see the telephone as too impersonal a medium for business communication. You should arrive at meetings on time and be prepared to be kept waiting. Pakistanis in the private sector who are accustomed to working with international companies often strive for punctuality, but are not always successful. In general, Pakistanis have an open-door policy, even when they are in a meeting. This means there may be frequent interruptions. Business meetings start after prolonged inquiries about health, family, etc. Never inquire about a colleague’s wife or daughters. During the first several meetings, business may not be discussed at all as the relationship is still being developed.

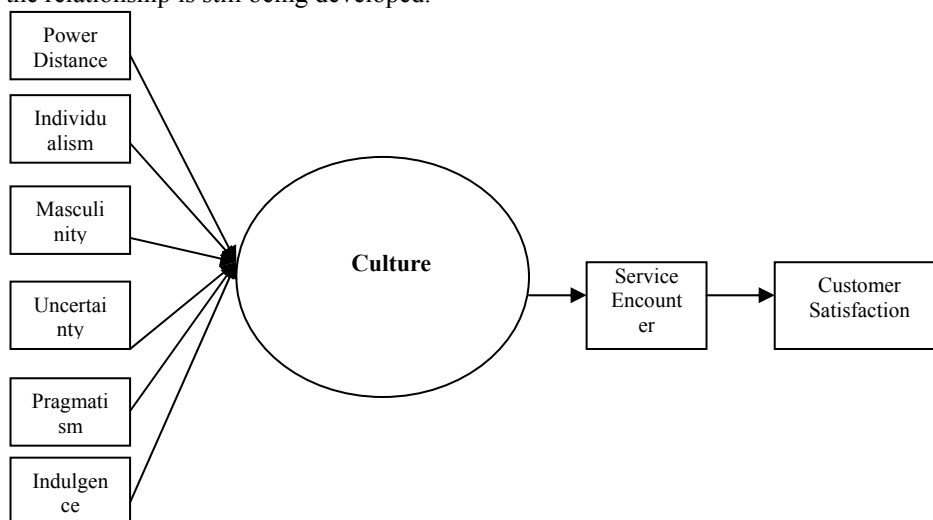


Figure 2 Effects of Culture on Service Encounters and Customer Satisfaction

4 Conclusions

Culture plays an important role in determining how customers expect services to be delivered, today's service managers should be aware of the importance of adapting services to the new culture, while maintaining the core service quality standard. Especially for high intangible and high contact services (e.g., professional services), good employee-customer interactions are key, and a better understanding of how to adapt service delivery behavior to the values of major cultural groups are highly beneficial to service firms.

In a multi-cultural service encounters, several guidelines are suggested for reducing the service quality gap: First, service firms should focus on providing the training and awareness about cultural differences when employees move from one culture to other or interacting over dynamic IT environment. Also have ready technology related solutions such as brief profile of the customer with their social norm on the computer screen during a service encounter. This will also enable the service provider to quickly adapt to the new cultural characteristics. Second, firms may focus on the communication skills with emphasis on the accent that is clear and concise to avoid discrepancies in expectations of customer and service provider with respect to service quality. Some time, customer from a diverse culture may not be well worse with the language ability commonly used by the service provider and in such case; service provider should have some resource dedicated to coop-up language issue. Finally, service provider should have a sound procedure and system to log customer complaints occurs due to cross-cultural reasons and timely address those complaints to avoid customers' switch to other products or services

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Co-Creating Brands across Nations: A Case Study of Leading Chinese Brands Co-Creating Brand Value Experiences in Pakistani Market

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Abstract: This paper proposes a framework for co-creation of cross cultural brands. Due to the increasing trade relations across nations and establishment of brands across countries, the importance of brand management in other countries have been increased. Service dominant logic is an emerging area that focuses on inclusion of customers in service creation area, inspired from the idea that products are evaluated on the basis of service they offer to the customers. The paper takes four Chinese firms operating in Pakistan and applied Case Study as research method to come up with the propositions. During last decades, Chinese companies have emerged internationally and are doing business across globe. In Pakistan there are many Chinese companies who have launched their brands. This paper aims to develop a framework for the customer satisfaction and brand management through brand co-creation and SDL.

Key words: Brands; Brand co-creation; Service dominant logic

1 Introduction

The field of marketing is in consistent flux for more than a decade^[1] (Payne, Storbacka, Frow, & Knox, 2009) and researchers around the globe have observed a paradigm shift in the field of marketing (Ambler, 2006)^[2]. Customer perspective, which went out of focus for a while, is now gaining back the attention from academic researchers (Payne et al., 2009). Vargo and Lusch (2004) have challenged the traditional goods-dominant logic of marketing by proposing the service-dominant logic (SDL) of marketing that highlights a new role of the customer in marketing process as a co-creator of value^[3].

Brand management is an important area of research study within the domain of marketing. Traditionally, researchers have considered brands as company's property (Merz, He, & Vargo, 2009; Veloutsou, 2008)^[4-5] to facilitate customer transactions (Mäläskä, Saraniemi, & Tähtinen, 2010; Morrison, 2001)^[6-7]. Brands have emerged as key organizational assets and are being considered as important managerial resources (Balmer & Gray, 2003; Hatch & Schultz, 2003; Louro & Cunha, 2001; Mäläskä et al., 2010)^[8-10]. In this changing paradigm of marketing and after the emergence of relationship marketing, brand management process has now shifted its focus from just a mere identifier and differentiator of company's products or services (Cowley, 1996)^[11] to delivering a promised experience (Pine & Gilmore, 1999; Randall, 2000)^[12-13]. Researchers have now started emphasizing to build the brands around customers instead of company that is supposed to enhance the customers' relationship experience with the brand (Payne et al., 2009).

With a specific reference to brands, Fournier (1998) had pointed out the dearth of relationship studies in the area of consumer products^[14]. Following the work done by Fournier (1998), concept of customers' relationship with their brands have gained sufficient consideration by the researchers (Muniz Jr & O'guinn, 2001; Rozanski, Baum, & Wolfsen, 1999; Smit, Bronner, & Tolboom, 2007) and they have started discussing the consumer brand interactions through relationship lens (Swaminathan, Page, & Gürhan - Canli, 2007)^[15-18]. Aggarwal (2004) suggests that despite the difference in their nature of relationship, consumers' social relationships with humans are reflected through their relationships with the brands. Despite the sizeable work in the area of branding by researchers (Jevons, 2007), a very little emphasis is placed to the studies of brand relationships, customer experiences, and co-creation (Payne et al., 2009)^[19-20].

2 Service-dominant logic (SDL)

Introduction of different perspectives in marketing (including relationship marketing, market orientation, services marketing, experiential marketing, and brand relationships etc.) over the last three decades have challenged the traditional goods-dominant logic of marketing (Smit et al., 2007). It is learnt that the common thread between these newer perspectives is a significant shift in customer's exchange relationship with company that has moved i.e. from tangibles to intangibles such as skills, knowledge, and processes (Payne et al., 2009). Built on the work done earlier in the area of relationship marketing, service-dominant logic highlights the significance of intangible knowledge resources,

communicative interaction, and the concept of value-in-use (Ballantyne & Varey, 2006) ^[21]. Vargo and Lusch (2004) suggest that service is at the heart of every marketing interaction. They consider goods or products as the delivery mechanism for service and suggest that the service value is realized as the products are used or consumed (Vargo & Lusch, 2004), thus introducing the concept of value-in-use (Ballantyne & Varey, 2006).

A key foundational proposition of SDL suggests that the customer is always a co-creator of value (Vargo & Lusch, 2004). SDL proposes that a continuous customer-supplier dialogue and interaction is required in the processes of product design, production, delivery, and consumption in order to co-create value (Ballantyne & Varey, 2006). These advancements in the area of value creation and value co-creation open the avenues of understanding branding and brands through co-creation and customer experience lens and, hence, will lead towards brand co-creation.

3 Brand Co-Creation

Keller and Lehmann (2006) consider brand relationship and customer experiences as significantly developing research areas. Dall’Olmo Riley and De Chernatony (2000) stress to build brand and relationships around customers instead of company ^[22-23]. They have directed future researchers towards the area of brand co-creation (Bello, De Chernatony, & Shiu, 2007) ^[30]. Prahalad (2004) posits in his co-creation point of view that value is embedded in the personalized experiences, hence, considering brand as an experience that a customer goes through. Building on Prahalad’s views about brand in co-creation perspective ^[24], De Chernatony (2010) experientially defines brands as “a cluster of functional and emotional values, which promises a unique and welcoming experience” ^[25]. This perspective of brand as an ongoing customer experiences is consistent with the concepts of co-creation and service-dominant logic (Payne et al., 2009). Although recent research puts emphasis on co-creation, Brodie, Glynn, and Little (2006) highlight that a little work is done in the area of branding with reference to co-creation and customer experiences ^[26].

4 Brand Co-Creation across Nations

International trade is the key driver of the global economy. In the era of globalization, business organizations are no more bounded by the geographical boundaries of their country-of-origin. Brands that are carried by these business organizations are also not limited to one country and are assuring their presence and penetration in their relevant lucrative markets around the globe. Organizations need to interact and cooperate with their local network partners to gain the competitive advantage in the local market (Håkansson & Snehota, 2006; O'Donnell, 2004) ^[27-28]. As branding is considered to be as an interaction process of value co-creation (Mäläskä et al., 2010), brands are required to be co-created by parent company, local network partners, and customers in order to develop positive associations and yield favorable results from the local market (Brodie et al., 2006; Merz et al., 2009; Payne et al., 2009). In order to be successful, international brands need to shift their focus from organization-centered brand management practices to relationship-centered brand management practices (Leitch & Richardson, 2003) ^[29].

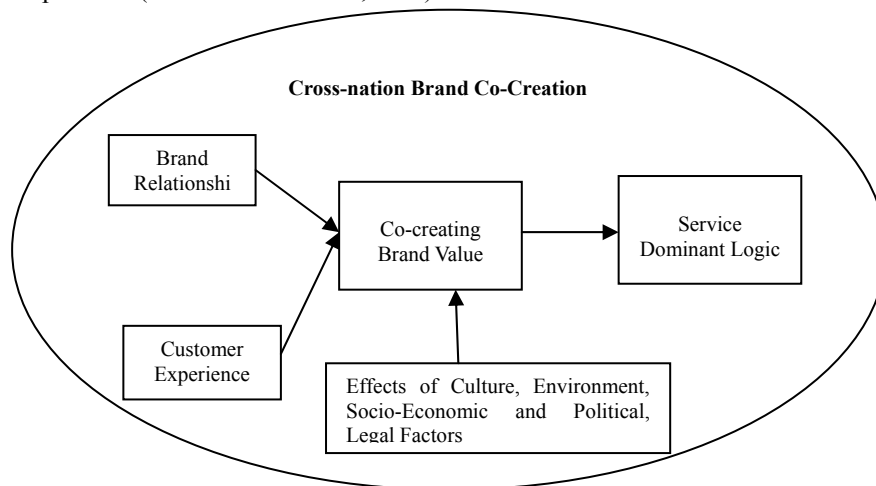


Figure1 Proposed Framework of Cross National Brand Management with SDL

Pakistan is one of the largest markets for Chinese brands with a population of about 20 million people. Leading Chinese brands including Haier, Changhong Ruba, Huawei, and Oppo have recently entered the Pakistani market through their local network partners in Pakistan. These brands need to acculturate themselves according to the local market dynamics to yield the maximum benefit. Brand management practices, especially, are required to be modified according to the local market requirements. Brand experiences are required to be localized and co-created by the parent companies, local network partners, and the customers.

5 Conclusion

From the above discussion, it is concluded that Chinese companies have to face competition with other companies as well as Pakistani companies in the market. The emergence of Service dominant logic is going to change the mindset of customers across the globe and so is the case with Pakistan. In order to remain competitive in the market, companies need to co-create the brand value with the customers in order to create higher brand image and for this they should keep in mind the effects of different factors including culture, environment, political and legal. Service dominant logic is gaining more importance as a result to manage the brand image in highly competitive environments; Chinese companies need to be more and more after the co-creation of brands with customers.

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System Design Concept of Yacht Product Innovation

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Abstract: This paper applies the method of system analysis, from the aspects of integrity, hierarchy, adaptability, stability and so on, this paper expounds the system design concept of yacht products, and the yacht product system is also defined. Through the analysis of the yacht variety and scale, component and the yacht cabin, yacht modular design innovation content, it is concluded that the “function determines form and the material limit process and form shape style” yacht design point of view.

Key words: Yacht; Product design; Cabin space; Design innovation; System design

1 Introduction

Yacht is a high-end ship, is a special kind of water transport, but also a kind of personalized products. Since twenty-first Century, with the continuous development of China's economy, the yacht industry also developed. However, the development of yacht design is still not mature, and the gap between the international levels is relatively large, it is difficult to meet the needs of yacht production enterprises. At present, the trend of the international yacht design is as follows: personalized, large-scale, more functional, green, and intelligent.(Gangqiang Zheng, 2014)Yacht system design research in China for less, Small yacht shape and interior design features were analyzed by Li Gong. (Li Gong, 2007)Yong Peng explores the application of CATIA V5 in yacht design.(Yong Peng&Weibin Liu, 2007) Bai Wei Feng analyzed the multidisciplinary design optimization technology and which application in the design of the ship. (Baiwei Feng&Zuyuan Liu&Haichao Chang,2009) Overall, the research on the system design of yacht product innovation is still to be further studied. Therefore, it is urgent to carry on the systematic analysis to the yacht product, in order to identify its intrinsic law, thus promoting the yacht product design innovation.

2 System Design Concept of Yacht Product

“System” is a unified whole, usually consisting of several elements, the connection between the elements, mutual interdependence, interaction, and through this form and have a one or several specific functions.(Wu Xiang,2000) System design method is based on the theory of system theory, the method can be used for product design and development. System design involves the creation of information, the introduction of information, conditions, technical support, design innovation, design and output, and so on. The system has the characteristics of integrity, hierarchy and adaptability. As a large complex product,(Jianquan,2001) the yacht has the characteristics of integrity, hierarchy, adaptability and sustainability. The analysis of these characteristics can promote the innovation of yacht product design.

2.1 Overall design of yacht system

Integrity is the basic characteristic of system design, and the overall design concept is one of the core ideas of system design. For example, a yacht is a complex system of ship products, and the space environment is the main part of the whole system. System design of yacht cabin space including: hierarchical cabin layout, function cabin distribution, cabin furniture design, cabin color collocation, cabin material selection, cabin furnishings decoration design, the subsystem design together constitute cabin space as a whole, and match the hull form swim whole boat, so as to meet the needs of users. The building of the space design style of the yacht cabin is built on the basis of the overall functional requirements, which will only meet the individual function from the whole will cause the design disorders. The core idea of yacht system design is based on the whole. The design flow of the system is the important guarantee to promote the innovation of the yacht product design.

2.2 Level of yacht system design

In the system theory, the structure of the system has the characteristic of hierarchy. This means that the systems are often part of larger systems, and can be split into a number of elements of the constituent elements and can continue to split into smaller systems, thus forming a multi-level characteristic, structure of the system is. (Wu Xiang,2000)In the yacht system between the various levels, the elements of the system cross link and produce mutual influence. System design should be carried out with the hierarchical characteristics of the system to design and optimize the link. For example, the yacht cabin

space environment system can be tentatively divided into three levels, in cabin space design and planning, all levels of the key elements of the selected cross collaborative design make the design more perfect. (As shown in Figure 1)

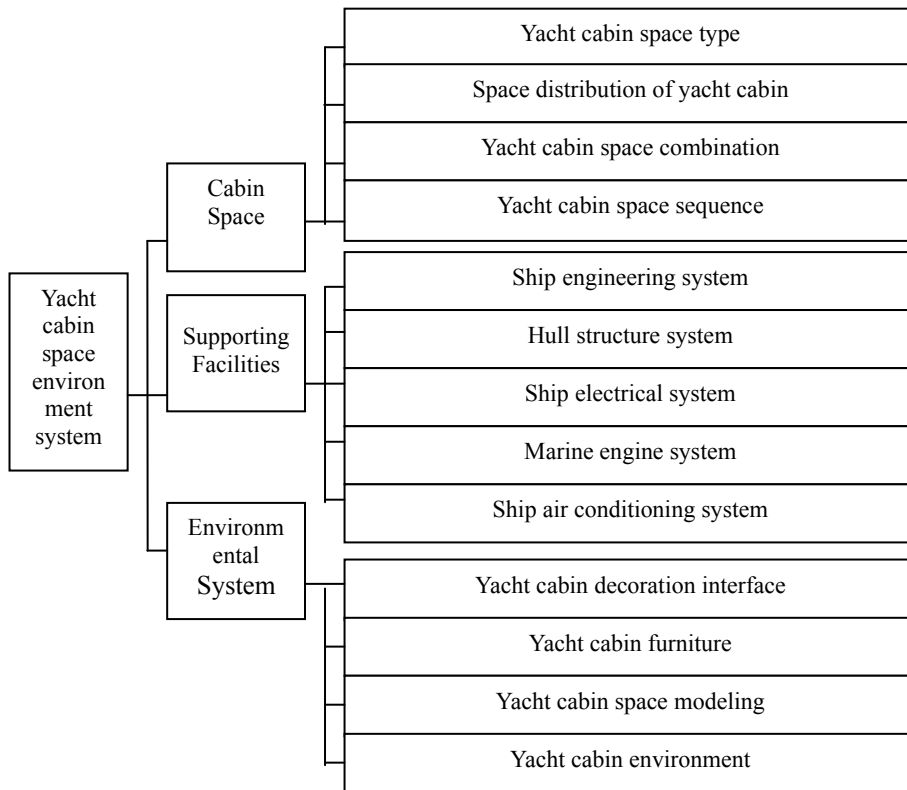


Figure 1 Analysis Chart of Space Environment System of Yacht Cabin

2.3 Adaptability of yacht system design

The adaptability of the system is that the structure and function of the system can be changed with the change of the environment. Yacht system design also needs to have adaptive characteristics, in order to adapt to market changes. With the development of the times, the system design of the space environment of the yacht cabin should be changed to meet the needs of users. This change may be a small amount of design exploration, such as with increase of the yacht scales, some yacht in the compartment side design clamshell opening, the boat parked and water more convenient. It may also be produced fundamentally by gradually quantitative qualitative change. For example, the size of the yacht gradually increases, and the space of contact with the outside world is gradually increased, the possibility of using the external environment of the user becomes larger. In order to obtain a better sea experience, enterprise has developed a new flying bridge yacht, greatly expanding the area of the yacht cabin space. Since then, the flying bridge design has gradually become an important part of the yacht. It can be said that it is adaptive to promote the innovation of the yacht.

2.4 Stability of yacht system design

The function, structure and characteristics of the system have some degree of stability, which can be kept relatively constant under the influence of external factors. The relative stability of the system determines the continuity of the system design. Yacht cabin space design includes, for example, the facilities, the cabin space and environmental system, such as elements, each element has a clear structure of the independent system and in a certain period of time does not occur fundamental change. The stability of the space function of the yacht cabin has brought the continuity of the system design, which provides the basis and guarantee for the innovation of the yacht system design.

3 System Analysis and Definition of Yacht Products

The systematic cognition of the complex product system is the basic premise of the innovation and development of yacht design. In western developed countries, the marine culture has a long history, the

yacht is more popular, has become an important part of the people's leisure life, the awareness is higher. While the development of China's yacht is short and the yacht more as a business, reception and other uses, awareness is still to be improved.

3.1 Function to determine the type of yacht: yacht varieties and scale division

The general definition of the ship's yacht mainly refers to the luxury yacht, which generally has many functions such as navigation, leisure, entertainment, sports, reception and so on. According to the function and use of different emphases, usually can be divided into: yacht business, leisure yacht, sports yachts, fishing boats and other categories, its functions have different emphases can blend with each other.

Yacht ship size and scale is often determined by the functional requirements, yacht according to the size of the scale can be divided into four categories: 36ft following yacht (many fishing boats or exposure boat), 36ft ~ 60ft medium-sized yachts (Multi Sport yacht), 60ft to 90ft in large luxury yachts (leisure yachts), 90ft above super yacht (for business yacht). Also the functions and scale often determines the yacht bow shape, depending on the bow shape, the yacht is divided into fore peak yacht (forward) bow and axe bow type yacht (vertical bow), inverted bow and axe type yacht (bow backward), bulbous bow type yachts; different according to the shape of the top of the yacht, for hardtop yacht, a sliding cover type yacht, open-air flying bridge yacht, shading flying bridge yacht etc.; according to production can be divided for the production of yachts, personalized custom yachts, production type of boat of personalized custom yachts etc..

Each yacht manufacturing enterprises have their own boat type distribution, such as the boat type of China a representative yacht business concentrated in 43ft, 48ft, 53ft, 58ft, 63ft, 68ft, 78ft, 86ft. While the other large and medium-sized yacht manufacturing companies are concentrated in the 52ft, 62ft, 72ft, 90ft, 138ft, 145ft. Each kind of different functions, scale different yacht, the respective waterline below to obtained by line design, calculation and experiments in the pool.

Yacht design not only need to meet the functional requirements, but also need to focus on the human nature of space design and modeling art aesthetic. In with the development of technology and market demand changes, yacht original relatively Hale line folding angle shape gradually transition to arc lines, become more and more full, rounded, has more affinity and humanization characteristic. According to the different scales of yacht cluster analysis, it can find the relevant characteristics. 60 feet below the medium and small boats, its shape and structure is relatively simple, the design common embodied in: the cabin space for 1 ~ 3 layer structure; lines clear and flowing, morphological structure is often symmetrical distribution. 60 to 90 feet of large yachts, the shape of the space structure is relatively complex, with multiple functions. The level of the deck cabin and the ship body line design is much layered, which reflects the luxurious and elegant fashion style, which often represents the development trend of modern yacht. Large yacht design common embodied in: the cabin space for 2 ~ 4 layer structure; the side window line multi to streamline mainly, in order to give people a sense of beauty and life. 90 feet above the yacht design, its shape and the space structure is very complex, the function is richer, is the luxurious representative. Mega yacht design common embodied in: deck cabin space for more than three layers of multilayer structure; tough lines, simple and generous and highlights the sense of strength and speed.

3.2 Material qualification process: yacht assembly and compartment division

From the design and manufacturing process, the yacht can be divided into the lower part of the main hull and superstructure two parts. Among them, the inner part of the lower hull is still a type of building space. Therefore, the main contents of the functional structure of the cabin space of the yacht. The hull and superstructure of the medium and small boat are generally made of glass steel. The main hull is large luxury yachts for steel, and the superstructure can be aluminum or glass steel structure. Different materials determines the main hull and superstructure of production equipment, construction technology, environmental conditions, technical personnel and other requirements, there is a big difference, must be constructed in the specific production area. Main hull and superstructure construction process can be roughly decomposition for the hull manufacturing, berth closure, parts and components production and installation etc. several manufacturing stages, various tasks package is by making the sequence of combination, and then the assembly line. (Hou Liang,2003) of the hull construction main process analysis shows, yacht cabin parts and components production easier for modular design, production and assembly, which has a composite structure of cabin space module. Yacht main hull and superstructure can only part of the modular design and production.

Overall, the yacht hull parts and components can be divided into: module of ship bow, stern, sheer, masts, bulwark, lifeboats, etc. facilities. Typical large yacht the deck cabin space partition and layout are

as follows: bilge deck usually consists of master room, VIP rooms, the crew cabin, sanitary ware and other space; main deck usually include Sharon area, driving cabin, kitchen, bow leisure area, a well region of a stern, swimming platform space; upper fly bridge decks are usually include simple driving Taiwan, leisure areas, the surf zone, BBQ area, boat parking areas space.

The space and interior design of the yacht can be used for reference to other types of interior design and interior design. Yacht is not only a water transport, but also a moving "building", which itself has some characteristics, such as space allocation, flow lines, etc.. Yacht on the basic configuration, such as driving module of room equipment, engine room equipment, bathroom, lifeboat, anchors and associated electrical products have achieved mostly standardized production, in the actual yacht development only integration can be. For example, in terms of power control, yacht to the integrated configuration of ship with communications equipment, driving with instrumentation, radar antenna, satellite navigation system, ship engines, generators and other equipment, to meet the navigation function and direction identification, security need.(Hou Liang,2003)(as shown in Figure 2)

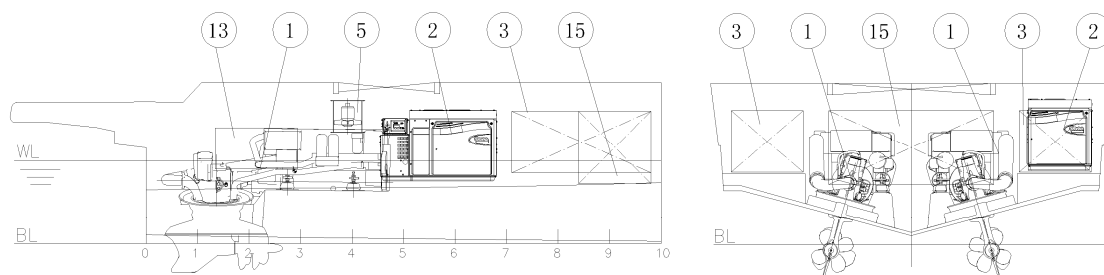


Figure 2 Small Yacht Engine and Propeller Equipment Installation Figure^[8]

3.3 The form of the style: yacht modular design innovation

The yacht as a high-end consumer goods, the essence of leisure, entertainment and make it different from ordinary passenger. But yacht still belongs to the ship, yacht design must be based on the design of the ship, but it needs to be creative and innovative. From the "aesthetic characteristics" of the yacht cabin, the yacht is usually a graceful and smooth front, reflecting a sense of speed and power. The use of arc line, the tough ship modified softer, aesthetic characteristics of the art. The international famous yacht brand is more exquisite, the emphasis is on the level and the style of the whole. Through the design of yacht design and cabin space and interior module analysis can explore the yacht superstructure modeling and hull and cabin space of beauty and harmony, so as to realize the fusion of art aesthetic, creative design and science and technology.

In the study of the yacht modular design, it is also to consider the cultural and aesthetic, etc.. Because of the functional requirements and regional culture and other factors often determine the yacht design aesthetic style. The "localization" design of the yacht cabin is the design idea of the regional trend of internationalization. Guided by the idea of the design and localization of the yacht, yacht module design module is built, and the style of yacht is classified. For example: tug yachts, classical and modern minimalist fashion, personality type, type, type of bionic prospective. Then to yacht module system component library based, combined with localization of user needs, use of the yacht design feature and component composition system analysis and design, R & D of yacht design modeling and space unit to design a universal problem solving and design for yacht provided to provide a scientific basis, and docking project to lay the foundation.

The yacht cabin module analysis include: Based on user's physiology and the psychological demand of the cabin space and activities of the module function analysis, module form, attribute classification, the shape and size design of; design of standard based on the unity of form and structure, the cabin features; research on 3D virtual design based on man-machine engineering database; for disassembling and recycling of environmentally friendly materials and supplies design and application. (Feng Bowei, Liu Zuyuan, Chang Haichao,2009) Which, yacht cabin space and activities of the analysis of the function module, module, module attribute classification, module of form and scale design and research is the focus of yacht module system research, it is yacht modular design. The yacht cabin space module design as the basis, expand the derivatives related design and research content, such as: the morphology, structure, function, material based, the establishment of yacht cabin color classification module database, according to the color brightness, hue, purity changes form the color character

classification, in order to be able to make consistent with the character of the user's color scheme.

4 Conclusion

In this paper, the design and innovation of yacht products, from the integrity, hierarchy, adaptability, sustainability and other aspects of the system design concept of yacht products. And the yacht product system is also defined. Through the analysis of the content of yacht variety and scale, component and the yacht cabin, yacht modular design innovation, put forward: function determines form and the material limit process, shaping the style of the design point of view. It lays a foundation for further research on the innovation of yacht products.

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Research on Agricultural Products O2O Mode of Consumer Participation

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Abstract: In the era of Internet and mobile Internet, marketing activities rapid developed, marketing of agricultural products because of mourning in their own characteristics have been changed slowly. And agricultural products marketing mode has had a profound impact on the development of agriculture, rural and farmers. Suitable agricultural products marketing mode will affects the quality and efficiency of agricultural products circulation, the interests distribution relations of the value chain of agricultural products, the speed and pace of agricultural industrialization. In the era of Internet, under the background of consumers participation gradually become normal, O2O marketing mode of agricultural products was discussed. On the basis of the theory of the representative Farmigo mode, with empirical research, this paper constructed its marketing process, obtained the responsibilities and division of the participants, in order to provide a reference for the consumers of agricultural products, production and marketing enterprises from a new marketing perspective.

Key words: Consumer participation; O2O mode; O2O mode of agricultural products; Farmigo mode

1 Introduction

1.1 The concept and connotation of consumer participation theory

In traditional market, consumers tend to passively accept products, rather than take the initiative to pick products. In recent years, with the increasing development of the internet and mobile internet technology, customer participation in product marketing has become increasingly prominent. Therefore, more and more scholars and experts focus on its theoretical exploration and empirical research. A group of scholars and experts who gave the concept of consumers participation earliestly (Greenwald, Leavitt as the representative), considered that consumer participation is the activities of participating in the production and delivery of service products. In 1990s, Fire thought consumer participation include material participation and spiritual participation. Dabholker (1990) pointed out that the customer participation sometimes is an un-optional self-service, and sometimes it is to gain information in the process of getting service. Cooke (2004) argued that the essence of enterprise marketing consist of internal marketing for employees and external marketing for customers. Internally, the employee participation will improve the quality of business decisions. In terms of external, customer participation can improve customer satisfaction and service performance.

1.2 Affecting factors of consumer participation

An tian,zhang hua(2005)came to the conclusion that customer participation level is positively related to service provider's job stress by study on the relationship between customer participation and its relation with service provider's working pressure. Because too much customer participation will cause more transparent information and more uncertainty in the process, leading to be difficult to predict consumers' behavior for the service providers. However, in the era of network media, consumer participation and consumer experience have become one of the most powerful means of converting traffic to purchase. Therefore, Holland and Menzel (2001) by combining with customer participation and e-commerce marketing concluded that customer participation has a significant effect on customer loyalty. Customer participation will significantly improve customer loyalty. Bagozzi and Dholakia (2006) proposed the concept of small group brand community. It is pointed out that the small group brand community is the consumers who share the feelings of the brand and social identity. In this group, if members want to join the group, they must share similar consumer behavior. In other words, consumers need to participate in community activities, in order to integrate into the community. Based on the above conclusion, Scott and Mickal Alexander (2007) through further study got that only those who get high-quality experience will take an active part in the activities of brand community. Zephyr (2007) thought that if you want only to create a unique product demand and unique consumer experience, consumers will participate actively. and consumer's high degree of trust and highly involvement will be

getten.

1.3 Theoretical mode of consumer participation

Hong Chong, Yang xiutai et al. (2009) constructed theoretical quantitative model between customer participation, trust and satisfaction. The results further confirmed the consumer satisfaction can greatly improve the consumer participation and the level of trust. Brenda (2010) studied that one of the proper and correct methods of looking for the consumers is to carry out promotion and activities related to consumer. Only those consumers who willing to pay and participate in the activities are valuable for the enterprises. Liu Jianxin et al (2010) pointed out that consumer participation is generated on the basis of consumer demand and value of interest. Yan Jun Peng (2011) has built up a consumer participation scale, and designed the four dimension model of preparation, information exchange, cooperation, interpersonal interaction, and measured the four latent variables through 17 observed variables. Zhang Yi et al. (2011) concluded that there is a positive relationship between consumer participation and satisfaction. Relying on the subject of the role of consumer participation in tourism planning and development, Sunny (2013) concluded that consumer participation is the key to sustainable development. Consumer participation is to motivate consumers participate in activities actively, in order to form the characteristics of tourism. Schmitt (2014) pointed out that the essence of consumer participation is decided by three aspects of the brand: the brand category and personality, brand appeal, brand influence and symbol, etc. Consumer participation consists of four stages, followed by consumer recognition, consumer experience, consumer comprehensive, and consumers representative.

2 Research on Agricultural Products O2O Mode of Consumer Participation

2.1 Concept of O2O mode

O2O, is short for online to offline, also known as the online and offline mode. O2O is brought online consumers to consume in store. Consumers pay for the goods and services online, then experience services offline. The entity store information is brought to the network or mobile internet users by group buying, discounts, information sharing and service booking, so as to convert them to their own offline customers. The service offline can attract customers online. The customer can screening services and clinch a deal online.

2.2 Characteristics of O2O mode

2.2.1 Online and Offline

O2O is conceptually online and offline. But this line is not necessarily the internet. After internet of everything, when there is no water in drinking water machine, it will automatically book water, direct dock send water company database, not by you operating a mobile phone or computer. but it need offline and offline interaction. it may be offline touch online or online touch offline. And the two parts are indispensable in forming the value of O2O.

2.2.2 Service standard side C

Different from C2B, the standard of O2O model is in side C, while the standard of C2B model is in side B. The relationship of C2B and customer is enlightenment and being enlightenment, such as Huawei's production of mobile phone is a typical of industrialized production mode. Only need to write a unified specification, and taught customers to use and maintenance. Although O2O mode produce commodities or provide service, it customizes according to customer demand, to meet the demand of the customers. This is the contradiction between lower productivity and advanced service thinking. It is the reason that O2O is fire but not prosperous., and can't be satisfied by side C.

2.2.3 The extension of side B and C interaction chain

In general, merchants extend the transaction participation chain through offline services. And get customers through their own advantages as more as possible. Consumers extend the transaction participation chain through online information and choose the Optimal Commodity by shopping around. The chains are interact with each other, in order to maximize their own interests by minimizing the participation of the third party, such as O2O take-away. Businesses extend the access to information by extending the logistics and distribution services and consumer' online choice.

C2B mode is the consumer to business mode. Its essence is to maximize pursue consumer participation in the production and marketing process of leading business. The core idea is serving for consumers and providing customer satisfaction products. C2B model believes that consumers demand is prior to enterprises production. Conventionally, consumers customize products and prices in accordance with their own needs, or actively participate in product designing. While production enterprises produce production to meet the consumer's personalized needs. The whole process is the process of consumer

experience marketing.

2.3 Characteristics of agricultural products O2O mode

2.3.1 Control the loss by O2O mode

Before the product has yet been produced, it has been sold out, and the loss directly been controlled. For example, conventionally, a whole pig is to be divided into the plum blossom, former clips, abdomen nan, hind legs and other body parts. Then these parts are sold out. Consumers have to passively buy these divided segmentation. On the one hand, it doesn't really meet the needs of the consumers. On the other hand, consumer preferences of meat, such as ribs, hind legs are often in short supply. While the former clip, plum, belly meat is unsalable. Finally, because of the freshness and shelf life, they have to be discounted. And by O2O mode, the product already know who is sold to before sales, and consumption in different areas will be well coordinated. By O2O mode, consumer will know the specific appearance of the products before they see and receive the products. It will greatly increase the level of their participation and experience feeling.

2.3.2 Connect with consumer by O2O

Consumer dock with agricultural production enterprises by a mediation platform, and the intermediary platform is called aggregation platform. The conventional aggregation platform includes website, WeChat and so on. In these channels, WeChat has strong sociality. It is the earliest started channel. Now it is better than e-commerce platform, and have a better result in docking with consumer. By WeChat, consumers achieve their sense of participation, satisfy their leading character to the marketing of agricultural products, imply their greatest level of experience feeling.

2.3.3 O2O mode can achieve maximum consumer participation

Consumers quickly get through experiential marketing channels by activities and propagation. For example, the intermediary platform integrate agricultural products sales online and offline through the congregation raised, evaluation, collective activities. And realize interaction through KOL information dissemination, micro movies, pictures, feelings. The consumer's opinions or suggestions are adequately expressed on goods to prompt agricultural production enterprises providing the best products and services.

2.3.4 O2O mode can properly control marketing cost, and reduce the terminal sales prices of agricultural products

In traditional agricultural products sales, the interests of producers, agricultural product middlemen, consumers have failed to adequately safeguard because of too much intermediate links, loss in circulation, spoiling and metamorphism of agricultural products. Everyone failed to enjoy higher returns in this session. Through the centralized bulk purchase, the purchase cost, the integrated marketing costs, the cost of warehousing, logistics cost, circulating capital, inventory risk costs are significantly reduced. Eventually O2O will directly make the agricultural producers and consumers benefit.

3 Representative Mode Research of O2O—Taking “Farmigo” mode as an Example

3.1 Concept of “Farmigo” mode

Farmigo is composed of farm, I and go. It is a platform connecting the farm and the consumer. Farmigo is a representative enterprise of the United States agricultural product O2O innovative business mode. With the unique business mode, Farmigo is hailed as “innovative agricultural products online sales platform” by many media. Looking from the pattern, Farmigo is more similar to a agency connecting consumer and farm. For farmers, Farmigo is an online platform, a new sales channel. Farmers can manage production, sales and distribution of their agricultural products through it. For consumers, Farmigo is an online market. They can buy high quality fresh product directly from the farmers through it.

3.2 Responsibilities and processes of “Farmigo” mode

Farmigo is a typical user demand oriented mode. Farmigo makes a web page for each community, and then the leader can add products to the community. Leaders need to invite at least 20 friends or neighbors to join community. There is no maximum number to food community. Leader publish food demand information every two weeks. 10% of community sales will taken as leader's reward. In addition, leaders also enjoy the food discount. Leaders take an active in motivating people around him to join the community.

Participating parties of Farmigo mode include consumers, farmers, online mediation platform. The rights and responsibilities of the participating parties are shown in the following table:

Table 1 Rights and Responsibilities of Participating Parties of Land Subscription Mode

object	core responsibilities
“Farmigo” platform	create a shopping website specified for community add priority selected farm products invite community residents to join the community negotiate discounts
farmer (agricultural production enterprises)	plant Use “Farmigo” and similar platform to sale products collect payment and delivery
ultimate consumers	through the “Farmigo” and similar platform to buy products pay enjoy exclusive discounts and proprietary products

Marketing process of “Farmigo” mode is as follows:

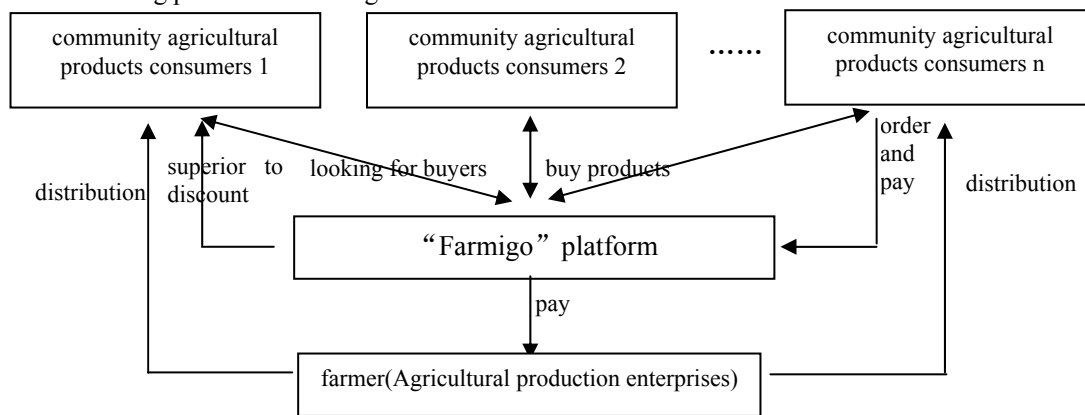


Figure 1 Marketing Process of “Farmigo” Mode

3.3 Characteristics of Farmigo mode

3.3.1 Achieve multi-win-win

By implementing the middle platform, consumers can participate in the choice of varieties of products and enjoy a low discount. For farmers and the farmer's cooperatives, this pattern can provide job opportunities, increase income.

3.3.2 Social and economic benefit

On the one hand, to the ultimate consumer, this mode fully realize consumer participation and leading. It provides healthy, fresh, safe, green customized products. At the same time, it also meet the psychological needs of becoming "private custom". On the other hand, it remove the intermediate. Intermediary platform not only revitalize the agricultural land, but also solve the problem of the production and sale of agricultural land through letting Ultimate consumer directly transact with farmer.

3.4 Difficulties faced with Farmigo mode

The key of O2O is disintermediation, so for agricultural products e-commerce, O2O is certainly the trend of the future. Let consumers dock with producers directly, shorten the flow of intermediate links, thereby reduce the cost.

3.4.1 Cold chain logistics

Agricultural e-commerce’s demand for cold chain logistics is far more than other industries. Under the background of Farmigo mode, cold-chain logistics become the weakness which restrict the development of the Farmigo mode of agricultural products . Previously, there are only various fresh e-commerce platform and other business users. While under Farmigo mode, there may be a farmers of a certain village. The object needing to serve increases, then the market capacity will increase. The difficulty of the cold chain logistics similar to individual express business also increases.

3.4.2 Development of target intermediate platform

So far agricultural e-commerce based on Farmigo mode is very little. Most agricultural e-commerce is: what I have here, you come here and see what you want. And Farmigo mode is about what I want, and who can provide me with this product. It takes consumers and customers demands as orientation. For example, I want to eat sausage. Farmigo mode is the consumer put forward the specific about ingredients, taste, dry degree, and the price. Then farmers see consumer’s demand, meet their

demand, and make a deal. It is similar to private customization. But there is so few middle platform specifying for development of agricultural products O2O mode.

3.4.3 Agricultural products ordered production

In past agricultural products production, the biggest problem is that the market is difficult to predict. The phenomenon of bad market occurs frequently. Often the production increases, while income doesn't. And traditional ordered production can only solve the problem of scale, and give priority to the public demand. Fragmentary and niche demands can not been satisfied. And with the emergence of Farmigo mode, there is a big platform can easily collect various consumer demands. The producer can perform a specific production to achieve the result of long tail effect. Professional producers can harvest in this market.

4 Conclusion

Consumer participation oriented agricultural products O2O marketing mode is still in trying stage in our country. its development space is huge, but its constraints also exist. First of all, individual customization has high requirement for aggregation ability of O2O platform. Personalized needs of consumers differ in thousands ways. How to personality first, then aggregate is a huge challenge for platform's own data tracking, sorting customers, response speed, finding a suitable manufacturer. Secondly, the mode also has high requirements for traditional enterprise supply chain, especially logistics distribution capability. Therefore, agricultural products O2O mode is still in the exploration stage. In the future, the research on the agricultural product customization platform, the agricultural products production enterprise logistics and supply chain construction and the construction of agricultural products cold chain transportation system will go on.

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Development of Regional Non-Public Economy in China: Historical Review on the Growth of Non-Public Economy in Hubei Province of China since the Reform and Opening-up

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Abstract: Non-public economy plays a significant role in Hubei province which is the bellwether of 'the Rise of Central China'. There has been a long way for Hubei non-public economy from absence to emerge, from permission to encouragement, support and guidance. The high-speed development and vitality of non-public economy have constituted important driving forces for Hubei's economic development, prosperity and expanding employment market, increasing taxes and maintaining social stability. In this study, the development of non-public economy in Hubei province since the reform and opening-up has been divided into three stages: First stage of restoration and development (1978-1992), second stage of rapid development (1992-2002) and third stage of scientific development (since 2002). Moreover, characteristic of each stage has been analyzed in detail. Finally, this paper discussed the important characteristics of the overall development of non-public economy in Hubei province.

Key words: Reform and opening; Hubei province; Non-public economy; History

1 Introduction

With the deepening of reform and opening up, and establishment and improvement of our nation's socialist market economy, Non-public economy in China has started from scratch and expanded from a small to a large project which shows the process of strengthening and consummation, and becomes an important force in China's economic and social development. Non-public economy plays a significant role in Hubei province which is the bellwether of 'the Rise of Central China'. Non-public economy not only remains an important factor for economy but also is the main channel of absorbing labor force. Meanwhile, it is an important way to get rid of poverty, and constitutes an important force in modernization. Hence, Non-public economy has played an important role to enhance Hubei's GDP. '2013 Hubei private economy development report' issued by the Hubei Statistics Bureau showed that in 2013, the growth of private economy accounted for up to 54% of GDP, rose of 0.9% than that of the previous year. Meanwhile, the report showed that the added value created by non-public economy was 1332.17 billion Yuan, an increase of 151.58 billion Yuan over last year, and 62.6% of Hubei's GDP came from non-public economy. The sale value and profit of large non-public enterprises were 2559.61 and 1385.3 billion respectively, increase of 19% and 29.9%. The number of total employees in non-public enterprises was 6.739 million, increasing 19.2% over the previous year.

Non-public economy in Hubei province has achieved effective results. Meanwhile, some problems still exist, mainly in five areas: firstly, the difficulties in financing in non-public enterprises; secondly, non-standardization in the business and management of the small- and medium-sized non-public enterprises; thirdly, high cost pressure and taxes; fourthly, downward pressure for the growth quarter by quarter; Fifthly, safeguarding the equality development of non-public economy.

The achievement in Hubei's non-public economy is a kind of historical products, and requires a certain degree of historical condition which is on the basis of long-term history^[1]. Hence, it is an important research direction to sum up the history of the development of non-public economy in Hubei Province, and the specific characteristics of each historical stage.

Historical periods of non-public economy were divided into three or four stages on the basis of the Party Congresses in academia. The division of three stages of J.P. Ding^[2]: the initial exploring period (1978-1997), the whole expanding and deepening period (1997-2002), the theoretical and practical innovation period (since 2002). The division of three stages of J.W. Li^[3]: the beginning and exploratory stage (1978-1992), the specification and deepening stage (1992-2002), the new development stage (since 2002). The division of four stages of L. Li^[4]: the early stage (1979-1991), the expanding and exploration stage (1992-1997), the specification and enhancing stage (1998-2002), the innovative development stage (since 2003). The division of four stages of G.J. Qiu^[4]: the initial stage (1978-1992), the exploration stage from point to surface (1992-1997), the orderly exploring and rapid development stage (1992-2002), standardization and systematization development stage (since 2002).

There has been an important way for Hubei non-public economy from absence to emerge, from permission to encouragement, support and guidance. The high-speed economic development and economic vitality have constituted important driving forces for Hubei's economic development, prosperity and expanding employment market, increasing taxes and maintaining social stability. In this study, the development of non-public economy in Hubei province since the reform and opening-up has been divided into three stages: First stage of restoration and development (1978-1992), second stage of rapid development (1992-2002) and third stage of scientific development (since 2002). Moreover, characteristics of each stage are analyzed in detail.

2 The Development of the Non-Public Economy in Hubei Province

2.1 Restoration and development stage of non-public economy in Hubei province

In 1978, the 3rd session of the 11th congress was not only a major historical turning point of China's economy and social development, but also the turning point of non-public economic development. After the 3rd session of the 11th congress, Hubei province held three successive meetings, forming three high tides about the Discussion for the Criteria of Truth and the Liberation of Thought. Individual private economy developed from 'The tail of capitalism' to 'The economic supplement of socialist public ownership', and from 'Restricting development' to 'Permitting to exist and develop within the limits prescribed by law', which laid the ideological foundation for the development of non-public economy in Hubei province. Since 1979, family-contract responsibility system was put into practice in the countryside of Hubei province. By the end of 1982, family-contract responsibility system already basically popularized. The state-owned enterprises began to explore the reform of enterprise which decentralized management autonomy as the core. Along with the open of trade market in the cities, a large number of individual businesses emerged. Hanzheng Street was the first to recover small commodities market in China, it developed into the largest small commodity wholesale market in the central China from a small market. At the same time, businessmen from Hong Kong, Macao and Taiwan came to Wuhan and entered the market of Hubei province. In October 1984, Third Plenary Session of the Twelfth Central Committee passed 'the central committee of the communist party of China about the decision of the economic system reform', China entered the economic system reform stage which regarded cities as the focal point, and non-public economy was growing rapidly. Hubei province has carried multiple significant experimental reform tasks, and has taken the leading role in the pilot provinces. Under the situation of the opening to the outside world, the economic zones were established. The Donghu Lake area of Wuhan is the high-tech industry development zone since 1984. In addition, the first one set of television production line was imported in 1986. It was found that non-public economy in Hubei province has had the big development through a series of reform steps. In 1978, the number of individual businesses in the province was 7000. While by the end of 1987, the number was nearly half a million. At the same time, private economy has developed to a certain extent. Hubei province began to form the co-existence pattern of state-owned, collective, individual and privately owned economy. However, the economic conditions changed from loose to tight from the second half of 1988. On one hand, the government began to administer the economic environment and to readjust the economic order, due to the signs of the first-round economic overheating and the growing problems caused by the disorderly development of town and township enterprises. On the other hand, global (drastic change of Soviet Union and Eastern Europe) and domestic (the political storm in 1989) developments gradually changed the political and economic situation in ways unfavorable to non-public economy. Individual businesses and private enterprises were over-punished in the national tax check up. The socialist development of China suffered a serious setback as a result of collapse of Soviet Union and tremendous changes in the east Europe. In the case, the development of the private and individual economies was undermined, and has experienced slowdown in growth. The phased characteristics of non-public economy in Hubei Province were: (1) The development of non-public economy has been greatly affected; (2) From 1989 to 1992, the private and individual economies in Hubei Province experienced a sharp slowdown before the Deng Xiao Ping's speech in the south trip. For instance, the number of private enterprises in Hubei province was hovered at about 2000 from 1989 to 1992. The financial problem of private economy in Hubei province is that the gap is expanding with the developed regions.

The phased characteristics of non-public economy in Hubei Province were: (1) Private economy intermixed with individual business and cooperative economic organization; (2) Small in scale and low in grade; (3) Mainly family-owned companies; (4) Spontaneous development.

2.2 Rapid development stage of non-public economy in Hubei province

Table 1 Development of Non-Public Economy in Hubei Province from 1992 to 1997

	1992	1993	1994	1995	1997
Number of private enterprise	2127	5730	15000	24992	38998
Rank in China	19	14	-	-	9

The 'talk in the South of China' by Deng Xiaoping in 1992 gave answer to the basic questions of what socialism is, solved the problem of capitalism or socialism, and brought non-public economy enormous vitality. In March 1993, the first meeting of the Standing Committee of the 8th NPC changed the country's constitution and made it clear that the state carried out the socialist market economy. The fourteenth National Congress of the Chinese Communist Party brought forward the stratagem goal for building socialism market economy. Hubei provincial government caught the chance to accelerate the development of private economy in Hubei province. In 1993, the provincial government held a working meeting for individual private economy in Xiaogan for the first time in the name of provincial party committee, which became a milestone of the development history of individual private economy. In 1995, Hubei province held a working meeting for individual private economy for the second time, and promulgated 'Regulations for private enterprises and individual businesses in Hubei province'. Hubei province has a rapid increase in the number of private enterprises and individual businesses, and scale of private enterprises was expanding rapidly. Hubei province has held economic meetings for individual private economy for six times, and worked out a series of policies about loan, land and staffing. From the 'talk in the South of China' by Deng Xiaoping to the end of 1997, individual private economy in Hubei province achieved a historic breakthrough in five years. The development of private economy in Hubei province is rapid, and the two Three-Year plans were finished two years ahead of schedule. As shown in table 1, the number of private enterprises increased significantly, from 2127 in 1992 to 38998 in 1997, Hubei's ranking in China was uplifted from the 19th place to the 9th. Meanwhile, the number of individual businesses increased from 590000 in 1992 to 1.861 million in 1997 (as shown in table 2), and the ranking was uplifted from the 12th to the to third place.

Table 2 The Number of Individual Businesses in Hubei Province in 1992, 1994 and 1997

	1992	1994	1997
The number of individual businesses	590000	1200000	1861000

In the 1997, the Party's 15th Congress proposed that non-public economy was an important component part of China's socialist market economies, non-public sector comprising self-employed and private business should be encouraged and guided to facilitate its sound development. This advancement of consciousness and fundamental theoretical breakthrough laid a solid foundation for the development of non-public economy. The Second Session of the Ninth NPC in March 1999 passed constitutional amendments and established the law status of self-employed or private enterprises and other non-public sectors of the economy. In May 1998, Hubei's provincial government inspected the development of private economy in Zhejiang province, then held a working meeting for private economy and issued 'the decision about quickening the development of private economy'. It became clear that county economy should base on private economy. Meanwhile, the asset storages of middle and small-sized enterprises should be activated. Hence, a pattern of individual economy in ownership system economy developing side by side has taken shape. A group of state enterprises have transferred into private enterprises, or have developed into mixed ownership enterprises and share-holding enterprises.

The phased characteristics of non-public economy in Hubei Province were: (1) Rapid and stable development of gross scale: The number of private enterprises, registered capital, total output and turnover have risen among other provinces; (2) Change of the pattern of economic growth: The development of private economy has changed the mode by converting from quantity type to efficiency type, and part of individual businesses has basically been on the road of industrialization development in big scale; (3) Private enterprises have become a strong plate: The registered capital of private enterprises are 2.4 times higher than that of individual businesses; (4) Expanding business scope: The scope of non-public economy has expanded from traditional industries containing commerce & trade and catering to modern industrial and commercial industries, services and social undertakings.

2.3 Scientific development stage of non-public economy in Hubei province

Encouraging, supporting and guiding the development of the non-public sectors of the economy was raised in 16th Congress of the Communist Party of China, which injected new strength to non-public economy of province. In February 2005, the State Council issued 'Several opinions about

encouraging, supporting and guiding the development of self-employed or private enterprises and other non-public sectors'. In addition, the National Congress issued 'Property law' and the modified 'Corporate Income Tax'. The legal system for protecting private property were set up, which further improved the public's enthusiasm in starting up private businesses, and constantly pushed non-public economy in Hubei province forward. The development of private economy has become an overall significant strategy in province to meet new situation for the WTO entry and new requests of constructing China into a comprehensive well-off society. The strategies are 'Continuing to follow the basic private economic system in county economy, and accelerating the processes of industrializing agriculture and the countryside, as well as impelling the town development'. Meanwhile, improvement of the policy environment, reduction of the number of matters which require government approval, pushing forward the reform of property right system and relaxing market access conditions and business scope were implemented to develop the scientific, export-oriented, large-scale and modern private economy.

The communist party's 18th national congress emphasized that non-public economic development should be unswervingly encouraged, supported and guided, and the equal use of production factors for all kinds of proprietary system economies, fair competition among enterprises as well as equal protection should be ensured. This showed that Central Committee of CPC has attached great importance to the development of non-public economy, and gave political, economic status of private economy and private entrepreneur high evaluation and fully affirmation^[6]. The 10th party congress in Hubei proposed that We should 'focus on the breakthrough development of private economy, unswervingly promote reform of ownership', 'scale up efforts to encourage, support and guide the development private economy, create a market environment for fair competition among economic entities under diverse forms of ownership and facilitate stronger growth of the non-public sector'. Hubei province conscientiously carried out the spirits of the communist party's 18th national congress and the Hubei's 10th party congress, followed closely the topic of the scientific development and accelerating changing the pattern of economic growth. In addition, Hubei province continued on provide fair access to the markets and improved the financial condition, which can optimize the non-public economic development environment and urge non-public economy to a new level of development. In these years, Hubei's non-public economy kept developing fast, and has entered a new phase of comprehensive and rapid development.

The phased characteristics of non-public economy in Hubei Province were: (1) The great attention of Hubei Provincial CPC Committee; (2) Development of non-public economy to scientific, export-oriented, large-scale and modern; (3) High evaluation and fully affirmation for the political, economic status of non-public economy and private entrepreneur; (4) Optimization of the non-public economic development environment from all perspective; (5) Rapid progress of the non-public economy and a new phase of comprehensive development.

3 Conclusion

After more than 30 years of development, unique economic development model has been formed in the Hubei's non-public economy. By analyzing the main stages of the development of Hubei's non-public economy and summarizing the characteristics of the different stages, four features are found in the process of non-public economy development:

(1) Non-public economic aggregates rank in the top few places of central China, but still lags far behind some advanced regions.

After the fast progress of recent years, Hubei's non-public economic aggregates gained great achievement. '2013 Hubei private economy development report' issued by the Hubei Statistics Bureau showed that the growth of private economy accounted for up to 54% of GDP in 2013, rose by 0.9% than that of the previous year. Private economy plays an enormous role in supporting economic development. Meanwhile, the report showed that the added value created by non-public economy was 1332.17 billion Yuan, an increase of 151.58 billion Yuan over last year, and 62.6% of Hubei's GDP came from non-public economy. Concerning the Middle Area, the economic aggregates of Hubei Province rank in the top few places, and are second only to Henan province. While the economic aggregates still lag far behind some advanced regions. According to statistics from the Jiangsu Statistics Bureau, the added value created by non-public economy was 3975.67 billion Yuan, accounted for up to 67.2% of GDP in 2013, rose by 10.4% than that of the previous year. It is more than three times ahead of the same period of Hubei province. Meanwhile, an unbalance development of regional non-public economy is a projecting character in Hubei, such as the single-largest-city of Wuhan. Comprehensive strength of other

cities and counties is of the weak.

(2) Non-public economy has developed fairly fast, but quality of development needs to be enhanced.

In recent years, Hubei's non-public economy develops dramatically. The number of private enterprises increased from 150000 in 2006 to 1.079 million in 2013, and the ranking was uplifted from the 12th to the 3rd place, and the registration capital increased from 236.29 billion Yuan to 8851.3 billion Yuan. The number of individual businesses increased from 1.063 million in 2006 to 201.4 million in 2013, and the registration capital increased from 24.88 billion Yuan to 102.99 billion Yuan. '2013 Hubei private economy development report' issued by the Hubei Statistics Bureau showed that the sales value and profit of large non-public enterprises were 2559.61 and 1385.3 billion respectively, an increase of 19% and 29.9%. While the quality needs to be improved with the rapid development, on one hand, high-technology industry development is not enough. Most of private enterprises in Hubei province focus on the service industry and sub-scale industrial enterprises. As capital-intensive and labor-intensive enterprises, there are lack of private enterprises with the high-tech content, high additional value and fission development. On the other hand, industry collection needs to be further strengthened. Compared with the coastal provinces with developed private economy, the specialization, intensive and large-scale development in Hubei's non-public economy is needed to be improved. The lack of the development of industrial cluster restricts the improvement of quantity and quality of private enterprise.

(3) There are large numbers of non-public enterprises, but limited in scale

In recent years, the number of Hubei's non-public enterprises is growing very rapidly, but the scales are usually small. Hubei municipal Bureau of statistics data showed that the number of market subjects is 3.3511 million, registered capital of 2555.311 billion. The numbers of new private businesses and new individual businesses are 131300 and 935400, increase of 90.8% and 73.8% respectively. There are 788 new registered foreign companies with total investment of 9.054 billion dollars, increased by 84.7%. Thus it can be seen that there are large numbers of non-public enterprises in Hubei with rapid growth rate. While great disparity exists in scale and strength between the non-public enterprises in Hubei province and in developed provinces and cities, such as zhejiang province. There are 12, 13, 15, 16, 17, 18 and 15 enterprises included in the top 500 Private Enterprises in Hubei from 2008-2014, respectively. While the numbers are 185, 161, 180, 144, 142, 139 and 138 in Zhejiang province. It is the necessary for private enterprises in Hubei to make them more influential and powerful.

(4) The government spared no effort to develop the non-public economy, but the soft environment for development is needed to be improved.

In recent years, with the core idea of 'Industry first, Entrepreneur preferred' and with the service concept of 'Prefer to trouble the government rather than the enterprise', Hubei province strives to create humanism circumstance, policy environment and service environment that are conducive to the development of non-public economy. In addition, it is advocated that the good humanism circumstance is of great importance in promoting the development of talent, project, capital, enterprise and the entrepreneur. Moreover, policy innovation should continue to promote the establishment of concepts of respecting the commercial and attaching great importance to the enterprise, while the development of soft environment will not be attained by sudden flight. This is because Hubei province has long been affected by inland consciousness and agriculture culture, which requires a long transitional period to change the official consciousness, thought of contempt trade and honesty deficiency. Situations of 'Law enforcement equals penalty, Management equals fee and difficult accessibility, unfriendly look, and difficult dealing' still exist to varying degrees. Hence, government should strengthen the law-enforcing supervision and regulate the behavior of the government to make the policy of improving the soft environment for Hubei's non-public economy fulfills.

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Research on Model Establishment for Incubation Network of Innovative Cluster*

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Abstract: Innovation is the basic requirement and development goal of sustainable development of industrial cluster. The task of industrial cluster development is to incubate and cultivate innovation cluster, rather than build cluster with low-cost. In this paper, on the basis of the formation mechanism of cluster innovation theory, the incubation network of innovative cluster forms was analyzed from three aspects: behavior subject, resource and activity. After taking theory of network organization and coordination theory as the instruction, incubation network model of innovative cluster was established, and this plays an important role in upgrading the industrial cluster to innovative cluster.

Key words: Innovative cluster; Cluster elements; Incubation network; Model establishment

1 Introduction

The earliest concept of industrial cluster comes from the industrial area proposed by Marshall (1890)^[1]. Porter (1990) and then proposed the assertion that industrial clusters can strengthen national competitive advantage^[2]. Cluster planning has become an important mode of governments to formulate development policy. Such as Britain, the United States, European Union and other developed countries which have to set up high-tech development zones as a strategy to promote national innovative industrial development.

Most of the industrial cluster in China only builds the industrial chain and industrial clustering currently, pursuit of cost reduction, investment and expansion of the scale, as well as GDP, export and other short-term benefits. Unlike traditional industrial cluster, which takes industrial chain as the link aggregation production factor, pursues productivity improvement. The innovation cluster mainly takes value chain as the link, gathers the innovation resources, and promotes the formation of innovations within the cluster and knowledge spillovers. Within the innovation cluster, based on the mutual cooperation between different subjects, technological innovation conducive to the formation of network development trend of technological innovation, and increase the market efficiency of technology supply. Therefore, promoting industrial clusters to innovation becomes a hot research recently; and incubating innovative cluster is an important issue in front of us.

2 Innovation Cluster Formation Mechanism

The formation of innovation cluster is based on the industrial cluster, and the innovation cluster is the advanced stage of industrial cluster. After the formation of industrial clusters, why some develop into innovation clusters, while others don't? Many scholars give their own interpretation, among which, Depression (1989), thought that the internal economic constraints and incentives, external constraints and pressure is the cluster innovation formation reason, he believed that the source of innovation cluster derived from scope economy and discontinuous, complex technology, accumulation of the learning process^[3]. Linage believed that interaction between network members and the interaction between network were vital for the formation of cluster innovation. The organization's natural selection tendency and the complementary nature of the resources might have an impact on the organization's innovation and the choice of alliance object, so as to affect the inter organizational relationships or network, and then affect the formation of innovation cluster^[4]. Therefore, he believed that natural selection, resource complementarity, the formation of groups in the innovation system and the interaction of the participants were four decisive factors contributing to the innovation cluster. Montresor et al. (2008) through the empirical study of OECD15 member countries believed that innovation cluster formed in the establishment of the cluster economy internal innovation system^[5]. Park (2003) by the principle of dynamic change of the Pacific rim economic space, believed that the knowledge spillover effect were an important factor in the formation of innovation cluster^[6]. Lee (2003) believed that the reason for the formation and development of innovation cluster was a kind of policy environment which sustained,

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stable and favorable for scientific and technological innovation [7].

Summarizing the foreign scholar’s research, we can find that the economy, technological diversity, knowledge spillover effects, and policy environment are the main driving factors for the formation of innovation cluster.

3 Analyses on Incubation Network Components of Innovation Cluster

Hakansson (1987) believes that any network consists of three basic components: behavioral agents, resources, activities [8]. Incubation network components of the innovation cluster from these three aspects will be analyzed as follow:

3.1 Behavioral agents

Innovation cluster is within a certain geographical area, which consists of enterprises, research institutions, universities, venture capital firms, intermediary service organizations, etc., through the industrial chain, value chain and knowledge chain to form a strategic alliance or a variety of cooperation, it is a kind of industrial organization form that has a cross-sectoral and cross-regional leading role as well as international competitiveness. Thus, the behavioral agents of the innovation cluster incubation network are composed of government, knowledge center, industry and market demand, innovation service organization, as shown in Figure 1.

3.2 Resources

Resource element is the main carrier to achieve communication and interaction between the behavioral agents in cluster structure, mainly including knowledge, technology, information, material products, capital, policies and regulations, personnel, culture, market, products and services, etc... In the process of participating in the activities, behavioral agents in network only with the help of the flow of resources can form a formal or informal relationship between each other. Inside the incubator network, through rational flow and allocation of resources, and promote the production of technological innovation activities.

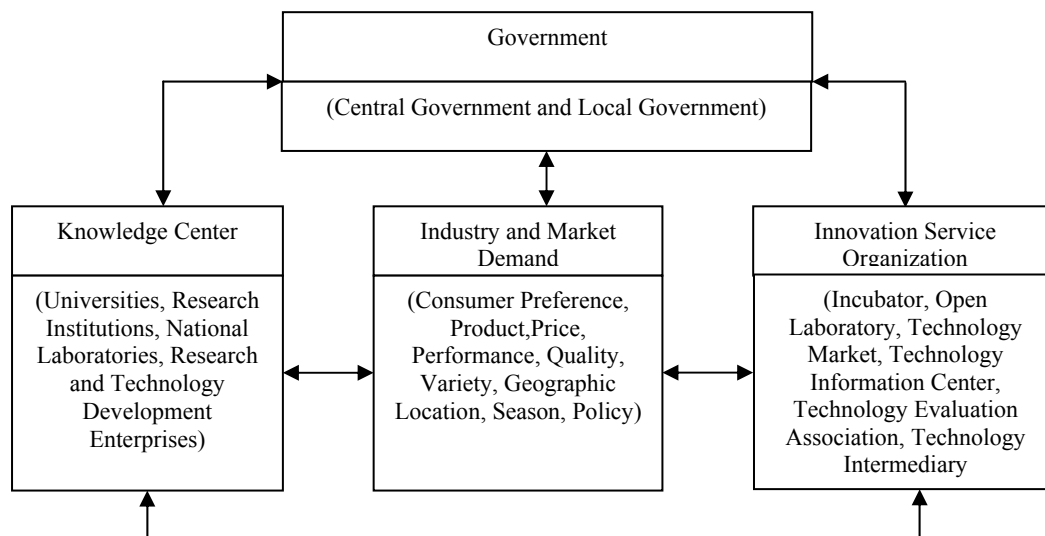


Figure 1 Schematic Diagram of Behavioral Agents of the Innovation Cluster Incubation Network

3.3 Activities

The activities of the behavioral agents in the innovation cluster incubation network are carried out around the resources; the occurrence of the event is the flow of resources. According to different type of resources, the main activities of innovation incubation network includes technological flow, information flow, personnel flow, material flow, capital flow and so on. Resource flow plays a role in connecting different behavioral agents, adjusting production and innovation activities, it can be said that it is the blood circulation system in incubator network of the innovation cluster.

3.1.1 Technology flow

The flow of technology is the most valuable kind of flow, basically it is a kind of technologicaleconomic behavior and social behavior, it can eliminate the technical potential difference between technical output and acceptance, and can improve social productivity and technical ability, and it is also one of the important ways of technological innovation. The path of technological flow in the

incubation network of innovation cluster is mainly as follow:1)technological flow between enterprises in the cluster; 2)technology flow between enterprises ,universities and scientific research institutions in the cluster;3)technical flow between enterprises and intermediary organizations in the cluster;4)technical flow between enterprises and financial institutions in the cluster;5) technical flow between universities and scientific research institutions in the cluster;6)technology for social communication;7)technological flow between enterprise in the cluster and the outside of the cluster.Technology is made up of many technical factors,among the many factors that are related,When a technical factor changes, it is bound to lead another technical factorchange,thus produce the chain effect of dominoes,this effect is the technology flow and innovation process of innovation cluster incubation network.

3.3.2 Information flow

The flow of information is an important condition for the effective operation of innovation cluster incubation network.Innovation cluster is an open system based on the knowledge property system and mutual trust,formal institutional arrangements; informal contactswill have a positive impact on innovation.If the faster the flow of information, the lower the cost, the higher the efficiency of the network, that the better the innovation ability of the behavioral agents. There are many channels of information flow, such as the industry association, the technology market, the chamber of Commerce and other formal channels, also have informal channels such as private communication.Through information flow, we can strengthen the communication between the behavioral agents, close the distance between each other, and establish trust in each other.From the type of information, mainly including product information, market information, personnel information, policy information, etc...The enterprise within innovation cluster incubation network can more easily get the relevant information of competitors, upstream suppliers, downstream customers,which can better insight into industry trends, market demand, technological change and other information.

3.3.3 Innovative personnel flow

Innovative personnel having professional skills, experience and social knowledgeflow effectively, this energizes the formation of innovative cluster.A certain proportion of innovative personnel flow within innovation cluster network is beneficial to knowledge spillovers.The path of the personnel flow generally occurs in the following:1)between horizontal enterprise, competitor or partner within the innovative cluster;2)between enterprises and suppliers in the vertical industry chain of the innovative cluster;3)between enterprises, universities and research institutions within the innovative cluster; 4)between the enterprise agencies and other service organizations within the innovative cluster.The flow of innovative personnel has brought new ideas, knowledge and skills to behavioral agents, which can promote the renewal and enhancement of basic knowledge, and can adapt to the uncertainty of the external technology and market as soon as possible.Innovative personnel flow is conducive to promotethe overall innovation ability ofinnovation cluster incubation network.

3.3.4Material flow

The incubator network has a public technical service platform, including public laboratories, large general-purpose instruments, and general purpose testing platform,enterprises can hire these public instruments and equipment.Due to have more information of enterprises in the innovation cluster,enterprises engaged in R & Dcan share the laboratory, research and development equipment, etc...Universities and scientific research institutions have more experimental apparatus and good scientific research conditions,enterprises can obtain the necessary experimental equipment through cooperation with scientific research institutions in Colleges and universities.In addition, the agency through its own network resources can also help enterprises to obtain the required material resources.These pathways can achievematerial flow of innovation cluster incubation network.

3.3.5 Fund flow

In the process of innovation, the enterpriseswithin the innovation cluster needa lot of R & D investment, which cannot be separated from the support of the fund.Enterprise funds mainly have the following several sources:1)the government's special innovation fund, fund flows from the government to enterprises;2)bank financial institutions loans, fund flows from the banking financial institutions to enterprises;3)non-bank financial institutions such as venture capital funds and other investment,fund flows from non-bank financial institutions to enterprises. In addition, there are other forms of financial assistance to the domestic and foreign partners. Innovation between enterprises, universities and scientific research institutions, fund in the form of research funding flows from business to universities and research institutions.The flow of fund always runs through the whole process of innovation in cluster.

4 Establishment Incubation Network Model of Innovative Cluster

Based on the above analysis, this paper establishes a new incubator network model of innovative cluster, as shown in Figure 2. The incubator network model of innovation cluster is divided into three levels: core network layer, auxiliary network layer, peripheral support network layer.

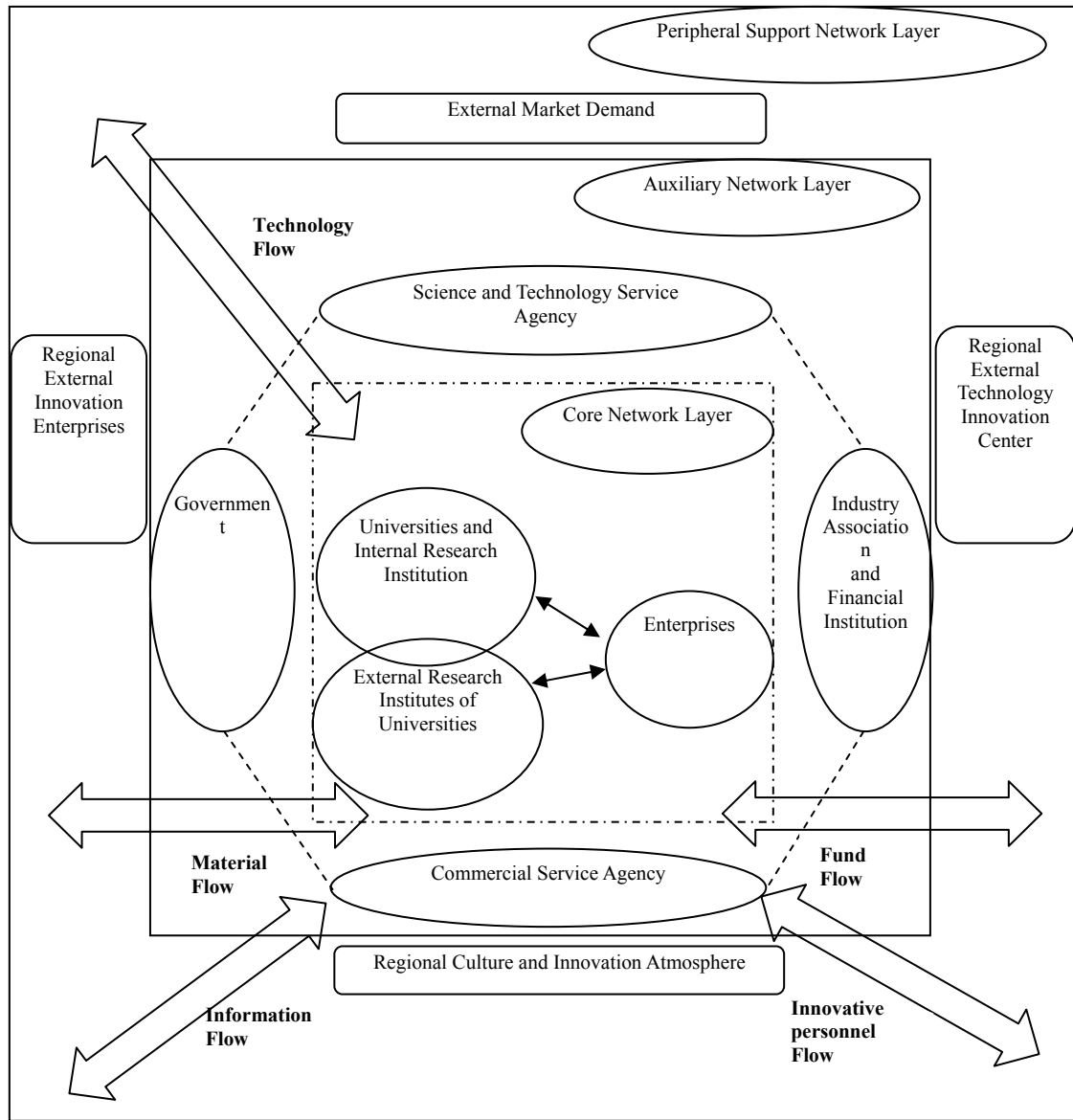


Figure 2 Framework Model of the Innovation Cluster Incubation Network

4.1 Core network layer

Core network layer is composed of the interaction between enterprises, university scientific research institutions and other innovation subjects. The incubation network has aggregation effect, it enables enterprises and institutions within the innovation cluster to share infrastructure and research and development services, to promote technological exchanges between the subjects of innovation. Incubation network in addition to provide enterprises with all kinds of basic services, also building bridge for communication and cooperation between enterprises and research institutions of universities. Incubation network has mastered the technology, production and market situation of enterprises in the cluster; it can promote enterprises and enterprises in the relevant areas, enterprises and scientific research institutions in universities to carry out collaborative innovation, to share information such as technology, production and marketing etc.

4.2 Auxiliary network layer

Incubator network layer the innovation cluster incubation network is composed of government, science and technology service agency, industry association, financial institution, Commercial service agency, the function of the auxiliary network layer in innovation incubation network is realized by connection with the core network. Government creates an atmosphere that is conducive to the formation of innovative industrial clusters by creating a policy environment for the development of innovative industrial clusters. Innovation service organizations can regulate the relationship between enterprises' competition and cooperation, which can promote the integration of knowledge within the network and the proliferation of innovative results. Financial institutions can provide the necessary financial support and guarantee for the innovation and development of enterprises. Through establishing contact with each other and forming network by universities, scientific research institutions, innovative service organizations, financial institutions and government, which is conducive to the effective docking of innovative project resources and innovation key resources, can better serve the enterprise in the innovation cluster, make up for the disadvantages of its innovation resources.

4.3 Peripheral support network layer

Peripheral support network layer refers to the culture and innovation atmosphere, external market demand, external technology innovation enterprises and center. In innovation and cooperative atmosphere of the area, between the various subjects to establish a higher degree of trust relationship, which can be driven by knowledge innovation incubator network in fast flowing and sharing, promote the innovation ability of the whole network. This will benefit of improving the entire network of innovation ability. The power of enterprise innovation is not only from the internal motive force, but also from the external market demand. Feedback from the external market to a certain extent has been clear about the direction for innovation. The innovation of the enterprise is only in view of the market demand, to ensure that innovation of practical, economical and efficient. Innovative cluster needs to communicate and exchange with innovation subjects outside of the cluster, learn the advanced concepts and successful business development experience, achieve results of the exchange and technological upgrading, in order to prevent the emergence of innovative rigid.

5 Conclusion

On the basis of the research of experts and scholars, this paper analyzes the coupling mechanism of the innovation cluster incubation network, and establishes the innovation cluster incubation network, Thus it is advantageous to improve the innovation ability of the whole cluster, from the industrial cluster upgrading to the innovation cluster. This has important theoretical significance and practical value to adjust the industrial structure, promote the development of industrial chain, change the mode of economic growth, and build an innovative country.

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An Empirical Research on the Technology Feedback Effect of China's FDI in the EU*

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Abstract: Based on data of China's outward foreign direct investment (OFDI) in the EU from 1985 to 2013, the paper empirically studies the technology feedback effect (TFE) of China's FDI in the EU and impacts on TFE of technology gap, human capital, economic openness and financial development from the viewpoint of home country. The results show that China's FDI in EU has a positive spillover effect on domestic total factor productivity and moderate technology gap between China and EU countries benefits OFDI technology feedback effect. However, TFE of China's OFDI in EU is restricted by lack of advanced human capital stock, less in-depth economic openness and financial development.

Key words: Foreign direct investment; Technology feedback effect; Total factor productivity; Time series analysis

1 Introduction

Although the discussion on OFDI technology feedback effect (TFE) and its influencing factors have been perfected, but the views and conclusions are different. Few literature relates new trend of China's OFDI development especially China's technology sourcing FDI in developed countries such as the European Union and demonstrates the TFE and its influencing factors. In fact, investigation on situation and motives of Chinese enterprises' FDI by China's international trade promotion Committee in 2013 reveals new features of Chinese OFDI. Enhancing brand value, access to advanced technology and management experience have become major investment motives. The EU and North America are hot places to attract Chinese investment. 16% of the respondents will target at the United States as investment destination and 15% of them choose the EU countries. Whether technology feedback effect exists in the process of Chinese OFDI in the EU countries? Which factors can affect TFE and how? These are two key points of this study.

2 The OFDI Technology Feedback Effect and Its Influencing Factors

Chinese enterprises invest in the EU countries by whether green field or cross-border mergers and acquisitions, aiming at acquiring and absorbing advanced technology from leading EU enterprises. They innovate new technology and transform traditional techniques to enhance their strength, promote industrial upgrading and China's technological development. This is the OFDI technology feedback effect which has influencing factors as followed.

2.1 Technological gap

Technology feedback effect is based on a proper technical gap between the investing country and the host country. Chinese enterprises invest in EU for sourcing technology feedback. If technical gap is too wide, investing enterprise will not effectively absorb target company's advanced technology and not obtain technology feedback effect.

2.2 Human Capital

Human capital is an important guarantee for independent research and technological upgrading. The abundant human resource of good quality boosts investing country to quickly absorb new technology and brings about obvious technology feedback effect. Additionally, relevant researches have proved that human capital has the threshold effect. When human capital stock reaches a certain level, there will be TFE. Or else, enterprises may not effectively absorb TFE.

2.3 Economic Openness

Relevant researches have suggested that the technology feedback effect is proportional to investing country's economic openness. In an open economic environment, enterprises tend to integrate international resources, and learn advanced technology and management experience overseas. In addition, foreign companies continuously swarm into home country, intensifying competition with local

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enterprises, which have to search for advanced technology to improve their competitiveness and nurture home country.

2.4 Financial Development

The efficiency of financial market affects resources allocation, thus affects absorption and utilization of technology feedback effect. If the investing country's financial market is efficient, enterprises can obtain sufficient fund with limited cost to carry out technology learning, absorption and further innovation. Therefore, financial market's good development is conducive to advanced technology absorption and feedback .

3 Data and Methodology

3.1 Model and data

Based on international R&D spillover model proposed by Lichtenberg and Potterie in 2001, the total factor productivity is decided by both domestic and foreign R&D capital stock. The following models can be set to examine the TFE of Chinese FDI in EU and its influencing factors.

Basic model:

$$LnTFP_t = \alpha + \beta_1 LnRDP_t + \beta_2 LnSOFDI_t + \beta_3 LnSIFDI_t + \varepsilon_t \tag{1}$$

The influencing factor model based on technological gap:

$$LnTFP_t = \alpha + \beta_1 LnRDP_t + \beta_2 LnTG_t \square LnSOFDI_t + \beta_3 LnSIFDI_t + \varepsilon_t \tag{2}$$

The influencing factor model based on human capital:

$$LnTFP_t = \alpha + \beta_1 LnRDP_t + \beta_2 LnH_t \square LnSOFDI_t + \beta_3 LnSIFDI_t + \varepsilon_t \tag{3}$$

The influencing factor model based on economic openness:

$$LnTFP_t = \alpha + \beta_1 LnRDP_t + \beta_2 LnOPEN_t \square LnSOFDI_t + \beta_3 LnSIFDI_t + \varepsilon_t \tag{4}$$

The influencing factor model based on financial development:

$$LnTFP_t = \alpha + \beta_1 LnRDP_t + \beta_2 LnFD_t \square LnSOFDI_t + \beta_3 LnSIFDI_t + \varepsilon_t \tag{5}$$

Based on model (1), TFP stands for China's total factor productivity; RDP represents the percentage of Chinese R&D spending accounting for GDP; SOFDI、SIFDI stands for R&D capital stock from Chinese outward FDI in EU and Chinese inward FDI from EU respectively; β_1 、 β_2 、 β_3 represents respectively the elasticity coefficient of Chinese TFP by domestic R&D activities, international R&D spillover from Chinese OFDI and IFDI.

Based on model (2) to model (5), TG、H、OPEN、FD stands for technological gap between China and EU countries, Chinese human capital, economic openness and financial development respectively. β_2 from model (2) to model (5) represents impacts on TFE of Chinese FDI in EU by technological gap, Chinese human capital, economic openness and financial development respectively.

3.2 Data source and processing

According to the China's FDI stock in EU at the end of 2013, the top six countries were: the UK, France, Germany, the Netherlands, Sweden and Italy. These six leading countries attracted 67% of Chinese total investment stock in the EU. Europe is still a negligible FDI source for China. During 2003 to 2013, China's inward FDI flow is mainly from the UK, France, Germany, Sweden, the Netherlands and Italy. Taking China's IFDI in 2013 for example, the six leading countries' share amount to 73% of the total EU's investment in China. Therefore, the UK, France, Germany, Sweden, the Netherlands and Italy are important FDI destinations and sources for China and the quantitative analysis is based on the six countries. The data sources and processing method are summarized in Table 1.

Table 1 Name, Implication, Resource and Processing Method of Variables

Variable	Variable Implication	Data Source	Processing Method
TFP	China's total factor productivity	China's Statistics Yearbook	$TFP = \frac{Y}{K^\alpha L^\beta}$
Y	China's real GDP	China's Statistics Yearbook	GDP at constant price with the base year of 1985
K	China's fixed capital stock	China's Statistics Yearbook	Perpetual Inventory
L	China's employment	China's Statistics Yearbook	Direct use
RDP	China's R&D intensity	China's Statistics Yearbook of Science and Technology	RDP=R&D expenditure/ GDP

SOFDI	Foreign R&D capital stock from China's OFDI in EU countries	WB Database China's Statistics Yearbook	$SOFDI = \sum_{i=1}^n \frac{OFDI_i S_i}{Y_i}$
SIFDI	Foreign R&D capital stock from EU countries' FDI in China	WB Database China's Statistics Yearbook	$SIFDI = \sum_{i=1}^n \frac{IFDI_i S_i}{Y_i}$
$OFDI_i$	China's FDI stock in i country in EU	China's Bulletin of Foreign Direct Investment	Direct use
$IFDI_i$	i country's FDI stock in China	China's Statistics Yearbook	Direct use
Y_i	i country's GDP	WB Database	Direct use
S_i	i country's R&D capital stock	WB Database China's Statistics Yearbook of Science and Technology	Perpetual Inventory
TG	Technological gap between China and EU countries	WB Database China's Statistics Yearbook	TG=China's labor productivity/ EU countries' labor productivity
H	China's human capital	China's Statistics Yearbook of Science and Technology	H=R&D personnel/ total population
OPEN	China's economic openness	China's Statistics Yearbook	OPEN=total imports and exports /GDP
FD	China's financial development	China's Statistics Yearbook	FD=total loans of financial institutions at year-end/ GDP

3.3 Model test and analysis

3.3.1 ADF test

Making ADF test to LnTFP、LnRDP、LnSOFDI、LnSIFDI、LnTG*LnSOFDI、LnH*LnSOFDI、LnOPEN*LnSOFDI、LnFD*LnSOFDI after first-order difference respectively, and the results are as Table 2.

Table 2 Stationary Test

Variable	Test Types (c,t,k)	ADF Test Value	Critical Values			Results
			1%	5%	10%	
LnTFP	(c,0,2)	-0.309199	-3.711457	-2.981038	-2.629906	Non-stationary
LnRDP	(c,0,1)	0.596576	-3.699871	-2.976263	-2.627420	Non-stationary
LnSOFDI	(c,0,0)	3.635398	-3.689194	-2.971853	-2.625121	Non-stationary
LnSIFDI	(c,0,0)	-1.056481	-3.689194	-2.971853	-2.625121	Non-stationary
LnTG*LnSOFDI	(c,0,0)	2.914278	-3.689194	-2.971853	-2.625121	Non-stationary
LnH*LnSOFDI	(c,0,0)	1.613454	-3.689194	-2.971853	-2.625121	Non-stationary
LnOPEN*LnSOFDI	(c,0,0)	0.137330	-3.689194	-2.971853	-2.625121	Non-stationary
LnFD*LnSOFDI	(c,0,0)	-2.364649	-3.689194	-2.971853	-2.625121	Non-stationary
D LnTFP	(c,0,0)	-3.391387***	-3.699871	-2.976263	-2.627420	Stationary
D LnRDP	(c,0,0)	-3.160775**	-3.699871	-2.976263	-2.627420	Stationary
D LnSOFDI	(c,0,0)	-3.445172**	-3.699871	-2.976263	-2.627420	Stationary
D LnSIFDI	(c,0,6)	-2.966617**	-3.788030	-3.012363	-2.646119	Stationary
D LnTG*LnSOFDI	(c,0,0)	-3.570026**	-3.699871	-2.976263	-2.627420	Stationary
D LnH*LnSOFDI	(c,0,0)	-4.159777*	-3.699871	-2.976263	-2.627420	Stationary
D LnOPEN*LnSOFDI	(c,0,0)	-4.623597*	-3.699871	-2.976263	-2.627420	Stationary
D LnFD*LnSOFDI	(c,0,0)	-4.527489*	-3.699871	-2.976263	-2.627420	Stationary

Notes: Test types(c, t, k) shows respectively whether there is constant term in ADF test(Intercept), time trend, and maximum lags. *, **, *** mean the value is critical value under the 1%, 5%, 10% significant level respectively.

The time sequence of original variables are non-stationary, however, their first-order differences are stationary. Therefore, these time sequences may exist cointegration relationship, namely there is a long term and stable relationship among them.

3.3.2 Cointegration analysis

Engle-Grange two-step method is used to make test to cointegration relationship among above variables.

The first step: model estimation——Ordinary least squares method

Making regression of model(1) to model (5) by EVEIWS 6.0, the results are as Table 3.

Table 3 Estimation Results of Technology Feedback Effect of Chinese FDI in EU and its Influencing Factors

Variable	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
C	-0.298461 [*] (-4.940761)	-0.265006 [*] (-5.406195)	-0.247459 [*] (-7.297182)	-0.401074 [*] (-7.610104)	-0.590849 [*] (-21.21000)
lnRDP	0.147437 (1.425099)	0.087937 (1.062827)	0.070236 (1.222580)	0.268521 ^{**} (2.568937)	0.598791 [*] (10.13463)
LnUSIFDI	0.112445 [*] (10.97605)	0.089316 [*] (13.00342)	0.085302 [*] (18.07562)	0.084327 [*] (6.965202)	0.101066 [*] (4.180406)
LnUSOFDI	0.092828 [*] (4.798665)				
LnTG*lnUSOFDI		-0.086517 [*] (-6.759166)			
LnH*lnUSOFDI			-0.042031 [*] (-9.968830)		
LnOPEN*lnUSOFDI				-0.067403 [*] (-3.604436)	
LnFD*lnUSOFDI					-0.018482 (-0.397679)
R ²	0.990459	0.993660	0.995008	0.987350	0.979898
Adjusted R ²	0.987949	0.992151	0.994009	0.984021	0.974873
F	394.5010	658.3032	996.5288	296.5926	194.9888
DW	1.652101	1.735698	1.772081	1.864400	1.809992

Notes: ^{*}、^{**} are the same meaning as Table 2.

The second step:Unit root test of residuals.

Using EVIEWS 6.0 software,we can get residual diagram and residual sequence ADF test.

Table 4 Test Results of Residual Stationary

Variable	Test Types (c,t,k)	ADF Test Value	Critical Values			Results
			1%	5%	10%	
Resid1	(c,0,0)	-3.987291 [*]	-3.737853	-2.991878	-2.635542	Stationary
Resid2	(c,0,0)	-4.462120 [*]	-3.711457	-2.981038	-2.629906	Stationary
Resid3	(c,0,0)	-4.287026 [*]	-3.737853	-2.991878	-2.635542	Stationary
Resid4	(c,0,0)	-4.379496 [*]	-3.737853	-2.991878	-2.635542	Stationary
Resid5	(c,0,0)	-4.354039 [*]	-3.724070	-2.986225	-2.632604	Stationary

Notes: ^{*} is the same meaning as Table 2.

Table 4 shows that all the above ADF values are less than critical value under the 1% significant level, thus residual sequences are integrated of order zero. There is cointegration relationship among dependent variable and independent variables.

4 Results

4.1 Technology feedback effect of Chinese outward FDI in the EU exists significantly

The estimation result of model (1) is shown in the second column of Table 3. DW statistic is 1.65 and there is no auto-correlation among variables. According to the result, Domestic R&D expenditure, Chinese inward FDI from EU, Chinese FDI in the EU are all significant factors of promoting total factor productivity(TFP) in China. The elastic coefficient of SOFDI to TFP is 0.093, that means Chinese FDI stock in the EU rises 1%, China's TFP will increase 0.093%. Therefore, Technology feedback effect of Chinese OFDI in EU exists observably. The elastic coefficient of SIFDI to TFP is 0.112, that means Chinese IFDI stock attracted from EU rises 1%, China's TFP will increase 0.112%, greater than the contribution of Chinese OFDI. The elastic coefficient of RDP to TFP is 0.147 and not significant, but it can still represent Chinese R&D investment has positive impact on the TFP growth.

4.2 Impacts of technological gap, human capital, economic openness and financial development on TFE of China's OFDI in the EU

Results of model (2) show that the elastic coefficient of cross term of TG and SOFDI is negative(-0.086517) and significant. Technological gap has a negative impact on TFE, namely TFE will

decrease as technological gap between China and EU countries widens. If the EU countries' technical level is certain, high domestic technology level namely narrow technological gap will bring about great TFE. Because domestic technology accumulation is conducive to knowledge absorption and innovation for investing enterprises. Chinese FDI in the EU is one of the channels to improve TFP, but the premise is Chinese enterprises should have a relatively high technical level.

Results of model (3) show that the coefficient of cross term of H and SOFDI is negative(-0.042031) and significant. China's advanced human capital is inadequate and has not yet reached the threshold of effective technology absorption, thus fails to play ideal positive impact on TFE through China's OFDI.

Results of model (4) indicate the coefficient of cross term of OPEN and SOFDI is negative(-0.067403) and significant. Therefore, economic openness has a negative impact on TFE of Chinese OFDI in EU. China implements open and free foreign economic policy in the long term, but China-Euro exchanges and cooperation in investment of technology intensive industries have not been deepened enough, thus weaken the technology feedback effect.

Results of model (5) indicate the coefficient of cross term of FD and SOFDI is negative(-0.018482) but not significant. Thus, financial development impose a negative impact on TFE. Chinese financial market is lack of efficiency to restrict the domestic enterprises' ability of absorbing overseas technology, weakening the technology feedback effect.

5 Conclusions

5.1 Basic conclusion

5.1.1 The TFE of Chinese OFDI in the EU exists significantly

Chinese OFDI in EU has a positive and significant effect on domestic total factor productivity. This represents that Chinese enterprises learn from and cooperate with technology leaders in EU through FDI, thus directly access to advanced technology, promoting China's technological progress. China's IFDI from EU contributes more to TFP than Chinese OFDI in EU. In addition, domestic R&D activities contributes more to TFP than R&D capital from Chinese IFDI and OFDI.

5.1.2 Technology gap between China and EU countries hinders TFE through Chinese OFDI

Technology gap hinders the absorption and reuse of advanced technology. As the technology gap widens, technical feedback effect of Chinese OFDI in the EU countries decreases. Therefore, moderate technology gap should be maintained between China and the EU to promote Chinese enterprises to acquire knowledge assets, nurturing domestic industries.

5.1.3 Human capital, economic openness and financial development significantly influence TFE

Human capital, economic openness and financial development do not play a positive role in promoting technical feedback of Chinese OFDI in the EU. Firstly, China's advanced human capital stock stays at a relatively low level and fails to reach the requirements of effective absorption of technical feedback effect. Secondly, China-Euro cooperation in investment of technology-intensive industries needs to be further deepened to improve Chinese enterprises' capacity of knowledge assimilation. Finally, the inefficient financial market restricts Chinese enterprises to absorb overseas technology.

5.2 Countermeasures and suggestions

The above conclusions reveal important policy implications to Chinese enterprises' FDI in the EU.

Firstly, Chinese enterprises should expand the scale of technology acquisition FDI in the EU. They should enhance awareness of technology acquisition, increase investment in overseas R&D and innovation activities, especially implement direct investment in European Union, the United States and other developed countries with rich R&D resources to actively obtain the latest international technology.

Secondly, domestic R&D investment is the main driving force for China's technological progress. China should attach great importance to scientific development, and increase R&D investment proportion to strengthen the technical level of Chinese enterprises.

Thirdly, China should focus on improving enterprises' capacity of technology absorption. On one hand, China should emphasize on cultivation and accumulation of high-tech talents and R&D personnel, to play the important role of human capital in promoting TFE of China's OFDI in EU. A more open foreign economic policy should be continuously implemented between China and EU countries to strengthen exchanges and cooperation among China-Euro multinational companies. China's financial reform should be deepened persistently to improve the efficiency of financial markets and resources allocation, and strengthen assimilation of EU R&D results. On the other hand, China should keep a moderate technological gap with the EU countries, and promote the investment, imitation and innovation of Chinese enterprises to realize technological catch-up.

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On Impetus Mechanism for Strategic Emerging Industry in China

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Abstract: The strategic emerging industry in our country is small in scale but developing in strong momentum, obviously, its rapidity develops faster than overall level of industrial economy. Based on the analysis of some related research achievements, this paper has further explorations about dynamic mechanism of strategic emerging industry, it puts forward the innovation driving mechanism, demand driving mechanism, policy guarantee mechanism and competition driving mechanism, and puts forward to set up team for strategic emerging industrial cultivating project, to implement strategic emerging industrial cultivating project and to introduce a series of cultivating polices and measures for strategic emerging industry.

Key words: Tragic emerging industry; Impetus mechanism; Development measures

1 Introduction

Although the scale of the strategic emerging industry in our country is small, it develops in strong momentum and faster than the overall level of industrial economy. Our country continues to strengthen the macro guidance, increase the fiscal and taxation financial support, consolidate talent pool, accelerate reform of the system, Strengthen scientific innovation, cultivate market actively and promote international cooperation, which has been optimizing the resources and the market environment of strategic emerging industry and improving the institution mechanism continuously, the strategic emerging industries showing a booming trend everywhere in China. Every provinces and cities attaches great importance to develop the strategic emerging industries and grab the future industrial heights; to implement the strategy of innovation and focus on key industry core technology breakthrough innovation; Specific project implementation of the strategic emerging industry development, attract talent, finance guarantee, foster strategic emerging industry market Therefore, the research for the development of strategic emerging industry dynamic mechanism and policy measures, to promote the development of strategic emerging industry in China has theoretical and practical meanings.

2 Overview on Present Research Situation

Wang Xingxing(2011) put forward the impetus mechanism of strategic emerging industry development, which means that technology progress is the direct power, high-level industrial structure is the basic power and the transformation of the traditional industries is the real power. Yuan Zhonghua(2011) put forward and demonstrated that Institutional change is endogenous factors in the development of emerging industries, institutional change is the second elements just behind the material capital which can decide the growth speed of emerging industry. Taken the sewage industry as research object, though analysis the internal environment and external environment of strategic emerging industry growth, Qiao Xiaonan(2011) put forward the growth mechanism of strategic emerging industry, including the growing power system industry, the expansion mechanism of the industrial scale, the evolution mechanism of industrial organization and the promoting mechanism of industrial technology. Liu Deng(2011) analyzed the features and basic effects of the strategic emerging industrial policy, and learning the practice about the national industrial policy promoting the development of emerging industries from Japan, the EU, the United States and South Korea, then he put forward the idea how to play the positive function of industrial policy in the process of developing strategic emerging industry. Zhang Yuzhe(2011) systematized and evaluated the polices made to support the strategic emerging industry by each ministries and commissions from the 6 aspects of industrial technology policies, market foster policies, international cooperation policies, investment and financing policies, tax revenue policies. Cheng Yu (2011) took the wind energy industry as the specific research object, learned about the system and path of policies of the wind energy industry from Denmark, Germany, Britain, America and Holland. He suggested that in the development of wind power industry in China, firstly, we should not only attach importance to scientific and technological innovation, but also to build a strategic industrial system and regulation system; secondly, sufficient time and opportunity should be provided to emerging industries to learn and grow; finally, political and social identity should be strove for it. Li Shu thought that emerging industry development in our country is still in its infancy and faced with so many

problems and developing difficulties that needs the government’s guidance and support urgently, technology policies of strategic emerging industry should be made and implemented, and promoting the cultivation of product market, attaching great importance of talents training and promoting construction of industrial development corollary facilities and improving the external environment.

3 Impetus Mechanism of Strategic Emerging Industrial Development

There are four main aspects about powers of strategic emerging industrial development. At first, technology innovation and integration of inter-industry and intra-industry has promoted the development of emerging industry; second, the growth and changes of national strategic demand and market demand has pulled the growth of the emerging industry; third, the government’s preferential protection policy for emerging industry has provided strong guarantee for the development of emerging industry; forth, the competition between traditional industries and emerging industries has driven the development of strategic emerging industry. At the same time, the four powers are also linked to each other, technological innovation is the core of the emerging industry, industrial technology research and development need the support of policy funds, and advances of technology will increase the interior competition in the industry, however, the competition had forced the ascension of industrial technology in turn. In order to meet the national strategic demand and adjusting the industrial structure, a series of policies should be issued by the state to guarantee the emerging industry growth smoothly, and the emergence of new demand also led to new industrial competition.

3.1 Innovation driving mechanism of strategic emerging industrial development

Technological innovation is the fundamental motivation and intrinsic motivation for the development of strategic emerging industry, including product innovation, process innovation, enterprise management innovation and equipment innovation etc. Technological innovation has promoted the new product, the new technology, the new management and the new equipment coming into being, and then creates the high-tech enterprises. High-tech enterprises will generate industrial agglomeration from horizontal and industrial cluster from vertical, with enlarging scale of high-tech enterprise group and some new enterprises coming in at the same time, a complete industrial chain will be formed, finally, a strategic high-tech industry will be born. The promotion mechanism how technological innovation push strategic emerging industries is shown in figure 1.

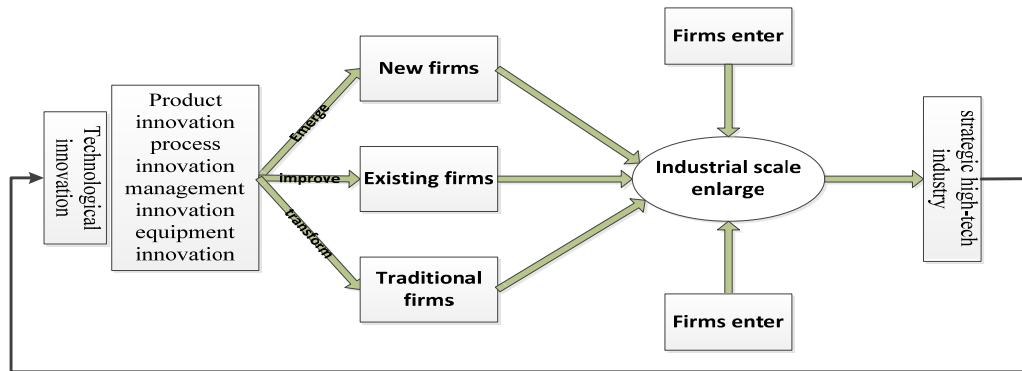


Figure 1 Innovation Driving Mechanism of Strategic Emerging Industry

In the process of industrial significant technological innovation, the most achievements depend on external power. In terms of large upfront investment, long-time cycle of R&D and great risks, enterprises would undertake too much risk if all depend on themselves in technological innovation. So, in the process of technological innovation, governments, research institutions, schools and the industry are working together. First of all, some scientific research institutes and colleges have a research of technological innovation, and then achieve certain scientific research achievements and patents etc. Second, enterprises do the innovation on technology and production, so as to improve its competitive advantage in the market. Then, technical reform by many enterprises cause changes in the industrial structure and promote the emergence and development of strategic emerging industry.

3.2 Demand-oriented driving mechanism of strategic emerging industrial development

The market demand of strategic emerging industry is derived from three aspects: national strategic demand, regional development demand and individual consumption demand. Adjusting domestic

economic structure according to the national needs for developing strategic emerging industry to facilitate the enterprises to transform, promote and enter. Enterprises perceive the potential individual needs in the market, then, strategic emerging industry will be formed via enterprises agglomeration and cluster. The regional development demand is in the middle of national strategic demand and individual consumption, which should not only be qualified for the national strategic plan but also be qualified for consumers' demand in market. The driving mechanism which demand does for strategic emerging industry is shown in figure 2.

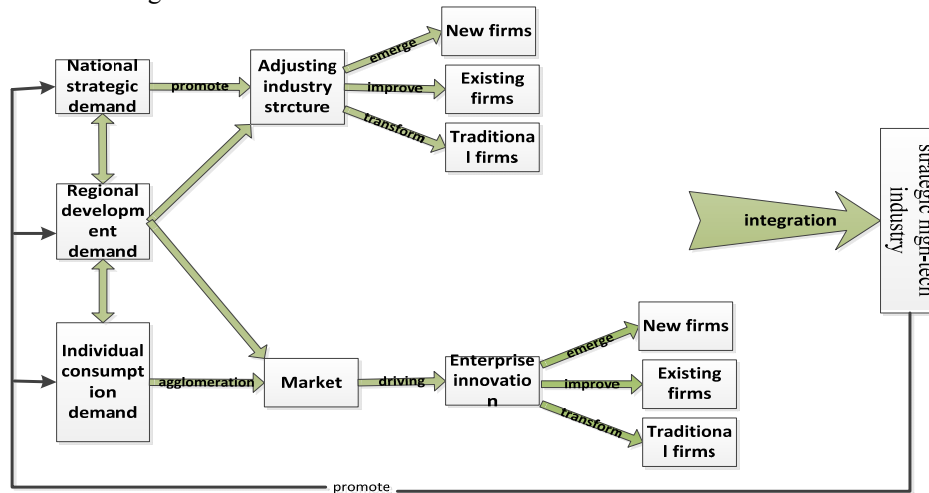


Figure 2 Demand-Oriented Driving Mechanism of Strategic Emerging Industry

3.2.1 Demand of national strategy

In order to improve the country's competitive advantage, we must serve the national strategic demand as traction and international scientific development as guidance to do scientific research about national fundamental research and strategic high-tech research. After the country formulating the strategic requirements, by the means of issuing a series of planning policies to adjust the country's economic structure and reduce the proportion of traditional industries in the national economy so as to increase the shares of strategic emerging industry. In accordance with the national strategic planning, there will be internal industrial adjustment. By the means of constant promotion of traditional enterprise, promote the existing small and medium-sized high-tech enterprises and absorb the new enterprises to expand the strategic emerging industry.

3.2.2 Demand of regional development

Regional development should not only be satisfied with demand of national strategy, but also the market needs in the region. On the basis of the nature of regional development requirements, there are two aspects in terms of developing regional strategic emerging industry: one is depending on the regional government to adjust the industrial structure; the other is satisfied with the demand of the regional market. The regional demand plays an a continuous role for demand of market and national strategy.

3.2.3 Demand of individual consumption

In consumption market, the consumers will have higher-level demand when they are satisfied with their existing demand, which makes companies to make innovations in technology and products in order to cater to the demand from consumers, and provide higher-level demand and service. The strategic emerging industry is a new industry occurring under the changes of demand in market. Companies will predict the direction of demand in the market according to the current demand in the market, and finally complete the development, production and sales through the process of establishing innovation strategy of technology and production, R&D and experiments. That shoes the basic principle of demand in the market pulling the industrial development.

The direction which the market corresponded to the strategic emerging industry is to realize the combination between technology and demand. Its appearance should be the situation of companies' independent decision-making and adaption to the market actively. Enterprises' satisfaction for the market led to the development of its industrial chain, and strategic emerging industry will be formed under the development of technological innovation.

3.3 Policy guarantee mechanism of strategic emerging industrial development

The national and local governments will issue different policies to promote and safeguard the development for strategic emerging industry in different stage of its development. In order to ensure the development of strategic emerging industry, the state and regions optimize the allocation of social resources and make it more conducive to develop emerging industries by the means of integrating the social resources and its redistribution, which is also the basic requirement of constructing “two-oriented society”

The four kinds of policies of inductive policy, incentive policy, service policy and supervising policy play a protective role in developing strategic emerging industry. In the early stage of this industry, the industrial scale has not be formed, so the state and local governments will issue incentive policy to promote the industrial technological innovation in order to improve the core competition of the industry, including policies of subsidies for technology innovation, tax reduction and exemption and so on. The service policy mainly plays an assistant role to help solve the problem of financing in developing strategic emerging industry. In the process of developing strategic emerging industry, the supervising policy performs the function of macro regulation and maintain the market order.

The four kinds of policies above are existing for developing strategic emerging industry, attracting new enterprises, promoting pre-existing emerging enterprises and transforming traditional enterprises. In order to optimize the allocation of social resources and ensure the development of strategic emerging industry, the government could take advantages of macro regulation. How the polices helping the strategic emerging industry is shown in figure 3.

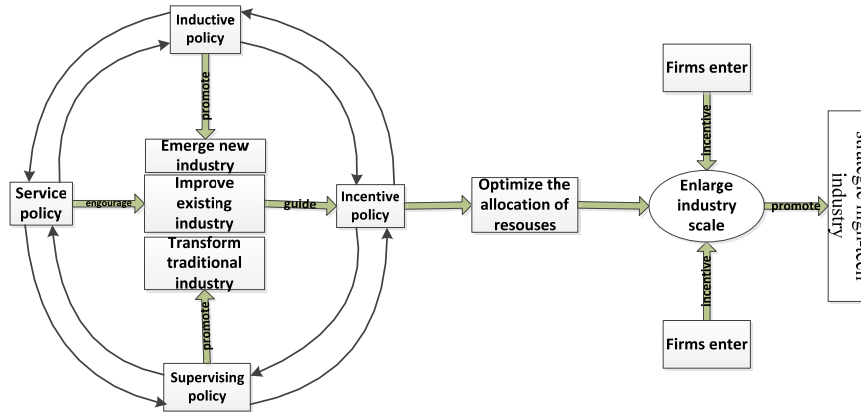


Figure 3 Policy Guarantee Mechanism of Strategic Emerging Industry

3.4 The competitive driving mechanism of strategic emerging industrial development

Technological innovation is the core of strategic emerging industry. The market needs promote the industrial development; the policies guarantee the industrial interests while the internal competitions in the market bring pressure to industrial development. Enterprises in the market will follow the steps of the market and update forward newer and more beneficial industry.

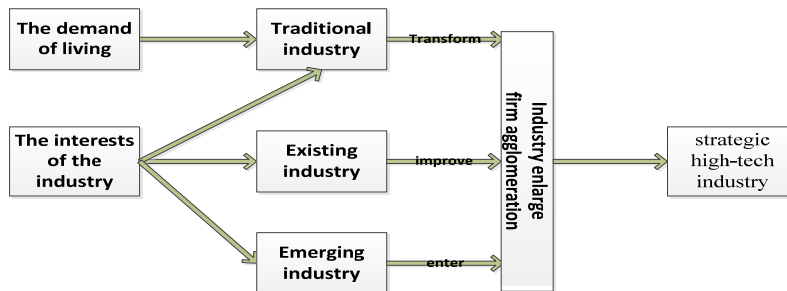


Figure 4 The Competitive Driving Mechanism of Strategic Emerging Industry

In order to survive, the traditional industries need to transform and update. Some traditional industries has occupied too many society resources but wasted a lot, that went against the national strategic plan. At the same time, these industries are facing the risk of staying out of the market. However, some enterprises would transform and update forward the strategic emerging industry

according to the resource and technology they have now in order to their further development.

Following is the driving mechanism which the competitions in market do for the strategic emerging industry: as the strategic emerging industry is a new industry, so the numbers of enterprises of this kind are relatively small, but the existing enterprises will transform and update for the industrial interests in the future. Someone who has technological basis will establish new enterprise and become one part in the strategic emerging industry under the calling of the state and the driving of the market. However, the original high-tech enterprise will develop faster in order to ensure their competitive advantage in the industry. How the competitive driving mechanism in the market pushing the development of strategic emerging industry is shown in figure 4.

4 Results and Conclusion

4.1 Set up strategic emerging industry development team

The development of strategic emerging industry is related to many problems, difficulties such as deployment of human resources, material resources and financial resources, also optimization and reorganization of resources make the general leader group very important to exist. Under the management of this organization, all the work carried out steadily and orderly, thus, it is particularly important to establish a cultivating engineering team for strategic emerging industry with functions and systems cleared and defined.

4.2 Implementation of cultivating project for strategic emerging industry

The cultivation of strategic emerging industry is a complex project which is related with every field in development. Under the era of the third Industrial Revolution and based on the analysis of choices of the strategic emerging industry, a set of feasible strategic new industrial cultivation plans in Hubei province could be came up with from many aspect such as tackling key problems from key industrial technology, cultivating from industrial innovation subject, developing with industrial carrier, supporting platform construction, transforming achievements and cooperation and communication.

4.3 Introducing a series of policies for strategic emerging industrial cultivation

The features such as pre-guiding, externality, indeterminacy and high risky of strategic emerging industry determines that market failure occurs at some time in the process of strategic emerging industrial development. The government needs to choose reasonable policies to develop strategic emerging industry and to adjust, stander and restrict according to the market in order to achieve the optimal allocation of industrial resources and strengthen industrial competitiveness. According to different emphasis, the policies of strategic emerging industrial cultivation can implement from fiscal and taxation policy, industrial policy, financial policy and talents policy.

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Ethiopian Coffee Industry Strategy Formulation

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Abstract : Like other many developing coffee producing countries Ethiopia mainly depends on its crop for foreign earning revenues, employment and consumption. The country gets in doubts and fear by the problem related to the coffee crop. The traditional production system lowers the level of productivity that requires industrial strategy formulation in order tackle the problem hindering the sector from developing. Strategies are on the hidden part of a successful business no matter where it is operating. A strategy is an actuality defined by Arthur, A., Thompson Jr. et. Al. (2007) is the management action plan for running the business and conducting operation. Data's are gathered from articles, books, annual company's bulletins, brochures and internet data's which where documented. Data's found at the Ministry of information was also accessed, and examined following the process study and re-study the raw data to develop detailed intimate knowledge was performed. The Ethiopian coffee industry should struggle to improve quality of coffee at the same time facing the hindrance of low quality during the process. The industry requires to upgrade the awareness and skills of all participant, improve input supply techniques for the best green and processed coffee to the world and requires technical assistance for development of domestic roasting, packaging and marketing.

Key words: Ethiopian Coffee industry; Coffee sector; Development; Strategy

1 Introduction

Industrial production is one of the most important activities in economic growth and development of a country. It plays a crucial role in creating employment opportunities, increasing production capacity, and reducing production cost through its direct and indirect impact on domestic activities. It contributes a lot for a countries development by producing goods by making it available on local and international market which is a major source of foreign exchange to finance import commodities which are not locally manufactured but vital importance for domestic production which is also highly significant. It also strengthens the capacity of a government to provide public goods by increasing government revenue. The manufacturing sector plays essential part in growth process. The sector has encountered serious development obstacles that lead to insignificant contribution for gross domestic product (GDP), due to financial constraints shortage of supply raw materials and shortage of trained manpower.

Many researches and prominent scholars have proved that Ethiopia is a birth place of coffee and coffee is a notable gift of this country to the world. Ethiopia has been exporting coffee almost for a century. Ethiopia is producing only Coffee Arabica, which is characterized by its good aroma, taste, better quality and premium price. No other countries in the world can produce only this high quality coffee may be few like Brazil and Colombia can produce huge volume of Coffee Arabica but still produce Coffee Robust, which is known in its inferior taste.

Ethiopia export depends heavily on few primary agricultural products like coffee, hides and skins, oil seeds and pulses which together form approximately 66.57 percent of the total foreign earnings. Out of this coffee export accounts 61.4 percent on averages for the foreign earning (NBE, 2008). Heavy dependency on coffee would continue in the future till the economy succeeds in diversifying its export structure. Despite the importance of the coffee industry, it couldn't generate enough to satisfy the foreign exchange needs of the country.

The research strongly believes that this research has significance for coffee industry in Ethiopia. I assume that the research will show strategic development from, from the perspective of both strategy formulation and implementation. It also shows how strategy can improve the performance of the industry, the practical guidelines on how to implement strategy successfully. On the other hand the research will focus on the coffee production of Ethiopia and measure the production and supply chain, by relying on to the historical and current data, this research will try to depict how coffee production should grow from time to time in Ethiopia.

2 Literature Review

2.1 Strategy overview

An industrial strategy is management's action plan for running the business and conducting operations. The crafting of strategy represents a managerial commitment to pursue a particular set of actions in growing the production, business, attracting and pleasing customers, competing successfully, conducting operations, and improving the industries financial and market performance (et Thompson jr.2007). In choosing a strategy, management is in effect saying, among all the many different businesses approaches and ways of competing we could have chosen, we have decided to employ this particular combination of competitive and operating approaches in moving the company in the intended direction, strengthening its market position and competitiveness, and boosting performance.: strategic choices a company makes are seldom easy decisions, and some of them may turn out to be wrong but that is not an excuse for not deciding on a concrete course of action. (et Thompson jr.2007).

Today's dynamic markets and technologies have called into question the sustainability of competitive advantage. Under pressure to improve productivity, quality, and speed, managers have embraced tools such as TQM, benchmarking, and reengineering. Dramatic operational improvements have resulted, but rarely have these gains translated into sustainable profitability. And gradually, the tools have taken the place of strategy. As managers push to improve on all fronts, they move further away from viable competitive positions. (Michael Porter1996) argues that operational effectiveness, although necessary to superior performance, is not sufficient, because its techniques are easy to imitate. In contrast, the essence of strategy is choosing a unique and valuable position rooted in systems of activities that are much more difficult to match.

2.2 Industry analysis in practice

Good industry analysis looks rigorously at the structural underpinnings of portability. A first step is to understand the appropriate time horizon. One of the essential tasks in industry analysis is to distinguish temporary or cyclical changes from structural changes. A good guideline for the appropriate time horizon is the full business cycle for the particular industry. For most industries, a three-to-five-year horizon is appropriate, although in some industries with long lead times, such as mining, the appropriate horizon might be a decade or more. It is average portability over this period, not portability in any particular year that should be the focus of analysis. The point of industry analysis is not to declare the industry attractive or unattractive but to understand the underpinnings of competition and the root causes of portability. As much as possible, analysts should look at industry structure quantitatively, rather than be satisfied with lists of qualitative factors.

The strength of the competitive forces affects prices, costs, and the investment required to compete; thus the forces are directly tied to the income statements and balance sheets of industry participants. Finally, good industry analysis does not just list pluses and minuses but sees an industry in overall, systemic terms.

3 Research Methodology

Relevant data was collected from text books, articles, magazines and internet, company Broachers, data which were documented. Furthermore, statistical data released by government or central statistics authority of Ethiopia, data's at ministry of information was accessed and examined following the process Study and re-study the raw data to develop detailed intimate knowledge was performed. Next, initial impressions were noted and data was grouped under the still-tentative categories. Finally certain conclusion were inferred, which were subsequently validated through interviews with experts in the field of study.

In order to better analyze this topic, I am going to make use of some research methodology suitable for data collection and analysis. Different methods is been applied by researchers for that matter. The primary and secondary data collection methods are among the most used applied ones. However specific technology might not be used in this research.

Primary data is an important way of collecting data. It allows the researcher to get first-hand information. However because of some reasons such as luck of data available about particular research, time and means, and also the broad macroeconomic coverage of the topic, I am not going to focus on primary data collection but we will consist some interview hold types

As of primary data the secondary data is also another way of collecting data that does not provide first-hand information but allows researchers to have access to data already available. In this case, the data that we are going to analyze will be taken from previous works done about strategic development about coffee industry and trends about the sector.

In detail way, we will focus on a case studies analysis approach. In fact there are many cases of

industries which have experienced on coffee making. Some of them have applied successful strategies while others could not make it in the challenging and competitive environment. Analyzing both cases will help us draw a conclusion and understand the reason hidden behind a success or a failure in the coffee industry. The internet books published will be our main source and data indeed all the cases will be found in bulletin and books. We will also make use of available protocols of some companies operating in coffee industry.

4 Strategy Formulation for Ethiopian Coffee Industry

4.1 Strategic thrust

4.1.1 Increase coffee productivity and production

As I mentioned earlier on the objectives, increasing the production volume requires improving productivity. Perhaps better yield can also act positively by enhancing economic profitability for coffee farmers. This will be achieved through processing out activities such as upgrading (rejuvenation) of existing farms by planting with improved varieties, improving husbandry practice, through better support by extension program, and intensification applying better pest sides.

Coffee productivity in Ethiopia is currently estimated 9.2 quintals/ hectares. In 2008/09 a total of 480,600 tones of coffee was produced. Ethiopia only produces Arabica coffee, which is widely believed to have originated. Generally coffee cultivation in Ethiopia is conventionally divided into four categories: forest coffee 8-10%, semi forest coffee 30-35%, garden/cottage coffee 50-55% and semi modern plantation 5-6% [MoARD, 2009]. the intervention of the combination listed above has the potential at least to double the current average volume. Increasing productivity will require a number of involvements like; better understanding and application of good agricultural practices by farmers. In the other hand creating alternative means of water system like irrigation channels Applying updated inputs such as fertilizers, insect sides and fungi sides, and most importantly replacing the old coffee trees which has been affected with pests.

Planting a new modern coffee farms could help boost the overall production. Since most of the country sub sides are suitable for agriculture practice and ideal weather for coffee plantation, I find it convenient to plant new coffee farms in expansion areas to get the benefit of coffee growth in a given period of time 2-3 year start up time.

4.1.2 Improve efficiency of the value chain

If the internal marketing system is improved coffee producers can get higher share of the export price. I suggest the main areas needs to be observed to insure better income for the farmers as follows:-

- 1) Reducing the complexity and length of the value chain to enable farmers outsource better markets.
- 2) Adopting transparency through market information system regarding quantity, quality price etc...
- 3) Identifying the current problem in terms of transactions like production costs, administrative handles, taxes and transport
- 4) Encouraging the private sector to be involved and engaged through the chain from seeding- processing- semi processing- packaging- exporting process.
- 5) Strengthen efficiency of cooperatives/buyers through capacity building
- 6) Government should subsidize the sector to boost the flow from farm to export time

The regulation and marketing strategies of the coffee sector should be revised time to time to encourage private sector involvement and to ensure the alignment with the changing business situation. To allocate further investment in the coffee industry, in areas of Inland Revenue (taxation), investors land owner ship requirements needs reform.

4.1.3 Overall coffee quality improvement

By producing better quality coffee it's possible to increase price premiums. This requires from the start (farmers) devotion to good agriculture practice, harvest and post-harvest practices after onwards by processing and labeling in the manufactures and improvements in the utilization of advanced processing equipment's.

This strategy can be acquainted with the opportunity of improving quality of Ethiopian coffee, through:-

- 1) Development of comprehensible quality standard through researches
- 2) Reasonable pricing not below or extremely above average at the farm level
- 3) Using advanced equipment's for gathering to avoid direct hand to crop bean contact.

- 4) Capacity building and support to the equipment of producers
- 5) Generalization of quality self-control by cooperative/ buyers using adequate tools (moisture meters, scales, tasters etc...)
- 6) Improving ECXs capacity in order to maintain and stipulate the new farmers and producers emerging

4.1.4 Explore new market opportunities

The further promotion of Ethiopian coffee in the world seeking for huge market like China could also bring many economic benefits as well as developing a bilateral trade economic partnership among the countries. Value addition can also be accomplished by producing and supplying ready products such as roasted beans, processed brewed coffee, packaged instant coffee on local and regional market as well as producing export standard to ship it abroad. The foreign currency and income which can be generated from the above activities can bring courage for new investors to be engage in the industry.

5 Discussion and Conclusion

As the study shows in today's world wide market, designing strategy in order to add quality value is a vital object for competitiveness. Therefore the Ethiopian coffee industry should struggle to improve quality and value addition. Thorough this topic, we have tried to explain how the industry constructs strategies, in order to satisfy the demand of the production and consumption at the same time creates value to the chain.

Ethiopia has a high quality of coffee at the same time facing the hindrance of low quality during the process, is the major constrain of the coffee industry which leads to a lower share compared to other coffee producing countries with less quality compared. From the analysis, poor handling and storage, quality matter awareness problems mainly by the farmers, poor coffee auction and inspection system, lack of quality inspection center, mixing of different grade coffee, poor agricultural practice, lack of input materials, poor harvesting/post harvesting practices, lower level of end processors, lack of new technology, poor blending practice and shortage of packing materials and industries are the main reason to provide low quality compared to the top producers like brazil, Vietnam and Indonesia.

Ethiopia mainly exports dry coffee without value addition due to lack of sufficient wet-processing plants and it only exports and supplies for local market insignificant amount of roasted and grounded coffee. Relatively the low price paid to the farmers gives a vast chance of many coffee producers shifting to other crops like sea sum, chat, horticulture comparatively seeking advantage. Hence if there are no ample rewards to the coffee farmers, there is a possible hazard that farmers may substitute this with relatively high value crops. This can be explained as uphold the sustainability of coffee production in Ethiopia.

The basic problems related to the Ethiopian coffee industry sector are quality and value chain that requires frequent planned up grading programs that are not enormously available. As a result based on the issues mentioned earlier, we propose solutions which can be used to develop quality and value addition in general boosting the industry.

Upgrade the awareness and skills of all the participants of the industry:- conducting trainings and quality management in the agricultural practices as plantation, cultivation, re plantation, distribution, protection, harvesting/post harvesting, handling and storing should be provided in an extensive way to the farmers and extension workers in order to establish quality control mechanisms.

Improve input supply techniques for the best green and processed coffee to the world:- all the participants specially the government should work hard on providing farmers with adequate input materials like fertilizers and pest sides in a massive way and also introducing new technology, new technology and tools. Strengthening the collaboration between research centers, extension service and farmers is the most essential factor to easily transfer technology. In addition restructure inactive task force and emphasize should be given to establish new national coffee extension service provide under ministry of agriculture and rural development (MoARD).

Technical assistance for development of domestic Roasting, Packaging and Marketing: in order to boost the industry the important element is to add value to the coffee chain. Ethiopian is mostly exported as green coffee beans. Aside from pulping, washing, fermenting, drying and roasting until some level. No processed of standard coffee takes place. Therefore, roasting and packaging of export coffee is a most important determinant required to add additional value to the Ethiopian coffee production and export. Thus, it is essential to initiate a program at national level to invite investors to invest and get engaged to advance the coffee processing.

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Study on College Students' Entrepreneurship and Industry Selection

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Abstract: Based on currently domestic economic growth slowed of pressure, employment situation has increasingly hard, most of students have more pressure in employment. So this paper is aimed at proposing a model which is used as guidance in how to choose the entrepreneurship industry. Model pointed out that there are four factors which need to be considered. The first is started funds of status, the second is industry competition situation, the third is currently market of trend, and the fourth is the profitability of the project. The college student entrepreneurs can chose an industry which is fit those four aspects. And this model will help the university student to analyze which industry is more suitable for college students' to start up a career, and helps students make more reasonable decisions and improve the probability of success.

Key words: College students; Entrepreneurship; Four-force model; Industry selection

1 Introduction

Over the years, domestic and foreign scholars have carried on research to the college student entrepreneurship. However, all of these studies are just to stay in the analysis of the current problems. Take the domestic scholar's research as example, at present, all scholars are studying on the relevant policies and education of College Students' entrepreneurship, the research of foreign scholars are in deeper level, they have studied the conditions of the entrepreneurs. However, these studies, especially the domestic research, only stay in the surface layer, the research level is not deep, there is no more standardized problem solution. Under the current economic slowdown, the pressure on the employment of college students began to bear the pressure, policy changes, making this pressure is becoming more and more important. At the same time, the pressure of college students' entrepreneurship also increased. Study data show that the proportion of current domestic college students entrepreneurship rate was 2.9%, this figure is very small, one hundred college graduates including graduate and doctoral students, only 2.9 choose to start self-employed, however, the 2.9 personal entrepreneurial success is 1.5%, that is to say, ten thousand college students, only 4 will be successful entrepreneurs, this ratio is quite low, 98.5% of the entrepreneurial college students failed. This paper selects the research topic is to better analysis of entrepreneurship students to find a way out, I hope this research can help students do pioneering work more for the venture industry choice, enhance the probability of successful entrepreneurs.

2 Survey and Model Construction

Accuracy principle based on the research, this paper before the design college students entrepreneurial intention questionnaire, access to the large number of references, research direction of the following five aspects: (1) entrepreneurial grade levels; (2) their own environment level; (3) gender hierarchy; (4) industry professional level; (5) the intention to select the level. The questionnaire was distributed in 200 universities and 188 questionnaires were collected, and 155 questionnaires were valid. Table 1 is a survey of the factors considered by college students' Entrepreneurship:

Table 1 Students Business Considerations

Considerations	Selected Number	Proportion
Start-up capital	153	98.7%
The competition in the industry	146	94.2%
The profitability of projects	137	88.4%
Current market trends	132	85.2%
National policies	122	78.7%
Whether the industry is currently a hot industry	103	66.4%
Project risk	97	62.6%
Difficulty of the composition of the entrepreneurial team	89	57.4%
The support of the people around him	67	43.2%

In this paper, through in-depth interview, most of the entrepreneurs will choose about one hundred thousand of the initial capital, and this part of the selection also determines a lot of entrepreneurial intentions, the college students did not dare to go into depth of large projects. Raise funds also to suppress the students thinking space in a certain extent. This paper argues that this is a real problem, we take the national challenge cup for example, 2014 Wuhan College of Technology Huaxia college has a number of students get the challenge cup award, got twenty thousand Yuan in start-up capital, this part of the start-up capital for today's entrepreneurs is so less, in this paper no relevant policies discussed here. Industry competition is another major factor in the consideration, the number of selected to reach 146, second only to financial options. Most of the respondents will carefully analyze the industry leader's present situation, it will be more reasonable to determine the location of the market situation. Competition also affects the entrepreneurial choice, the respondents will not go into these industries if these industries have the following characteristics: market is saturated or too much competition in the industry or in a business where the entrepreneur is too intense. About the project profitability and the current market trends, the two selected number is also very high, there were 88.4% and 85.2%, the four points are selected were the considerations more than 85%, so now we have to be a hypothesis, assuming that the four points are the factors of college students' entrepreneurial industry selection. According to this, the paper constructs the Four-force model for entrepreneurship industry selection for college students.

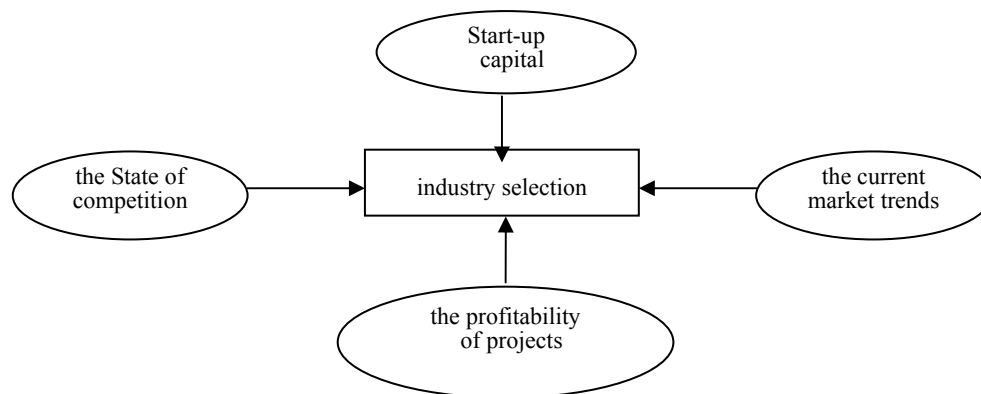


Figure 1 The Four-force Model for Entrepreneurship Industry Selection

Four elements of the Four-force model to explain:

(1) Start-up capital

Start-up fund raising difficulty plays a decisive role for entrepreneurs entrepreneurial choice, the more difficult to raise funds, the fewer number of funds, entrepreneurs choose industry concept will be more smaller, otherwise will be greater, and this directly determines the entrepreneurial orientation.

(2) The State of competition

In determining the business direction, entrepreneurs will be first decided to enter the industry is fierce competition, according to this factor, entrepreneurs will decide which industries to choose as a starting point, this is often considered, forcing entrepreneurs to select blue ocean strategy.

(3) The profitability of projects

After determine the direction of the business, the entrepreneurs will focus on the analysis of the selected project's profitability, the blue ocean strategy entrepreneurs will analyze the profitability of the project selected, entrepreneurs will also open a new path, in the selected project trying to find new profit growth point, if a project has a plurality of profit growth point, the entrepreneurs will gladly accept the choice of the project can be used as starting point.

(4) The current market trends

The market trends determine the flow of the hot money market, the compare the factors be warm effect, emerging market is full of infinite possibilities, the choice of market trends, will let the entrepreneurial college students more perfect their entrepreneurial projects.

When college students are satisfied to their own choice with the four points: start-up capital, the state of competition, market trends and profitability, they will choose to start entrepreneurial projects. This model is helpful to help college students to make the choice of the industry.

3 Using Four-force Model for Entrepreneurship Industry Selection

3.1 Commerce trade

The business industry contains a wide range of aspects, this article only selected two aspects of research, one is a single product industry, and the other is commodity industry.

Table 2 Analysis of Four-force for Commerce Trade

Four factors	Single product sectors	Commodity sectors
Start-up funding	Moderate	Moderate
Competitive situation	More intense	The fierce
Profitability	Moderate	Moderate
Market trends	General	General

From the table analysis, industry trade two small trade types of start-up capital requirements are relatively modest is one of the basic choice of the majority of entrepreneurs, and in its current form, the competition situation of the two kinds is more intense, has certain profitability, the current market trend is also more general, does not appear too big change. In summary, commerce industry choice small trade forum, many students entrepreneurs are able to withstand, the low barriers to entry, with appropriate profit ability, can meet the early entrepreneurs expected. This paper argues that small business industry for forum of capital requirements are not particularly high can choose, entrepreneurs of capital more sensitive can be relative to the choice of commodity trade as the initial choice, this paper suggests that money sensitive higher entrepreneurs, to choose a start-up as its business history the springboard, the main task of early on in the accumulation of capital, entrepreneurial stage to do, this may will reach the ideal pressure space more than expected, will also allow entrepreneurs to have a better state.

3.2 IT industry

IT Industry development is changing in recent years, policy support is also growing, economists are talking about the times, referred to as the age of the Internet, the age of big data, various types of financial reports frequently, we also selected two industry general discussion, on the same model, as shown in table 3:

Table 3 Analysis of Four-Force for IT Industry

Four factors	Software development	Web site construction
Start-up funding	Moderate	Large
Competitive situation	Moderate	Moderate
Profitability	Strong	Strong
Market trends	Great	Great

From the table analysis, industry trade two small trade types of start-up capital requirements are relatively normal, this industry is one of the basic choice of the majority of entrepreneurs, and in its current form, the competition situation of the two kinds of is more intense, has certain profitability, the current market trend is also more general, does not appear too big change. In summary, commerce industry choice small trade forum, many students entrepreneurs are able to withstand, the low barriers to entry, with appropriate profit ability, can meet the early entrepreneurs expected. This paper argues that small business industry for forum of capital requirements are not particularly high can choose, entrepreneurs of capital more sensitive can be relative to the choice of commodity trade as the initial choice, this paper suggests that money sensitive higher entrepreneurs, to choose a start-up as its business history the springboard, the main task of early on in the accumulation of capital, entrepreneurial stage to do, this may will reach the ideal pressure space more than expected, will also allow entrepreneurs to have a better state.

3.3 Service industry

The service industry which is discussed in this paper is actually the third industry category in the definition of economics. Following a study from the State Ministry of science and technology of China Science and Technology Development Strategy Research Institute China's key industrial science and technology competitiveness and development potential research group of 60 industry throughout the country, seven emerging industries, 31 provinces, autonomous regions and municipalities, and contains six countries, including the United States, a trend of economic development were studied.

Research shows that in 2013 the per capita GDP of our country is the level of the United States 40 years ago, the third industry accounted for over 70 years ago, and the United States is the level of the United States. Service industry has more than 20 trillion Yuan of RMBs market, even in a slowing of the growth of the secondary industry, increase efforts to develop the third industry can also maintain near and medium-term economic growth, after the current economic gross exceeds the United States to strengthen the position of the world's largest economies, must optimize the implementation of innovation driven strategy, become a center of innovation in the world. According to the above Four-force model of College Students' entrepreneurship industry selection, the paper analyzes the third industry:

Table 4 Analysis of Four-force for Service Industry

Four factors	The tertiary industry
Start-up funding	Moderate
Competitive situation	Moderate
Profitability	Strong
Market trends	Large

This paper argues that the country has not formed the third industry benign development mechanism, opportunity for development of the tertiary industry due to the impact of the Internet, there is no formation so fast, but the block like a piece of untapped jade is industries have a huge market potential, the tertiary industry's low barriers to entry, also has a relatively strong profitability, this paper suggests that there is no technical support business students who can choose the third industry entrepreneurship.

4 Conclusion

In this paper, we mainly study the entrepreneurial orientation and the operation scheme, it is for the college students' Entrepreneurship provides a feasible operation model and to the upcoming entrepreneurs or business students pointed out that a clear choice scheme and operation mode, so as to enhance their record industry conditions, try to improve college students' innovative undertaking success rate. In this paper, we first design a set of research questions related to the questionnaire. According to the recovery of the questionnaire statistics and analysis, it is concluded that a Four-force model for college students' entrepreneurship industry selection. This paper selects is representative of the industry and trade, IT industry and service industry are analyzed. This study hopes to help college students are more sensible to make business decisions.

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The Role of Brand Experience to Categorize Consumer Behavior: A New Paradigm to Consumer Psychology

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Abstract: This study aimed to create typology of consumers, who differ in brand experience appeal and whether or not these experiential types moderate the relationship between behavioral outcomes such as customer loyalty, customer delight and word of mouth. This study used non probability sampling technique, particularly convenience sampling was used. Primary data were collected from 136 (n = 136) respondents of university students in China. Data analysis through cluster technique found that there are four types of consumers, such as holistic consumers, hedonic consumers, inner directed consumers, and utilitarian consumers. On the one hand, there are holistic consumers who are more inclined to all brand experience dimensions simultaneously, from sensory appeals which attracts their senses, creates affective bonds, and captures cognitive interest to the behavioral appeals that create strong behavioral commitment. On the other hand, there are utilitarian consumers who are much concerned with the benefits offered by brands. This study also found strong relationship between holistic and hedonic consumers than utilitarian consumers.

Key words: Brand Experience; Cluster Analysis; Customer Delight; Word of Mouth; Customer Loyalty

1 Introduction:

Today's market becomes more competitive than ever before. Now consumers have more choices of brands, even the internet and smart phones technology enable consumers to frequently shift to competing brands if existing brand is not doing well. Therefore, marketers start crafting strategies to differentiate themselves from competitors. Moreover, two decades ago in quest of excellence marketers and consumer behavior researchers awoke the importance of experiential and hedonic aspect of consumption. Consumption has begun to be viewed as feelings, fantasies and fun. Emphasizing that consumers can't be treated as computer like decision makers, now consumers look for the brands that provide unique and memorable experiences^[1].

Brand experience is new and exhilarating concept, conceptualized as "sensation, feelings, cognition and behavioral responses evoked by brand related stimuli that are part of brand's design, identity, packaging communication, and environment"^[1]. The traditional marketing only focused on the benefits of brands or what brand offers to customers as solution to their problem^[2], which is apparently a narrow focused approach due to the fact that the customer will be jumbled with brands that offer similar benefits at the same price. Another reason is that when consumers search for brands to shop, they experience with brand related stimuli^[3] that captures their sensations, feelings, cognition as well as behavioral responses besides benefits of brands^[1]. Previous research on service experience implied that providing emotional rich service experience can enhance the sales as well as affect the customer loyalty^[4]. Another research draw conclusion that differential experiential types can moderate the relationship between brand attitude and purchase intention^[5], but so far no study in consumer behavior and psychology scrutinize the relationship between experiential dimensions (sensory, behavioral, affective, and intellectual dimension), word of mouth and customer loyalty to create the typology of customers. Therefore, this is first study which mainly focuses on to explore and segment consumers in terms of experiential appeals. To create the typology of consumers in terms of high experiential consumers versus low experiential consumers that prefer different experiential appeals, as research implied that some consumers are more receptive to sensory and affective appeal than behavioral and cognitive appeal^[5]. Finally, this study investigated moderating effect of segments of experiential types among loyalty, customer delight, and word of mouth.

2 Theoretical Frameworks

The concept of experience has been explored in several ways such as product experience^[6], shopping experience^[7], service experience^[8], and customer experience^[9]. Recently brand experience

appeared as important marketing phenomena which raises the questions against traditional marketing approach, that only focused on benefits of brands, emphasizing that besides benefits of brands consumers also evoked to brand related stimuli which captures their sensations, feelings, cognition, and behavioral responses^[1]. Brand experience can be positive, negative, short lived and long lasting^[1, 10] which effect customer satisfaction and loyalty^[11].

2.1 Customer delight

Customer delight is consumer's positive response, when given product or service not only satisfies but furnishes unanticipated value and provide unforeseen satisfaction^[12]. The concept of customer delight resides in Oliver's expectancy theory: according to this theory, consumers compare their experience with expectation. If their experiences exceed the expectation, they feel positive which triggers customer delight^[10]. The concept of customer delight emerged in 1990, with the discussion of effective and experiential aspect of consumption^[13]. Research showed that customer delight is correlated with positive word of mouth^[14].

2.2 Customer loyalty

Customer loyalty is a profoundly held commitment to re-buy or patronize a preferred product or service consistently in the future^[15]. Moreover, loyal customer is not prone to switch to competing brands or patronize the competitors. Therefore, marketers tend to give more attention to retain the existing customers and increasing loyalty, as retaining existing customers is costing less than attracting new customers^[16]. For many decades, it was reported that satisfied customers are loyal customers. However, it was argued that customer delight is the most effective way to increase customers' retention ratio. Therefore, the actual way to increase loyalty and improve retention is not only to satisfy customers, but to delight them^[18].

2.3 Word of mouth

Word of mouth communication is kind of informal communication among people or group of people pertaining to the evaluation of goods and services. It is considered as a reliable source of communication rather than traditional marketing media^[17]. Word of Mouth has the potential to effect the customer's loyalty through social group influence, peer recommendations and brand reputations^[18]. In this research it is assumed that the relationship between customer delight, word of mouth and loyalty varies across different consumers groups.

3 Research Methodology

The questionnaire for this research consisted of two parts. First part comprised of four variables including brand experience, customer delight, word of mouth, and customer loyalty. The brand experience scale of Brakus (2009) was used in this study, which include sensory, affective, behavioral and cognitive brand experiences. A scale used by Beardon and Netemeyer (1999) was implemented to measure customer's word of mouth. Similarly, a scale used by You & Donthu (2001) was adopted to measure customer loyalty. All the items were measured on five point likert scale ranging from 1 strongly disagree to 5 strongly agree. Moreover, customer delight scale was taken from the study of Oliver & Verki, (1997)^[10]. Respondents were asked to choose one brand that they find most experiential brands hence each questionnaire referred to one specific brand. The carefully chosen brands were diverse in terms of experiential appeal. The brands selected for this study consisted of Apple, Samsung, Nokia, Motorola, and Sony Ericson from electronics products category. Whereas, McDonalds and KFC were chosen from fast food industry and finally, Coca-Cola from was chosen from beverage industry.

Questionnaires were circulated in universities and shopping centers of two big metropolitan cities of China including Beijing and Wuhan. The sample for this study was consumers of the above mentioned brands. The data were analyzed in SPSS 20 version, particularly; hierarchical cluster analysis, regression analysis and descriptive statistics techniques were performed.

4 Results and Discussion

4.1 Typology of Consumers with Differential Experiential Appeals

To address the first question of this study, a scale developed by Brakus 2009, was administrated to find the average rating of consumers for four experiential dimensions and in order to create the separate distinct group of consumers. To come up with the final decision of consumers, hierarchical cluster analysis with two to five range of cluster was given, with the help of agglomeration and dendograms four clusters were selected as most promising to represent the actual consumer category.

Table 1 The Four Clusters solution

Cluster no.	N	(%)
1	76	55%
2	21	15%
3	20	14.7%
4	19	14.6%
Total	136	100%

Table 2 Mean and Standard deviation of clusters

Cluster	Sensory	Affective	Behavioral	Intellectual
1	3.486 (0.615)	3.127 (0.952)	2.921 (0.873)	3.035 (1.091)
2	3.857 (1.058)	3.777 (1.060)	3.825 (0.979)	3.396 (1.049)
3	1.533 (0.789)	3.550 (1.472)	3.150 (1.025)	3.150 (1.301)
4	3.643 (1.142)	3.263 (0.953)	3.825 (0.850)	3.702 (1.103)

Cluster 1 consists of those respondents who are near to average in all experiential dimensions, they are looking for brands which catch their senses, induce feelings, sentiments and positive emotions. Moreover, this group of consumers is also attaching importance to brand which triggers their cognitive thinking. However, these consumers are not particularly interested in behavioral actions by the brands, because of the inner directed feelings of consumers. This group of consumers can be referred as “inner directed consumers”.

Cluster 2 includes group of consumers who attached more importance to the brand experience as a whole. This group of consumers is looking for the brand which captures their senses, induces favorable feeling and positive behavior as well as stimulates their cognitive senses. According to Schmitt (1999), these consumers are “Holistic Consumers”. They want to have experience as a whole rather than few couple of benefits.

Cluster 3 includes group of customers who are low in all experiential dimensions. Apparently this group of consumers is more diverted towards the functional benefits of the brand rather than the experiential aspects. This type of consumers is the opposite of cluster two, who are experiential consumers. Because they are more interested in the benefits of products, therefore, this cluster is called as “utilitarian consumers”.

Cluster 4 consists of group of customers with high scores in all experiential dimensions, particularly high score on behavioral and intellectual dimensions. This group of consumers looks for brand experience which captures the sensory gratification, induces the positive feelings, engages them aggressively and effects their physical actions. This group of consumer is called “hedonistic consumers”, which means pleasure, enjoyment and delight.

4.2 Regression Analysis

Table 3 Output of Regression Analysis in Four Clusters and Total Sample

Cluster	Dependent variable	Independent variable	Stand: coefficients	F-value	R2	P-value
Cluster 1	Customer Loyalty	WOM Customer delight	.321 .131	6.774	.113	.000 .001
Cluster 2	Customer Loyalty	WOM Customer delight	.302 .121	6.955	.136	.001 .148
Cluster 3	Customer Loyalty	WOM Customer delight	.292 .121	7.078	.139	.001 .114
Cluster 4	Customer Loyalty	WOM Customer delight	.319 .131	6.776	.114	.003 .113

To address the second objective of this study whether or not brand experience moderate the relationship between customer delight, word of mouth, and customer loyalty, regression analysis was

performed. In linear regression model the dependent variable was customer loyalty where as independent variables were customer delight and word of mouth ^[5]. Overall, the predictive power of customer delight and word of mouth is moderated by ($R^2=.156$) whereas significance level is ($P=.000$). Series of regression was also performed for individual clusters. The predictive power of the customer delight and word of mouth in cluster one to cluster four are ($R^2 = .113, 0.136, 0.190$ and $.114$) respectively. All beta coefficients were positive ranging ($\beta = 0.123$ to 0.319). Whereas, result showed that the relationship between customer delight, word of mouth and loyalty are stronger with $\beta = .270$ and 0.085 for word of mouth and customer delight respectively. Overall, the Beta coefficients for hedonic and inner directed consumers are greater than holistic consumers and utilitarian consumers.

5 Conclusion

Present research concluded that, there are group of consumers who prefer different experiential appeals such as holistic consumers are more attracted with all types of experiential appeals. Similarly, utilitarian consumers give more importance to the core benefits of the products. Hedonic consumers are rather interested in the behavioral and intellectual dimensions of the brand experience, which captures cognitive thinking and thoughts. Inner directed consumers are more concerned with inner feelings, sensations, intellectual dimension, and sensory gratification triggered by brand experience dimensions. This study has also implied that different consumer's segments have different effect on behavioral outcome such as positive word of mouth and customer delight which in turn affect customer loyalty.

Moreover, this study has academic as well as practical significance. Practically, this study is significant for marketers in terms of understanding the segments suggested in this study. Marketers can craft the strategies and brand experience dimension that appeal to specific group of consumers, such as hedonic consumers can be reached with esthetic design of products and packaging. Similarly, inner directed customers can be reached with creating emotions and sensory appeals. Holistic consumers can be targeted with sensory gratification as well as lucrative design of brands, packaging and environment where it is sold. Moreover, utilitarian consumers can be targeted by focusing on the benefits of brands offered by product. Academically, this study has contributed and extended theories in marketing literature by employing the consumer's segmentation on the basis of experiential appeals and how these different segments affect customer loyalty, word of mouth, and customer delight.

Future research should take large sample size to generalize the results. Second, this research was conducted in China; further study should work in other cultural context in order to generalize the results and to identify more clusters or segments of consumers. Third, this study used customer delight and word of mouth; future study should investigate the impact of other variables. Finally, it may be interesting to examine the impact of brand experience on brand equity ^[5].

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Research on Market Operation Modes of Chinese Style Paintings^{*}

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Abstract: Starting from the historical cultural attributes of Chinese style paintings, the research on market-based operation modes of Chinese style paintings explores the historical and cultural factors affecting the market pricing mechanism, analyzes the art, cultural, historical and market values and the price formation carriers of the traditional Chinese style paintings, and proposes some pieces of advice based on the current development and the related data. The problems concerning the strategies of market operation mode are summed up. Advice concerning the main problems is proposed to ensure the strategies can be operated effectively.

Key words: Chinese style painting; Market operation; Synthetic factors; Academic values

1 Introduction

Chinese style painting market in this paper means the traditional Chinese style paintings based on the traditional Chinese style of drawing and their correlative handwriting works. At present, it is the biggest domestic artwork business with the largest quantity of transactions. The purpose of this paper is to sum up experience in management of Chinese style paintings in market, exploring its marketing law and strategy with the theory of modern business administration to direct the management of Chinese style drawings at market in the future. The development phase of china culture and art market analyzes the characters of Chinese style paintings as a commercial commodity, both the mental attributes of art work and the commodities. At present, Chinese style painting market and handwriting is in the process of general development. On one hand, the market has the huge potential and a lot of participants in it. On the other hand, the holistic level of management is comparatively low. Integrity and credit are comparatively poor, the outer environment of the market is unsound, and the intendance and harmony from government are not enough. It is considered in this paper that besides getting our marketing of culture art normative and intensifying the intendance, the managers who are doing the Chinese drawing business are expected to mainly get three things ready. Firstly, using the theory of modern business administration to integrate their management, positioning accurately, and realizing the marketing difference. Secondly, choosing the suitable distribution channels according to the strengths of their companies, Finally, pricing reasonably, ascertaining the basic pricing approaches of demand-oriented and competition-oriented, meanwhile, making good use of various index of Chinese art to supervise the price of drawing and handwriting.

2 The Background of Market Operation Mode of Chinese Style Paintings

Chinese style drawings play an important role in Chinese cultural art market. They underwent the same and tortuous process with the calligraphy, relics, oil painting, antiques and curios which can be collected and invested. Since liberation, the Chinese market of cultural art has experienced five progressive stages. The early phase is from the liberation to the mid-1950s before public-private joint run, whose basic features are that cultural relics existed, but are at the stage of maintenance. Doing business faithfully at this stage is very little.

The traditional Chinese calligraphy and paintings preserved before liberation are mainly owned by private collectors, Most operators are cultural businessmen wearing two hats—they are experts not only proficient in cultures, but also equipped with extensive professional knowledge as well as market economy awareness. These curio stores are mainly engaged in traditional Chinese calligraphy and paintings, bronze and other antiques and curios. At this time, buyers are mainly the minority of scholars interested in Chinese culture in addition to local museums. They are experts in a particular field or well-known investors. After experiencing the Anti-Japanese War and the war of liberation, many things waited to be done and were in a recovery period. For various reasons, they were eager to sell their

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collected calligraphy. Compared with the demand of the market, the supply of the Chinese calligraphy and painting exceeds demand during this period, which leads to low price at this time. It was in this period that many people had got many exquisite embroidery at a low price.

With the development of our country's economy and the improvement of people's living standards, more and more people increasingly pay more attention to the spiritual consumption. Chinese paintings are favored by people, which drove the prosperity of the Chinese market. Behind this prosperity, some problems can not be ignored, including art market to the gallery as the main body of the primary market and to the auction markets as the main body of the secondary market. In recent years, the two relations are seriously distorted. The secondary market gradually outweighed the primary market. Except that secondary market trading, sweetheart deals had occupied the total turnover of more than half of Chinese art trading. In terms of market of Chinese painting, how to price the works of Chinese paintings, how to improve the market development of Chinese painting and whether the market pricing mechanism of Chinese style paintings is sound or not, are all the questions needing to be discussed.

The market-based operation mode of Chinese style paintings has developed up to present. Through the development of reform and opening up, people pay more attention to the enjoyment in their spiritual lives. Some people, who have got prosperous first, began to shift from investing industry to art. As a result, the market of Chinese style paintings has experienced an unprecedented prosperity. In other words, the Chinese drawing art capitalization is the development of the market of Chinese drawing artworks. It is an important symbol to enter a transition period. Contemporary Chinese drawing art capitalization is an essential element for The Renaissance, which brought more funds and resources effectively into the art market. This has promoted the development of the prosperity in art market and the economic development of human society effectively.

3 Focus on Market-Based Operation Modes

Chinese style paintings represented by Literati painting has a long history with two thousand years since the Eastern dynasty. With the development of domestic reforming and opening, especially with China's enter into WTO, Chinese style paintings business has expanded significantly. A variety of problems and contradicts have occurred. It is a strong require for us to conduct research and learn from foreign modern business administration concepts and models. The necessity of market research is to manage effectively and forecast scientifically. To forecast the future scientifically, we must grasp the market information timely and make our best to the market investigation. For quite a long time, Chinese drawing inherits his original techniques and style of Chinese drawing, but at the same time, its market operation is influenced by the west. The art market is selling calligraphy and painting works and providing related services, which is a place for selling and buying calligraphy and painting and the sum of the related exchange relationships. Its core is the original Chinese painting. Chinese style paintings market has the same operation mode with other general professional markets.

Chinese paintings price is always the most important core yet controversial issue of the development of Chinese market. On one hand, market prosperity and the development of Chinese style paintings caused the price rising. On the other hand, the prosperity and development of the Chinese art market and art prices are climbing rapidly. Price is no longer the painting value of the traditional Chinese style paintings work of realism, but with more and more moisture and implicit factors, coupled with the market price mechanism and withdrawing mechanism. The normal pricing mechanism is that value decides the price and academic status determines market position. In the real situation, however, a reversed transmission mechanism has abnormally been formed. That is, price decides value, while market position determines academic status.

4 Analysis of Market-Based Operation Modes of Chinese Style Paintings

Chinese art market can be mainly divided into three categories according to its types: Chinese calligraphy and paintings, porcelain miscellaneous, oil painting and contemporary art, which are also known as three parts of Chinese art. The total turnover of the three parts broke through 40.935 billion Yuan on 2011 spring auction, accounting for 95.55% of the total turnover in this quarter. However, the developments of the three parts have their own characteristics, and they are facing with different difficulties and challenges at the same time. With the competition in the market, the demand of customers and the changes in the external extent, we must rectify and adjust market combination timely to keep a good competition. In a word, marketing combination to the external environment must have sufficient resilience and sensitive ability.

As a “leader” of auction industry, Chinese calligraphy and painting is a type of artworks of Chinese features. Some artworks such as Chinese style paintings and calligraphy occupied half of the art market at the very beginning. Up to now, there are some auctions costing an arm and a leg in each auction market. Chinese style paintings and calligraphy has accounted for about 60% of the total turnover in the art trading in the first half of 2011, in which some modern painting has absolutely occupied the dominant position.

The vast majority is Chinese paintings, which have occupied the dominant position and also determined the possible trend of Chinese artwork market. In 2011, there are ten most valuable works, seven of which are Chinese style paintings and calligraphy. Mid-modern paintings account for six. The top two seats belong to Qi Baishi and Xu Beihong, The most striking is the picture of standing pine with Zhuanshu couplet on the top.

Despite that the global economy is unsatisfactory and affects the artworks in Chinese market to more or less extent, the Chinese style paintings market is still prosperous. Differing from the uncertainty of contemporary art collection and also from the small group collecting some porcelain miscellaneous, the group of Chinese style paintings maintains a steady state. More liquidity and firm collection are the target chased by buyers. Especially, modern painting has no problems such as very limited number of ancient painting and calligraphy, big risk in identification, and so on. Due to the fact that the status of well-known art has already been undermined and the number of the authentic works existed is moderate, the investment in this sector is the most operational and prosperous. However, in recent years, the Chinese style paintings and calligraphy is always facing with the troubles for forgery since China has no sound legislation and supervisory regime to regulate the art market transactions and these issues have not been effectively resolved. It has become more and more serious in recent years and forms a big potential risk in art market and a big challenge for Chinese style paintings and calligraphy to maintain the dominant position.

In the process of the establishment of the market pricing mechanism adapt to traditional Chinese paintings, value analysis and evaluation is the foundation, market price is an important reference, and the core is to establish a kind of market pricing mechanism that can integrate resources value evaluation standard and promote market pricing. In addition, Chinese market needs to rely more on Government and related policy laws and regulations. Of course, the cultivation of cultural environment and the corresponding market environment is also very important. Only in this way can we effectively construct value-and-market based price formation mechanism to promote the market healthy and orderly development of Chinese painting.

5 Environment Analysis on Market-Based Operation Modes of Chinese Style Paintings

The Chinese cultural art market is showing a trend of internationalization. With the rapid pace of the global economy and information integration as well as the growth and rising prominence in the international status in china, the historical value of Chinese traditional culture has increasingly been accepted by all over the world. The integration level of Chinese style paintings market with the world market has exceeded before whenever from the sorts of the cultural art, speed, or the range from the connection. Especially, after China’s entry into WTO, the internationalized pace is much quicker than before. The rapid development of the Chinese economy also accelerated this process as a catalyst.

Although China’s economy has been in a state of self -sufficient for a long time, the China’s management level is still low and the economy is still undeveloped. Compared with other fields, we attach more commodity economy to Chinese artworks. The reason for this is that we have a long history of curio, antiques, and calligraphy and management. Collectors can exchange and learn from each other and in the course of communication, the painting market and the commercial market are established. Meanwhile, we should bring the spirits of honest operation into the industry. The principle of honest is the foundation of selling Chinese traditional painting. However, because the painting market is in a rapid and extensive growth, compared with other industries, our speed of modern management is too slow, which account for the low lever of overall management in Chinese painting. The following is two main reasons for this:

1) Poor credibility, which is the main issue in current painting market.

Firstly, the counterfeit phenomenon is very common, and the counterfeit is anywhere, some forgery has little difference with genuine. They could not be identified by experts.

Secondly, connected transaction, namely, the auction company, painter, appraisal expert, galleries, critics, media, brokers, buyers and some related people are an interest group. They conduct the way of counterfeit or tacit collusion in order to cheat trust from customers and make illegal profits. For example, a few auction companies themselves buy some artworks, which are shown to be identified and have an identification Certificate, organizing people to write but not declare, or by publishing in picture albums to show their artworks, resulting in high-price from an ordinary painting. Some are hired as a prop to force up commodity price deliberately and rise the atmosphere.

Thirdly, dishonest propaganda and packaging for painters. At present, “masters”, “artists” in field of the Chinese calligraphy and painting are awarded everywhere.

Fourthly, forcing up commodity price. The common behavior is self-buying and self-selling, particularly existing in the oil painting industry. For example, a piece of oil painting in the gallery is about 100,000 Yuan, but will be sold for 600,000 Yuan at auction, actually bought from himself by Placards. After deducting 20% commission up and down, the total is about 120,000 Yuan. It is not the original 100,000 Yuan but 660,000 Yuan of price at the auction after he bought back and hung out in the gallery. Money laundering of artwork or corruption not only causes the market price distortions, but also transfers the fake into the real artwork. The usual modus operandi is offering a bribe to the bribed with a fake or not well-known works of artists, and these bribed are at auction. Bribers in the auction market purchase the artwork in high valence, achieving the purpose of bribery. Some auction companies cooperate with them for high profit, which results in foam in the market.

2) The low of operation ability.

Firstly, much attention is paid to sale skills rather than the notion of consumers' demand. A few shops of calligraphy and painting lead into modern consuming behavior. But they misunderstand sales as promoting or place emphasis of sales on promotion. The nature of modern marketing is to achieve the win-win between customers and companies by satisfying the demand of customers. The key of it is putting customers' demand on the first place. If the goal market is wrongly chosen, or the customers' demand is misunderstood, proficient sales skills can not earn long-term venue from customers.

Secondly, operation methods are too single. Modern marketing is a systematic work which is the theory of the marketing combination. That is, painting shops are supposed to meet customer needs through market research, orientate themselves and provide products consistent with the need of target consumers in order to absorb and retain customers by using the information and services needed. This is what Chinese cultural and artistic managers are lack of. Most of them remain in the stage of price competition. They have the same product with no features and no significant differences, leading to price competition. Another major problem is that the service has not done well. The service of presale, in sale and after sale generally is paid less attention to. They think it was finished after selling the product.

The formation and development of Chinese cultural market is a product of China's reform of economic system. Due to its cultural attributes, the pursuits of spiritual consumption will be enhanced only after the basic needs of necessities are met. Compared with other industries, the development of China's cultural market presents a certain hysteretic nature. In my view, although the development of China's calligraphy collection and transaction started very earlier, the development of the cultural market is still in its infancy.

6 Conclusion

Since the reform and opening up policy, our painting market is developing rapidly. But due to the managers, especially the creators of cultural artworks with different cultural spirits from the other industries and with the combination of the influence of the management mode of traditional paintings, their management level is still in primary stage. The managers need to get rid of the traditional management mode to improve their business efficiency. In order to take great advantages in competition, they need to guide themselves with modern marketing ideas and take road to internationalization.

Internationalization will be a new point to engine the process of gallery market. Its function is much more than an issue. Galleries market are bound to complete industry reshuffle in the round of extension, The new marketing strategy and operation arrangement is not an option any more, but is a necessary market-based operation mode. It is undeniable that the new structure of the theoretical research in Chinese style paintings market will open a door to standardize the art market, which helps to push forward important development of art market orderly and scientifically. More and more opportunities and platforms are being obtained because of the challenges and progress in Chinese art

market, which is the fulcrum for us to set up a new structure to operate the market mode.

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Necessity and Way of Strategic Transformation of China's Cement Industry

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Abstract: China's cement industry has entered the era of excess, and it is badly in need of the implementation of the strategy of transition based on a macroscopic point of view with the economy into the new normal. This paper analyzes the necessity of strategic transformation of Chinese cement industry, and puts forward the ways of strategic transformation: adjust the industrial structure, solve the problem of excess production capacity systematically; comprehensive promotion of cement kiln "coordination" technology, improve the level of energy conservation and emissions reduction; increase investment in technology research and development, strengthen enterprise innovation ability; promote industrialization and information fusion and business model innovation of cement industry.

Key words: Cement industry; Strategic transformation; Way

1 Introduction

As China's economic development into the new normal, investment slowdown, and cement demand growth has gradually slowed down, China cement industry in the next few years will enter the global overcapacity, low speed development of the era. Under this background, China's cement industry must carry out strategic transformation to realize transformation and upgrading.

The current researches of the development of China's cement industry is concentrated on the cement industry energy saving and emission reduction, cement industry overcapacity, cement industrial structure adjustment and cement industry collaborative disposal of municipal waste sludge, etc., such as Ren Chun, Jiang Mei (2014), thinks that the cement kiln of particulate and NO_x emission is the main environment problems, and to improve the emission control requirements in a timely manner according to the progress of the pollution control technology, and environmental protection requirements.^[1] Luo Zhongtao, Ma Baoguo(2011) proposed industry itself can use existing technical innovation and efficient CO₂ conversion technology to control the source and sink of carbon to achieve energy conservation and emissions reduction.^[2] Wang Liguo, Gao Yueqing (2013) proposed that China's cement industry should be taken to put an end to capacity expansion, speed up the excess capacity selection, rational promote the cement industry merger and reorganization, actively promote the cement industry chain extension, rational development measures such as cement kiln "coordination" project.^[3] Kong Xiangzhong (2012) argue that excess capacity is the normal operation of market economy, but should be adopted to strengthen the market guidance and macro-control, is advantageous to the enterprise merger and reorganization of the preferential policy, reduce the intervention of local governments to invest in cement, determined to speed up the backward cement capacity and play to the supervision of the industry association and self-discipline function.^[4] Lv Gui xin (2014) proposed the common severe overcapacity affected the healthy development of China's industrial structure adjustment and economic prominent contradiction, must be far or near, severely, build a long-standing mechanism to solve excess capacity.^[5] Jiang Minglin (2013) suggested that the cement kiln "coordination" as the national key support projects, build some cement kiln "coordination" model line, the preferential tax policy, and the relevant government departments issued "coordination" cement industry waste access rules.^[6]

As can be seen from the above literature analysis, At present, the research on the development of cement industry is more and more, which has positive significance for the healthy development of the cement industry. But on the macro level of cement industry in the research of strategic transformation is relatively less and therefore it is very important to study the strategic transformation of China's cement industry in the new situation of economic development.

2 The Necessity of Strategic Transformation of China's Cement Industry

2.1 Overcapacity forced China cement industry strategic transformation

China's cement production capacity has been in a serious surplus in recent years, as shown in table 1.

As can be seen from the table above, China's cement industry has excess from local to global excess phase, and cement production capacity will continue to increase with the new dry process cement production line of continuous construction. If all completed and put into operation, the cement production capacity will reach about 36 tons. Therefore, the serious situation of excess production capacity forced China's cement industry strategic transformation must be conducted.

Table 1 Cement and Cement Clinker Production Capacity and Capacity Utilization Rate of Nearly Five Years in China

Unit: one hundred million tons	2010	2011	2012	2013	2014
Cement production capacity	27.93	28.97	30.70	32.90	33.35
Cement production	18.68	20.63	21.84	24.14	24.76
Cement capacity utilization	66.87%	71.22%	71.14%	73.39%	74.24%
Clinker production capacity	16.67	17.18	18	18.6	18.95
Clinker production	11.52	12.81	12.79	13.62	14.18
Clinker capacity utilization	69.10%	74.59%	71.03%	73.20%	74.83%

(Data Sources: All cement production data from the National Bureau of Statistics, all production data and clinker production data from China Cement Net.)

2.2 The industry structure adjustment asks China's cement industry strategic transformation

The cement industry in China is faced with the adjustment of the technical structure, the organizational structure and the product structure. And This adjustment requires the Chinese cement industry to carry out strategic transformation. Technical structure adjustment, China's new dry process cement production accounts for the total output of cement ratio as shown in table 2.

Table 2 Chinese NSP Cement Production Accounts for the Proportion Of Total Output

Unit: one hundred million tons	2010	2011	2012	2013	2014
New dry cement production	14.9	18.6	20.31	22.93	23.77
Cement output	18.68	20.63	21.84	24.14	24.76
New dry cement production / Cement output	79.77%	90.15%	92.99%	95%	96%

(Source: According to the National Bureau of Statistics released data processing.)

Organizational restructuring, the Chinese cement industry concentration as shown in Table 3.

Table 3 China's Cement Industry Concentration

Business	Clinker production capacity distribution (million tons)	Clinker production capacity accounted for
China National Building Material Group Corporation	3.19	17.44%
Conch Cement Group Company	1.98	10.83%
Sinoma Group	0.87	4.76%
Jidong Cement Company	0.65	3.55%
Huayun Cement Company	0.6	3.28%
Shanshui Cement Company	0.53	2.90%
Huaxin Cement Company	0.44	2.41%
Taini Cement Company	0.42	2.30%
Hongshi Cement Company	0.38	2.08%
Jinyu Cement Company	0.35	1.90%
other	8.88	48.55%

Concentration of production capacity in the top ten are:51.45%

(Source: According to the National Bureau of Statistics released data processing.)

Product structure adjustment, in 2013 the situation of China's low production of high-grade cement in Figure 1.

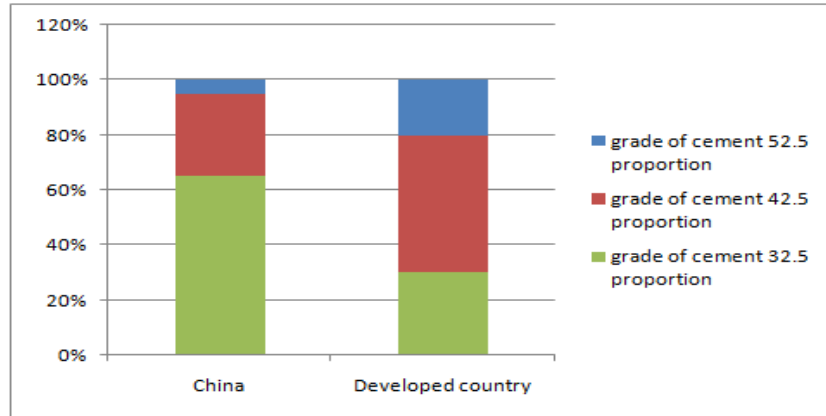


Figure 1 In the Case of Low-Yield High-Grade Cement in China in 2013

(Source: Digital Cement, Huatai Securities Institute)

2.3 Environmental protection and energy saving forced China cement industry strategic transformation

According to statistics, Cement smoke (dust) in the area of China’s land area is 8.45 times more than the world average, and Annual total emissions of about millions of tons, accounting for 39% of the national industrial dust emissions, high industry dust exhausting. China’s cement industry product structure and the particulate matter pollution are shown in figure 2.

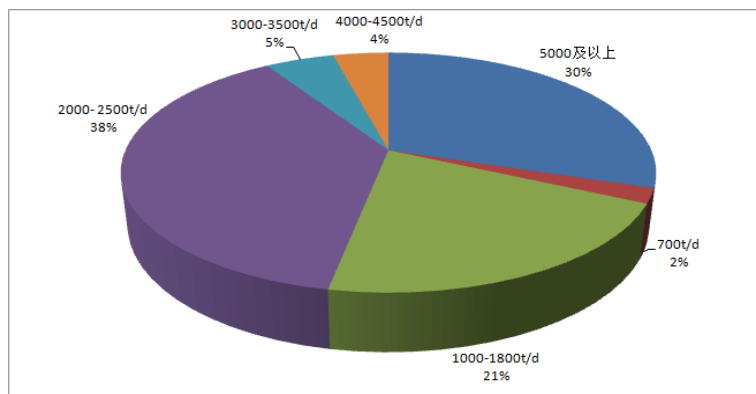


Figure 2 Cement Industry Product Structure and Particle Contamination

(Source: China Building Materials Information Website)

In recent years, China has adopted a series of measures to promote energy saving and emission reduction of cement industry, cement industrial pollutant emissions continue to improve, but from the national standard, especially there is a big gap between the developed countries in the international standard and the grim situation of energy-saving emission reduction forced China’s cement industry must implement the strategic transformation

2.4 Technological innovation requires the strategic transformation of China’s cement industry

technology research and development and innovation. The core of the new development of cement industry is technology development and innovation. From the point of current situation, China cement industry technological innovation still exist a series of difficulties, including technology research and development division system, lacking of technological innovation, second generation of new dry process cement innovative research and development potential, the development of the technology of “collaborative disposal” in cement kiln is very weak. To get rid of these difficulties, we must speed up technological innovation, technological innovation requires the implementation of the strategic transformation of China’s cement industry.

3 Ways of China Cement Industry Strategic Transformation

3.1 Adjust the industrial structure, the system resolve the excess capacity

First, implement the strategy of large groups to speed up the adjustment of organizational structure.

Give full play to the big enterprise group, the leading role, implement the strategy of large group, to encourage and support competitive large enterprise groups play to its advantages, further develop and expand, by region to form a batch of advanced technology, strong big group, improve production concentration at the same time, the enhancement enterprise technology research and development capabilities, further reasonable layout of cement production structure, promote the structural adjustment of cement industry.

The second is to revise the VAT preferential policies to speed up the product structure adjustment. Comprehensive utilization of resources should be revised as soon as possible the cement product value-added tax preferential policies, gives the comprehensive utilization of waste production high quality cement and cement enterprise comprehensive utilization of industrial waste, the collaborative disposal of municipal waste and sludge production and high quality cement enterprise maximum benefits, for the production of low grade cement preferential discount rate reductions until cancelled. Also, on the basis of the extension of the cement industry chain, to consciously to guide consumption, promote high quality cement consumption, optimize the product structure.

Three is to actively resolve the existing capacity. First of all, according to the ministry of industry and cement industry access conditions to finish as soon as possible to all existing NSP cement production line for access to review, the eliminated a substandard product line. Secondly, encourage cement enterprises extends the industrial chain, the implementation of strategic transformation, to enhance the competitiveness of enterprises as the core, optimizing the allocation of elements such as technology, resources, market, actively expand the diversified economy, further deepening the fusion associated with construction and other industries. Finally, to encourage and create conditions for the strength of the cement enterprises go abroad, expand the international market, release of part of the capacity.

3.2 Comprehensive promotion of cement kiln “collaborative disposal” technology, improve energy saving and emission reduction level

One is the top-level design. Will use the cement kiln “coordination” city living garbage squarely on much starker choices-and graver consequences-in planning, in the first conditional NSP cement plant near the large and medium-sized cities, gradually replace the traditional backward form of incineration and landfill disposal of urban living garbage, and the research and development and promotion of the second generation of new dry process cement technology as cement industrial development direction of energy saving and emission reduction. At the same time, from the national level, formulate relevant laws and regulations and systems, such as municipal solid waste and sludge waste management measures and comprehensive utilization of refuse derived fuel management rules, regulations for the city garbage collection and pretreatment, collaborative disposal permit system, long-term supply guarantee system and pollutant emission monitoring system, etc.

Second, improve relevant policies. “Coordination” of cement kiln waste to give the necessary financial support. Proposed cement kiln waste special funds “coordination”, “coordination” for cement kiln technical renovation the necessary funding from the construction project, at the same time, encourage financial institutions to increase the “coordination” of cement kiln waste project credit support, arouse social capital actively into the project.

Third, multilateral coordination. The government needs to guide and supervision, and promote and organize living garbage classification collection and reasonable garbage disposal expenses; Companies need to be more rigorous scientific research and technical support, strict management system and real-time detection, to ensure the harmless and recycling of waste; Residents need to set up the concept of classified collection and paid disposal of living garbage.

3.3 Increase technology R & D investment, and enhance the enterprise innovation ability

One is to increase the country's investment in cement industry technology research and development. Proposal led by the national related department, set up a by various capital contribution of the second generation of new dry process cement technology research and development funds, special support cement industry technology research and development, and enterprise linkage, university-industry cooperation, formed the benign interaction. At the same time, to get the second generation of NSP cement r&d projects included in the 973 plan, 863 plan, science and technology support projects, supported by state funds.

Second is to encourage cement enterprises to increase investment in technology research and development. Call for some big companies active in research and development, a certain proportion of cement enterprise research and development funds to offer certain preferential tax, to a certain research and development achievements, offer certain subsidies, for using new technology to retrofit, offer

certain financial support energy saving and emission reduction. Encourage large enterprises set up r&d innovation center, the country to give a percentage of the necessary financial support, efforts to form independent innovation system, improve enterprise innovation ability.

Three is multiple level to carry out the second generation of new dry process cement technology research and development and research. Research institutions and enterprises can according to their own actual, from cement cleaner production technology, process control and terminal management and other aspects, in order to reduce energy consumption and pollutant emissions as the goal, to carry out the industrialization of technology, strive for the development of a number of major key and common technology, such as low carbon technology and waste resources recycling, waste less waste technology, energy saving save resources, poisonous and harmful material alternative technologies, ecological industry, clean energy, new technology, continuous innovation. At the same time, and constantly introduce, digest and absorb advanced foreign technology, clean production, and constantly in innovation, intensify popularization and application.

3.4 Promote industrialization and information fusion and the innovation of the commercial mode of cement industry

One is to promote industrialization and information fusion. We should set up the industrialization and information fusion technology innovation alliance, technical research, efforts to integrate cement industry equipment, technology, management, technology and information technology, and the conditional to pilot enterprises, on the basis of the pilot to summarize, in the industry to promote step by step. In addition, the proposal advocated by the government department, joint scientific research institutes and related enterprises set up industrialization and information fusion of national service platform, improve the level of industrialization and information fusion services.

The second is to actively use the "Internet +" thinking. The Internet is changing the traditional operating mode and management mode, "Internet +" thinking has got a lot of use in FMCG industry, part of the traditional manufacturing industry also gradually To try To use "Internet +" thinking on operations and sales, cement enterprises should also conform To the trend of The Times, take the initiative To upgrade using "Internet +" thinking, open the Online mall (huaxin cement has opened huaxin shopping mall and good effect), mobile payment account, WeChat pay, promotion and application of mobile terminal shopping platform, etc., with the help of the Internet using O2O sales model (Online To Offline, Online interactive marketing mode), the wider To promote their brands, spread the good word of mouth. In addition, you can try to use "Internet +" thinking combined with Internet of things technology, efforts to implement the intelligent of the production operation, the full use of big data, efforts to achieve cloud services, improve production efficiency and service level.

Three is to strive to open up both sides of the market. Structures, platforms, the two sides market is a kind of important age of the Internet business model innovation, cement industry both sides should also try to exploit market, promote the business model innovation. Large cement enterprises to "anywhere, anytime to provide customers with green energy-saving cement products and products" such as is the value idea, set up green energy-saving cement products and product supply and service platform, using the platform's appeal, invite customer related companies to join the platform, the platform of enterprise is facing the consumer (customer), but also facing the joined companies (merchants), customers and merchants value through the platform to establish network, realize the optimal allocation of resources, customers, merchants and platform enterprise benefit, as well as wider transmission enterprise reputation, further accelerate the speed of the cement industry transformation and upgrading.

4 Conclusion

China cement industry is facing a series of requirements, such as overcapacity, structural adjustment, environmental protection and energy saving and technological innovation, etc., we must carry out the strategic transition from the macro level. According to the current development of China's cement industry, we should implement the strategic transformation by adjusting the industrial structure, resolve excess capacity systematic, comprehensive promotion of cement kiln "collaborative treatment" technology, Improving the level of energy saving and emission reduction, increasing investment in technology research and development, enhancing the innovation capability of enterprises, promoting industrialization and information fusion and business model innovation of cement industry .

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Research of Innovative Design of Clothes Storage Space for Elderly People*

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Abstract: This article uses multiple research methods, including literature research, survey and statistic, case study to analyze elderly's needs on wardrobes. Due to aging and degeneration of physical conditions of elderly people, common wardrobes cannot satisfy their needs of living environment of safe, healthy, productive and comfortable. In order to solve this problem, this study proposes a useable and systematic way: considering the living modes, family structures and lifestyles of elderly people, and combined with ergonomics considerations and design management theory to design internal structure, and spiral layouts of wardrobes. As a result, a customized manufacturing way is proposed to satisfy elderly's needs of barrier-free with low cost for companies and high personalization possibilities for elderly people. The originality of this study lies in barrier-free design of storage space of clothes for elderly people, which could also be considered as universal design for majorities.

Key words: Elderly people; Storage space of clothes; Barrier-free design; Product innovation

1 Introduction

Storage space for clothes is a form of spaces to organize and store clothes. From 1950s to today, due to the improvements of living modes and life quality and the changes of family structures, storage spaces for clothes go through the following forms: basic and simple boxes, single closets, combine-unit, wardrobe and modern united storage spaces for clothes. The progress of storage spaces for clothes reflects the progress of user-friendly design. Storage spaces of clothes are indispensable living environment for elderly people. Due to the degeneration of physical conditions of elderly people, there are increasingly limits with changing clothes for elderly people. Therefore, it is important to investigate physical conditions of elderly people and design barrier-free storage spaces for clothes for elderly people, which will benefit them through getting and changing clothes in a convenient, independent and safe way. Furthermore, the barrier-free designs also consider other members in families, which will contribute to a family environment of engaging and friendly.^[1]

1.1 Scope of definition

Barrier-free design can assist elderly people, disabled people and other vulnerable groups to move flexibly, to have a larger area to move, and to enjoy and engage in social activities. Universal design refers to designs that are convenient to all groups, regardless of gender, age and capabilities. Both of design principles aim to design for convenience of users. However, due to the difference of user groups, barrier-free design focuses on designing assistances for vulnerable groups, while universal design aims to create universal solutions that are suitable for all groups.

Storage spaces for clothes are a kind of space for organizing and storing. According to users' activity of storing clothes, such storage spaces can be divided into united wardrobe and cloakroom. Wardrobe is a closet to store clothes, while cloakroom is to use a room or an indoor space to create a space for store and change clothes.

1.2 Current research situation and progress in foreign countries

"Research of innovative design of clothes storage space for elderly people" is applied research based on the theory of ergonomics and design management. Ergonomics is a discipline that investigates the relationship between people and engineering systems and its environments. Following the notion of design management, different types of data have been organized and analyzed. According to the definition of association of ergonomics and human factors societies, ergonomics investigates multiple factors of people in environment, including anatomical, physiological, and psychological factors. Ergonomics aims

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to reach the optimization situation by examining the relationships of people-machine-environment in different conditions, such as working, family, vacation through focusing on different parts: efficiency, health, safety and comfort.^[2]Ergonomics starts from 1940s and becomes a branch of technological science. Ergonomics has been developing through application. The design of storage of clothes belongs to the application of ergonomics. The research on storage space for clothes has been investigated before and resulted in standards in industries. In US, the book of Time-Saver Standards for Interior Design and Space Planning introduces different kinds of wardrobes, and the sizes of people's activity in different kinds of wardrobes, such as wardrobes that can be reached through stretch arms, lateral line wardrobes, and cloakrooms. In addition, the requirements of arranging clapboards and lights are also clarified. In Japan, the book of residential design information integration gives detailed statistical information and schematic diagrams of scale of houses, scale of body and size of clothes, modular space and activities of people.

1.3 Current research situation and progress in China

In China, the research of ergonomics starts relative late. It is still in development phase nowadays. As for storages spaces for clothes, the research of wardrobes is systematic. The research is conducted from users' perspective and functions and structures of furniture. In standards of architectures, light industry and wood industry, standards of concrete requirements regarding wardrobes includes the followings: Chinese national standards GB3327-82 and furniture standards of Chinese national light industry (second edition) GB/T3327-1997. Standards and technical specifications of furniture with storage purposes are in the book of collections of standards in wood industry: wooden products GB/T3324-407. The different requirements of spaces for male and female of using wardrobes are introduced in the book of collection of interior design materials. Requirements for small spaces for storing clothes are stated in the book technology of furniture design. The spaces that need for wearing clothes and shoes are introduced in the book of furniture design and manufacturing. Besides, Chinese adults body sizes and related sizes of furniture are introduced in the book of ergonomics and interior design.

1.4 Research gaps in previous research

However, with the changes of lifestyles, the requirements stated in books are unlikely to provide precise supports due to the following reasons. Firstly, in some requirements, the divisions of spaces are too general, which call for specification. Secondly, due to the enhanced diversity of kinds of clothes and quality, the scale of spaces that used to store clothes should be refined. From the perspective of user-friendly design, very few researches have been conducted to combine storage spaces for clothes and living environments. This research gap calls for more systematical research. The emphasis on investigating storage spaces for clothes for elderly people can contribute to more comprehensive data on ergonomics. The results could also guide the formation of standards and companies to better satisfy the needs of people.

2 Data analysis on needs of storage spaces for clothes for elderly people

The analysis is conducted in order to satisfy elderly people's life, to seek for potential needs among different user groups, to understand values and demographic features, to reflect the current situation of user groups, and to develop products.

2.1 Analysis of basic materials

Topic: needs of elderly people for store clothes

Location: home interviews in three different communities: great wall community (small-sized scale apartments), Sunshine Garden (medium-sized scale apartments) and Province (large-sized scale apartments), and field interviews in furniture shopping mall.

Table 1 Analysis of basic materialsTable

Type	Size (Square meters)	Number of people	Percentage	Overall percentage	Rateof empty nest
Small-sized	Below 49	42	15.11%	86%	80.00%
Medium-sized	50-79	93	33.45%		60%
Large-sized	80-119	105	37.77%		30%
Luxury-sized	120-164	23	8.27%	14%	10%
	above165	15	5.40%		5%
		total	278	100%	100%

Participants: age ranged from 60 to 90 years old through questionnaires. 300 questionnaires were

sent with 285 collected (95% response rate). 278 valid questionnaires are collected with 137 male and 141 female (97% valid rate).

Table 1 suggests that most of elderly people live in large-sized apartments that are small than 119 square meters, with a percentage of 86%. Only very limited people, around 14%, live in luxury apartments which are large than 120 square meters.

Based on elderly people’s living conditions, a separation is made between living alone (empty nest family) and living with family. For small-size apartments that are small than 79 square meters, the empty nest percentage ranges 60% to 80%. Elderly people who live in large apartments that larger than 80 square meters has a relative low rate of empty nest with 5% to 30%.

2.2 Correlation analysis between size of apartments and storage spaces for clothes

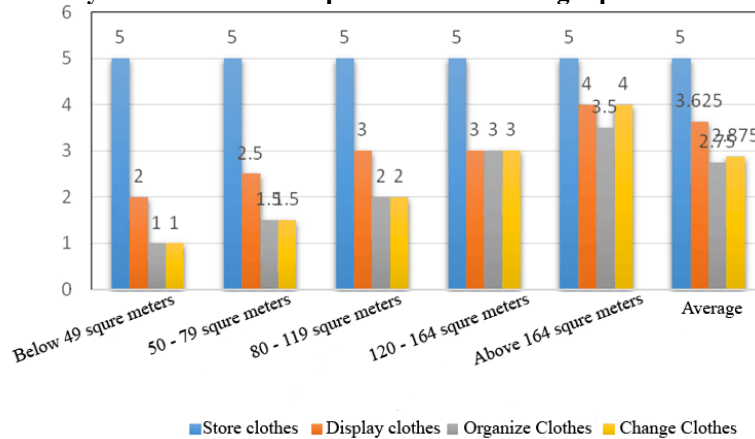


Figure 1 Correlation analysis between size of apartments and functions of storage spaces

Figure 1 indicates a significant difference with the apartment of 119 square meters. For apartments below 119 square meters, the storage spaces for clothes can satisfy basic needs of store clothes. Thus, wardrobe could be more suitable. For apartments above 119 square meters, the storage spaces can be used for more functions, such as display, organize and change clothes. Therefore, cloakroom can be used in this situation.

2.3 Elderly people hope that the location of storage for clothes can be improved in order to pick up clothes convenient



Figure 2 Elderly people hope that the location of storage for clothes can be improved in order to pick up clothes convenient

Figure 2 suggests that the reasons for inconvenience of current storage spaces include the height of storage spaces and the way of opening door of storage spaces.

2.4 Synthesis: analyze situations comprehensively

According to the analysis of questionnaire, the scope of this study is defined as to investigate wardrobes and cloakrooms. The target group is elderly people who suffer from the difficulty of picking up clothes. The main research subject is barrier-free design of wardrobes.

For empty-nest family, elderly people need to have a relative high ability to live independently. Therefore, when designing living environments, the differences of ages and physical conditions of elderly

people should be considered. Following the notion of barrier-free design to design storage spaces can make elderly people's life convenience, improve the ability of elderly people living independently and their confidences. In addition, when considering elderly people who are live with their family, the designs that are specifically designed for elderly people should not be inconvenience for other members in family. Therefore, the notion of barrier-free design and inclusive design can be combined to bring convenience for elderly people and avoid troubles for other members in family.

3 Designing innovative storage spaces for elderly people through barrier-free design principle

The design considered physical, psychological and clothes changes behavior of elderly people and the design improved the size of wardrobes, accessories, grounds, handrail, door and lights. By considering the principle of barrier-free, the needs of pick up and store clothes are satisfied.

3.1 Size of wardrobes

According to the flexibility of bodies, the group of elderly people can be divided into elderly people with healthy bodies and elderly people with disabled bodies. During designing, the size of bodies, functions are paid especially attentions to assist elderly people's activities.

3.1.1 Size of body for healthy elderly people and size of wardrobes

Because the height of elderly people reduces 2 cm comparing to the height in young age, the designs of outside, inside part and the depth of wardrobes have been changed. These small changes help elderly people pick up and store their clothes effectively and comfortably, which will not hinder other members in family to pick up clothes.

The inside parts of wardrobes can be divided into convenient parts, relatively convenient arts and inconvenient parts. The size of convenient parts ranges from 750mm to 1400mm. This space can further be divided into the following parts: reachable spaces with bending down that can be used to store foldable clothes, reachable spaces with standing that can be used to hang clothes, and reachable spaces by raising hands that can be used to store hats and bags. Relative convenient areas: the height of spaces that are below 750mm can be labeled as relative convenient spaces for elderly people. These spaces can be used to store shoes, umbrella and other things. The lowest layer should be higher than 250mm. Thus, elderly people do not need to bend down to pick up or lose balances. Inconvenient areas: the height of spaces that are above 1700mm can be labeled as inconvenient areas. These spaces are very dangerous for elderly people who need to use ladder to reach such spaces. Therefore, these spaces are used to store out-of-season clothes, such as quilts and clothes that do not use very often.

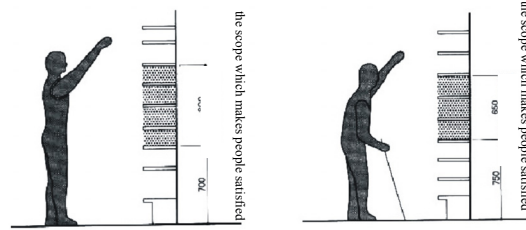
The depth of inside parts of storage spaces should be larger than the largest size of clothes with additional spaces. If the depth is too small, the doors cannot be closed and the clothes will be squeezed or damaged. If the depth is too large, the spaces will be wasted and it would be difficult for elderly people to pick up clothes. Therefore, the depth of inside parts of storage spaces should be around 550mm.

The outside parts of storage spaces should be like this, with a height of 1950mm, depth of 580mm and width of 1700 mm.

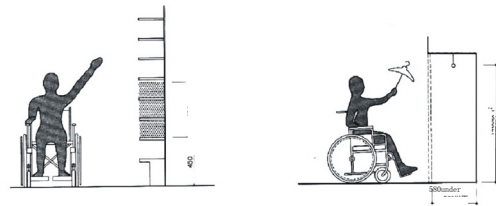
3.1.2 The body size of disable elderly people and size of storage spaces

For elderly people with paralysis of the lower limbs, the height of the visible area ranges from 639mm to 1300mm, this is used most frequently and most convenient for picking up things. Thus, for elderly people who use wheelchairs, the height of highest clapboard should not be larger than 1290mm and height of the lowest clapboard should be above 639mm, which is the same height as thigh. For wheelchair users, when they pick up things from wheelchair, the distance between hand and wall is around 500mm and the highest larger diameter is around 1300mm. As shown in figure3, the design that follows these guidelines will create the largest convenience for elderly people to pick up and store clothes.

As for family members of elderly people with paralysis of the lower limbs and healthy elderly people, the approach of inclusive design can be used to leave some spaces for other members to store clothes. In this way, the inconvenience and wastes of spaces are avoided.



Activity spacerangeof adults Activity spacerangeof elderly people



Usage space for wheel-chair users Suitable height for wheel-chair users

Figure 3 The require sizes for people with different activities

3.2 Cloakroom

As a new form of storing clothes, cloakroom does not provide people with spaces to store clothes according to different classifications, but also concealed spaces for changing clothes. Using this form could optimize the environment, arrange the layouts more properly, and improve the efficiency of using spaces and adaptability.

Most of time, the smallest size of cloakroom is around 4 square meters to store clothes and leave sufficient spaces for people to walk and change clothes. The stool used for changing clothes can be put under closet. The smallest space for elderly people to sit on and to put on shoes ranges from 1060 to 1160mm.

The width of spaces for crossing direction walking is around 450mm, and the width of spaces for walking forward is around 600mm. For elderly people with paralysis of the lower limbs, it requires larger spaces with a width between 900mm to 1500mm. As shown in figure4, if the size of apartments is not large enough, the design of cloakrooms may not be suitable.

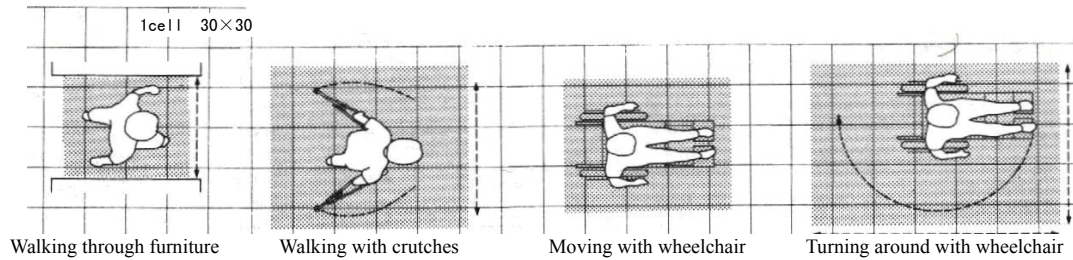


Figure 4 The representation of the width of spaces required in spaces

3.3 Design of internal accessories

The internal accessories with inclusive considerations can be used in wardrobes for families with elderly people and young people living together.^[3] They can assist all family members to use the wardrobe together through using different spaces within the wardrobe, such as by pushing and pulling themoveable accessories and movable rotation frame.



Figure 5 design of internal accessories

Clothes rails in high places can be convenient for hanging clothes, enhance the efficiency of using space and suit for the height of elderly people. The movable rotation frame enables elderly people pick up clothes flexible when hanging clothes. For spaces which are lower than 650mm, drawers and baskets can be used to pick up things conveniently. The handle, button and handrail should be designed in different colors to indicate the differences. The edges should be covered by soft rubbers to avoid accidents. The clapboards should also be included to use spaces reasonably to arrange the spaces. These inclusive design details will be convenient for elderly people and family members (as shown in figure 5).

3.4 Door

The door should be easy to open and close, such as using sliding door to enable the movement of wheelchair conveniently. The handles of door should be selected with longer rotating arms. The spherical handles should not be considered. The height of handles should range from 900mm to 1000mm.

4 Conclusion

This study focuses on investigating storage spaces of clothes for elderly people through considering elderly people's physical and psychological conditions. With the involvement of barrier-free design principle, the results of this study can assist elderly people and their family members to pick up and change clothes. This topic represents the cares for elderly people. With the development of technology, the smart home devices will be more popular in the further. The storage spaces of clothes should also be smarter: they can pick up clothes for elderly people automatically according to weathers and activities of elderly people. The selected clothes will be presented on screen together with the model. Then elderly people can choose one. Such design will make elderly people's life more convenient and pleasant. This is a future scenario.

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Level of Cooperation of Inter-Organizational Networks in New Product Innovations in Sri Lankan Manufacturing Sector SMEs

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Abstract: External networks of Small- and medium-sized enterprises (SMEs) is a great assets for its innovation processes to be able to competitive in the market with its large rivals. Based on a survey to 72 Sri Lankan manufacturing SMEs, this paper empirically explores the relationships between inter organizational networks and innovation performance of SME using the technique of structural equation modeling (SEM). The study finds that there are significant positive relationships between inter organizations networks of SMEs. The results indicate that there are significant positive relationships between cooperation with government organizations, business organizations, intermediary organizations, cooperation with research organizations and innovation performance. SME cooperation with business organizations is the most significant linkage out of four network actors and second most important actor is intermediary organizations.

Key Words: SMEs; Inter-organizational Networks; Innovation

1 Introduction

In the fast-changing and increasingly competitive global market, small- and medium-sized enterprises (SMEs), which exert a strong influence on the economies of many countries through their ability to innovate new products and processes, have been the engine of economic growth and technological progress (Bruque and Moyano, 2007)^[6]. Small and Medium Enterprises (SMEs) play a vital role in the economy of Sri Lanka which have been recognized as an important strategic sector contributing to economic growth, reducing unemployment, inequality and poverty (Ministry of Enterprise Development, 2008)^[2]. The SMEs in Sri Lanka are playing a significant role when compared with other “industrial and business” establishments in developing countries (Central bank 2014)^[1]. But a crucial question has risen in the process of advanced industrialization how and what will the countries’ SMEs adapt to run parallel to the changing economic environment to maintain their higher productivity and competitiveness in global markets. It is certain that SMEs need the support and resources from the external parties, who are not directly employed in the firm such as other firms, professionals, government, research organizations, supporting institutes, relatives and friends (Keast, R., Hampson, K., 2007)^[15]. If an organization can network with its suppliers, buyers and competitors, it will become a crucial ingredient to avoid competition and achieve the advantage. Through these network relationships, SMEs can identify their opportunities and try to raise their resources, competitive advantage, efficiency and profits by avoiding competition among them (Peres, W., Stumpo, G., 2000)^[18].

The global trend of “innovation” brings about challenges for SMEs in developing countries like Sri Lanka which try to reduce the gap between knowledge and technology of SMEs compared to the that of developed countries. Thus, as some studies from developing countries have underlined, innovation cooperation and interaction are becoming more and more important for SMEs in emerging economies and developing countries to promote their innovation abilities (Liefner et al., 2006)^[17]. Although the phenomenon on innovation of SMEs has captured the interest of many scholars, few studies have been recorded on studying the issue from the developing countries’ perspective. This uneven focus invites further investigation into the innovation of SMEs in Sri Lanka as one of the emerging economies in south Asia. In Sri Lanka, the manufacturing sector is playing a significant role in social development and economic growth (Central Bank, 2014)^[1]. Hence, it is necessary to explore the inter-organizational networks of manufacturing SMEs in Sri Lanka in order to help them improve their innovation capabilities. There is, to our knowledge, a paucity of studies on the role of inter-organizational networks on the innovation of Sri Lanka manufacturing SMEs. Using a structured questionnaire survey, this paper examines the innovation networking activities of a sample of 72 manufacturing SMEs in Sri Lanka which has obtained patents for its industrial innovations. The research objective is to identify the relationship between SME innovations and level of corporation of different network actors in the inter-organizations networks.

2 Literature Review

2.1 Concept of Business Networks

It is evident that a large number of researches in different disciplines such as organizational behavior, business economics etc., have studied business networks providing range of new ideas. It is clear that different researchers have analyzed the relationship between the business Networks and business development in different ways in terms of their respective disciplines. In literature, it is evident that the concept of business Networks has been used in four ways concentrating on (i) Nature of firm's economic and local development (ii) Technological innovations and managerial changes (iii) Marketing and international business (iv) Entrepreneurship and entrepreneurial networks. Literature on innovation indicates that over the last two decades, there has been a systematic and fundamental change in the way firms undertake innovatory activities. In particular, there has been a tremendous growth in the use of external networks by firms of all sizes (Hagedoorn, 2002)^[13]. Innovation is seen as a process which results forming of various interactions among different actors (Doloreux, 2004)^[10]. Inter-organizational and cross-sectoral networks, which facilitate the accelerated flows of information, resources and trust necessary to secure and diffuse innovation, have emerged as a key strategy (Dewick and Miozzo, 2004)^[8]. As SMEs command fewer resources, have less R&D, and generally face more uncertainties and barriers to innovation, networks provide a complementary response to insecurity arising from development and use of new technologies, while reducing uncertainties in innovation (Diez, 2002)^[9].

2.2 Inter-organizational Networks and Innovation

Existing literature on the relationships between network or innovation interactions and the innovation performance of firms has been reviewed and examined. Some researchers addressed that network cooperation or using a wide range of external actors and sources had a positive impact on innovation performance of firms (Brioschi et al., 2002)^[4]. Bullinger et al. (2004)^[7] suggested that universities, research institutes, suppliers, customers and other partners had a valuable impact on the knowledge and innovation creation process. (Doloreux, 2004)^[10] explicitly stated that cooperation with different partners on research and development (R&D) had a positive effect on innovation achievement. Similarly, using data from a longitudinal sample of Spanish manufacturing firms, (Diez, 2002)^[9] concluded that the greatest positive impact on the degree of innovation novelty came from collaborative networks comprising different types of partners. While Liefner et al., (2006)^[17] referred to the notion of social capital as networking, and indicated that R&D and networking (social capital) arisen as complementary driving forces of innovation outputs. Brioschi et al. (2002)^[4] noted that social interactions based on trust and cooperation played a major role in coordination of the activities among different SMEs. According to Hewitt Dundas (2006)^[14], the external resources and capabilities that SMEs could access through external innovation partnerships might provide them with the stimulus and capacity to innovate, while the lack of innovative partnerships had a negative impact on innovation. (Diez, 2002)^[9] noted that the advantages to be gained from localized networks were claimed to be particularly important for SMEs in helping offset the size-related advantages of larger firms. Some studies focus on the form of cooperation networks of SMEs (Doloreux, 2004)^[10]. Based on a study of SMEs in a small less developed country (Cyprus), Hadjimanolis (1999)^[12] suggested that inter-organizational linkages of networks could be vertical, horizontal or lateral consisting of enduring webs of relationships with customers, suppliers, associations, government, research institutions etc. Based on the previous studies by different scholars, this study was focused on investigating the role of four main network actors, government agencies, research organizations, business organizations and intermediary / business support organizations in innovation process of Sri Lankan SMEs.

2.2.1 Government Agencies (GA)

The role of the governments in stimulating and nurturing the innovation process is a controversial one. Some researchers argues that it is necessary for governments to implement policies at all levels that will enable companies to make their activities more innovative. Based on a survey from African SMEs, Biggs and Shah (2006)^[3] revealed that there were important links between formal governance institutions and SMEs performance and innovation. In addition, the role of government is usually embodied to support or establish public institutions or universities with the view to enhancing the knowledge and innovation base of the local economy. It is widely recognized that government policies have a strong bearing on the effectiveness of the role of universities and research institutions in the process of innovation. However, some studies indicate that the role which government played in innovation of SMEs is less than that could be expected (Doloreux, 2004)^[10].

2.2.2 Research Organizations (RO)

Generally, the innovative partners for cooperation between firms (firms in manufacturing industries such as electronic and light engineering equipment sector, ordinary machinery and special purpose sector, raw materials and chemical products sector) and research organizations are universities, colleges, technical institutes and research institutions. The modes of innovative cooperation between firms and research organizations are mainly of informal communication of skills and knowledge, technology trade or technology transfer, formal R&D.

2.2.3 Business Organizations (BO)

The relationship between business organizations and innovation performance has attracted much research interest (Diez, 2002)^[9]. Some researchers suggest that firms interacted with ones located at downstream and upstream in the value chain, are conducive to embodied innovation spillover through commercial trading and the value-adding process. Some studies indicate that inter-organizational cooperation including informal arrangements and formal long term strategic alliances can lead to incremental innovations and radical innovations Biggs and Shah (2006)^[3]. However, it should be noted that inter organizational cooperation in pre-competitive research is not always beneficial. Rather, the effectiveness of this network process depends on many factors, such as the overall strategy of the firm, its network capabilities and its innovation intensity.

2.2.4 Intermediary Organizations (IO)

Some authors have documented the important role that intermediary organizations played in innovation Bullinger et al. (2004)^[7]. (Doloreux, 2004)^[10] suggested that external relations formed with intermediary organizations for SMEs could be the source of new ideas for innovation and technological productivity. (Diez, 2002)^[9] indicated that intermediary institutions such as technology and innovation centers had been judged to be crucial for new local entrepreneurs. Usually innovation networks are often formed from a heterogeneous group of various actors including representatives of firms, technology centers and development organizations, and financing and training institutions, industry association, chamber of commerce and the ability to interact in these networks becomes a decisive success factor in promoting innovative capability (Doloreux, 2004)^[10]. In addition, from the viewpoint of policies, some intermediary institutions that are supported or funded by the government aim to provide innovation support for firms, especially for SMEs. For example, to promote innovative activities of SMEs, many intermediary institutions or organizations are established, such as “Productivity Centers”, “Technology Transfer Organizations”, and “Technology Business Incubator”, etc.

2.3 Conceptual Framework and Hypostasis Development

On the basis of literature review, the conceptual model developed and presented in Figure 01. The figure indicates the relationships between different inter organizational cooperation networks and innovation performance of SMEs.

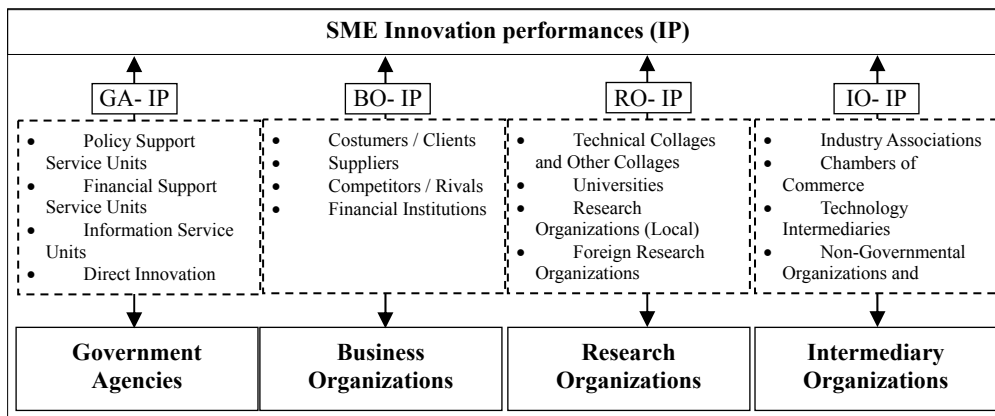


Figure 1 Conceptual Framework

Based on the conceptual model, it is supposed that there is a positive relationship between inter-firm cooperation network and SME innovation. Therefore, following hypothesis was developed to investigate the relationships between variables;

- H1- Level of cooperation between SMEs with Government Agencies, Business Organizations, Research Organizations and Intermediary Organizations are positively associated with SME Innovation Performances

3 Research Methodology

In order to investigate the relationship among selected variables, the sample was selected based on the data available with Sri Lankan Intellectual Property (IP) Office since this research is mainly focused on role played by different network actors in inter organizational networks in innovation process. The population of this study was all SMEs who have obtained the patents for their innovative products or services. In this particular study, structured questionnaire was used as data collections instrument and stratified random sampling was used as sampling technique where each year is considered as strata. There were 361 patents issued for local companies during period under consideration (2008 to 2012) and out of which; only 72 (25%) were taken by SMEs for its innovations. All 72 firms, 100 % sample survey was done and the response rate was 80 %. The questioner consist of 35 questions out of which 10 questions are focused on demographic information and other 25 questions are targeted on investigating the innovation behavior and relationships of the firms' innovations with inter-organizational actors. Since measurement of social relationships has always been a nagging and unresolved problem in relation to networks in these types of studies; respondents were asked some general questions about their networking activities. In order to obtain a better and deep understanding about the external organizations actors and their roles, respondents were given choices of answers based on 05 point Likert Scale from "very low to very high". Dependent variable, "Innovation Performance" was measured by getting the annual turnover of new products, new product index and modified product index. The measurement model with all items is analyzed as a confirmatory factor analysis. The covariance matrix for the items is used for the analysis, and parameter estimates are made under the maximum-likelihood method. The result of measure in this study, SPSS 21 is used as analytical software.

4 Findings and Discussion

This section present the finding of descriptive statistics and analysis of relationships of hypothesized variables. The result of the study is presented under the following two parts; as a measurement model for the five instruments and to define and measure the latent variables appropriately and consistently, and a causal model and to identify the interrelationships among the latent variables with a set of simultaneous equations.

Table 1 Result of Measurement Model

Latent variables	Observed variables	Standardize d parameter	t-statistic	Composite reliability	Average variance extracted
α_1 - Government Agencies (GA)	Policy Support Service Units (x_1)	0.76	9.25***	0.863	0.856
	Financial Support Service units (x_2)	0.94	12.71***		
	Information Service units (x_3)	0.78	9.50***		
	Innovation Support Projects (x_4)	0.83	11.60***		
α_2 - Business Organizations (BO)	Costumers / Clients (y_1)	0.95	12.79***	0.915	0.796
	Suppliers (y_2)	0.91	12.58***		
	Competitors / rivals(y_3)	0.74	8.75***		
	Financial Institutions (y_4)	0.84	11.85***		
α_3 - Research Organizations (RO)	Technical & other Collages (q_1)	0.77	9.37***	0.754	0.558
	Universities (q_2)	0.72	8.50***		
	Research Organizations (Local) (q_3)	0.95	12.85***		
	Foreign Research Organizations (q_4)	0.73	7.60***		
α_4 - Intermediary Organizations (IO)	Industry Associations (w_1)	0.82	11.35***	0.930	0.815
	Chambers of Commerce (w_2)	0.91	12.45***		
	Technology Intermediaries (w_3)	0.78	10.31***		
	NGOs and Development Partners (w_4)	0.86	11.95***		
α_5 - Innovation Performance (IP)	Annual turnover of new products (K_1)	0.81	11.25***	0.872	0.746
	New Products Index (K_2)	0.78	10.31***		
	Modified Product Index (K_3)	0.80	11.10***		

*Po0.05 level, **Po0.01 level, ****Po0.001 level (two-tailed).

The measurement model with all items is analyzed as a confirmatory factor analysis. The covariance matrix for the items is used for the analysis, and parameter estimates are made under the maximum-likelihood method. The result of measurement model is shown in Table 1, which indicates that the factor loadings in the measurement model are all greater than 0.70, leading to a conclusion that the reliabilities of individual items shown in Table 1 are within acceptable levels. Composite reliability coefficients for the constructs in the present model are all greater than 0.70, suggesting that a high

internal reliability existed in the constructs (Fornell and Larcker, 1981)^[11]. The average variance extracted (AVE) coefficients are all greater than 0.5, which suggests that the items are able to explain the variance in the constructs (Fornell and Larcker, 1981)^[11]. Discriminant validity shows the extent to which measures of a particular construct differ from others in the same model. For adequate discriminant validity, the diagonal elements of the correlation matrix should be greater than the off-diagonal elements (Fornell and Larcker, 1981)^[11].

Table 2 shows that the measurement model demonstrates adequate discriminant validity, implying that the various constructs used in the model belong to distinct and separate entities. Moreover, the measurement model shows acceptable fit values for RMSEA, CFI, GFI, AGFI, NFI and NNFI (see Table 3), revealing that the model does a good job in explaining the relationships between latent variables and observed variables.

Table 2 Discriminant Validity

	GA	BO	RO	IO	IP
GA	0.654				
BO	0.146	0.762			
RO	0.034	0.562	0.556		
IO	0.457	0.035	0.198	0.815	
IP	0.351	0.383	0.456	0.612	0.685

Fit indices of the causal model are calculated using: w/df=2.263, RMSEA (root mean square error of approximation)-0.079, NFI (normed fit index)-0.92, NNFI (non-normed NFI)-0.93, GFI (goodness-of-fit index)-0.85, AGFI (adjusted goodness-of-fit index)-0.83 and CFI (comparative fit index)-0.94. A rule of thumb for a model with a high degree of freedom is that a well-fitting model should have a w/df ratio of 2–5 (Kelloway, 1998)^[16]. An RMSEA value less than or equal to 0.8 indicates an acceptable fit (Browne and Cudeck, 1993)^[15]. Other fitness criteria such as NFI, NNFI and CFI are greater than 0.90 that indicates a reasonable fit of the model. Although the values of GFI and AGFI are higher than the recommended value of 0.90, the fit indices suggest that the model provides an adequate representation of the relationships among the variables in the proposed model. Overall, the fit indices suggest that the causal model fits the data fairly well and does a good job in explaining the relationships among the latent variables.

Table 3 Fit Statistics For Measurement Model And Causal Model

	Statistic Measurement Model	Causal Model
X2	178.27	219.57
df	95	97
X2/df	1.876	2.263
RMSEA	0.77	0.79
Goodness-of-fit index (GFI)	0.87	0.85
Adjusted goodness-of-fit index (AGFI)	0.85	0.83
Normed fit index (NFI)	0.93	0.92
Non-normed NFI (NNFI)	0.94	0.93
Comparative fit index (CFI)	0.95	0.94

Analyses of hypothesis can be made with an examination of the structural coefficients within the causal model. Table 4 provides the paths, the respective standardized parameter estimates and t-values. Predicts the paths from GA (Cooperation with Government Agencies), BO (Cooperation with Business Organizations), RO (Cooperation with Research Organizations) IO (Cooperation with Intermediary Institutions) and IP (Innovation Performance). As The path coefficients from GA to IP is positive and significant. Therefore results reveal that cooperation with government agencies for firms investigated can improve the innovation performances. Similarly the path coefficients of BO – IP, RO – IP and IO - IP are also positive and significant. It shows that cooperation of inter organizational networks has a positive impact on innovation performance of SMEs.

Table 4 Path estimates and hypothesis confirmation

Parameter path	Standardized coefficient	t-Statistic	ResultstoHypothesis
GA - IP	0.19	0.210*	Supported
BO - IP	0.52	0.625***	Supported
RO - IP	0.24	0.275*	Supported
IO - IP	0.22	0.225*	Supported

Note: These values are based on the causal model run on the covariance matrix. *Po0.05 level; **Po0.01 level; ***Po0.001 level (two-tailed)

5 Conclusion

On the basis of a sample of 72 manufacturing SMEs, this paper empirically explored the relationships between inter organizational networks and innovation performance of SMEs in Sri Lanka. The results indicate that there are significant positive relationships between cooperation with government organizations, business organizations, intermediary organizations, cooperation with research organizations and innovation performance. SME cooperation with business organizations is the most significant linkage out of four network actors.

6 Limitation of the Study and Suggestions for further Study

There were several limitations in the study. The empirical results were derived from a sample of Sri Lankan SMEs. Therefore finding might be country specific and cannot be generalized in to other countries. Other main limitation is that data only collected from SMEs which has obtained patents and these SMEs normally considered as best performing SMEs and network cooperation patterns and networks actors of other SMEs may not be in a similar pattern as this category and this need to be investigated in future research. Next, the data for this study are based on the perceptions and the experiences of the respondents, which may vary widely across industries, ownerships, and function and work experience of respondents within the firms. Further, the Likert scale used to assess the items of constructs in our study is indeed affected by flaws in measurement.

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Research on the Construction of the Village Organizations from the Perspective of Innovation in Social Governance

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Abstract: The Third Plenary Session of the 18th Central Committee of the Communist Party of China put forward the concept of “innovative social governance system”. With the village Party branch at the core and the Villagers Committee as the governing body, village organizations play a vital role in the social governance at the grassroots level. After on-site investigation, the author found that problems such as ambiguous functions, insufficient funds, heavy debt on the villages, incapable leaders and a lack of backup talents widely exist in the village organizations. Accordingly, the author came up with approaches from the perspective of defining functions of the village organizations, guaranteeing funds operation and reinforces construction of the leading groups so as to ensure effective functioning of the village organizations and boost modernization of the social governance at the grassroots level.

Key words: Social governance; Perspective; Village organizations; Construction

1 Introduction

According to the Communiqué of the Third Plenary Session of the 18th Central Committee of the CPC, China will speed up the promotion of innovation in the social sectors, the equal access to basic public services and the efforts to form a scientific and effective social governance system.^[1] In the Chinese rural areas, the village organization framework has basically taken shape after years of painstaking exploration since the reform and opening up with the village Party branch at the core and the Villagers’ Committee as the governing body. Currently in Hubei Province, there are 17 cities, forest districts and municipalities directly under the jurisdiction of the Central Government with 26,137 administrative villages and 209,806 villager groups. The number of village cadres is 116,663, with 107,896 among them are Party branch secretaries as well as Village Committee directors, with each village having 4.14 averagely. As the essential bridge and tie connecting the government and the villagers, the village organizations shoulder significant responsibility for organizing the villagers to develop production as well as public welfare undertakings, upkeep social stability of the rural areas, and so forth. With the development of our economy and society, especially under the influence of tax-for-fees reform and urbanization, great changes have occurred to the operating environment and functions of the village organizations. With an eye on how the village organizations should adapt to the changing situations, convert from managing to governing and fully play their part in social governance at the grassroots level, the author conducted in-depth investigation, generated insights and put forth relevant solutions.

2 New Problems in the Construction of Village Organizations from the Perspective of Innovation in Social Governance

So as to ensure that the findings showcase the general situation of the village organization across the province, the author picked 10 villages located respectively in the plain area, hill area and mountainous area in Hubei as samples, among which are 3 big villages, 4 medium villages and 3 small villages. The findings show that construction of some village organizations is faced with serious problems mainly as below:

2.1 Improper work arrangement prevents service functions of the village organizations from full realization

Stated in the Organic Law of the Villagers Committees of the People's Republic of China, “the Villagers Committees are community level self-governance organizations for villagers to practice self-management, self-education and self-service.”^[2] Yet in actual work, Party organizations and government departments at all levels tend to exercise mandatory governance on the village affairs, sometimes even issues such as whether a village cadre should be kept or relieved of his position remain to be determined by the supervising departments. The village organizations can hardly implement self-governance in line with the actual situation of the villages and villager’s wills. What they can do is

“looking up”, or in other words, do as told by higher-level governments. In this case the Villager Committees are nothing but “administrative organizations to be”. Prior to the tax-for-fees reform, village cadres spent substantial time and energy pushing the villagers to submit grains and pay the fees for the purpose of accomplishing the task of turning in revenue. After the reform, the cadres are freed from the previous yokes. But the reality of passively “running errands” does not change much. Excessive administrative functions not just hinder the village organizations from performing self-governance and self-service, but also harden their operation. (Because the higher-level governments and departments trust the tasks to the village organizations without arrangement for or considerate arrangement for the overheads). Consequently, the village organizations are stuck in the dilemma with infinite responsibilities and finite capabilities. Seen from the surface, village organizations are attending to everything and are managing everything. But in reality they are not capable of tackling real problems and managing things well. Some “empty shell villages” are even paralyzed or semi-paralyzed. Under new circumstances, it has become a priority to convert functions of the village organizations, and convert them from the “omnipotent administrative organizations “doing everything and managing everything” to limited service organizations” doing necessary things and leave the unnecessary ones undone”.

2.2 Weakness in the generation of backup talents affects the performing of village organization duties

After the tax-for-fees reform, especially when the agricultural tax is cancelled, the main revenues of villages in Hubei Province consist of financial transfer payment, village collective revenues and “One Project One Discussion”. The investigation shows that Xiaohetou Village and Xifan Community have abundant funds and are running well. (Xiaohetou Village is at the outskirts of the city with 1.5 million RMB land compensation paid by the government; while Xifan Community is a village in the city with revenues contributed by factory and shop rental amounting to 2 million RMB.) Whereas the other villages hardly get along, whose total revenues, composed of financial transfer payment, village collective assets sub-contraction, “One Project One Discussion”, “begging for aims”(receiving financial support from the villagers who have made a fortune by doing business elsewhere), etc., totaling 0.444 million RMB, with an average of 55.5 thousand RMB for each village. Yet the expenditures amount to 0,6652 million RMB, with an average of 83.2 thousand RMB for each village. In total, the deficit is 0.2212 million RMB, with an average of 27.7 thousand RMB for each village. (See Table 1)

Table 1 Revenues of the Village Organizations

	Items	Total Amount of the 8 Villages	Average Amount of Each Village	Xiaohetou Village	Xifan Community
Revenues	1. Financial Transfer Payment	21	2.63	2.72	2.3
	3. Village Collective Assets Sub-Contraction Revenues	9.4	1.18	5	200
	4. One Project One Discussion	2	0.25		
	5. “Begging for Aims”	12	1.5	8	
	6. Land Compensation (for building roads)			150	
	Subtotal	44.4	5.55	165.72	202.3
Expenditures	1. Salaries & Subsidies for Village Organization Cadres	20.616	2.58	9	30
	2. Office Expenses	12.5708	1.58	7.35	
	3. Production & Operating Expenditures	15.17	1.90	7	
	4. Special Work (including inspections and evaluations, etc.)	8	1	7	13
	5. Village Public Welfare Undertakings	9.46	1.18	2.1	35
	6. Repayment of Debts	0.7	0.09		
	Subtotal	66.52	8.32	32.45	78
Total		-22.12	-2.77	133.27	124.3

The villages can barely guarantee sound operating, let alone the construction of small agricultural water conservancy projects, public facilities to keep the villages clean or public cultural and

entertainment services. Authority and influence of the village organizations are therefore impaired, and the villagers refuse to follow their orders. A village Party branch secretary told us that the villagers would not even attend the village meetings unless given towels, laundering detergent or stuff like that for free. Some village organizations are stuck in such predicament as with “sluggish collective economy, incapability of serving the villagers, and a lack of cohesiveness for the villagers.”

2.3 Heavy debts on the village organizations affect development and stability of the villages.

Village organizations in Hubei Province are constantly hit by heavy debts. Statistics from the Hubei Audit Office shows that by the end of 2008, the total debt amount of the village organizations in Hubei Province is 17.947 billion RMB, each village with 0.69 million RMB. Amongst all the 26137 villages across the province, 25,458 are indebted, accounting for 97.4% the total number. Nevertheless only 679 are debt-free, making up merely 2.6%. 29 villages are burdened with debt more than 10 million RMB and 82 with 5 -10 million. Those two types account for 0.4% off indebted villages. 5,250 villages are indebted with 1-5 million RMB, accounting for 20%; 6,833 with 0.5-1 million RMB, accounting for 26%; 13,774 with less than 0.5 million RMB, accounting for about 54%. Judging from the findings, among every 10 villages, only one is debt-free; and among the 9 indebted ones, the debt amount ranging from 0.3 million RMB to 3.17 million RMB. Debts on the villages have become a severe problem hampering the normal operating of the organizations, economic development and social stability in the rural areas.

2.4 Incapable leaders and a lack of backup talents hinder the working capability and cohesiveness of the village organizations

During the daily operation of the village organizations, people are apt to merely pay attention to “money”, while ignoring the subjective factor- “people”. Admittedly a short of money will affect the effective functioning of the village organizations. However, a lack of talents will even more hazardous. At present, village organizations are confronted with three major problems. First, low salaries can hardly help to keep the talents around. Annual pay for most of the village cadres in Hubei Province is 5,000 RMB or so, and for Party branch secretaries and head of the villages the amount is around 8,000 RMB. Clearly they are paid less than those working outside the villages. Hence some competent cadres choose being engaged in business over staying in politics. Second, generally the village cadres incapable and the villages lack righteous leaders. Currently, leaders work with fairness, not greedy or keen on taking advantage of others, and committed to developing the rural areas are in dire need. Third, there are too many aging cadres while young people are required. As most of the young farmers engage themselves in business and other jobs outside the villages, the local backup talents are far from sufficient. Some village organizations don’t even have successors for the vacancies, and the leading groups are not strong enough to deal with things.

3 Methods to Reinforce Construction of the Village Organizations and Fully Exercise Governance

3.1 Specify functions of the village organizations and ensure that they act within their power domain

Decision of the CCCPC on Some Major Issues Concerning Comprehensively Deepening the Reform points out that we should “properly handle the government-society relationship, speed up the separation of government administration from social management, and promote the social organizations to specify their power and responsibility, practice self-governance in line with the law as well as fully play their roles.”^[3] We should properly handle the relationship between village organizations and government according to the requirements of the “decision”. The government must change traditional management methods which relies on administrative command and control in social affairs, to build a service-oriented government. We should strengthen the public service and social coordination function, to create and provide a good policy environment for economic and social development.^[4] We should further streamline the village governance system, reasonably divide the duties of townships and villages, and convert the village organizations from “omnipotent administrative organizations” to “self-governing service organizations exercising”. Based on the Organic Law of the Villagers Committees of the People's Republic of China and the changing situations, village organizations shall mainly play their part in aspects such as serving the development of agriculture production and rural economy, keeping the villages clean, providing educational & scientific & cultural & entertainment services for the villagers, resolving conflicts and disputes, maintaining social stability in the rural areas, etc.

3.2 Guarantee operating funds of the village organizations and make sure they function with

sufficient funds

Village organizations shoulder lots of responsibilities in social governance at the grassroots level, and the government should give some financial support. Through analysis on the investigation and combine it with the reality in Hubei Province, the author found that each village would need 80,000 RMB for financial support so as to ensure normal operating of the village organizations. In detail it should be as follows: (1) Salaries& subsidies for village cadres. In accordance with the findings, salaries and subsidies for major cadres of the village organizations is around 8,320 RMB per year, for deputy cadres is around 5,540 RMB and for group heads about 2,000RMB. As to a middle-sized village, annual pay for a Party branch secretary (and village director) and 3 deputy cadres (and group heads) should total at 30,940RMB. (2) Office expenses of village organizations. Average should be 24,300RMB for each village, including office supplies 3,000RMB, utilities 800RMB, meeting 3,000RMB, newspapers& magazines 3,000RMB, maintenance 1,000RMB, preparation for inspection as well as for development of the organizations (mainly for development of the Party), study and training 1,500RMB, public security and peace keeping 4,000RMB, and hygiene 3,000RMB. (3) Production & Operating Expenditures (including construction of roads, water conservancy projects, farmlands, flood-relief, drought-relief, employment of caretakers, etc.) should be an average of 10,000RMB for each village. (4) Average cost for family planning in each village should be 10,000 RMB. (5) Average cost for emergency response in each village should be 5,000 RMB. The above five items amount to 80,240 RMB. If each village requires 80,000 RMB, then there should be in total 2.09 billion RMB transfer payment funds for all the 26,137 villages in Hubei Province.

Efforts should be made to clear the debts and by means of enforcing the transfer payment for the rural areas, increasing collective revenues of the village organizations, withdrawing the bonds, etc. to ease the pressure on the village organizations. Also w should strengthen the village collective economy by developing characteristic operation, property operation, innovative assets operation and cooperative economy between the villages and the enterprises, etc.

3.3 Carry out sound construction of leading groups in village organizations and solve the problem of “not act until being supervised”

Select capable heads of organizations, and support them with competent leading groups. Based on the criteria of “selecting those with both morality and ability, and appointing those truly capable” as well as on the principle of “democracy, competition, and priority to the talents”, by means of masses’ & Party members’ recommendations and directly election by the meetings for Party members, put the village Party members who have a good knowledge of politics, operation, management and are capable of leading the masses to fortune at the position of the village Party branch secretaries.

For villages with favorably conditions, they can actively explore the method for open election of cadres in the Villagers Committee and the village Party branch. Via the incentive system through competition, promote the capable young people with competence, knowledge and passion for working in the village as village cadres so as to consolidate the ruling foundation of the Party. Construct the incentive system of performance evaluation, reinforce supervision over the village cadres, and implement the system of report on work as well as of democratic evaluation and supervision to motivate the cadres. Take more strict measures towards the disposal of the corrupt cadres. Punish those with disciplinary violations and never tolerate their mistakes.

3.4 Complete village financial management and ensure the cadres carry out their jobs in conformity with the official documents

Enforce construction of village organizations financial management system, further specify to what extent are the operating funds under guarantee, relevant expenditures as well as payment terms, ensure safe use of the funds, and make the best of the funds in village social and economic development. Further complete the system of “putting the village finance under the control of the township”, and make the authorized financial agent more effective. On the one hand, we should conscientiously change the current situation of “focusing solely on the account books rather than the actual account status and not practicing auditing”. On the other, we should include all the revenues apart from financial allocation from the higher-lever governments in “putting the village finance under the control of the township”, and exterminate “private village vaults”. Reinforce supervision and implement the open system of village affairs. Ensure comprehensive and regular efforts are done. Meanwhile the radio, television and websites in the counties (cities) as well as townships should ensure rolling broadcast/report for the criteria, object, and amount of subsidies that will benefit the farmers, the minimum subsistence allowance, land compensation and other issues closely related to farmers’ benefits.

4 Conclusion

“Acting within the power domain, having capable cadres in charge of things, having sufficient funds to do things and carrying out jobs in conformity with the official documents” are the four driving wheels for the village organizations to exercise governances at the grassroots level. Respectively, they are the prerequisite, foundation, basis and guarantee. Only by realizing all the four can village organizations operate efficiently and boost the modernization of social governance at the grassroots level powerfully.

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Tertiary Industry Output-Value Forecast

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Abstract: As an important part of national economy, the importance of the service industry has become increasingly prominent, the development of the service industry has become an important indicator of measuring the level of overall competitiveness and modernization of the region and an important engine of economic growth. In recent years, the development of China's service industry has shown a total big, fast, good quality situation, at present, our country is in economic restructuring and industrial upgrading critical period, the service industry plays a vital role. Therefore, this paper collected the output-value of the service industry during 1991 to 2012 as the basis, used the SPSS curve estimation method, estimated the service industry output-value during Thirteen Five. The purpose of this research was drawing a clear data on the future development of China's services industry, and providing the certain research support for formulating Thirteen Five plan.

Key words: The service industry; Output-value; Forecasting; SPSS

1 Introduction

From the beginning of the first Five-Year Plan to now, China has put forward twelve Five-Year Plans. The Five-Year Plan (FFYP) is aimed at scientifically determining the urgent tasks and major initiatives for future development of the next five years, which is of great significance for us to deal with the ever-changing environmental situation at home and abroad, undertake the important mission and responsibility in the national development, and see through the new circumstances in the development of the economy and society.

In the latest FFYP, the "12th five-year service industry plan" which occupies an important position, is a strong demonstration that China's service industry is developing rapidly and has made great achievements in recent years. From the reports in China Statistical Yearbook, we can see that: the value added of service sector increased at annual average growth of 11.9% during the 11th Five-Year Plan, 0.7 percentage points higher than the rate of gross domestic product (GDP); in 2010, the value added (17.4 trillion yuan) increased 9.9 trillion yuan or 1.3 times compared with the value in 2005. Fixed assets investment of service industry across the country totaled 49.6 trillion yuan, up 25.2%; its proportion of total investment in 2010 was 54.7%, rising by 1.1 percentage points over 2005. Employment in the service sector in 2010 reached 26,332 million, which was a total rise of 2893 million and an average annual rise of 578.6 million; besides the proportion of total social employment reached 34.6%, increasing by 3.2 percentage points over 2005.

Therefore, to develop the service sector is definitely of great significance, and its development has attracted wide attention. FFYP has clearly put forward requirements that we should significantly improve the level of socialization and professionalization in service industry, foster a number of major service business with innovative ability and high service levels. In this case, it is very important to know the service industry development in previous FFYPs, forecast the developmental level in the upcoming 13th FFYP, and understand the role that services sector plays in the country's total industrial development. To this end, based on the data from 1991 to 2012, this paper presents the output, growth rate and proportion of service industry during this period, besides we forecast the potential changes of service sector output and GDP from 2013 to 2020.

2 Datas and Methods

We collected the service sector output data and the corresponding data of GDP in 1991-2012, from a variety of statistical bulletins and China Statistical Yearbook. After finishing the basic data collection, we standardized the collected datas, aimed at laying the foundation for later analysis.

In this paper, we forecasted the service industry output and GDP in the period of 2013-2020 by using non-linear regression method with SPSS. Because we found that the data in the 20 years presented a curve change. Nonlinear regression curve estimation in SPSS contains eleven kinds of function models, including Liner, Quadratic, Compound, Growth, Logarithmic, Cubic, S, Exponential, Inverse, Power, and Logistic equation.

Thus, this paper firstly needed to select the most appropriate and most scientific models from this

11 kinds of function for the subsequent analysis. By SPSS software, the time is regarded as the independent variable X, service sector output and GDP is regarded as the dependent variable Y1, Y2, subsequently calculate the fit degree of each model, and then choose the most appropriate curve estimation model to predict the output value. The fit degrees of Y1 and Y2 are as follows:

Table 1 The Fit Degrees of Y1 and Y2

The fit degree	R Square(Y1)	F(Y2)	R Square(Y1)	F(Y2)
Linear	0.839	109.143	0.852	121.073
Logarithmic	0.838	108.320	0.851	120.136
Inverse	0.837	107.506	0.850	119.208
Quadratic	0.840	109.974	0.853	122.020
Cubic	0.841	110.814	0.854	122.977
Compound	0.989	1967	0.982	1159
Power	0.990	1998	0.982	1169
S	0.990	2029	0.983	1179
Growth	0.989	1967	0.982	1159
Exponential	0.989	1967	0.982	1159
Logistic	0.989	1967	0.982	1159

As we can see from the tables above, the R value of Compound, Power, S, Growth, Exponential and Logistic function models are greater than 95%, which means these models fit the data well. And Power function model can be excluded for its fitted curve. Therefore, we choose Compound, S, Growth, Exponential and Logistic the five function model to predict the value of service industry output value.

3 Results

This paper predicted the service output-value and the total output-value of China by using five kinds of function model, including Compound, S, Growth, Exponential and Logistic, and found that the Compound, Growth, Exponential and Logistic these four function model derived exactly while the S function model predictions or less, and therefore chose to use Compound, Growth, Exponential and Logistic four function model to predict the results of the final result, the forecast results in the following table:

Table 2 The Forecast Results of the Service Output-Value and the GDP In China During 2013-2020

years	the service output-value	GDP
2013	284563.9	618796.1
2014	333094.4	713196.0
2015	389901.4	821997.0
2016	456396.5	947395.9
2017	534231.8	1091925.1
2018	625341.5	1258502.7
2019	731989.3	1450492.4
2020	856825.1	1671770.9

The above table shows that: to 2020, output-value of the services industry will reach 85.68251 trillion yuan, the growth nearly reaches 4 times compared to 2010, it reaches 20 times compared to 2000, it reaches 144 times compared to 1990; and to 2020, the GDP will reach 167.17709 trillion yuan, GDP increases more than three times compared to 2010, more than 15 times compared to 2000, more than 88 times compared to 1990.

The output-value of the industry is able to demonstrate the development of the situation to some extent, but it does not show a very intuitive pace of development of the industry. Therefore, use of the above output-value forecast results, combined with already collected the output-value of 1990--2012, calculated 2013--2020 annual output-value growth rate, and thus calculate the average output growth from eighty-five plan to thirteen Five-Year Plan, the result is as follows:

Table 3 During the Eighty-Five to Ten Thirty-Five Average Output Growth

years	Five plan	average output growth of the service industry	average output growth of GDP
1991—1995	Eight five plan	27.75%	26.81%
1996—2000	nine five plan	14.16%	10.36%
2001—2005	ten five plan	14.13%	13.30%
2006—2010	eleven five plan	18.37%	16.87%
2011—2015	Twelve five plan	17.61%	15.45%
2016—2020	Thirteen five plan	17.05%	15.26%

As can be seen from the table: during Thirteen Five-Year period, China's service sector output growth is expected to reach 17.05 percent, China's GDP growth rate will reach 15.26%; from eighty-five to Thirteen-five, China's service industry output -value and GDP's growth showed a trend of fluctuations; China's service industry output growth and GDP growth rate showed less volatile during twenty-five plan to thirteen-Five plan, future development and national development of the service is likely to remain steady progress.

4 Conclusion

According to the research: to 2020, the output value of China's service industry will reach 85.68251 trillion yuan, the total output value will reach 167.17709 trillion yuan, the proportion of the service industry will exceed 50%. This also proves that: for at least the next five years, the output value of China's service industry will continue to maintain good growth. But generally the output value only can represent the amount of the service, and there is no consensus about the quality of the service, because of its intangible nature and diversity. Therefore, in the future stage, how to enhance the quality of service products is that we should solve an important issue.

This paper emphasizes two major factors for the development of the service industry: the scientific and technological content and humane care level, they determine the quality of service, good or bad. Scientific and technological level is objective, for the business or a service product, the most essential thing is the grasp and contain for the situation. Humanistic care is the essence of service, when the service business or service workers provide products, the first thing is to show the extent of their services to meet consumer demand, which is the degree of humane care. Moreover, in the era of the new technological revolution, the application of new technology for remote communications, nanotechnology, biotechnology electronics, renewable energy, information technology, digital, intelligent, 3D printing, is a new opportunity for long-term development of the service.

In short, China's service industry want to achieve a better development, we must make full use of achievements of domestic and foreign technological revolution, build a sound credit system, overcome the lack of good faith in order to improve service quality.

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Research on Effectiveness of Motor Vehicles Seat Belt Reminder

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Abstract: With the increasing in the number of motor vehicles, road traffic accidents are raising year by year, and the seat belts can effectively protect passengers and alleviate the damage in a collision of road traffic accidents to a certain extent. This paper proposes a useful approach to address the issue of seat belt reminder in road traffic accidents. This proposed approach involves two levels of functions: (1) a fitting formula for calculating the number of life that can be saved in the traffic accident and (2) the use of traffic accident death compensation to determine the related economic losing that can be avoided by using seat belt owing to seat belt reminder. Based on the fatal data of driver in the traffic accident of China and the relationship of the seat belt using rate between the dead driver and the rate in our research, we verified that seat belt reminder plays a significant role in improving road traffic safety.

Key words: Seat belt reminder; Road traffic accidents; Effectiveness analysis

1 Introduction

The occurrence of road traffic accidents is frequent, which causes massive loss. There are 3429234 people dying in the road traffic accidents in China in 2014, and the number rises slightly year by year, comparing with 316043 in 2013, 302225 in 2012 and 29618 in 2011. In addition, the relevant data shows that the number of motor vehicle drivers has made a rapid increase in the number of 13 billion, a historical figures, in the end of 2014 in China, which makes China faces a more severe traffic safety situation. Therefore, it is urgent to take some measures to cut down the occurrence of road traffic accidents. The seat belt is a kind of anti-collision equipment, which is widely installed in the vehicles. It can effectively reduce the death toll of drivers in road traffic accidents. However, the seat belt using rate is not optimistic in China, and the traffic accidents emerge one after another due to the failure to use a seat belt.

The seat belt reminder can warn the drivers to use a seat belt to decrease the rate of death. Specific implementation technical requirements of seat belt reminder in motor vehicles are prescribed in the "Global Road Safety Cooperation" (GRSP) in 2004. The Japanese Transport Ministry requires that there must install seat belt reminder in the drivers' seat of motor vehicles in 2005. A law, "People's Republic of China on Road Traffic Safety Law", has been passed in 2003. It prescribes that drivers and passengers should use seat belts by regulations. Zhang Qiantong(2008)^[1], Qin Yu(2009)^[2], Li Yingchun(2009)^[3] all conduct field surveys and collect data of actual seat belt using rate in some areas of China and collected data. It shows motor vehicle driver rarely wear the seat belt, which is the important cause of frequent traffic accident. In view of this, this paper analyzes the effectiveness of seat belt reminder on reducing the death toll and economic loss in the traffic accidents, and expound the role of seat belt reminder in improving road traffic safety.

2 The Effectiveness of Seat Belt Reminder

The Chinese road traffic accident statistics show that the motor vehicle drivers' death toll of 2010 is 23076. However, in the actual road traffic accidents, the drivers' seat belt using rates of the death and the reality researches are different. Thus, the drivers' seat belt using rates in real survey can't be directly used to estimate the number of deaths who do not use a seat belt in road traffic accidents. In addition, the China road accidents statistical yearbook currently covers no statistics of road traffic accidents referring to the seat belt using rates, while the Japanese have already set these research for many years. Therefore, we take part of the data under the reference of the relevant research in Japan^[4]. Specific analysis process is shown in figure 1.

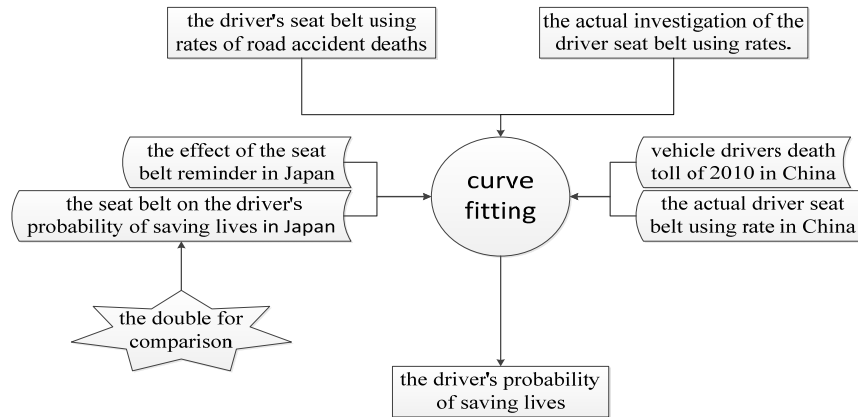


Figure 1 Effectiveness Analysis Process of Seat Belt Reminder

The curve fitting of seat belt using rate in the actual investigation and the death driver in road traffic accidents in Japan is:

$$y=0.9479x+0.5355 \tag{1}$$

Where x is the drivers' seat belt using rates of road accident deaths, y is the actual investigation of the driver seat belt using rates.

Assume the actual driver seat belt using rate was 65%, while in real life many second and third tier cities and towns far from 65%. Fit the data into the curve, then you can calculate that the traffic accident death of the drivers' seat belt using rate x is 12%. Therefore, the number of driver who died in a traffic accident not using seat belts A_{11} is:

$$A_{11}=A*(1-x)=23076*(1-12\%)=20307 \tag{2}$$

If installed seat belt reminder in the motor vehicles, it will alert the driver to use a seat belt, there will be people to use seat belts in the death driver,

$$A_{12}=A_{11}*E=20307*42\%=8529 \tag{3}$$

is the effectiveness of the seat belt reminder.

The death toll of not using seat belts in the road traffic accident is analyzed by double for comparison method in Japan, and draw the following conclusions: if all these people use seat belts, it can increase the drivers' survival rate by 42%. China has no detailed statistics and research in this field so far. In this case, according to research data of Japan, the probability of a seat belt to save the life of the motor vehicle drivers is 42%.

Thus, the number of drivers can be saved in the road traffic accidents of China in 2010 is:

$$A_{13}=A_{12}*42\%=8529*42\%=3582 \tag{4}$$

A series of calculations can be drawn from the above, by installing a seat belt reminder, 3582 drivers in the road traffic accidents will be saved, which is the 15.5% of the total number of deaths in 2010.

Seat belt can effectively reduce the casualties of passengers in road traffic accident. If the passengers use the seat belt under the seat belt reminder, then can give full play to the role of the seat belt, to a certain extent, and reduce the number of road traffic accident deaths. However, in the process of road traffic accidents, using a seat belt can't prevent the driver from death in the road traffic accidents. It can decrease the user's death rate in a certain degree^[5]. If a seat belt is installed in the motor vehicle, it will further improve the safety of the driver.

3 Analysis of Economic Loss

In a Japanese study, the amount of personal damage caused by traffic accidents has been calculated. In view of the accident situation (e.g., thrown out of the motor vehicles, damage caused by internal components and outer part of motor vehicles to human body), according to whether to use a seat belt carried out a detailed statistics. As the effectiveness of using seat belt, for each dead during the traffic accident, the economic losses can reduce 408000 yen. So if the seat belt using rate is increased by 1%, it can reduce the loss of 2.4 billion yen. If all the drivers are in accordance with the law to use a seat belt, is expected to reduce the loss of 67.4 billion yen.

In Chinese traffic accident statistics, whether to use a seat belt is not a statistical content. Therefore, in the cost estimation relate to reduce the number of drive deaths, according to whether or not using seat

belt to analyze the casualties caused by different damage is very difficult. In addition, the economic loss in the traffic accident statistics in China is just a vehicle damage caused by accident, not including the loss caused by the personal injury. So we only consider from the point of accident compensation, which mainly refer to the relevant policies of the death compensation. Specific analysis process is shown in figure 2.

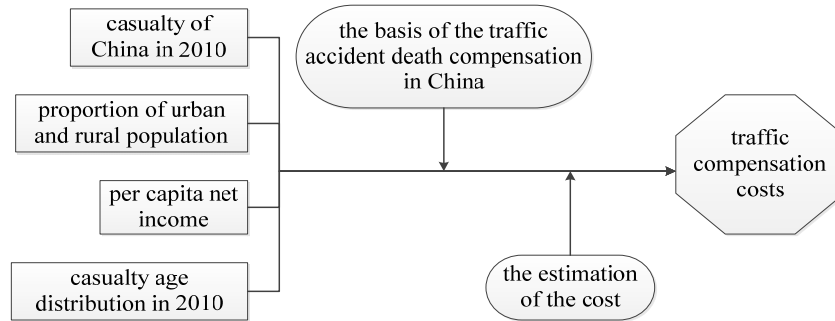


Figure 2 Effectiveness Analysis Process of Economic Loss

Conforming the traffic accident death compensation in our country, the economic losses of the 3582 people’s death can be calculated. The main basis of the traffic accident death compensation in China is as follows: according to the location of the court of appeal, the urban residents per capita disposable income or rural residents per capita net income multiplied by 20 years. More than sixty years old, the age reduction for each additional one-year-old year; more than 75 years of age by five dollars, people over sixty years old by 15 years in accordance with the compensation plan. China’s urban residents per capita disposable income is 19109 RMB in 2009, and per capita net income of rural residents is 5919 RMB. According to the 2010 statistics of road traffic accidents, regional distribution of deaths: rural residents accounted for 33% and urban residents accounted for 67%; the age distribution of deaths: sixty years old and below accounted for 83.53 percent of deaths and the deaths of over sixty accounted for 16.47%. Table 1 is the casualty age distribution in 2010.

Table 1 Casualty Age Distribution in 2010

	Death Toll		Injured People	
	number	percentage	number	percentage
Total	65225	100%	254075	100%
0-60	54487	83.53%	230292	90.64%
61-65	3352	5.14%	8746	3.44%
>65	7386	11.33%	15037	5.92%

By calculating the death of urban residents need to pay C_1 :

$$C_1 = \text{the number of people} * \text{proportion of urban population} * \text{per capita net income} * \text{effective compensation year} \tag{5}$$

$$= 3582 * 65\% * 19109 * (20 * 83.53\% + 15 * 16.47\%) \approx 897 \text{million}$$

Compensation for the death of rural residents C_2 :

$$C_2 = \text{the number of people} * \text{proportion of rural population} * \text{per capita net income} * \text{effective compensation year} \tag{6}$$

$$= 3582 * 33\% * 5919 * (20 * 83.53\% + 15 * 16.47\%) \approx 134 \text{million}$$

Total compensation C :

$$C = C_1 + C_2 = 879 \text{ million} + 134 \text{ million} = 1013 \text{ million}$$

Thus, if the seat belt reminder can save these lives in road traffic accidents, it will reduce 1013 million RMB in compensation terms.

The casualties caused by road traffic accidents and its aftermath subsequent economic, social problems are shocking. What it brings is a lasting and permanent effect. At present, people remain committed to cut down the frequency of traffic accidents and the economic and social problems it brought. The seat belt reminder has a positive effect in reducing the number of casualties in motor vehicles accident of China, also can generate considerable economic effects.

In summary, by installing the seat belt reminder, from the perspective of the drivers it can save more than 3000 lives and more than 1000 million RMB of traffic compensation costs. Therefore, the seat belt reminder has a great significance in reducing traffic accident casualties and the corresponding economic loss resulting in these accidents, so as to improve the situation of road traffic safety in China.

4 Conclusion

During the process of traffic accident, the use of the seat belt can't completely avoid the drivers death, but can reduce the drivers' casualty rate to a certain extent. In this way, by using the seat belt reminder, it can improve the seat belt use rate to cut down the risk of death ratio of the driver in the process of traffic accident.

The contribution of this study is mainly reflected in three aspects:

(1) This paper introduces the effectiveness of using seat belt in Japan to reduce the mortality of the accident, then the death toll of the accident of motor vehicles in China reduced by using the seat belt reminder is analyzed. So that increasing seat belt using rate is a good way to alleviate the number of casualties in traffic accidents.

(2) By applying 2010 traffic accident data in 2010 of China, by wielding the fitting formula, we can estimate the number of driver who died in the accident without using a seat belt. We can conclude that the seat belt reminder can improve the use rate of seat belt and the survival rate of driver after the use of the seat belt.

(3) On the basis of the number of life in the front seat of the 2010, according to the standard of road traffic accident compensation in China, the amount of economic losses can be estimated at more than 100 billion RMB. Thus, the seat belt reminder has a very good effect in improving the road traffic safety in China.

Great potential still exists to improve the performance of the proposed approach. First, part of the algorithm of this paper use Japanese corresponding analysis data to analyze the effectiveness of motor vehicles seat belt reminder of China. To implement a detailed analysis based on the data of China, the capital investment is too large and cycle time is too long. Further improvement of vehicle passive safety research and road traffic accident statistics in China is needed. Second, in addition to seat belt reminder, we also can improve seat belt using rates through some other ways, such as strengthening security education for drivers, enlarging the penalty of relevant personnel without using seat belt, etc. This paper may be helpful to further research, particularly that related to road traffic accidents.

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Corporate Governance at the Clinics Medical School Hospital of São Paulo, Brazil

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Abstract: Accelerated changes in science and technology, media and economy, among others, are directly influencing society and hence, companies; so Corporate Governance which is the system by which organizations are directed, monitored and encouraged, involving the relationship between owners, Board of Directors, Officers and oversight bodies are in need to follow the trends. Good corporate governance practices need to transform principles into objective recommendations, aligning interests, in order to preserve and optimize the value of the organization, facilitating their access to resources and fostering resilience. Similarly private sector companies, public institutions in recent decades have been seeking mechanisms to reinvent themselves and modernize their management models. Large hospitals are increasingly seeking marketing innovations to serve its customers quickly and efficiently, for which there is a need to reinforce corporate knowledge from executives or administrators. According to the Code of Best Corporate Governance Practices of the IBGC, the principles and practices of good corporate governance apply to any organization, regardless of size, legal status or type of control. This paper seeks to identify how good governance could improve hospital management processes, and for that purpose key areas for improvement in current hospital management processes were focused, to understand how corporate governance stands in public administration and contribute to the discussion of corporate governance analyzing the state of the art on the subject. Nowadays is becoming in evidence in Brazil the increasing importance of the subject as well the relative lack of academic studies on Corporate Governance that is becoming more critical every day.

Key words: Corporate Governance; Public Hospital; Processes Management

1 Introduction

Hospitals, as it known today, were a consequence of a series of historical events. In the Middle Ages, hospital organizations were built as ways to give attention and support dying and helpless people (GONÇALVES, 1983; FOUCAULT, 1974), and had close ties to religious and charitable organizations.

In Brazil, hospitals followed the same pattern observed in European societies. The first hospital appeared in the sixteenth century with the creation of the Santa Casa de Santos, very much similar to the then existing hospitals and sanatoriums in France and Portugal (MIRSHAWKA, 1994; GONÇALVES, 1983).

We may identify in Brazil three main types of hospital organizations, namely, public hospitals, charitable and non-profit hospitals and for-profit hospitals (MINISTÉRIO DA SAÚDE, 2001).

However problems in the economic environment have reduced government revenues and the possibilities of resources, factors that added to society's pressures and hence the need for strategic management of public resources and performance evaluation, knowing that seeking best practices in Corporate Governance (CG) by the companies directly impacts the performance of organizations (ANDRADE et al, 2009; SILVEIRA et al, 2008). Moreover there is need now to seek competitive advantage and form strategic alliances with stakeholders. It is understood Stakeholders groups of individuals who affect or are affected by the achievement of organizational goals (FREEMAN, 1984).

So for this paper a series of interviews with leaderships was developed at a very large public hospital in Sao Paulo Brazil, to find out information regarding management problems and processes in Brazilian public hospitals, where good governance practices are still missing in management, and also identify best practices in Corporate Governance that may improve hospital management.

2 Corporate Governance

According to the IBGC (Brazilian Institute of Corporate Governance), Corporate Governance is the

system by which organizations are directed, monitored and encouraged, involving relationships between owners / members, Board of Directors, Officers and Control Bodies (Supervisory Board, audits and others). Good corporate governance practices convert principles into objective recommendations, aligning interests in order to preserve and optimize the value of the organization, facilitating their access to resources and contributing to its longevity and durability. (IBGC, 2015).

The basic principles of Corporate Governance are:

Transparency: It is the desire to inform addition to the mandatory information, or provide stakeholders what is of interest, resulting in a climate of trust, internal and third. Factors beyond the economic and financial must be taken into account, including intangible, that guide managerial action and leading to value creation.

Equity: It is characterized by fair treatment of all shareholders and other interested parties (stakeholders). Attitudes discriminatory policies are unacceptable.

Accountability: It is the accountability for governance agents of its activities in a transparent, impartial, and assume the consequences of their acts and omissions.

Corporate Responsibility: The Governance agents should ensure the sustainability of the organization, for their longevity and durability, taking into account the socio-environmental issues in the definition of businesses and operations.

Corporate governance has grown worldwide because it contributes to the longevity and sustainability of organizations, increases its value, generates more trust with all related stakeholders, attracts the best capital (quality and lower cost) and, thus lever healthy growth. The best corporate governance practices provide greater transparency and qualify the relationships between stakeholders, helping to reduce the risks and harmonize conflicts of interests present in all institutions.

Organizations that follow the principles of Corporate Governance professionalize its administration and management, extend the effectiveness of their controls, mitigate risks, improve their competitiveness and create a difference in the conduct of their business.

The board of directors is a collegiate body in charge of the decision making process of an organization in relation to its strategic direction. It is the main component of the governance system. It has the role of uniting the ownership and management, to guide and supervise the relationship of the latter with other stakeholders. The council receives powers of the partners is accountable to them.

3 Hospital Organizations

One of the main problems encountered in hospital information systems is the definition and method for measuring and analyzing services by the set of services available (serve mix) or the set of patients (case mix). In any case it is important to foster the use of indicators and information to compare the health organizations for bringing them to superior levels and competitive advantage through references (benchmarks) processes, practices and performance measures.

Moreover one of the more important challenges of Obama's government has being related to the reforms needed for his New Health Care Program. This is in particular due to the increase in health care costs in the United States, in the 60s and 70s and more even today, in which predominated after payment systems (per diem compensation system) and pay per procedure (fee-for-service) lead to the need restructuring forms of financing of health care, by deploying the Prospective Payment System - PPS, whose main objectives were to reduce hospitalization rate and minimize performing unnecessary procedures. This system defined a fixed amount to be paid to each hospital for serious cases.

The implementation of the PPS demanded the creation of a database to set the amounts that would be paid to establish the amounts that would be paid per patient. In the 60s, Yale University developed the Diagnosis Related Groups - DRG's (Homogeneous Diagnosis Related Groups - DRG), a system that relates the case mix of hospitals (proportional relationship between the different types of patients seen in a given service) to the type of technology used in health care and their corresponding costs.

Using DRG a considerable reduction in cost per high and significant decreases in average stays. Studies have shown the usefulness of DRG Construction of hospital performance indicators. DRG different versions have been developed and updated regularly, including to classify patients seen in outpatient clinics and long-term care services, currently being used as the basis for resource allocation and payments in several countries in Europe and Australia.

Several systems are aimed at organizational strategies with performance indicators and management focused on facilitating the use of information for those who must make the decisions. The Balanced Scorecard - BSC has been expanding in healthcare and diverse experiences have been leaked,

revealing both the potential of this methodology, the difficulties for its implementation in healthcare organizations.

The BSC provides the organizational alignment of individuals and interdepartmental initiatives, enabling efforts are directed to the areas that need more attention, using classified according to four categories indicators finances; customers; internal processes; learning and growth.

Research and Brazilian experiences reports also have shown the usefulness of building control panels to assess the performance of the actions developed in the different health care levels, including in public institutions.

Recently, we observe the trend of the merger of information technology (IT) to support improved quality of care practices (Quality Improvement - QI) and patient safety. To this end, the Agency for Healthcare Research and Quality - AHRQ is providing a free suite of software to facilitate the comparison of the performance of American hospitals.

Some hospital directors linked to the Coordinator of Health Metropolitan Region of Greater São Paulo SES of Sao Paulo, according to studies, with regard to hospital indicators prefer the so-called "classics" that is, indicators established by use, such as: occupancy rate, average stay and institutional mortality rate, among others. Regarding the selection of indicators, there is a consensus that is not carried out in accordance with the strategies of the institution, being chosen the indicators established by use, or in accordance with what is requested by the central level of the Secretary of Health, ie, follow prescribed standards without the customize to the needs of the institution's manager.

With regard to information systems, the directors indicate little investment since few hospitals are fully computerized. With respect to integrated information network, only two hospitals have the benefit. This generates an operating burden, once again, that the manual records systems require a high cost and high maintenance work.

In the view of the directors, there are no regular feedback mechanisms of the higher levels of SES to hospitals. It is believed that this information is applicable to the vast majority of Brazilian hospitals, both public and those held by private institutions.

Tailored information from survey of 24 hospitals in 2000, described in the article "Use of Information in the public hospital management."

4 Discussion and Analysis

The main purpose of the Hospital was to be a reference in teaching to new medical students of the Faculty of Medicine and Surgery of. It is a municipality of the State of São Paulo, linked to the Health State Secretariat for administrative purposes associated with the USP School of Medicine for academic purposes.

The hospital's mission is to be an institution of excellence recognized nationally and internationally in teaching, research and health care. The values and ethics: Having a behavior in accordance with the fundamental principles of the hospital and Public Management; Pluralism: Recognize and respect the diversity of people, functions and formations that make up the complex; Humanism: Act focused on similar, recognizing and valuing their desires and needs; Pioneering: To set an example in its area of operation using innovation as a tool; Social Responsibility: Compliance with the duties and obligations to the society at large; Institutional Commitment: Be committed to the *raison d'être* of the organization (education, research and care).

The Guidelines are the Integration: with all the hospital system; improvement, enhancement and integration of the processes of teaching, research and extension; Humanization: the patient care; improvement of human relations at all levels; Sustainability: economic, social and environmental, governance and participatory management; Internationalization: exchange with the knowledge of the outside; international relations; New Technologies: incorporation in teaching, research and assistance; Excellence in Education.

It's one of the largest in Brazil and occupies an area of 600,000 square meters with approximately 2,400 beds, it is 40,000 surgeries, 1.3 million outpatient visits, 66,000 hospitalizations, 2,500 scientific papers, 9 million meals, 480,000 diagnostic imaging, 370,000 emergency calls and 600,000 transplants, 8 accredited hospitals and national and international accreditation process, 15.3 million units of medicines produced annually, 662 million medical images stored avoiding the impression films (filmless) and 3.4 million diagnostic imaging exams. This structure contributed 2.5 million dollars in excellent services to society.

The concept of management is defined as active process of determination and direction of the path

to be followed by an organization to accomplish its objectives, comprising a set of analyzes, decisions, communication, leadership, motivation, evaluation, control, between two activities own management (Ansoff, 1997). In our case the bodies of the senior management are: the Executive Board, the Superintendent and the Board Clinic. The Advisory Board consists of full professors of the Faculty of Medicine. The Board set the basic guidelines of medical and hospital research activities of cooperation with the courses of the Faculty of Medicine; the Clinical Board has the authority to coordinate medical activities and support of teaching and scientific research in hospitals; and the Superintendent is the executive direction of the upper body that coordinates and controls the hospital administration activities. The superintendent is appointed by the Governor.

The definition of hospital Strategic Directions is made by the upper and middle management, at an event organized by the Center for Human Resources Management (NPM), with the participation of the State Department of Health, School of Medicine, members of the Board, Clinical Board, Boards of Directors, Supervision, Technical Centers, Central Ombudsman, Executive Boards and consultants.

The organization of work is being implemented in the hospital based on a matrix model structure whose transfer units linked to its structure the model designed for superior administration.

The matrix structure is multidimensional. Work units are the projects, the permanent bodies (functional) act as service providers in the projects. The organization in each project is temporary, giving greater versatility and optimization of human resources.

Some motivating factors were identified regarding implementing best practices in corporate governance and improve management processes and internal controls, develop indicators, improve information, increase performance and competitive advantage. In the current context there is a growing requirement for services in health, both private and public area, are organized to respond to people's needs and provide effective and compassionate care.

Three interviews were developed with the one that are directly responsible for areas related to improvements that are being implemented with the Corporate Governance at the hospital. It was used, in semi-structured interviews, questions about how the adoption of best practices in Corporate Governance in the hospital, improve current management processes and other aspects which would benefit.

The Management Center for People (NGP), created a sector of Corporate Governance by senior hospital management (Superintendent), where a team is managing the adoption and improvement of processes, management, information flows and computerized core systems.

According to the manager of Corporate Governance of the NGP, internal problems are being mapped such as lack of consolidated information, the absence of a computerized unified system for human resources, little control internal processes, workflows and poor transfer of information between the cores.

Given these facts, the manager mentions that changes are already taking place, such as the creation of an integrated system for management of information between the Management Center for People and other sectors of Human Resources (HR) of eleven buildings that make up a hospital complex, policies to control over twenty-two thousand employees, contracts administration and dismissals, creation of internal audits to improve the adhesion between the areas and the management and development of indicators to monitor and track the processes and projects.

The Specialized Center for Information Technology (NETI) is also adhering to best practices in governance with a greater focus on information technology. Was interviewed the infrastructure manager and services, which is positioned in favor of the use of governance to enhance and improve the organization, communication and definitions of roles and responsibilities, the NETI is modifying its processes, organization and workflows of internal teams, meetings weekly and accountability with the coordination of spending and transparency in the use of resources for projects, new indicators of progress and investments in the projects have been created and are managed by a new domestic sector that was created called IT Governance, mentioned another point the manager is that with the use of corporate governance, is organizing new strategic direction committees formally established, which assists in decisions relating to policy guidelines and monitoring of institutional management.

For the manager some points still need to be worked out, as the lack of a formal code of ethics, released and monitored the lack of a corporate policy of business continuity to the hospital as a compulsory rule.

The NETI is responsible for the vast majority of computer systems, infrastructure, services and telecommunications hospital, where he is subordinate directly to the Superintendent.

In the manager's view, the hospital is at a time when the nuclei belonging to matrix structure, are moving to meet, create and organize their internal processes and information based on best practices in

Corporate Governance, making this interconnection modify all form of administration and hospital management. Finally, the Corporate Governance has to be adherent to the hospital business, generating a systemic view of all the processes involved, so that generate consolidated and accurate information.

The last interview was developed with one of the Core Infrastructure directors, Procurement and Logistics (NILO), with the same focus of the above. The NILO is at a more advanced stage of the mapping of internal processes and flows, with this, indicators for measurement of logistics service levels of the hospital commonly used materials were developed. The core is the center of all transactions between warehouses of the other buildings of the complex, responsible for creating and managing new types of measurements of these locations, tracing curves improvements and discovering possible losses of material in inventory.

Processes have been developed to check and monitor service levels of other warehouses of the complex of buildings to increase transparency and traceability of deliveries of applications and stocks associated with computer systems that were unified in all the buildings. Indicators and information systems are also used in reporting the Superintendency of materials purchased by the buildings, stocks and use.

According to the director the best practices in Corporate Governance are bringing improvements and professionalizing from the top management, management and directors benefiting the entire chain of hospital services, that give place to benefits to all stakeholders and especially the patient who is currently much more demanding and informed of their rights and expect more and more quality care and effective for the hospital.

The current administration of the Superintendent of the hospital recognizes this need and right of the patient and is working to transform the hospital into a more humanized model and welcoming to its employees and patients. There coexistence and humanization of locations in buildings where socializing and activities related to life and self-help are offered.

The NILO together with the Superintendent of the hospital developed the Distribution Center project, where a pharmacy that provides medications for patients in the hospital now has a delivery service directly at the house, avoiding often shifts of patients with greater mobility difficulties. The benefits to the Distribution Center were also aimed at improving the control, visibility and optimization of inventories, reducing local and security problems in the storage of medicines and general products, reverse logistics for policy was also created and deployed.

5 Conclusion

By understanding how the hospital studied is reshaping and improving its internal processes based on the use of best practices in Corporate Governance, the main objective has been achieved. Corporate Governance in the hospital is a new form of management, a determination of the Superintendence for all buildings that make up the complex Hospital of the Faculty of São Paulo; and current management of the hospital directly represented by the Superintendent brought a new vision focused on Corporate Governance, and existing centers are reshaping to meet the guidelines of the Superintendence.

Corporate Governance in the hospital is a new form of management, a determination of the Superintendence for all buildings that make up the complex Hospital of the Faculty of São Paulo; and all aspects of the processes, flows, communication, indicators, internal information have being modified to meet the new guidelines ruled in Corporate Governance. Some centers are already more advanced than others, with changes in the way of work, based on indicators seeking greater control and more accurate information; other nuclei have not yet started any modification.

In interviews with those involved directly with the corporate governance process in the hospital, one could identify that there are many difficulties to be faced and challenges to be overcome, an example is the organizational culture of employees that in many cases are resistant to change. Another point to be considered is that the hospital is a Public State institution so in some cases changes are time-consuming due to bureaucracy and conflicts of interest.

However corporate governance is being improved and managed by well-established teams in different sectors as is the case of the Specialized Center for Information Technology. Yes, there is still a long way to go in order that corporate governance may effectively and efficiently guide all activities of the hospital complex dynamics, but improvements are on its way and the learning process is active.

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Discourse and Practice Regarding Sustainable Cities Development: The Case of the City of São Paulo, Brazil

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Abstract: The concentration of populations in megalopolises calls is actually given better living conditions, generally more present in cities than in rural areas due to the various political interests partisan or nonpartisan. Therefore, the Sustainable Cities Programme published in 2012, a letter of commitment to be intending for aimed at political parties, candidates and mayors in order assist policy makers to improve the quality of life of their populations. Concretely this document represents the commitment of municipal managers prioritize administrative practices that take into account the economic, social, environmental and cultural variables, according to the local context, from 12 thematic areas: governance, education for sustainability and quality of life, local management for sustainability, better mobility, less traffic, natural common goods, local dynamic, creative and sustainable economy, planning and urban design, local action for health, equity, social justice and culture of peace, responsible consumption and lifestyle choices, culture for sustainability and local to global. In a megalopolis such as São Paulo, one aspect of sustainability is the pursuit of urban mobility, but from sustainable practices. However, this often generates discrepancy between speech and practice with respect to local policies. Therefore this article aims to demonstrate the contradiction between discourse and practice on Sustainable Local Development in the São Paulo city. For this, it has been based on the proposals and planning Green Municipal and Environment, including the various departments linked to this public agency. In order to develop its activities related to sustainability in its various aspects, through Law No. 13,155, of 29/06/2001 was created the Special Fund of the Environment and Sustainable Development (FEMA) which together with Decree No. 52.3888 of 03/06/2011- so ten years later - want the protection of environmental areas in the city of São Paulo. In this regard, the own Municipal Secretariat for Green and Environment has a Department of Participation and Development Program of the Public Policy (DPP). However, municipal management, especially the Executive, often approves urban works or projects that clearly interfere negatively on the environment in the short-term and intermediate-term. This is before considering the very local people directly involved and affected by problems arising from the practical matter be enforced. To demonstrate this discrepancy between discourse and practice is employed exploratory and descriptive method for collecting and analyzing data, and the use of indicators that demonstrate the need to preserve the environment for the well-being and the population's quality of life. It uses qualitative and quantitative technique to explain the discrepancy between discourse and practice relating to the local public policies aimed at protecting and environmental preservation. One of these gauges or indicators is the Local Development Index (IDHS) and other indicators that can contribute and identify differences between discourse and practice present even in the state capital Target Plan.

Key words: Sustainable Cities; Public Policy; Local Development; Environment

1 Introduction

The São Paulo city even the scene of numerous activities, including at the international level to discuss the ways for Sustainable Development Local, not always consistent discourse and practice. An example in this regard is the construction of bike lanes in the city. This is visible in the construction of the 2.7km extension of the bike path from Paulista Avenue, recently opened next to the central reservation. Although necessary, the work caused numerous disorders for the population during its execution and the most serious withdrew old trees that region, which can lead a worsening in air quality already so harmful to health. This same problem occurs in other areas of the city where they are being deployed these bike paths.

Undoubtedly, urban mobility is part of the call quality of life and the use of alternative transportation one of the prerogatives for sustainability as stated in the Sustainable Cities Program, which published in 2012, a letter of commitment, aimed at political parties, candidates and mayors in order assist policy makers to improve the quality of life of their populations. Concretely this document

represents the commitment of municipal managers prioritize administrative practices that take into account the economic, social, environmental and cultural variables, according to the local context, from 12 thematic areas: governance, education for sustainability and quality of life, local management for sustainability, better mobility, less traffic, natural common goods, local dynamic, creative and sustainable economy, planning and urban design, local action for health, equity, social justice and culture of peace, responsible consumption and lifestyle choices, culture for sustainability and local to global.

In a megalopolis such as São Paulo, social mobility is one of the aspects that determine their quality of life; however, this also means improving the urban transport system especially for so-called peripheries, which are those whose service in this regard leaves much to be desired. Regarding this aspect the Master Plan of the City itself (PL 688/13) approved in 2014 by the House of councilors and already sanctioned by the current mayor causes some controversy since it determines the density in the structuring axes of transport without, however, any study to assess the environmental impact on pre-established regions.

This Plan in its Chapter V deals with the Policy and Mobility system given in Article 226, the mobility system components which are: I - road system; II - pedestrian circulation system; III - public mass transit system; IV - private public transportation system. In addition, this same article defines this same article called Cicloviação system.

Among the objectives to be achieved are: I - improving people's mobility conditions, with comfort, safety and affordability, including disabled groups; II - homogenization of the conditions of macro accessibility between different regions of the city. It also includes a reduction in travel time and improving the system integration of different public transports.

Finally, the Master Plan as regards mobility answers the call Sustainable Development, but in practice, its implementation involves a joint action among the various agencies and municipal departments in order to avoid discrepancy between discourse and practice, as has happened so systematic in multiplies actions of the Executive own generating protests not only the population, but between themselves members of the government structure.

Based on what was exposed above, this article aims to demonstrate that discourse and practice on Sustainable Local Development contradict the city of São Paulo, creating discrepancies between the provisions of the Master Plan of the City (PL 688/13) and with the central focus of urban mobility as an aspect of Sustainable Local Development. Moreover as it was already mentioned at a UNHABITAT report in 2009: *Traditional approaches to urban planning (particularly in developing countries) have largely failed to promote equitable, efficient and sustainable human settlements and to address twenty-first century challenges, including rapid urbanization, shrinking cities and ageing, climate change and related disasters, urban sprawl and unplanned peri-urbanization, as well as urbanization of poverty and informality.*

2 Theoretical Framework

This is on the assumption that urban mobility is part of the requirements for quality of life and both are features present within the definition of sustainable development. In this sense, the definition that most fits is given in Burtland Report (1987) claiming to be sustainable development in itself, “that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Therefore, a concept that implicitly commits solidarity with future generations.

The document sets out some principles for this development as preserving the overall balance and value of the natural capital stock; the redefinition of criteria and cost-benefit assessment instruments in the short, intermediate and long term, in order to reflect the socio-economic effects and the actual values of consumption and conservation; distribution and equitable use of resources between nations and regions globally and regionally. Therefore, remember what we said Sen, one of the theorists who guides this research work: “The development is the removal of deprivation of liberty that limit the choices and opportunities for people to exercise their agent deliberately condition” (SEN, 2010, p.10). For this author there are five species of freedoms, which he calls instrumental: political, economic availability, social opportunities, transparency guarantees and protective security. These freedoms “bind each other and contribute to the enhancement of human freedom in general [...] Freedoms are only the primary ends of development, but also the main means.” (Ibid, p.25).

Therefore, it can be said that there is no freedom, then there is no comprehensive development be it from the perspective of human being or society, which is supported in the following Sen’s statement.

Social opportunities (in the form of education and health) facilitate economic participation. Economic facilities (in the form of participation opportunities in trade and production) can help generate personal abundance as well as public resources for social services. Freedoms of different kinds can strengthen one another [...] With adequate social opportunities, individuals can effectively shape their own destiny and help each other. (Sen, 2010, p.26)

In this perspective, the 2007-2009 crisis exposed the global economic interdependence and the need for sustainable development that enables jobs for all, as well as production and consumption. Furthermore, according to the 2014 edition of data from the annual report released by the United Nations Development Program (UNDP) Brazil rose from 80th position to 79th in regard to the Human Development Index (HDI) whose composition consists of social and economic indicators of 187 countries and territories. That is, despite being the sixth largest economy in the world, the country is among the 10 nations that occupy the last places in the HDI 2013, which confirms its bad distribution of income according to the survey universe.

This confirms the correlation between the economy, the overall development - at the individual, social and collective aspect - and the deprivation of freedoms or rights and second Sen "development has to be related mainly to the improvement of life we lead and freedoms we enjoy." (op.cit., p. 29)

In designing this author, this means that the development of a country is basically related to the opportunities offered to the public to make choices and exercise their citizenship. So "see the development from the substantive freedoms people have far-reaching implications for our understanding of the development process and also to the ways and means of promoting them." (Op.cit.,p.52)

Another aspect to consider the issue of development is the current model of 'economic democracy' which excludes 4 billion of the world population of the production process and, therefore, "to appropriate to their development, as the segments 'bottom of the pyramid' of the population, for the most part, they are not integrated into the global market economy and do not take advantage of it," as stated by Dowbor (2013, p.7).

Also, the same author points out that the: The planet's consumption model is that of the rich. Why would not every Chinese and every Indian the right also have each of your car? The collective pressure that results is disastrous, simply because the rich endowed a consumption profile whose generalization is not feasible. This policy translates into pressure on non-renewable resources than the planet can't support. [...] The current dynamic survive temporary support of an energy mix that we know to be unsustainable. (...) The XXI century homo economicus plays in our modern cities around one kilo of product in the garbage a day, and even paid for their removal. [...] The big transnational companies take financial decisions, they make technological options or cause consumption dynamics that affect humanity, without anyone to influence them. The invisible hand of the market is increasingly invisible. Economic democracy is still a distant notion. We are citizens, but the reality escapes us.

Think innovatively about the decision-making processes that govern the planet and our daily life is no longer a matter of being left and protesting, or right and satisfied: it is a matter of common sense and elementary human intelligence. And for the more informed a matter of urgency. (DOWBOR, 2013, p. 8-10)

According this situation it is possible to confirm that the current economic development not only needs to be rethought, but modified; seeking solutions that enable a new way of governing through which to perform a set of actions that generate benefits in various aspects, in view the aspirations and capabilities of this same government as well as civil society and the private sector, therefore build a sustainable development indeed. Or in other words putting the individual at the center of all aspects of the development process.

The concept of human development denotes both the process of enlarging people's choices as improve their well-being. That is, is distinguished both sides of this development: the formation of human resources, including improvements in health and / or knowledge; and the conditions for this same human being can enjoy the skills acquired for work or for leisure. The most critical dimensions of human development are: a long and healthy life, knowledge and a decent standard of living. Other concerns include social and political freedoms.

In this regard, Professor Dowbor recalls that the report on the UN Human Development suggests that we must ensure an economically viable society, socially just and environmentally sustainable. To the extent that this articulation of objectives is becoming widely accepted, with the annual provision of a global balance that crosses all three approaches, and with all the limitations of general studies, then we have a 'north' of great importance. In academia, we still have difficulties, because some scientific areas study the social, some economic, some even environmental, when the initiatives have to be seen

simultaneously in the three angles. Segmentation is becoming more clearly contested because it prevents systemic view of the process. (Ibid, p.16)

3 Conclusion

Currently there is a greater consensus both scholars as authorities and various sectors of society on the need and the importance of the propagated Sustainable development becomes more viable to the extent that it is assumed at the local level. Thus, the São Paulo city, through its Master Plan and other actions established by its various agencies at the municipal level seek to achieve this development through pre-established laws and regulations, including those relating to urban mobility. However, the lack of dialogue between the organs themselves end up generating mismatch, directly affecting the population involved. As an example, as regards the construction of bicycle lanes in several areas. This is because the environmental impact studies are not always considered when starting work involving the removal of green areas or widening of paved areas that generally cause soil sealing.

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Global Warming: Ratio of CO₂ Emissions and the Size of Forests

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Abstract: A major cause of global warming on planet earth is considered to be CO₂ emissions, and this may be found going on across the globe, from production activities to cases originating in nature. Also, when it comes to greenhouse gas emissions, this is not only in rich countries. The CO₂ emissions also occur in developing countries. However, the forests, which naturally transform CO₂ into oxygen, and may contribute to the reduction of global warming, are increasingly being devastated. In this context, this research makes a balance between CO₂ emissions in the globe and describes the reality of this problem in the Ibero-American countries. In addition, it is necessary to understand the situation of forest areas, and these bring a contribution to the ground unnoticed compared to the rhythms of the forest areas and CO₂ emissions converge or not. The data base used for our study was collected from UN databases, Greenhouse Gas Inventory Data, which provides CO₂ emission data and forest area. Other information was obtained from the UN Food Agricultural Organization FAO. Comparisons were made between the two most recent years available, so that we may gain some insight into the evolution of CO₂ emissions and forest areas. Thus, it is important to observe that the reality described suggests that assertive actions need to be taken both local and global, since the consequences and the causes are not only related to be developed or under development countries.

Key words: Global warming; CO₂ emissions; Forests; Greenhouse effect

1 Introduction

The globalization of production and consumption and the search for greater competitive advantages often shows that the relationship between the environment and profit may include antagonisms and is often somehow Manichean. Companies seek to maximize their results through the use of inputs, eg, natural resources; and consequently the environment is exploited above their resilience capacity, compromising the ecosystems globally; and moreover while slamming a slew of modern trends -- the heedless worship of technology, our addiction to fossil fuels and compulsive consumerism -- the Pope Francis recently is stressing the fact that humanity's "reckless" behavior has pushed the planet to a perilous "breaking point."

Actually, only in the mid-twentieth century and early 21st century, we could see that the issue of sustainability of the planet start getting more followers, as more and more researchers and thinkers discuss the responsibility of the use of natural resources and the planetary limits (HENDERSON, 1991; SEN, 2000; HAWKEN; LOVINS; LOVINS, 2002; HENDERSON, 2003; ASSADOURIAN, 2013; ENGELMAN, 2013; MORIN, 2013).

But actually from the first industrial revolution a couple of centuries ago (1750), the atmospheric concentration of the main greenhouse gas, the CO₂ (carbon dioxide) increased 142%. According to the IPCC, at the beginning of the twenty-first century emissions into the atmosphere are of the order of 8.8 billion tons of carbon per year, that is, 32.3 billion tons of CO₂ in the atmosphere; and to this one may add the burning of fossil fuels, 7.2 billion tons, and the use of land, 1.6 billion tons. Almost 60% of CO₂ emitted are assimilated by the oceans and forests and the rest remains in the atmosphere causing problems to the environment and people's health (PINHEIRO, 2011; BBC, 2014).

Teixeira *et al.* (2010) explains that the greenhouse effect is produced by a layer of existing gases in the atmosphere that prevent heat from dissipating at levels that make the planet to cool down, which in turn produce global warming. One should become alert to the fact that that in 2013 the concentration of CO₂ in the atmosphere of the planet earth had 396 shares per million (ppm), up almost 3 ppm higher compared to the previous year (BBC, 2014).

Therefore, the main issue for discussion in this article is the action of man as the main cause of impacts to natural resources that lead to global warming. This reinforcing the idea that human activities are affecting the biosphere being damaged by factors such as the devastation of forests and the emission of GHG (Greenhouse Gases)..

This paper describe deforestation indicators seeking answers regarding the following question: How is the situation of deforestation and CO₂ emissions in Iberoamerican countries?. The purpose of the paper is to contribute to the development of a more conscious behavior by individuals, businesses and governments regarding environment, based on the ongoing discussion about the resilience of the planet and the human

action. It is an important factor for managers in the public or private sectors that have greater social and environmental concerns, without forgetting to defend the positive results to all stakeholders and somehow all giving support to the 2015 COP21 United Nations Climate Change Conference recommendations. As matter of fact the situation is becoming so critical that the US and China, by far the countries that are most responsible for CO₂ emissions are finally assuming the urgent need to develop strategic plans to overcome this global challenge; and Obama just released a Clean Power Plan saying that is *the single most important step America has ever taken in the fight against global climate change*; and that *he is convinced that no challenge poses a greater threat to our future than climate change*.

2 Theoretical Framework

2.2 The CO₂ emissions

The Industrial

Revolution has spread rapidly around the world and mechanized production no doubt brought benefits to organizations. Improvements of processes helped increasingly to maximize corporate profits, but also led to a general increase in the consumption of natural resources (LOMBARDI, 2008). In addition, until the mid-twentieth century organizations and countries believed that economic growth had as main source the exploitation of natural resources, thinking that the environment was just an unlimited source for extraction of raw materials (COELHO et al., 2008).

Moreover energy was the main feeding source of production chains, since it helps to keep the industries going on and improving production processes. However the main resources extracted from the environment to provide power for these production processes were, and still are in many cases fossil fuels. Initially burning coal, and then with technological advances there has been a change to the oil subsequently passing for natural gas.

Seiffert (2009) says that the industrial process developed in modern society is largely responsible for the imbalances of the biogeochemical cycles of carbon, nitrogen and sulfur in different ecosystems. Thus, the burning of these fuels releases excessive amounts of gases to the atmosphere, which causes an abnormal warming. Furthermore, climate change began to occur at a much higher speed than if they occurred naturally. Confirming this idea Frondizi (2009) describes the intensification of the greenhouse effect is directly linked to human activities, mainly derived from burning fossil fuels. This burning occurs in domestic and commercial uses, in transport activities in power generation, industry and agriculture.

Regarding the issue of CO₂ highlights that in 2009, OECD countries had 28% of CO₂ emissions per capita from transportation (2.7 tons per capita equivalent to 3,314 million tons of CO₂). In Latin America, the figure stood at 35% of CO₂ emissions per capita regarding transportation (3.3 tons per capita equivalent to 506 million tons of CO₂). Therefore, transportation in Latin America has a greater contribution regarding CO₂ emissions than developed countries. This situation comes from the increase of land transportation in these locations. Moreover, it's still expected an emission of 770 million tons of CO₂ by 2020 and 1413 million tons of CO₂ by 2050 (CLEAN AIR INSTITUTE, 2013).

Pessoa and Martins (2015) showed that 69.2 ha of preserved forest could overcome the impact of the annual emissions of 170 cars of the bus fleet, consisting of 19.238t / CO₂ / year. The authors also point out that in 2009, according to the final report of the Ministry of Environment (MMA) Brazilian fleet has issued about 170 million tons of CO₂, and 14% of these were related to urban buses.

Thus, it's becoming in evidence that man in this early twenty-first century is increasingly polluting more the environment with industrial processes, agricultural activities, inadequate waste disposal and increased deforestation (NETO, 2011). Lombardi (2008), reports that according to data from the Observatory of Mauna Loa NASA in 2007, there was an increase of more than 100 ppm the CO₂ concentrations in 175 years, and a corresponding increase of approximately 0.7 degree centigrade the average temperature on the surface of the planet. This planetary warming has already some consequences: melting at the poles, which causes the flooding of coastal areas; biodiversity elimination of the planet; increased areas of desertification; savannization of tropical forests; increase the frequency of droughts and floods; reduction in crop yields; damage to the health of populations as a result of heat waves; increased occurrence of hurricanes and cyclones; in addition to the spread of contagious diseases.

Therefore, the problem of climate change is directly linked to energy options, and also a result of public policies such as lack of control of authorities regarding countries deforestation (SEIFFERT, 2009). However, this relationship between who decides by public policies of each country and the causes resulting from high rates of CO₂ emissions, end up affecting across the planet because all countries will suffer the environmental, economic impacts and social caused, for example, for keep on supporting an

energy matrix based on fossil fuels.

Carbon dioxide emissions into the atmosphere affects life on the planet, but there are three ways to reduce emissions of anthropogenic carbon (RAVAGNANI; SUSLICK, 2015), namely: i) promoting energy efficiency programs, which generates less CO₂ per energy unit used in production and consumption; ii) adopting supply of renewable or non-renewable energy sources; iii) promoting CO₂ removal or capture coming from waste and then store them, or carry out carbon sequestration.

Hence focusing on the issue of greenhouse gases, mainly CO₂ should be an integrated task for several sectors, public and private, as well as taking into account actions from other countries. In this way, the struggle for survival on the planet goes through local action with a view to integrating the global vision, in this sense use of natural resources for production and consumption should be treated in a transnational way and monitoring environmental impacts.

2.2 The role of forests in reducing CO₂

The Amazon forest plays an important role absorbing and processing CO₂; as a matter of fact its contribution goes to rates of 0.8 to 7 tons of CO₂ / ha per yr (Noble, 2002). On the other hand, deforestation and the burning of forests and the planting of some cultures and land use for grazing are producing high CO₂ emission rates.

It should be noted that increased forest deforestation in the Amazon, Brazil, has considerably changed climate conditions in this region. What may also impact on neighboring countries (SHUKLA; NOBLE; SELLERS, 1990); and nowadays its even this is seen as a major reason for the water crisis in Brazil. However, deforestation also interferes in a detrimental way with the fauna and flora; in addition interrupt the carbon cycle that contributes to the absorption of considerable rates of CO₂ atmosphere. As pointed out by Fearnside and Barbosa (2013) the tropical forest soil provides a natural carbon sink for methane, removing 0.0004 t ha per yr of carbon, and cutting down the forest eliminates this carbon sinking process.

Studies of the Large Scale Biosphere-Atmosphere Experiment in Amazonia - LBA of the carbon cycle has shown that the undisturbed Amazonian forests are a strong carbon sink, with rates in the range 1-7 tons per hectare per year. However, deforestation and biomass burning represent a net emission of approximately 0.2 gigatons of carbon per year in the Brazilian Amazon (NOBRE; NOBRE, 2002; KELLER et al., 1986).

Therefore, forests act positively on carbon sequestration due to the photosynthesis of plants, which absorb carbon dioxide from the atmosphere and the fixed shaped or woody biomass material (IPCC, 2003). Thus since deforestation withdraws the ability to absorb CO₂ from the atmosphere and create an additional source of CO₂ emissions from the burning of biomass, observing changes in land cover are very important sources of monitoring dynamics of carbon stocks on the planet, because an increase in forest area also increases carbon sequestration, and the contrary is also happening affecting the whole planet (DOUBRAWA et al., 2014).

3 Methodological Procedures

Table 1 Data Description

Indicator name	Definition	Source
Forest area (% of land area)	Forest area is land under natural or planted stands of trees of at least 5 meters in situ, whether productive or not, and excludes tree stands in agricultural production systems (for example, in fruit plantations and agroforestry systems) and trees in urban parks and gardens.	http://data.worldbank.org/indicator/AG.LND.FRST.ZS
CO ₂ emissions (kt)	Carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring.	http://data.worldbank.org/indicator/EN.ATM.CO2E.KT
CO ₂ emissions (metric tons per)	Carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring.	http://data.worldbank.org/indicator/EN.ATM.CO2E.PC
Forest area (sq. km)	Forest area is land under natural or planted stands of trees of at least 5 meters in situ, whether productive or not, and excludes tree stands in agricultural production systems (for example, in fruit plantations and agroforestry systems) and trees in urban parks and gardens.	http://data.worldbank.org/indicator/AG.LND.FRST.K2

Source: elaborated by authors, 2015 (WORLD BANK, 2015).

Therefore, to analyze the situation of CO₂ in the atmosphere and the situation of forests some variables were selected to describe the situation proposed in this article for the Ibero-American countries(table 1). This paperfocus on a study of 21 Ibero-American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico , Nicaragua, Panama, Paraguay, Peru, Portugal, Spain, Uruguay and Venezuela) using the following Indicators.

4 Presentation and Analysis of Results

Figure 1 shows, using 10 years intervals, that the only countries from the region apparently with positive results in the recovery of their areas of forests are Chile, Costa Rica, Portugal, Spain and Uruguay. The Dominican Republic is on a stable situation. Furthermore, it draws attention the aggressive deforestation regarding Honduras, although Brazil is also in bad shape.

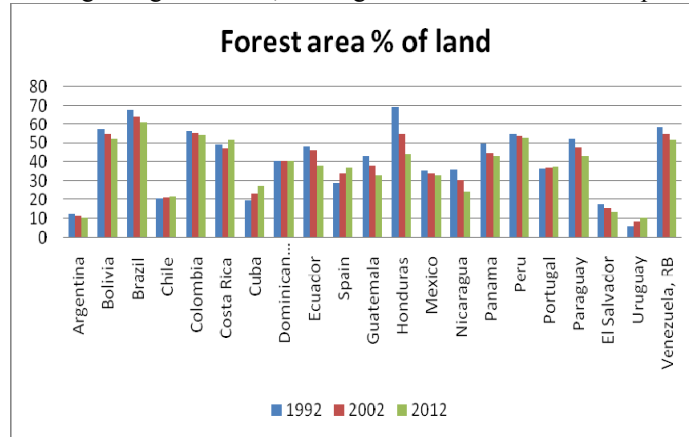


Figure 1 Forest Area % of Land

Source: elaborated by authors, 2015 (WORLD BANK, 2015).

Regarding the emission of CO₂ in the atmosphere of the planet, Figure 2 shows about the situation of Ibero-American countries in 2011, where one may see high CO₂ emissions in Mexico, Brazil and Spain; and this may clearly be due to the country size and level of industrial development.

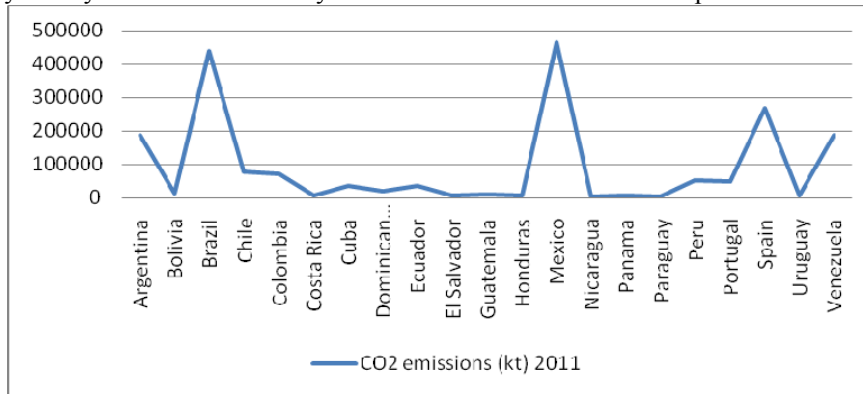


Figure 2 Emission CO₂ (kt) - 2011

Source: elaborated by authors, 2015 (WORLD BANK, 2015).

By comparing the forested area and CO₂ emissions, Figure 3, there are irregularities in the proportion of relationship between these variables and particularly draws attention the situation in Argentina. In addition, this chart suggests the need to further study on history and correlation between forested area and CO₂ emissions among Iberoamerican countries, in order to understanding how each country reached its current status and could better manage the situation.

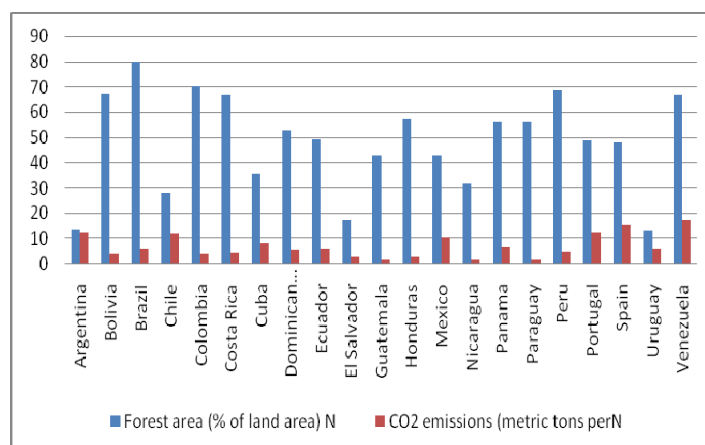


Figure 3 Forest Area Vs. CO₂Emissions

Source: elaborated by authors, 2015 (WORLD BANK, 2015).

Table 2 shows how Brazil, because of the Amazon region, has the largest forest area (5.151.332 sq.km) and the highest percentage of forested area (61%), being this the case it shows the great importance of closely monitoring deforestation of the Amazon rainforest. The smallest area is Uruguay, followed closely by Argentina with 10.48% and 10.52% respectively.

Table 2 Data about forestation and CO₂ emissions in Ibero American Countries

Countries	Forest area (% of land area) - 2012	CO2 emissions (metric tons per)	CO2 emissions (kt) 2011	Forest area (sq. km) 2012
Argentina	10,57	4,67	190.034,94	289.204
Bolivia	52,23	1,56	16.120,13	565.808
Brazil	61,63	2,23	439.412,94	5.151.332
Chile	21,93	4,59	79.408,89	163.062
Colombia	54,35	1,54	72.423,25	602.970
Costa Rica	51,91	1,66	7.843,71	26.506
Cuba	27,61	3,19	35.921,93	29.392
Dominican Republic	40,81	2,16	21.888,32	19.720
Ecuador	38,13	2,34	35.727,58	94.698
El Salvador	13,43	1,07	6.684,94	2.782
Guatemala	33,08	0,77	11.257,69	35.446
Honduras	44,26	1,08	8.412,10	49.520
Mexico	33,18	3,91	466.548,74	644.916
Nicaragua	24,71	0,83	4.899,11	29.740
Panama	43,41	2,58	9.666,21	32.274
Paraguay	43,35	0,81	5.298,82	172.248
Peru	52,88	1,79	53.068,82	676.920
Portugal	37,82	4,71	49.724,52	34.636
Spain	37,14	5,79	270.675,94	185.253
Uruguay	10,48	2,30	7.774,04	18.336
Venezuela	51,81	6,40	188.817,50	456.998

Source: elaborated by authors, 2015 (WORLD BANK, 2015).

Finally it's important to consider core indicators or factors but also seek for core systemic drivers that may help to overcome the challenges of human and environmental development as shown in Figure

4. For the case of the Human Development Index (HDI) and the Environmental Performance Index (EPI), that are actually very correlated (0.878).

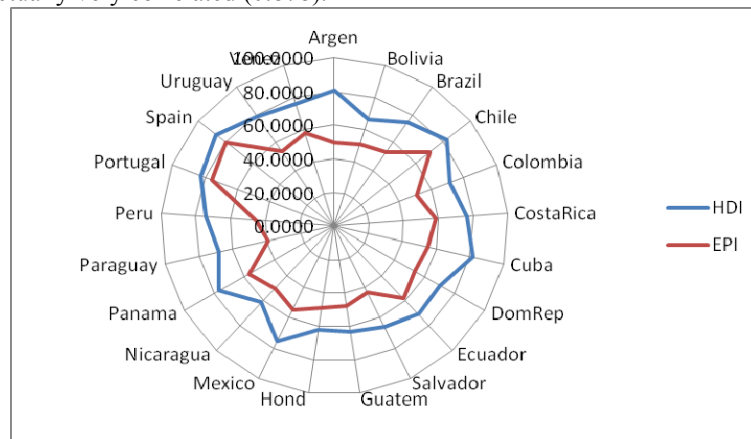


Figure 4 Comparing Iberoamerican Countries Using Worldwide Normalized (0 to 100) HDI and EPI

5 Final Considerations

By the end of this paper can be seen the importance of discussion of forests and human activities on the environment. The question about the survival on the planet goes through the long-term vision, rather than a hedonic satisfaction gained through inputs taken from nature that compromise the resilience capacity of the planet.

Moreover, it is not only the removal of forests to transform them into pasture or planting some cultures which are harmful to the earth's regenerative capacity (sugarcane, soy etc.). The elimination of forests withdraws the ability to absorb carbon from the atmosphere by natural action carbon sinks. What is also the other side produces the emission of CO₂ in the atmosphere by burning biomass.

The description provided in this article aimed to raise comparisons between countries that belong to the group called Ibero American. These countries share some common characteristics, but have above all a planet together. So, when draw attention to differences regarding CO₂ emissions or forested area, or cleared, you can discuss ideas and attitudes that benefit all.

Global problems require global thinking, and encourage discussion at least in groups already reinforces a sense of belonging and unity. Note that the water problem in South America. This is not only a problem of a single country, because in the long run all suffer from desertification and the scarcity of this precious life. Thus, recognizing the problem of forests and CO₂ emissions in the atmosphere between these countries we can see common solutions to global forgetfulness and other issues such as energy.

Finally it's worth mentioning the recommendations for Environmental Democracy of the World Resource Institute (WRI): *The environment and human well-being are inextricably linked. When governments, businesses and others make decisions about land and natural resources, they inevitably impact the health, livelihoods and quality-of-life of local communities.*

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The Need of More Conscious Decisions on the Future of Water Production and Consumption

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Abstract: The purpose of this study is to reflect on a more conscious and responsible production and consumption of water. For this purpose it's important to consider the role of active citizens in water consumption, which in turn influences resilient actions in the exploration and use of this resource by companies, as well as throughout society. Regarding water use and production, it is necessary to discuss their use in products in the market, especially through commodities, by using the concept of "virtual water". This fact is relevant because although Earth has two thirds of its surface covered in water, it is known that one in three people do not have it in sufficient quantities to meet their basic needs (SALVADOR; DWECK, 2008); hence the importance in particular of evaluating the use of virtual water, production, and consumer behavior. Based on analytical categories regarding the aware production and consumption of water, we analyze specific cases in São Paulo, Brazil, and highlight that the consumption of this product has changed the industry's behavior and individuals influenced by its scarcity. As a matter of fact even if people decide to consume water without worrying about other people, they will be affected as citizens. Thus, the right to consume does not absolve individuals of responsibility as citizens, which is also true for companies that suffer from changes in the availability of this resource.

Key words: Water; Production; Consumer; Conscious consumption

1 Introduction

For many years, social and environmental problems have been a concern only for the government and environmentalists, but these issues have been widely discussed by several other players of society in the early 21st century. The critics are mainly concerning traditional practices of production and consumption, and the roots of the problem lies in the fact that production and offer are not always consider the social and environmental problems of the planet (HENDERSON, 1991; HENDERSON, 2003; ASSADOURIAN, 2013).

Thus, consumption focused on individual aspirations for comfort and wealth guarantees the growth of *per capita* global consumption of several products that end up damaging the biosphere. In fact, keeping this hedonistic consumption, requires heavy investment to exploit fossil fuels and other non-renewable resources which are critical to society, and this impacts natural resources becoming increasingly expensive and scarce (HAWKEN; LOVINS; LOVINS, 2002; MORIN, 2013).

Furthermore, it could be said that non-renewable materials are the main boosters of industrial advanced economies. However, growth and development are not always linked, and the true development must be defined in terms of improvement of a sustainable human well-being, not just the growth of material consumption or *per capita* wealth (ASSADOURIAN, 2013; SEN, 2000). Thus public or private institutions exploring natural resources in a progressively largely level superior to the regenerative capacity of the planet, end up impacting its resilience (VEIGA, 2005; VEIGA; CECHIN, 2010).

With changes from the economic and financial focus to a more sustainable perspective of life on the planet, the fighting against the scarcity of resources requires a comprehensive and ongoing social effort of all players of society. Thus, the challenge is to greatly increase productivity with the least possible use of non-renewable resources, and to establish a more conscious consumption (MOORE; REES, 2013).

Based on this perspective of using resources for a conscious production and consumption, this paper aims to discuss the fact that most of the time the different social and environmental elements involved in the production process or in consumption are not being considered. Thus, it is argued that an attitude focused on conscious production and consumption could help to deal with the problems that afflict the contemporary consumer society that contributes to an unconscious and inconsequential

degradation of the environment.

The focus of this article concerns the proper use of water. It is indispensable to life, leisure, professional activities, and industrial development, besides impacting political, economic and social aspects of the planet. The paper focuses in particular on the topic of “virtual water” a condition of this resource that is not in evidence as a physical presence in the final product (ALLAN, 1998; HOEKSTRA; HUNG, 2002; CARMO *et al.* 2007). That is to say, water is used to produce in many ways but often final products do not present this feature in its final appearance. This is particularly so in the agricultural area.

Hence there is a need to build awareness with regard to the healthy consumption of water by man, who is the greatest benefitted from this natural resource, and that unfortunately has given little or no importance to its proper use and preservation. Based on this context, an important question arises: what decisions of water use in production and consumption do affect society?

The main goal of this paper is to present the direct relationship between production and consumption of water and environmental sustainability in order to foster some reflection about conscious consumption of this liquid that is so important to life.

2 Conscious Production and Consumption of Water

2.1 The use of water resources

The human body consists of 75% of water, and in case of illnesses, one of the key recommendations of doctors is to drink plenty of water. Therefore, life itself needs water to grow plants, trees, rivers, and dams. The importance of water for the survival of living beings is undeniable. It is worth to notice that about 70% of the surface of the Earth is covered by water, with a volume of nearly 1.4 billion cubic kilometers. Out of this total, 97.5% consists of seawater and only 2.5% in freshwater. Approximately 30.2% of the total volume of freshwater on the planet may be used for plant and animal life in lands since the rest is the poles, in glaciers and ice soils (INSTITUTO CARBONO BRASIL, 2014).

Freshwater and sanitation is one of the basic Millennium Development Goals set by the United Nations, whose studies estimated that 92% of the global population will have access to safe drinking water by 2015. However, according to the UN, at least 11% of the world population, which is equivalent to 783 million people, does not have access to this resource. In addition, 1.1 billion people are still with no sewage systems, and about 4.000 children die every day from diseases associated with lack of quality or lack of water treatment (ECODESENVOLVIMENTO, 2012).

Brazil has 13.7% of the planet's fresh water, and is part of the select group with water reserves (AMAE, 2014). In fact, it is necessary to understand that having this resource available in the country does not mean that everyone have access or will continue to have access to it. As a matter of fact water consumption in Brazil is divided into: 59% are consumed in agriculture, 22% in household use, and 19% industrial use (AMAE, 2014). On the issue of domestic use, much is wasted by hidden leaks, broken, unregulated or old landfills and the lack of rational use of water. We cannot forget that Brazilians uses treated water to flush and wash their streets.

Another example of unconscious waste is in the bath. A shower lasting 15 minutes with the water valve half-open consumes 243 liters of water, but if you keep the valve closed while soaping, the bath time will be five minutes shorter and you can reduce the total water consumption to 45 liters (ECODESENVOLVIMENTO, 2012). In fact water lost every day in Brazilian capitals is estimated at 6.14 billion liters per day, an amount which would meet the needs of a daily consumption of 38 million people, equivalent to the entire population of a country such as Argentina (WHATELYC, 2014).

From 2004 to 2013, the consumption of water in 33 municipalities in the metropolitan region of São Paulo increased by 26%, while production grew only 9% (BRENHA; GERAQUE, 2014). Actually it is estimated a consumption *per capita* of 150 liters a day in São Paulo (SABESP, 2012). In addition, there are other types of consumption such as in prisons (300 liters a day) and apartments (200 liters per day). Moreover some studies show that a São Paulo dweller consumes on average 27% more water than a German and 9% more than a French dweller (BRENHA; GERAQUE, 2014). In the case of Brazilian households, one of the main reasons for the boost in consumption per capita was the increasing income, since people started using more washing machines and dishwashers, washing cars more frequently, bathing with more powerful showers etc. Thus, as the standard of living improved, water irresponsible consumption tends also to increase (BRENHA; GERAQUE, 2014).

Statements about household water consumption highlight that water scarcity in the world is also aggravated by social inequality, lack of sustainable management, and use of natural resources. In regions

where the situation of lack of water has already reached critical levels of availability, and in the countries of the African continent, the average of water consumption is 10 to 15 liters *per capita* a day (CETESB, 2014). This scenario is quite different from the average of 150 liters a day in Brazil. Moreover to irresponsible consumption, one must add water lost due to irresponsible Management. In 2013, 25% of the water was lost on the way between the dams and homes which is more than twice as in the cities in Japan (only 11% lost). The goal of SABESP, agency responsible for water in the region, is to decrease to 18% of loss by 2020 (BRENHA; GERAQUE, 2014). So governments shouldn't have the option to separate the population policy from the water supply, privatizing the process. The problem in the fast urbanization processes is being reflected directly on the water quality and quantity that may supply the cities (AMAE, 2014). Moreover lately very serious hydric crises, like the one going on in California in the last few years, are also becoming a day to day reality in the State of Sao Paulo in Brazil.

Another important point is environmental pollution; one of the main factors that contribute to the degradation of water resources in Brazil and in the world (AMAE, 2014). According to the UN, 77 million people in Brazil, a number equivalent to the population of Germany, do not have safe water. In addition, 60% of the population does not have proper water treatment or sanitation. Thus, regular water supply, with uniform quality, is still a distant reality in this developing country (VEJA, 2014).

To be considered appropriate water is not required to have the same characteristics for different use purposes. The parameters for supply are different as in the household, industry and irrigation (INSTITUTO CARBONO BRASIL, 2014). This situation hampers the quality of the water when analyzing the demand and the reality of this resource at each location. European Union countries allow the use of only five pesticides in drinking water, while due to lack of control water in Brazil may contain 22 types of pesticides, 13 heavy metals, 13 solvents, and six disinfectants to be consumed (VEJA, 2014).

In the irrigation process, great part of the water is filtered by the soil, where it reaches the groundwater and is stored. One aspect that should be considered is that the water often is returned to Nature contaminated by pesticides. Due to deforestation, it is lost the process in which water infiltrates the soil through the trunks and roots of trees and other vegetation, which acts as biofilters, recharging aquifers and ensuring the sustainability of water source (TOLEDO, 2014).

Water problems are not only local, because most aquifers are located on the borders of many countries. According to an inventory of UNESCO, out of the 273 trans-boundary aquifers, 155 are located in Europe, 68 in the Americas, 38 in Africa, and 12 in Asia, and the volume of fresh water aquifers present in these sites is a hundred times bigger than that existing on the surface of the Earth. Moreover, 65% of this water is used for irrigation, 25% for human consumption, and 10% in industry (INSTITUTO CARBONO BRASIL, 2014).

As mentioned above, problems with the collection and supply also have a direct relationship to regional development, and income can also determine the quantity and quality in the consumption of this resource. In Brazil, in places where the population earns a quarter of a minimum wage there is a 35% water deficit. Already in places where income is five times the minimum wage, 95% of the population has appropriate access to water supply. For the UN, the price of water should be fixed, and their supplies, following international standards, could not represent more than 5% of a family budget (VEJA, 2014). However, the problem is apparently not related to prices. The price of water and sanitation rate in Brazil is considered low by international standards. According to the *Global Water Intelligence*, while the average rate in the country is around US\$ 1.50 per cubic meter, in Denmark, it is US\$ 8.11. Other countries also have a higher rate, such as the UK, (4.33 USD), France (4.08 USD), Canada (3.30 USD), USA (3.09 USD), and Japan (2.63 USD) (CARRERA, 2014).

According to a recent UNESCO some factors for the possible lack of water are due to intense urbanization, inadequate agricultural practices, and pollution produced in production and consumption. These factors hinder the supply of clean water in the world (UNESCO, 2015). The use of water in the production of goods and/or in services is not often recorded in all stages of the process. Note that to produce particular good water is used since its initial phase, like the production of bread, however since the very growing stage of its ingredients consumes a lot of water (GERBENS-LEENE; MEKONNEN; HOEKSTRA, 2011). According to research conducted by Arjen Hoekstra of the University of Twente, in the Netherlands, Brazil is the fifth country with the largest net export of "Virtual Water", that is, water incorporated into the production process.

Thus, water is used in the processing of grain, meat, and even in industrialized goods that a country exports. Agricultural commodities are among the main export items of Brazil. Whereas agriculture accounts for over a quarter of the national GDP, Brazilian water already appears as a highly-rated

element in the international market, and Brazil is one of the largest exporters of soybeans, beef, and sugar. In environmental terms, it means the transfer of Virtual Water to other countries where there is water shortage or is expensive (WICHELNS, 2004; CARMO *et al.*, 2007; GERBENS-LEENES; MEKONNEN; HOEKSTRA, 2011).

As a matter of fact according to UNESCO, Brazil exports about 112 trillion liters of fresh water per year, equivalent to almost 45 million Olympic swimming pools. Carmo *et al.* (2007) argue that the analysis of studies undertaken under the "Virtual Water Trade Research Program" (UNESCO) shows the relationship between world "tank-countries" of fresh water and their ability to generate foreign exchange.

However, water resources involved in the production of export goods may become scarce even in regions where there is relative abundance. Despite the water crisis, it is claimed that Brazil should not change its business profile, but make use of water more efficiently. It is possible to increase the efficiency of water use by producing the same food with less water, with better irrigation technology and best practices, avoiding waste and practicing more organic and family farming (HOEKSTRA; HUNG 2002; GERBENS-LEENES; MEKONNEN; HOEKSTRA, 2011).

3 Conclusion

Consumption of goods and services in a healthy society means establishing of appropriate sustainable relationships between consumers and suppliers. However, this relationship has become increasingly complex, especially due to the increasing demand of finite resources. From 2004 to 2013 the consumption of water in 33 municipalities in the metropolitan region of São Paulo increased by 26%, while production increased only 9%. As mentioned before on average, a São Paulo dweller consumes 27% more water than a German and 9% more than a French citizen.

Thus, habits of a society may determine the ways goods and services are produced and delivered. Such logic covers both superfluous products as well as products related to basic needs such as food and water. Water is essential to life, and it cannot run out or be based just on supply and demand. So it is now becoming vital to adopt solutions for Water Care fostering conscious consumption, recycling, and reuse. This in particular raises the need to consider more closely the question of virtual water, particularly in countries like Brazil with a high level of export regarding agricultural commodities that end up also having a great environmental impact due to excessive use of pesticides and deforestation. Moreover regarding industrial and household use, it is also contaminated when returned and is not properly treated due to lack of sewers and sanitation.

Lack or loss of water is a great problem in many developing countries like Brazil, since this leads to early age diseases and limited quality of life. Moreover even today in some underdeveloped African countries, there are people that try to survive with 10 to 15 liters of water a day, much below the 150 liters *per capita* a day estimated by SABESP in São Paulo.

Hence whether people choose to act as citizens who consume, or as consumers who act as citizens, the water is becoming a greater concern and challenge due to environmental local and global risks as well as the climate change going on. Brazil in particular, considered one of the largest hydropower countries of the planet, may be a critical example for dealing with water management challenge in particular regarding the Transnational Aquifers and the Amazon Forest.

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Fostering Open Collaborative Innovation for Micro and Small Technology-Based Firms in Brazil

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Abstract: Innovation happens as a combination or a result of various phenomena (i.e. entrepreneurship, business environment, interactions etc.), it is almost impossible to be explained by a single discipline itself. Due to the fact that there are many facets to explore in order to cover all aspects to innovation, the present paper approaches this theme with emphasis on the sociological perspective, considering that innovation is not a solitary, but an interactive phenomenon, which firms develop connections able to reach new innovation sources, new processes and technologies. As a theoretical reference, this paper develops the argument of the importance of the firms' interaction linkages and connections and their influence on the efficiency of the innovation system. So, in this context, the authors decided to adopt the survey method to examine whether or not interaction linkages have an impact on micro and small technology-based firms' innovativeness in Brazil. So, the findings showed that interactions between firms and other innovation agents such as universities, research centers, financial institutions and other partners is very important to the development of open collaborative innovation activities and have direct impact on the level of innovativeness. Finally, this paper seems to conclude that innovation is a result of combination of various interaction linkages and not a solitary phenomenon restricted to the firm itself that may be appropriately fostered.

Key words: Open innovation; Networking-interactions; Business management and sociology

1 Introduction

In the last three decades, globalization has increasingly demanded firms and the whole economy to operate under pressure for new products and services. With the increasing speed of globalization, many scholars such as Freeman (1995), Powell, Kenneth and Laurel (1996), Porter (1998) and Etzkowitz and Leydesdorff (2000) have agreed that only innovative firms can guarantee the long term capability to prosper and gain competitive advantage. In the past, the concept of competitive advantages relied on accessing and controlling of raw materials. Nowadays, it relies on the creation of new technologies. Strategies that may have served firms before, it does not seem to work in the today or future contexts. To be competitive, companies must shift from an isolated organizational strategy to a more open mind-set, able to deal with different economic agents in different environments (local, national and even global).

This new scenario of competition has forced firms to develop products/services involving an increase amount of knowledge-intensive activities. These activities range from product design, management procedures and marketing strategies to new interaction linkages between firms and economic agents such as universities, research centers and government, able to become key elements to this new sustainable innovation mode of production. This premise suggests that technological changes have the power to establish new standards for the transformation of the whole economy (Freeman, 1988).

Despite innovation seems to depend on many factors (i.e. entrepreneurial spirit, local infrastructure, legal and political dimensions and the presence of important innovation agents), one has been highlighted as an important factor: networking. Interaction processes between firms and other economic agents, in large measure, have become an important element of competitive advantage. The creation of competitive advantage through innovation seems to suggest that firms need to reach new sources of innovation in order to develop new technologies. Thus, networking plays a key role at the heart of any discussion on competitiveness and innovativeness; therefore, the current concept of globalization, based on technological development is certainly different from globalization of the past. Innovation seems to be an economic and social phenomenon influenced by internal and external factors, establishing a new paradigm: networking permits to build new technological capability and specialization leading to the improvement of firm's innovativeness.

Overall, there is certainly no recipe to succeed in this so competitive environment, however, successful strategies to facilitate innovation initiatives and to create an environment to foster entrepreneurship and innovation, includes an understanding of the conjunction of some actors working together in a collaborative manner creating an interactive behavior able to build an appropriate innovation environment.

2 Literature Review

2.1 Innovation – modern history and concepts

Historically, the emphasis on studies of innovation began in early 1930's by economist from the Austrian School of economics mainly. Joseph Schumpeter (the so called "founding father of innovation studies") was the most prominent economist from this school of thought and defended that innovation is as a complex mechanism of the introduction of a new product, process, service, method of production, opening of a new market, new source of raw material or the establishment of new businesses (Schumpeter, 1979). He started arguing that modern capitalism was dynamic and evolutionary, and innovation was behind firms' competitiveness and country economic growth. Since then, some scholars are investigating under what conditions this is allowed to happen.

More recently, authors such as Motta (1989) interpreted innovation as the discovery of a new opportunity. It is the use of uncommon tools or something new, to give creative solution to problems detected and the final outcome of the creative process. To Tidd, Bessant and Pavitt (2001), innovation also is a result of new knowledge, experiences and abilities to create new things (i.e. products, processes and services). It has three phases: 1) Opportunities detected; 2) Choice of strategies ;3) Introduction of innovation to the market.

At micro-level, within companies, the innovation process combines both internal and external elements organized on a systematic way and always should be based on a landscape of abundant knowledge and cooperation (Chesbrough, 2003). At macro-level, considering the whole economy, innovation can be generated by a wide range of different agents such as universities and research centres; therefore, firms have to acquire new capabilities such as to manage a network of interactions with different actors and to become flexible enough to get information and knowledge retained by a variety of different actors (European Commission, 2004).

Even though the concept of innovation seems to be very broad, for the purpose of this paper, the authors consider the concept of innovation suggested by The Oslo Manual (2005): "*innovation as the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations*" (OECD/EUROSTAT, 2005).

2.2 Networking – Concepts and Perspectives

According to Castell (1999), the 21st century seems to be characterized by three features: global, informational and networked. In this sense, innovation initiatives are increasing substantially through networks of firms and other innovation agents. The expansion of the social-networked models is directly associated to the increase of innovation initiatives (Rothwell, 1994). This premise suggests that innovation combines both internal and external factors and based on an abundant cooperation and networking environment. So, firms which not co-operate and network limit and reduce their capacity to innovate.

Oliver (1990) argued that networking was a response for the pressure of the globalization phenomenon; so, in order to reduce the pressure of the external environment, firms decided to participate in business networks. The networking approach resulted in competitive gains for firms which could not obtain by individual efforts (Balestrin and Verschoore, 2008).

Networks also involve many definitions. One of these definitions consider that business networks, in general, involve a group of firms, business units, universities, governments, customers or other actors which co-operate on a joint development project or objective in order to overcome common problems, to achieve collective efficiency and to penetrate in new markets (Unido, 2001). Other authors such as Hunt, Doyle, McDermott and McCormack (2005) advocated that business networks are about fostering cooperation, facilitating the transfer of knowledge and information between companies, enhancing the learning process, allowing firms to share costs and risks. Finally, the authors agreed with Cooke (1996) who defined business networks as a formal and informal non-hierarchical organizational arrangement in which firms make relational contracts with each other through a set of linkages to facilitate the exchange

of information and technologies.

In common, most of authors share the idea that business networks is emerging as a relevant tool to promote the development of new innovation initiatives leading to the general improvement of overall firm's performance. So, the increase of firm's innovation activities depends on the increase of the interaction linkages that they maintain (Ahuja, 2000). In the business field, collaboration manifests through collaborative arrangements and are structured according to the following typologies: alliances, joint-ventures, coalitions, consortia, cross-licensing and business network (Tidd, Bessant and Pavitt, 2001). However, there is a tendency for innovation to be associated increasingly with local and non-local interactions; therefore, firms must search for innovation sources regardless of whether they are geographically close or not (Melo, 2011).

Although it is clear that networking is of significant importance to the development of innovation activities, it does not seem to happen by itself. It depends on factors such as cooperation and collaboration. Authors such as Gray (1996) argued that collaboration offers an antidote to turbulence by building a collective capacity to respond to these conditions. This process whereby two or more parties work together for mutual benefits is of immeasurable importance and is at the heart of any discussion about networking.

Porter and Fuller (1996) argued that the main motivation for firms to co-operate is from external factors such as search for economy of scale, reduction of risks response to market pressures or the need for technology or market access. Other authors such as Huxham (1996) advocated that the key motive for firms to engage in collaborative activities is the focus on outputs which results could not be achieved individually and materialized into collaborative advantages. To Hunt et al. (2005) working in collaboration with others, firms are enabled to achieve competitive advantages faster, cheaper and with less risk and disruption to operations. Overall, benefits of collaborative activities are numerous with many cases of success of firms' improvement of competitiveness through engagement in networks. To Huxman (1996), collaboration and co-operation between firms happen due to the perception of mutual gains and it is highly motivated by self-interest, even though, it does not imply that self-interest is at the expense of others.

So in this context, it is reasonable to suggest that successful innovation initiatives are result of successful firms' participation in business networks on a collaborative mode with constant flows of knowledge, information and resources, improving innovativeness collectively.

3 Methodology

This topic outlines the basic methodological premises of this study. The choice of the authors to investigate whether or not interaction linkages have an impact on micro and small technology-based firms' innovativeness in Brazil, was based on the survey strategy under the perspective of the relationship between innovation and interaction. The presumable existence of this relationship (not causality) as well as the effectiveness of the impact on firm's innovativeness and gains in competitive advantages is defended by many other authors such as Ahuja (2000) and Balestrin and Verschoore (2008).

The key methodological points pertaining to this study are as follows: 1) Qualitative research; 2) Explanatory mainly; 3) Cross-sectional study; 4) Data collection strategy was the use of survey interviews with administration of a structured closed-ended questionnaire (the questionnaire was based on the Oslo Manual (OECD/EUROSTAT, 2005).

To approach this problem, the authors decided to perform this study in Brazil, in particular, the Brazilian micro and small technology-based firms located in the technology pole of Campinas, State of São Paulo and Porto Digital Information and Communication Technology Cluster located in Recife, State of Pernambuco. Both locations are internationally recognized as niches of excellence pole in technology.

4 Findings

In this topic, the authors describe the empirical findings regarding the investigation of firm's interaction behaviour and innovation process. These findings were results of the PhD thesis submitted by Paulo Melo to Waterford Institute of Technology (WIT) in Ireland. Topics related to interaction behaviour were focused only on those interactions aimed to the development of innovation activities.

The authors of this study summarize the main findings as follow: 1) Firms surveyed: 19 firms in Campinas and 13 in Recife; 2) Firm's size: Campinas – (74%) predominantly micro sized firms (less

than 10 employees) Recife – (69%) predominantly small sized firms (11- 50 employees);3) Overall firms engaged in innovation activities:Campinas – 18 firms (95%) and Recife - 13 firms (100%);4) Interaction behaviour.

The findings showed that 100% of firms surveyed in both locations had interactions linkages for the development of innovation activities : Campinas – 19 firms and Recife – 13 firms.

Another finding was related to the perception of the importance of interaction linkages to the development of innovative projects. According to Cortrights (2006), to improve firm's innovativeness, they should be engaged in collaborative arrangements. So, one relevant finding derived from this study showed that 94% and 100% of firms surveyed in Campinas and Recife respectively considered interaction linkages of "high" or "medium" importance to innovation activities (see Table 1).

Table 1 Importance of Interactions for Innovation Activities

Degrees of importance	Campinas No. of firms	Recife No. of firms
High	10(59%)	09 (69%)
Medium	06 (35%)	04 (31%)
Low	01 (6%)	-
None	-	-
Total	17 (100%)	13(100%)
No answer	02	-

Regarding interaction partners, firms in both locations seemed to interact with different partners (see Figure 1) in order to develop their innovation projects. In Table 2, the study shows types of interaction partners which firms had experienced interaction linkages.

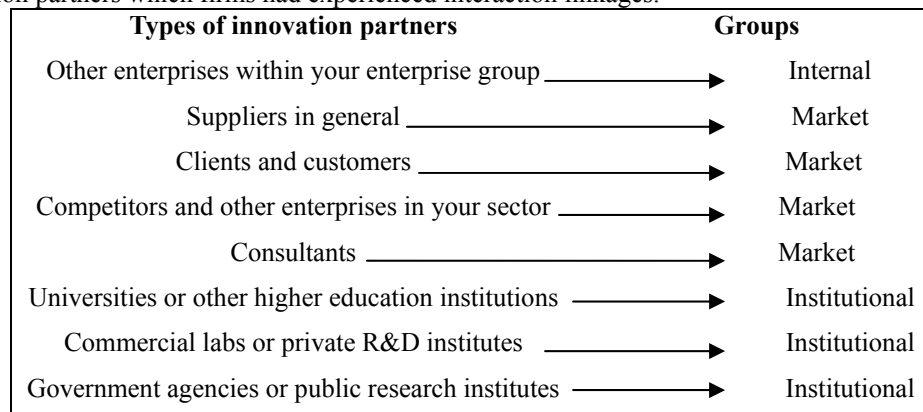


Figure 1 Classification of Types of Innovation Partners

Table 2 Classification of Types of Innovation Partners

Types of innovation partners	Group	Campinas No. of firms	Recife No. of firms
Other enterprises within your enterprise group	Internal	02 (14%)	04 (31%)
Suppliers in general	Market	05 (36%)	04 (31%)
Clients and customers	Market	06 (43%)	06 (46%)
Competitors and other enterprise in your sector	Market	07 (50%)	12 (92%)
Consultants	Market	08 (57%)	06 (46%)
Universities or other higher education institutions	Institutional	12 (86%)	05 (38%)
Commercial labs or private R&D institutes	Institutional	04(29%)	04 (31%)
Government agencies or public research institutes	Institutional	05(36%)	13 (100%)
No. of firms which answered this question	-	14 (100%)	13(100%)
No answer	-	05	-
Total of firms	-	19	13

At last, in Table 3, the study showed the geographic extent of the network of relationships for the development of innovation projects. The findings showed that 57% of firms located in Campinas and 70% located in Recife have experienced interactions within and outside the cluster and 29% of firms located in Campinas and 15% in Recife reported interaction experienced within the cluster only.

Table 3 Locations of Innovation Partners. Source: current study

Locations / No. of firms	Campinas	Recife
Within the cluster only	4 (29%)	2 (15%)
Outside the cluster only	2 (14%)	2 (15%)
Both (within and outside the clusters)	8 (57%)	9 (70%)
Total of firms which answered this question	14 (100%)	13 (100%)
No answer	05	-

5 Conclusions

Overall, the results of this study indicate that apparently innovative firms are also very active as far as networking is concerned. Firms in both locations seem to confirm that their interaction behaviour determine the level of firms' innovativeness. The findings showed that 100% of firms surveyed were engaged in innovation and interaction activities in order to develop their innovation projects.

Another finding revealed that firms interact with different partners in different locations which may lead to the conclusion that the level of interaction is not limited to geographic proximity.

These important findings seemed to be in line with Huxman (1996), Ahuja (2000) and Hunt et al. (2005) who advocated that firm's innovativeness depends on the increase of their interaction linkages, interaction with others enable to achieve competitive advantages faster, cheaper and with less risks and these interaction linkages happen mainly because of the perception of mutual gains respectively.

Finally, this paper seemed to conclude that: i. the level of firm's innovativeness is strongly influenced by their interaction linkages; ii. Interaction linkages are not restricted geographically and iii. despite spatial agglomerations seemed not to be the main locus of innovation partners, it is still relevant to the development of innovation activities, especially for micro and small sized firms; therefore, innovation seemed to be not a solitaire phenomenon restricted to the firm itself that may be appropriately fostered.

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A Dynamic Model for Evaluation of Sustainability of Brazilian Ethanol Production: Elements for Modeling

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Abstract: System dynamics is an approach to analyze the behavior of complex systems, such as the productive chains, strictly considering the inherent characteristics. This approach is based on mathematical concepts of nonlinear processes developed in mathematics and physics and consolidated in engineering. The concepts inherent in this approach assists in creating a mathematical model which represents a production chain by using computer simulation. Thus, the main objective of this paper is to present the formalization of the dynamic model of assessing the sustainability of Brazilian ethanol production, its borders (external environment) and the scenarios needed for a deeper understanding of relation of cause and effect, causal loops and diagrams of flows and stocks as a result of the awareness stage, with regard to understanding the problems involved, according to methodology known as design science.

Keywords: Ethanol; System dynamics; Sustainability

1 Introduction

1.1 Ethanol production in brazil

The Brazilian supply of ethanol grew in the period 1994-1998 when a crisis period began due to high inventory levels and drop in the domestic market. During this period the price of sugar in the international market has increased and consequently the supply of ethanol in the domestic market plummeted. With the fall in demand, the share of ethanol-powered vehicles decreased from 75.5% in 1985 to 0.06% in 1997, with high financial and tax costs. This picture has reversed since 2001, when ethanol engines began to be produced again. This trend has given rise to the emergence of a new ethanol industry since 2003 when entered the scene with flexible fuel engines.

Brazilian sugar and ethanol industry gathered in the biennium 2012/2013, 602 million tons of sugarcane by 8.5 million hectares. Production accounted for 38.8 million tons of sugar and 23.9 billion liters of ethanol. This represents a share of 41.8% in the total world production of ethanol, estimated at 49 billion liters. It is expected that Brazil bend the growing area of sugarcane in the next twenty years reaching a production of 40 billion liters of ethanol.

Despite the picture above, the ethanol produced from sugarcane has turned recently the subject of intense attacks by European authorities. They see the expansion of biofuel production around the world the reason for a rise in food inflation. The United Nations (UN) sentenced the biofuels, with the Special Rapporteur statement to the High Commissioner for Human Rights, that mass production is a crime against humanity for its impact on world food prices. According to Oliveira (2009), through the expansion of biofuels remains follow in question: what are the consequences for food production in Brazil with the expansion of the sugarcane crop in the next 20 years?

Data from the Brazilian Institute of Geography and Statistics (IBGE), between 1990 and 2012, show that the reduction of food production, imposed by the expansion of planted area of sugarcane, grew in this period, more than 2.7 million hectares. Taking the municipalities that had the expansion of more than 500 hectares of sugarcane in that period verify that there was reduction of 261 thousand hectares of beans and 340 thousand hectares of rice. This reduced area could produce 400,000 tons of beans, ie 12% of national production, and a million tons of rice, equivalent to 9% of the country's total. In addition, in these municipalities the milk production was reduced to 460 million liters and the amount of cattle was reduced by more than 4.5 million.

Despite the production of ethanol is being studied in various universities, research institutions, government agencies and the private sector, regional production and distribution characteristics have not been sufficiently addressed in research, but are essential to assess the risks and the consequences of such expansion in the environment and in food production.

The picture above associated with the fact that the simulations make it possible to observe the risk factors more clearly than it is possible in real scale, given the complexity of the production-distribution

processes, justifies the development of a dynamic model of production based on dynamic ethanol system. In this simulated microcosm becomes possible to isolate the effects and causes more easily than when engaged by the complexities of the real world. (WARREN, 2008).

1.2 Application of system dynamics to sustainability studies

The system dynamics is an approach to analyze the behavior of complex systems, such as supply chains, strictly considering the inherent characteristics. This approach is based on mathematical concepts of nonlinear processes developed in mathematics and physics and consolidated in engineering. The concepts inherent to the methodology aid in the creation of mathematical models representing the productive chain may diagnose problematic points in chain structure using computer simulations employing an easy to understand representation.

Agarwal and Shankar (2008) argue that due to the causal relationship, existing in the production system, the approach of dynamic systems is well suited to capture the impact of the dynamic performance of the variables on the integration and responsiveness of the production system in a given time interval.

Researches on systems dynamic applied to sustainability studies are divided into three major groups:

- 1) Researches that contribute to the construction of theories about sustainability;
- 2) Researches using the system dynamics in solving sustainability problems;
- 3) Researches working in the development and improvement of modeling tools in sustainability.

The research of Chichakly and Eberlein (2013) is a typical example of the use of systems dynamic in theory construction. Studying IT service industry Minis et al (2010) proposed a new theory for the virtuous and vicious cycles, using an exploratory causal model to describe the interrelationship of the key success factors.

Morecroft (2007) uses the dynamic systems to solve strategy problems by developing a strategy management model for simulating several scenarios. Cha, Pingry and Thatchen (2008) investigated the amplification of demand in supply chains.

Research on the development and improvement of modeling tools in dynamic systems are an example in the work of Howick and Eden (2004) that studied the nature of discontinuities in system dynamics modelling of disrupted project. Another paper on the line is Arango and Osorio (2009), which considers also the technical, organizational complexity inherent to the system dynamics model for the world coffee market.

1.3 Research aims

The main aims from this study are to:

- 1) Identify the main variables, flows and stocks and the causal relationships of sugarcane, sugar and ethanol production processes;
- 2) Explore how the production of ethanol in Brazil is increasing and how this production is impacting food production;
- 3) Apply the modeling and simulation in system dynamics in ethanol production system.

The knowledge generated by this study allows for a more thorough discussion of the ethanol production impacts both on the environment and on food production as well as being the basis for the development of the equations that describe the behavior of variables and stocks that are at the root of the simulation process. The study concluded that beginning with the identification and characterized the elements for modeling and working with different scenarios simulation is better to understand the degree of sustainability of ethanol production.

Thus, the main objective of this paper is to present the formalization of the dynamic model of assessing the sustainability of Brazilian ethanol production, its borders (external environment) and the scenarios needed for a deeper understanding of cause and effect, causal loops and diagrams of flows and stocks.

2 Methods

The methodological framework of the study consists in the selection and justification of a method that is able to respond to the formulated research problem, to be evaluated by the scientific community and demonstrate procedures that make robust research results. These logical steps should not be seen as obstacles to the conduct of research, but as procedures necessary to ensure the impartiality, accuracy in work driving and the reliability of results. Thus, this research adopts the methodology the science design. As this research seeks to develop an artifact (dynamic model) to design science proved to be an appropriate methodology, not only dealing with the construction of an artifact but also requiring the

application of rigorous methods, both in construction and in the evaluation of the artifact design. Accuracy is often measured by the adherence of the research to an appropriate collection of data and the correct technical analysis.

To identify the variables to the model and the causal relationships, was conducted an interview during the months August and September of 2014, with a group of ethanol producers of local productive arrangement of alcohol (APLA) in Piracicaba, SP. The analysis of these interviews has concluded awareness stage with regard to the understanding of the problems involved, according to the design science methodology. Romme and Damen (2007) argue that it may be necessary to understand the issues from a broader perspective, in which systems thinking (Andrade et al., 2006), for example, could bring a significant contribution.

3 Results and Discussion

In this section we discuss the overview of the model, the causal loop diagram, the diagram of stocks and flows of ethanol production and simulation scenarios. It is used to visual system dynamics modeling tool Vensim®, software provided by the company Ventana System Inc., which enables the analyst to link words with arrows representing relations between the variables as causal relationships. The stock diagram and flow in Vensim® consists of auxiliary or constant, cash variables that represent actions or accumulations. This information is used by the equation editor to complete the modeling process.

3.1 Overview of the model

In the model, sugarcane production is considered as the most important production source, while the production of ethanol and sugar is the second level and the generation of solid waste and wastewater is the third level. The figure 1 is a schematic representation of product flows and inventory information associated with ethanol production. The model doesn't include the second-generation ethanol production, from sugarcane bagasse, because the amount of ethanol produced with this technology is small and doesn't influence the data for simulation.

The availability of land for planting is treated as being shared between sugarcane and food production, that is, it is considered a finite availability of land so that an increase in planting sugarcane implies the reduction in food crops. These increases and decreases are influenced by the planted crop productivity level. The amount of ethanol to be produced is influenced by the production of sugar, which competes in the consumption of sugar and productive resources, as well as by the level of consumption of other types of fuel such as gasoline and vehicular natural gas, in addition to suffering influence of investments in production and distribution infrastructure.

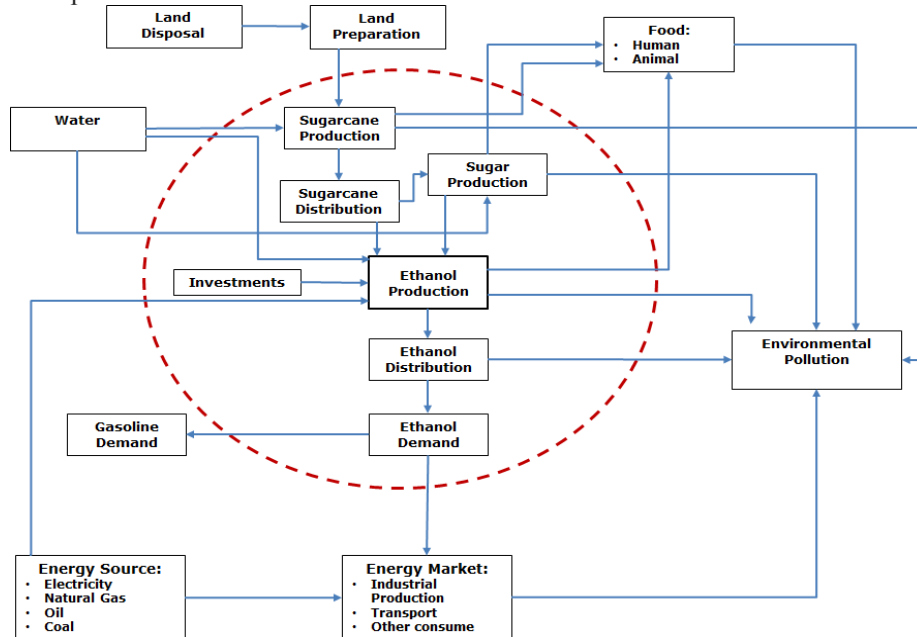


Figure 1 Overview of the Ethanol Production Model

3.2 Modeling

Modeling a system using the system dynamics is interactive and it's an ongoing process of formulating hypotheses, testing and review of formal mental models. According Sterman (2000), in modeling process a few steps should be considered, such as:

1) Problem Articulation - What's the problem? Why this problem? What are the key variables and concepts that should be considered? What time to be considered to the future? What is the historical behavior of the concepts and key variables?

2) Formulation Dynamics Hypothesis - Produce initial hypotheses, formulate hypotheses to explain the dynamics and consequences of endogenous feedback structure, develop maps of causal structures based on initial assumptions, key variables and other data available;

3) Formulation Simulation Model - Specification of the structure and decision rules, parameter estimation, behavioral relations and initial conditions, tests for stability with objectives and limits;

4) Testing – Does the model adequately reproduce the proposed behavior? Does the model behave realistically when subjected to extreme conditions? What is the sensitivity of the model?

5) New Policies and Evolution - What environmental conditions may arise? What new decisions, strategies and structures can be experienced in the real world? How can these new scenarios in the model be represented? What is the robustness of the recommended policies for different scenarios, considering the uncertainties? How policies interact? Are there any common actions or compensatory responses?

3.3 Simulation

From the perspective of system dynamics, any system natural or artificial, can be described through a language composed of four elements: stocks (levels), which represent accumulations of a resource; flows, which are the activities that produce growth or reduction of inventories; converters that process the information regarding the stocks and flows or represent sources of external information to the system; connectors which are coupling elements of information describing the relationship between stocks, flows and converters. In order to provide a simulation model behavior, it is sufficient to define the relationship and the value of each variable at time zero of the simulation, using for this the features available in the system dynamics software.

According to Agarwal & Shankar (2005), the performance of a supply chain depends on the integration of its trading partners and the ability to respond quickly to market changes. By simulating, the model for assessing sustainability of Brazilian ethanol production wants to evaluate the effect of integration and speed of response to changes in sustainability. The dynamics of interactions between the variables related to the integration of cause and effect and speed should show the importance of the behavior of sustainability in different ethanol production scenarios (represent market changes that require quick responses).

3.4 The causal loop diagram

This diagram shows the interactions and relationships between ethanol production, land use and water consumption, production of sugarcane and sugar. The figure 2 displays the causal loop diagram of the ethanol production system and the factors of influence. The diagram consists of multiple loops that show, for example, the production of sugarcane, sugarcane price, the government tax incentives, demand for ethanol and gasoline prices affect the production of ethanol.

Thus an increase in ethanol production influences reduction in the price which can increase the demand resulting in the increasing of the price. But an increase in the price reduces the demand for ethanol, hence the negative polarity of the link arrow. Once you have a reduction in the price of ethanol, there will be an increased demand for ethanol followed by the gap between the demand and supply of ethanol respectively. This can lead to both an increase of investment in ethanol and more allocation of sugarcane to produce. An arrow closes the cycle of positive polarity since an increase in the allocation of sugarcane to produce ethanol mean an increase in ethanol production. This cycle is an example of a positive self-reinforcing process.

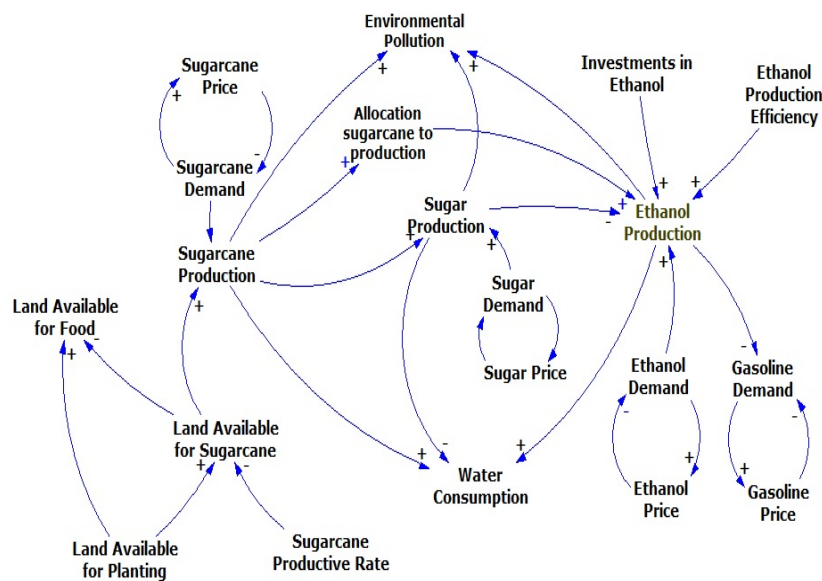


Figure 2 Conceptual Model of Ethanol Production

However, the cycle would be prevented from increasing the levels of each factor indefinitely because other factors beyond the loop, as the ethanol demand influence the price of ethanol. Gasoline demand also influence the demand for ethanol too.

Another example, an increase in yield obtained with the production and commercialization of ethanol positively affects new investments for the production of ethanol increases and the allocation of sugar for ethanol production. The effect of this is to increase ethanol production and decrease the price of ethanol by the forces of supply and demand. An ethanol lower price may reduce the profitability affecting investment levels. This subsystem tends to be inherently unstable if the acting forces do not take the self-regulation condition.

From the causal loop diagram is noticed that relevant factors for ethanol production level as investments in production, allocation of sugarcane production and profitability has a degree of dependence on production efficiency, the price of ethanol and sugar production, the availability of land for planting that can profoundly affect the needs for food and water production growth becoming unsustainable at expected levels.

3.5 Stocks and flows diagram

The equations that demonstrate the relationship between factors will be built on the basis of production data and investments of sugar and alcohol sector provided by the Department of Agriculture of the State of São Paulo, by the Council of sugarcane producers, sugar and Alcohol of the State of São Paulo and the Ministry of Agriculture.

The model is built considering four steps. The first step is the focal element ethanol and describes the dynamics of supply and demand, or deal with the production, storage and distribution of ethanol. The second stage, additional production, comes from sugar production model as a product substitute for ethanol production. The third step deals with the modeling of water consumption at various stages and land used for the production of sugarcane and food. The fourth step models the dynamics of capital, costs and investments. The forecast period begins from 2016 and extends until 2035. With this information it's possible not only to simulate the dynamic behavior of the production of ethanol, sugar and sugarcane as well as evaluate the impacts on the environment, water consumption and production foods, as illustrated in figure 3.

The flow diagram of inventory threats not only the direct demand for ethanol as well as indirect demand processes resulting mixture of ethanol and gasoline constituting a "pull" system in which the pulling is demand production. On the other hand, sugarcane harvesting system is modeled as a system "pushed" in which the sugarcane is harvested and destined for processing. In the case of the demand for sugar is less than the expected, there is no formation of a reserve stock for a short period of time to keep it in delaying the harvest field. If demand is greater than expected and the plants have available

production capacities, as there is no training of reserve stocks, you can bring sugarcane from other states since the price and shipping cost offset. In this case, the availability of sugar would be the limiting factor for ethanol production.

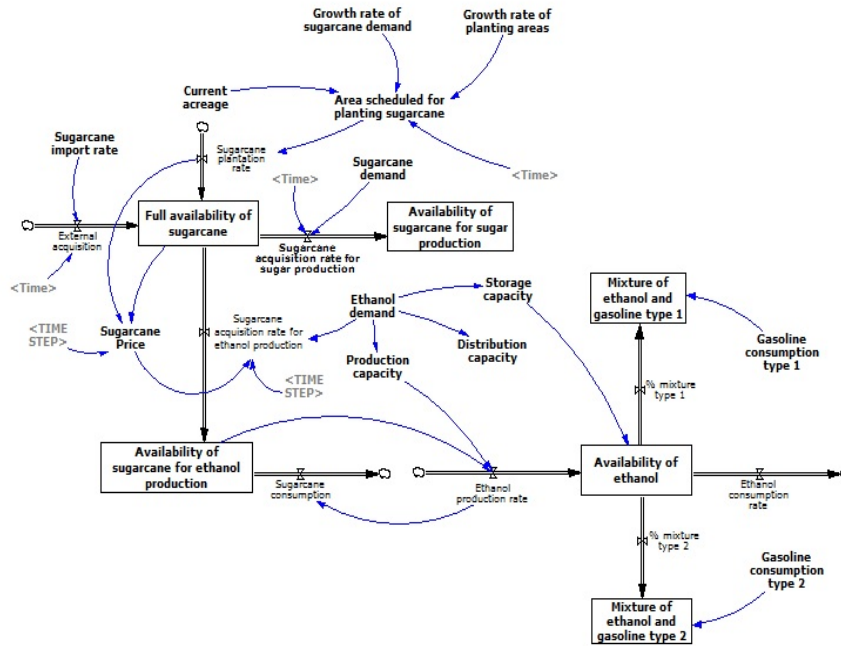


Figure 3 Stocks and Flow Diagram

The demand of sugarcane for other purposes or sugar production and other industrial applications is shaped according to the projection. The sugarcane allocated to ethanol production depends on the demand, availability and price which in turn depend on the rate of acquisition of sugarcane for ethanol production. If the acquisition rate increases, the price rises and vice versa.

The diagram of stocks and flows also considers demand for ethanol and production capacity increase in the plants in proportion to the amount of sugarcane harvested, increasing the demand of growing areas, occupying spaces before intended for food crops such as rice, beans and corn. Investments in improvements in productivity to obtain the highest percentage of sucrose, exceeding 9% margin, allow the increase of ethanol production without an increase in the same proportion planted areas. This will appear in the diagram as a mitigating factor for consumption land available for planting.

One answer that is expected with this production simulation model is to evaluate how long production remains sustainable in the face of growing demand for ethanol.

3.6 Computational model

Once modeled in Vensim® the causal loop diagrams and charts of stocks and flows, the computer model will require the introduction of the equations that will govern the causal relationships of the different variables used and the definition of simulation parameters such as unit time to be used and the simulation horizon.

The simulation will work with a set of scenarios to assess the behavior of the variables and the sustainability of production. In the simulation three scenarios apply: an optimist, a pessimist and more likely. In the first scenario, it is assumed that the first period of 120 months, changes in demand and other factors have stable growth rates. In the second scenario, it's introduced changes in production capacity in the plants, oscillating demand for ethanol, water scarcity and fluctuations in the price of the final product, while the other factors remain unchanged. In the third, it's contemplated a scenario in which demand, production capacity, price and production of sugarcane tend to stabilize in the second half of the simulation time.

The computer model allows the interface with other tools such as geographic information systems to display the variations in plantation areas in the form of maps, as well as promote and export data for processing by other computational tools.

4 Limitations of study

This article discusses the use of system dynamics modeling to model the problem of sustainability of the ethanol production system. The system dynamics modeling appears to be a useful tool for creating scenarios for such problems. However, this article considers some limitations to the use of this specific tool for modeling ethanol production. These limitations are highlighted by the ideas of system theory and by complex science (BOSSEL, 2007). There are also fundamental limitations to the correct prediction of the sustainability of ethanol production in the next twenty years, which are made clear by critics from of current production system (DeTOMBE, 1994) and chaos theory (GLEICK, 1987). These restrictions, however, do not set aside the importance of modeling and simulation tools as aid in understanding of dynamic phenomena such as sustainability.

5 Conclusion

As Mendonça (2007) pointed out: “Not long ago, biofuels were seen as an alternative to save the planet from carbon dioxide accumulation and excessive dependence on oil [...] representing a new era, the era of clean and environmentally sound energy [...]”. But, with so many contradictions, “[...] the wind shifted radically. Biofuels, almost overnight, is being considered the villain of the planet, responsible for the current food crisis, by soaring prices”. That is to say either you feed machines or you feed human beings.

This paper in particular tries to formalize a model for assessing the sustainability of ethanol production, its borders (external environment) and satisfactory solutions necessary to study the Brazilian ethanol production, its effects on the environment, food production and water consumption and future trends in three different simulation scenarios. The model considers that the importance of energy independence cannot be overestimated. Oil prices are expected to grow in coming years, as reserves are depleted and the remaining oil extraction process becomes more expensive. Ethanol is a biofuel which has an excellent history of use and relative ease of production as the basic raw material is sugarcane which can be easily cultivated. As a result, sugarcane production is expected to increase and more processing plants to be set up.

Improvements in farming technology are expected to increase productivity per hectare. However this increase may mitigate but not stop the increase in sugarcane growing areas and hence bring significant reductions in food production with serious implications for the use of sugarcane as an alternative form of energy.

The use of modeling let to work with simulation scenarios and conditions where it is possible, given the initial conditions and the quality of the model, assess what would happen to the ethanol industry if ethanol prices change in response to the availability and supply of alternative energy sources for transportation or what would happen to food prices if ethanol demand continues to grow at an increasing rate. The model should be able to allow to consider changes in: planned production of sugarcane, prices of sugarcane, capacity, demand and other factors relevant to the industry that may lead to become business continuity unsustainable, either by lack of water resources or by the need of production and food for a growing population.

To be useful models depend on quantity and quality of data used in their construction, understanding of the analysts and the inclusion of important and relevant factors. Brazil is the leading producer of large-scale biofuels and, maintaining this leadership depends on largely sustainability of ethanol production. As such, an evaluation model of sustainable production will be useful to explore the changes in market trends, assessment of impacts of new technologies of production and genetic improvement of sugarcane that may help developing a research instrument framework for the assessment of the future impacts of biofuels production in Brazil.

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Mapping Basic Needs Economic Development, Progress and Sustainable Development at the Iberoamerican Region

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Abstract: This article studies the performance of 132 countries ranked in 3 Regions – Iberoamerican Region(AIBER), AVECO Region (more developed countries) and OTHERS Region (less developed countries) analyzing indicators related to Basic Needs: Food, Water, Electricity, Energy. Basic Needs Conditions are closely interconnected, reflect development conditions, and may be monitored and analyzed through a set of worldwide country indicators; so they may help for a Regional Diagnosis as well as for Developing Strategic Planning. As a matter of fact the study suggests that even countries with low GDP may still improve food quality through increased investment in food production; so that appropriate public policies may find ways that lead to improve quality of life with food, water and energy where is more needed at The Iberoamerican Region. All this may Foster Sustainable Development locally and Globally speaking..

Key words: Food; Water; Electricity; HDI; Iberoamerican region

1 Introduction

The increase of the population living in big cities show that problems with the lack of clean water and food are linked to other problems such as lack of economic growth, employment, income distribution and sustainable development.

Food, water and energy are vital elements for livelihood at any place around the world. But still today one in eight people in the world were estimated to be suffering from chronic hunger. Moreover according to the UN-Water one in 9 people do not have access to safe and clean drinking water and almost 2.5 billion do not have access to adequate sanitation.

The countries of Ibero-America were colonized and have gone through many times of political instability and therefore not were able to form a satisfactory structure for the population. Today it is still very common to find people living in different countries of the region without clean water, sanitation, food in quantity and quality to have a happy life.

The difference inside the Iberoamerican Region is great when we consider the indicators food, clean water, economic growth and sustainable development. For example, Chile has economic development indicators better than Bolivia, Ecuador and Brazil in many ways. The size of the country and the internal cultural diversity are factors that affect the overall framework for evaluating economic development. In this sense, Brazil has a disadvantage because of the size of its territory, the cultural difference between people from one state to another, use of natural resources and this is seen in the HDI indicator - Human Development Index.

Only the territory size does not justify the low score of the indicators and the actual effects on the life of a population. When we approach the food issue, we must consider what other resources are necessary and must be used to produce food. For example: electric power, water, labor, machinery and equipment to prepare the land for planting and harvesting, transport and storage. Food, water, energy electricity and GDP – Gross Domestic Product – are closely interconnected regarding development conditions; and may be analyzed and monitored through a set of available indicators, as may be shown through this paper.

The use of natural resources and the creation of means for production of more food should be a priority for a good policy of government. Investing in education and manpower training to work in the field, learning how to use the agricultural equipment to better enjoy their potential are some measures that improve the result of food production.

Hélder Muteia representing the United Nations Food and Agriculture Organization (FAO) in Brazil states that in a global economic crisis situation, the demand for food of a population expected to reach 9 billion by 2050, imposes global leadership challenge to increase agricultural production in a sustainable way. "It will not be easy. To answer this demand, global food production must grow by about 70%."

The public policies must meet the growing demand for food and investments in other sectors that are the basis for agricultural production. In this regard, governments should have policies of economic growth with investments in various areas so that people can have more food, treated water, electric

power and other benefits.

The paper shows that basic needs all over the region have been improved along the time, but that there is still a long way to go and there is more and more a greater need to care not only about quantity but also about quality of products and processes if we think on Regional Sustainable Development.

2 The IberoAmerica Region

In this study, the IberoAmerican Region (21 countries) includes Portugal and Spain that left strong socio-cultural roots in the Latinamerican Region.

There are many differences between the region's countries as territory size, number of inhabitants, the availability of natural resources and wealth. Thus, we can cite the case of Chile which has a copper reserve that is a natural wealth and the basis of its economy, Venezuela has the oil as the basis of their wealth and Brazil that have natural wealth with availability of sun and water for agriculture but with problems because of the size of its territory which creates logistical problems for the transport of food and its storage.

More recently the United States and Cuba are getting closer so that should increase investment in various sectors because of the economic gap with the end of the economic embargo that was imposed to Cuba in the past fifty years.

2.1 Water and food production

The world agricultural production has tripled in the last 50 years, mainly due to higher productivity per unit of land and intensification of crops. The overall supply of food per capita increased from 2,200 kcal / day at the beginning of the 1960 to more than 2800 kcal / day in 2009. In 3370 kcal / person / day, Europe currently has the highest rate per capita average supply food. The cereal production occupies more than half of the cultivated area worldwide and is the most important source of food for human consumption. Of the 2.3 tons of cereals each year, 1 billion is intended for human consumption, 750 million tons are used for animal feed and 500 million tons are either processed by industry, used in food or wasted (FAO, 2013).

Although water is an easy product to be obtained in some places on earth, the most populated cities it has been more difficult to find. This fact is because there was a population growth unchecked in these cities and water resources was difficult to be treated to be redistributed again, because there was no natural water easy to be obtained and abundant. It is necessary for all human beings, plants and animals. For washing and cleaning in general, to cooking, maintaining the hydrated plants and eliminating thirsty animals.

Many regions in the world are increasingly facing water scarcity which constraints agricultural production and limits the incomes and livelihoods of many residents in rural and urban areas.

Both in cities and rural areas is necessary to invest in water treatment and sanitation facilities for obtaining pure and natural water is increasingly difficult. Therefore, it is necessary to invest in water treatment for it to be used several times by humans. Investments in drinking water supplies, water quality, sanitation and health care to focus on, especially women and children are essential to ensure urban and rural residents can fully use food and nutrition available. Sanitation and health will improve the effects of chronic diseases and other impediments to the welfare of families and education and increase productive opportunities (WORLD WATER COUNCIL – FAO, 2015).

Water security and energy, transport, food, land use and the environment. In a changing world (from population growth, economic dynamics, and climate change) we need flexible multi-purpose infrastructure (OECD, 2015).

2.2 Electricity

Electricity can be generated by water from fossil fuels by means of nuclear reactors, using the sun or the wind. In countries where water is abundant, they are built large plants with reservoirs in the form of a large lake for generating electric power. This can be a problem if not have a plan to avoid the lack of water for consumption when you have a drought or problems with flooding when the rainy period.

As the water is intended for agriculture and for human use, the construction of an electricity generation plant should be planned also predicting impacts on the environment because of the need to build large water reservoirs to move the turbines that will generate electricity.

Water, electric energy and food production are directly related and interdependent. The production of energy from water must be carefully managed because it can consume all existing water and not be left for food production and therefore we cannot eradicate hunger in the world (FAO, 2013). Reports indicate that 1.3 billion people lack access to electricity, 780 million people worldwide lack access to

safe water and 2.5 billion sanitation services.

2.3 HDI - Human Development Index and GDP-Gross Domestic Product

The Human Development Index (HDI) is a summary measure of long-term progress in three basic dimensions of human development: income, education and health while the gross domestic product (GDP) considers only the economic dimension of development. The Latin American region has HDI better than OTHER regions but it does not have better data that Advance Economies AVECO region where they are countries like Denmark, Germany, Japan.

GDP shows the total of domestically produced goods in one country and the higher the better economic activity to generate employment, income, the greater the supply of goods and services. On the other hand, the increase of GDP requires the use of more production resources. If production resources are employed in increasing the production of goods and services without planning and adoption of renovation policies of the funds, the company may have problems with the shortage or total exhaustion.

Between 1980 and 2000 world GDP significantly increased because of greater trade liberalization and participation of emerging countries. In this period, world GDP grew tenfold while exports have increased more than thirty times and this is due to the fact that countries such imports made by Canada and Japan for products that are produced in China and Mexico, for example and that have low production cost.

Table 1 Average Growth in% of GDP in 1980, 1990 and 2000 Selected Regions

Região	1980	1990	2000
World	3.2	2.9	4.0
Developed countries	3.0	2.7	2.4
Emerging Countries	3.5	3.3	6.4
África	2.6	2.3	5.6
Central and Eastern Europe	2.1	1.2	4.9
Commonwealth of Independent States and Mongolia	3.5	- 4.8	7.4
Developing Asia	6.8	7.3	8.1
Middle East	1.4	4.4	5.4
Latin America	2.1	3.0	3.6

Source: Parkin, 2009

The GDP growth of the regions shown in Table 1 shows the intensification of international trade in emerging countries, Africa and Middle East. The highlight is the global growth in 1990 to 2.9% and then 4% in 2000. Another important highlight is emerging that goes from 3.3% in 1990 to 6.4% in 2000. The Commonwealth of Independent countries and Mongolia leaves a negative growth in 1990 of 4.8% and less goes to 7.4%.

As for Latin America countries such as Chile, Venezuela, Colombia, Argentina, Mexico and Brazil the momentum of the trade (exports plus imports) have transformed the structure of the economy with growth of the order of a hundred percent order from 3.3 in 1990 to 6.4 in 2000; at the same time exports of commodities from China, representing the Asian continent, was responsible for this new dynamic of international trade numbers (PARKIN, 2009).

3 Methodological Procedures

For the purpose of analyzing how the Iberoamerican Region as a whole is doing regarding Basic Needs the present study compares present related development conditions of three Regions: The Iberoamerican Region (AIBER) with 21 countries, an Advance Economies Region (AVECO) with 27 countries and the rest or other countries (OTHER) with 84 countries. The study begins with an exploratory descriptive data analysis to understand behavior and relationships among indicators related to basic needs such as food, water, electricity, energy using a table with a total of 132 countries for this purpose. Regions were compared using ANOVAs to determine issues(indicators) that were more relevant to differentiate the selected 3 Regions around the world, based on the *Knoema* statistical database that allows us having a better vision about the worldwide situation today in particular regarding Basic Needs(CRESWELL, 2103).

4 Analyses and Discussion of Results

4.1 Analysis of 132 countries

After some statistical analysis eight variables were selected as more representative such as Depth of food deficit (calories / undernourished person), Access to piped water (% Of pop), Rural vs. Urban access to improved water source (absolute difference between (% of pop.) Access to improved sanitation facilities (% of pop.) Access to electricity (% of pop.), Quality of electricity supply (1 = low, 7 = high) Renewable internal freshwater resources per capita (cubic meters). Besides these Analytic Variables some Synthetic Indicators were also included in the analysis: SPI - Social Progress Index, HDI - Human Development Index, Governance index, EPI - Environmental Protection Index, HPI - Happy Planet Index, OHI - Ocean Health Index, GINI Index, EV - water resources. Figure 1 shows how these variables are intercorrelated.

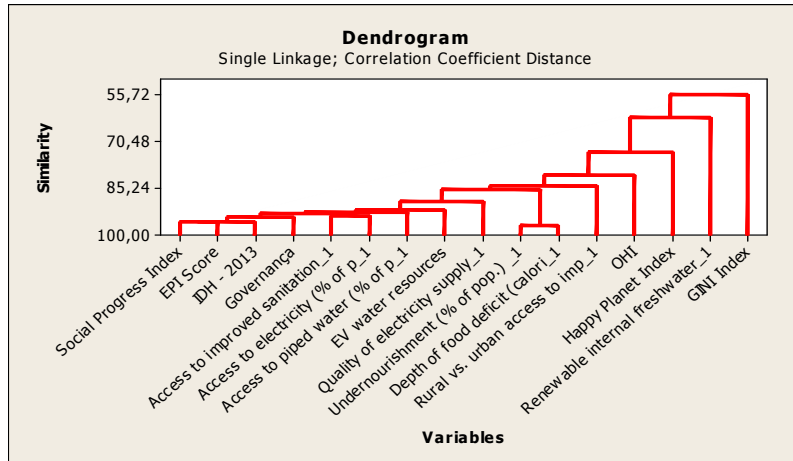


Figure 1 Intercorrelations Among the Variables

This figure 1 show in particular a high degree of behavior similarity among the variables: SPI, EPI, HDI, Governance, Access to improved sanitation, Access to piped water and Access to electricity. Moreover SPI, and HDI are very closely related, so for practical purposed one may simply use this last one that is simpler and have a longer data history, and actually both are basically dealing with Social Conditions.

Table 2 ANOVA Comparing Means of the 3 Regions: AIBER, AVECO and OTHERS; As well as Fs for the variables - All variable were Normalized (0 - 100), and Positivized (the higher the better)-

3R	HDI	EPI	HPI	OHI	ELECTR	EVWATER	FOOD	GOV
AIBER	65.92	52.7	72.36	61.57	92.81	20.15	79.82	42.48
AVECO	87.36	81.39	50.58	73.15	99.73	79.35	97.88	83.25
OTHER	46.74	37.95	41.79	63.2	66.42	13.1	70.18	33.36
F	43.45	69.68	22.69	29.45	15.48	119.91	15.16	97.02

Table 2 helps to compare the 3 Regions. The higher the F the higher the difference among the 3 Regions; so that one can to what extent see that the Synthetic Indicators Governance (GOV) and EV Water Resources (EVWATER) are the ones that make more difference; this last one in particular due to the fact that AVECO Region has a much higher value (79,35) than the other two Regions. As a matter of fact countries like Denmark, Germany, Japan, and United States differ a lot regarding EVWATER as compared to countries in Africa for example that are part of the OTHERS Region. This could be seen very clearly in Figure 2 that allows more easily to visualize differences and compare the regions observing where and how much do they differ each other in relation to each of these 8 dimensions.

This Figure 2 and Table 3 in particular, show that AIBER is doing even better that AVECO, when we are talking about the Happy Planet Index (HPI). This may be so due to the important fact of large forest areas in the region such as is the case of in the case of Brazil, Costa Rica, Dominican Republic; while other countries in place of forests have large desert areas like the case of North Africa region: Egypt, Morocco, Algeria, Libya, Tunisia, Mauritania, Mali, Sudan and Chad which is the Sahara desert.

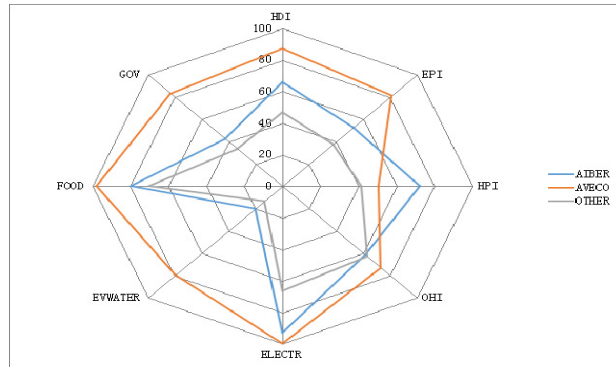


Figure 2 Means of the Regions: AIBER, AVECO e OTHERS

On the other hand no doubt more Advanced Developed Economies (AVECO) shows better conditions regarding: HDI, EPI, Food and Electricity. As matter of fact Access to Electrify shows values for AIBER and AVECO regions much higher than the OTHERS Regions although the F value is small (15,48) which is due to a large variability of this variable within the Regions itself. This variable seems to indicate shows that there is power supply to the grid of the population but it may not be constant or lack quality of supply. For example, the countryside that exists in much of the OTHERS region that concentrates the countries of South Africa, Tanzania, Togo, Mozambique and Liberia still don't have energy supply for everyone.

Table 3 ANOVA Comparing the 3 Regions Using the Happy Planet index (HPI)

One-way ANOVA: Happy Planet Index versus REGIAO					
Source	DF	SS	MS	F	P
REGIAO	2	15846	7923	22.69	0.000
Error	129	45048	349		
Total	131	60894			

S = 18.69 R-Sq = 26.02% R-Sq(adj) = 24.87%

Individual 95% CIs For Mean Based on Pooled StDey

Level	N	Mean	StDey	-----+-----+-----+-----+
AIBER	21	72.36	16.25	(-----*-----)
AVECO	27	50.58	12.84	(-----*-----)
OTHERS	84	41.79	20.68	(---*---)

-----+-----+-----+-----+
48 60 72 84

However, and as its shown in Table 4 regarding Care for the environment - EPI - Environmental Protection Index, AIBER is nearest the Region Other in the range of values between 45 and 60, while the AVECO region is doing much better distant and very near 90 in the interval between 75 and 90. of the countries in the Latin American Region the individual data shows that El Salvador, Paraguay and Peru with the worst indices close to 36%. In this region are the best: Ecuador, Costa Rica and Chile.

Table 4 ANOVA Comparing the 3 Regions Using the Environmental Protection Index (EPI)

One-way ANOVA: EPI Score versus REGIAO					
Source	DF	SS	MS	F	P
REGIAO	2	38872	19436	69.68	0.000
Error	129	35982	279		
Total	131	74855			

S = 16.70 R-Sq = 51.93% R-Sq(adj) = 51.18%

Individual 95% CIs For Mean Based on Pooled StDey

Level	N	Mean	StDey	-----+-----+-----+-----+
AIBER	21	52.70	14.31	(-----*-----)
AVECO	27	81.39	8.14	(-----*-----)
OTHERS	84	37.95	19.06	(-----*-----)

-----+-----+-----+-----+
45 60 75 90

Last, but not least, The Human Development Index HDI, as an essential leading indicator, clearly shows how the population is doing regarding basic social conditions. Table 5 shows that the AIBER is very well in the middle between the worst (OTHERS) and the best region (AVECO). Among the Countries that are doing worst are Pakistan, Yemen, Angola, while among the ones that are best examples we do have Sweden, Switzerland, Norway, New Zealand. All in all AIBER is not doing that bad but we still has a long way to go.

Table 5 ANOVA Comparing the 3 Regions Using the Human Development Index (HDI)

One-way ANOVA: IDH – 2013 versus REGIAO					
Source	DF	SS	MS	F	P
REGIAO	2	35137	17568	43.45	0.000
Error	129	52155	404		
Total	131	87292			

S = 20.11 R-Sq = 40.25% R-Sq(adj) = 39.33%

Individual 95% CIs For Mean Based on Pooled StDey

Level	N	Mean	StDey	-----+-----+-----+-----	
AIBER	21	65.62	12.03	(-----*-----)	
AVECO	27	87.36	11.35	(-----*-----)	
OTHERS	84	46.74	23.52	(-----*-----)	

-----+-----+-----+-----+-----
45 60 75 90

5 Conclusion

The Base of the Maslow’s Hierarchy of Needs Pyramid are the Physiological or Basic Needs, which in fact is very close to the next level related to Security Needs; so if one really wants to help overcoming basic human challenges in developing regions, it’s important to start from there and see how are they doing and what and where there is a greater need to improve.

This study of the performance of 132 countries of the 3 Regions – Iberoamerican Region(AIBER), AVECO Region (more developed countries) and OTHERS Region (less developed countries) is based on the analysis of indicators related to the Basic Needs of Food, Water, Electricity, Energy.

Basic Needs conditions are closely and systemically interconnected, and reflect development conditions; moreover they may be monitored and analyzed through a set of worldwide country indicators that may help for a Regional Diagnosis as well as for improving Strategic Planning.

For this purpose the indicators used on this paper shows that: a) Even countries with low GDP may still improve food quality through increased investment in food production; b) Appropriate public policies may lead to increased quality of life with food, water and energy; c) More and more is necessary to increase not only quantity but also quality of products and processes, particularly when thinking more systemically on Sustainable Development. Hence Growth may help to raise incomes and reduce hunger, but higher economic growth may not reach everyone or even if does, there may situations where or when this doesn't necessarily means a higher quality livelihood; moreover it may not lead better work conditions for all, unless policies specifically target social inclusion processes, especially in relation to those still living in rural areas. In poor countries, hunger and poverty reduction will only be achieved with growth that is not only sustained, but also broadly shared. More specifically this paper shows that even though basic needs at the Iberoamerican Region may have being improved along the time, there is still a long way to go and there is an increasing need to be concern, for Local and Global Sustainable Development Reasons, to take care not only of quantity of Basic Needs but also of Quality of Products and Processes, for present and Future Generations.

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Renewable Energy Sources in Developing Countries: Challenges and Opportunities for a Sustainable Development Agenda

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Abstract: A renewable energy matrix plays a fundamental role in providing energy services in a sustainable platform and, particularly, to reduce climate change on a global basis. However, alternative energy sources usually poses extra challenges to adopters due to higher costs, mainly in the developing and emerging countries where: 1) basic needs still remain to be covered, and 2) top technologies, such as the required in those initiatives, are likely not to be promptly available. This article aims to verify the status of the current renewable energy sources contribution to the regular energy systems of some countries across the Latin American region as a measure to reduce the adverse impact over the average temperature and extreme climate events. Latin America, despite its vast territory and considerable availability of natural resources – which could well place the region in a leading position in terms of alternative energy – is still in the early stages of having the mindset and infrastructure required to respond to the current environmental challenges. This exploratory study compares the database of renewable energy and climate change drivers of some Latin American countries, seeking to verify similarities and differences, as well as the possible effect of strategies and government policies, barriers and issues in the generation of an energy system that support the region economic growth while following the key principles of sustainability. For our research, we use Multivariate Analysis based on a large set of available and updated open public indicators to establish critical areas and regional progress. The main finding is that, if not at length comparable to the leading EU countries and other advanced economies in the matter, some countries in the region have been presenting important advances to date, being able to combine economic growth to friendly-environmental practices – often a hard equation to solve – while others, on the contrary, stay behind in sustainable practices. Most importantly, at last, is the highlight of initiatives that stand out as positive examples having helped mitigate the environmental burden, clearly pointing towards solutions to the challenge of having sustainable development inclusive practices in the Latin American region.

Key words: Climate change; Renewable energy; Sustainable development; Latin america

1 Introduction

Energy is considered, on a worldwide basis, as essential to the development of a nation. From the five modern energy sources: petroleum, coal, natural gas, nuclear energy and hydro-electricity, only the last one is renewable; however its use is still relatively concentrated in some countries. With the advance of technology, electricity became crucial to keep the urban life standards.

For many decades, and especially in the years of 1970 and 1980, the governments concern and focus towards energy were chiefly economical. In that time, in many countries there have been key investments in energy infrastructure works such as hydroelectric power plants, transmission networks, and water reservoirs.

According to the site *Sustentabilidades*, the global consciousness and concern about the environment has gradually evolved internationally and can be summarized by some landmarks. It started more strongly in the 1970's, with the Stockholm United Nations Conference about Human Environment (1972), and moved on with the United Nations World Committee about Environment and Development (1983), the Rio Summit Agreements (1992), the Kyoto Protocol (1997), and Rio+20 (2012). Despite such events comprising many countries, the ones that have a full adhesion and signed commitment with clear targets to reduce emissions are the European Union members, and a few other countries like Australia and New Zealand. A major country like the United States has not signed the Kyoto Protocol, for instance. The challenge posed to the Latin American countries, and possibly to other emerging nations, is how to promote country growth to raise the social and economic standards to the population while keeping a close eye at the environment – that means make use of the least invading and damaging practices as possible to conserve nature and the environment.

According to Coviello (2003), in the decade of 1990 the United States and the United Kingdom, following recommendations of international finance institutions, have privatized the state-owned energy companies, and as a result, there has been also some deregulation in the market in Latin America.

An event marked the 1990 decade: The writing of the Rio Statement on Environment and Development (Rio 92) and the Agenda 21 during the United Nations Conference on Environment and Development (UNCED), taken place in the Brazilian city of Rio de Janeiro, when it was discussed solutions for the sustainable development on a global basis.

Still in the same decade, it is worth mentioning some other events directed towards the promotion of renewable energy in Latin America such as the energy program of the National Commission for Energy Saving (CONAE) in Mexico, the National Program of Electric Energy Conservation (PROCEL) in Brazil, and the Andean Program for Energy Saving (PAE) no Peru. (COVIELLO, 2003).

Since then, the globalization and the economic and politic competition take the agenda of the nations, and the changes in the world's energy system are consolidated in the first half of the 20th century (Barros, 2007) considering: Globalization as a reality, The growing competition of national and corporate economies, The strategic importance of energy source available for competitiveness, The energy crisis, mainly driven by the limited petroleum production level that reached all nations, exposing the degree of external dependence, which led to a re-evaluation of competitiveness and development agenda.

2 Theoretical Framework

2.1 Petroleum

Petroleum keeps on being the largest and most important energy source for modern society. Besides providing the fuel used in the thermoelectric power plants, being still a key energy source, other fuels are petroleum-derived such as gasoline, kerosene, and diesel, used both in automobiles and in the industries. The chemical industries are highly dependent on petroleum, since products such as plastics, asphalt and synthetic rubber are by-products extracted from petroleum.

Historically the petroleum prices have been raising – in the decades of 1970 and 1980 barrel prices have jumped from US\$ 5 para US\$ 33, when the famous petroleum crises took place. According to Campbell (2006), in the 1980 decade the world realized we were consuming more petroleum than we were finding – in 2005, for instance, for every five barrels consumed only one new has been found.

In view that petroleum is not found all over the world, it is worth pointing out the largest reserves, which according to the BP Statistical Review of World Energy (2012) are as follows. First is Venezuela, with the first position and 297 billion barrel reserves, over 17% of world's share, followed by Saudi Arabia, with 265 billion barreals and 16% of world's share. Then come Canada, Iran and Irak, which together have approximately 450 billion barrels in reserves, being nearly 30% of world's share.

Goldemberg (2007) highlights the challenges the world has to cope with regarding the use of petroleum:

- 1) The limits of available reserves;
- 2) The environmental impacts, particularly those connected with climate change;
- 3) Disputes to get access to petroleum in certain regions, and the use of nuclear technology, even for pacific reasons;
- 4) The pressure over the developing countries needing to import petroleum products, and consequently, the growth of their external debts. What is right is that petroleum is a key energy source available in limited quantity and as such and it is bound to be worn-out, which makes asks for long-term, sustainable alternatives.

2.2 Renewable energy

In Latin America, Brazil stands out as a large country that managed to find a sustainable alternative to fossil fuel, with sugar-cane derived ethanol. According to Janssen e Rutz (2011), besides the successful consolidated case of bioethanol in Brazil, other countries in Latin America have been progressing in creating and implementing policies that can create a renewable, alternative energy source to fossil fuel, such as Argentina with soy-based biodiesel, and Colombia, Costa Rica and Guatemala with sugarcane-based ethanol.

Coelho and others (2013) point out that, despite Brazilian widespread use of bioethanol in cars, there is an opportunity to extend that use into transportation vehicles, which currently contribute expressively to the increase of greenhouse emissions in Brazil.

As highlighted by *The Economist* magazine, the growth of bioethanol in Brazil to a high extent can be credited to the development of the flex motor cars, which can use both gasoline and ethanol as a fuel. The same article questions the expansion of ethanol as an alternative energy source in terms of government policies and incentives after the large oil source discovered recently, but anyway it asserts

that, in view of its sustainable aspect compared to fossil fuel, the sugar-based ethanol industry has a true potential to become global.

In another study, Goldemberg, Coelho and Guardabasi (2008) number what they consider the long-term consequences of the sugar-cane ethanol production: “Positive impacts are the elimination of lead compounds from gasoline and the reduction of noxious emissions. There is also the reduction of CO₂ emissions, since sugarcane ethanol requires only a small amount of fossil fuels for its production, being thus a renewable fuel (...) Negative impacts such as future large-scale ethanol production from sugarcane might lead to the destruction or damage of high-biodiversity areas, deforestation, degradation or damaging of soils through the use of chemicals and soil decarbonization, water resources contamination or depletion, competition between food and fuel production decreasing food security and a worsening of labor conditions on the fields”. (Goldemberg; Coelho; Guardabasi, 2008, p. 2086)

The paper The Independent recently reported Costa Rica stayed for about 75 days only using renewable energy. Furthermore, the article mentions their energy sources as 94% renewable, being 80% hydropower and 10% geothermal, and highlights the country’s investment in geothermal energy, taking advantage of the volcanic areas in their territory. Their objective is to be less dependent from hydropower, and, in the near future, use little or no fossil fuel energy – despite the recent discovery of rich oil sources in their coast area – to reach the carbon-neutral status by 2021. The article emphasizes the second position of Costa Rica, after Uruguay in Latin America, reached for its electricity and telecommunications infrastructure in the 2014 World Economic Forum Global Competitiveness Index.

However, Meisen and Krumpel (2009), bring a realistic, critical picture about renewable energy in Latin America. These authors assert that, different from the recurrent and somewhat optimistic widespread view, the situation in Latin America is no better than in other regions of the world. In fact, they comment that the initiatives to create renewable energy sources in the region are almost all limited to hydropower and biofuels. For hydroelectric energy, they call attention to the environmental damage required to build such huge constructions as well as the difficulties to have them to operate in a situation of dry weather and less water availability. About the biofuels, they mention that industrial biofuels, like ethanol, might not help reducing greenhouse emissions while traditional biofuels as firewood and grass could cause deforestation or not follow sustainable practices.

3 Data Analysis and Discussion

We used some key drivers and variables connected with renewable energy: *Outdoor Air Pollution Attributable Deaths, Greenhouse Gas Emissions, Use of Alternative and Nuclear Energy Sources, Combustible Renewables and Waste, Fossil Fuel Energy Consumption, and Ocean Health Index*. Then we carried out a multivariate analysis to verify similarities and differences among the Iberian American countries and of the countries of the advanced economies and the remaining countries, whose results are shown in the table 1 below:

Table 1 ANOVAs Comparing Means and F-Values for Variables – 132 countries sample

Reg/Var	FossFuel	OutAirPoll	CombRenew	AlternNuc	Greenhgas	OHI
AIBER	67.20	16.54	21.50	12.26	1.47	61.57
AVECO	70.60	21.01	9.24	22.76	0.90	73.15
OTHERS	67.68	23.52	23.67	5.91	4.87	63.20
F-Value	0.17	1.17	3.85	14.48	2.60	29.45

Source: the authors

When we compare the group of 132 countries, we observe there is no much discrimination that would allow for an adequate analysis. That is because each of the three groups comprise countries in different development stages, except for those included in AVECO. Being so, we go for a separate, detailed analysis only of the Iberian-American countries and discuss their status in terms of positives and negatives, whose main results are as follows:

3.1 Outdoor air pollution deaths

Iberian American countries have an average of 15 deaths per 100,000 people directly attributable to outdoor air pollution. Close to this figure (15 deaths) are countries like Mexico, Peru, Brazil, and Colombia. Six countries stand out with an index between 23 and 35: Cuba, Portugal, Argentina, Chile, Uruguay and Spain. In the positive extreme, we have Guatemala, Costa Rica, Panama, Paraguay, Nicaragua and Equador, presenting between 3 and 6 deaths per group of 100,000 people.

3.2 Greenhouse gas emissions

In terms of greenhouse gas emissions, we see a concentration of 12 countries ranking between 0 and 1, that is with emission that go from 1000 to 2000 CO₂ equivalents per GDP, which is considered relatively high. Costa Rica, Peru, Spain, El Salvador, Portugal, Dominican Republic, Chile, and Colombia are the highest ranked in terms of emissions, while Bolivia, Paraguay, Nicaragua, Venezuela, and Uruguay are the lowest ranked ie with less emissions of CO₂ per GDP. The outlier country here is Bolivia, with an index, 4 that is, below 100, and here we should mention is might be connected to GDP since Bolivia has one of the lowest GDPs of South America.

3.3 Use of alternative and nuclear energy sources

Overall, the Iberian American countries are far from being clean with regard to their key energy sources: averagely only 10% of the total energy employed comes from alternative and/or nuclear sources. However, two countries stand out as positive outliers with over 40% non CO₂-generating energy sources: Costa Rica and El Salvador. After those, best ranked are Spain, Brazil, Colombia, and Uruguay with 15 to 20% of their energy coming from alternative sources. The other extreme show countries presenting less than 5% of alternative energy sources: Cuba, Dominican Republic, Bolivia, and Guatemala.

3.4 Combustible renewables and waste

Overall, Iberian American countries averagely have about 20% of use of combustible renewables and waste in relation to total energy consumed. The single outlier country is Guatemala, which presents a figure of over 66%. The majority of countries ranks between 5 and 15% and include Portugal, Cuba, Colombia, Panama, Dominican Republic, Spain and Equador. With 40 to 50% usage are Paraguay, Honduras and Nicaragua, while Uruguay and Brazil reach about 30%. The three countries positioned with less than 5% are Mexico, Argentina and Venezuela.

3.5 Fossil fuel energy consumption

Overall, we see nearly 75% of fuel consumption from fossil origin in the Iberian American countries. The largest group comprising Argentina, Dominican Republic, Mexico, Venezuela, Cuba, and Equador come as the top users, with 85 to 89% of fossil fuel energy usage. The second largest group, including Uruguay, Brazil, Honduras, Nicaragua, Costa Rica and El Salvador use between 45 and 55%. Only two countries use around 30% of fossil fuel: Guatemala and Paraguay.

3.6 Ocean health index

The Iberian American countries show a relative high Ocean Health Index – average 61. It should be in view of the vast coast and the resources that are available such as fish, salt and petroleum and its importance to the national economies and the populations. Top ranked are Mexico, Costa Rica, Colombia and Guatemala, with an index between 68-75. Lowest positioned are Paraguay, Nicaragua, Uruguay, Dominican Republic and Honduras, going from 45 to 55. Paraguay seems fully justifiable, since the country has no coast, being dependent from Brazil and Argentina to have a sea access.

4 Conclusion

Overall, we notice that the Iberian American countries rank in an intermediate position, driven usually from Spain, Portugal, Chile, Costa Rica and Uruguay – excluded such countries, most probably, the region would be in a much lower position, sometimes close to average figures shown by the African countries. We also see that the best-positioned countries in terms of the policies connected with relatively sustainable practices are also those that have the highest economic performance. That is the case of countries like Costa Rica, Chile and Uruguay, which usually present some economic and social figures relatively similar to those of the advanced economies. The same occurs to Spain and Portugal, which benefit from being full members of the European Union and have to be aligned in terms of the policies of the richest and full-developed nations, which are also more advanced in these questions. In fact, it seems that Iberian America as a group presents similarities with the group of 132 countries, replicating, in a microcosm, the conditions of that macrocosm in terms of diversity. In other words, if in Iberian America we have countries very well ranked as we mentioned, on the other hand, we may have countries presenting figures comparable to those of the Sub-Saharan region, for instance. Even in the case of the few successes, we can see that, behind some positive figures there may be serious problems hidden, such as that of income inequality. Furthermore, there have been some advances with specific types of renewable energy such as hydroelectric and biofuel, and in smaller scale, geothermal, but other equally productive and perhaps less invasive alternatives are still to be explored in more depth, like solar and wind energy generation, for instance. So far, this relatively limited reach in terms of a sustainable

energy matrix, particularly in Latin America, makes more evident that numbers are cold, and, being so, in order to have a more critical view it claims a deeper comparison and contrast, checking an isolated figure with a magnifying glass and then grouping them together to allow a good inference of the results, having in mind the interdependence of the facts and their weight to the analysis and the overall performance of a country or another. Clearly, there is a long way to go in the region, and the good examples, particularly of some small countries, can be brought to open discussion as the ones to be followed along with the successful experiences and initiatives of other regions.

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The Impact of Decisions Relating to the Production and Consumption, and Future of Water

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Abstract: The purpose of this study is to reflect on a more conscious production and consumption of water. This issue is closely linked to the responsibilities towards this liquid, which is so precious to life on Earth. Thus, a person can simply play the role of consumer, paying for the product and running out of it without worrying about the future. However, individuals may also take the role of active citizens in water consumption, which in turn influences resilient actions in the exploration and use of this resource by companies, as well as throughout society. Regarding the aspects related to water use and production, it is necessary to discuss their addition to products circulating in the market, especially through commodities, by using the concept of "virtual water". This fact is relevant because although Earth has two thirds of its surface covered in water, it is known that one in three people do not have it in sufficient quantities to meet their basic needs (SALVADOR; DWECK, 2008), hence the importance of evaluating the use of virtual water, production, and consumer behavior. Thus, the exploratory method with qualitative approach is appropriate to facilitate the understanding of the studied social reality. Based on analytical categories regarding the aware production and consumption of water, we analyze specific cases in São Paulo, Brazil, and highlight that the consumption of this product has changed the industry's behavior and individuals influenced by its scarcity. It is assumed, at the end of this research, that even if people decide to consume water without worrying about other people, they will be affected as citizens. Thus, the right to consume does not absolve individuals of responsibility as citizens, which is also true for companies that suffer from changes in the availability of this resource.

Key words: Water; Production; Consumer; Conscious consumption

1 Introduction

For many years, social and environmental problems have been a concern only for the government and environmentalists, but these issues have been widely discussed by several other players of society in the early 21st century. The criticism is mainly about traditional practices of production and consumption, and the roots of the matter lie in the fact that production and offering are not always aligned with the social and environmental problems of the planet (HENDERSON, 1991; HENDERSON, 2003; ASSADOURIAN, 2013).

Thus, consumption made by people who are focused on individual aspirations for comfort and wealth guarantees the growth of *per capita* global consumption of several products that damage the biosphere. In fact, in order to keep this hedonistic consumption, it is also required heavy investment to exploit fossil fuels and other non-renewable resources which are critical to society, since this fact enlarges the reality that natural resources become increasingly expensive and scarce (HAWKEN; LOVINS; LOVINS, 2002; MORIN, 2013).

Furthermore, it can be said that non-renewable materials are the main boosters of industrial economies. However, growth and development are not always linked, and the true development must be defined in terms of improvement of a sustainable human well-being, not just the growth of material consumption or *per capita* wealth (ASSADOURIAN, 2013; SEN, 2000). Thus, in a short-term view, public or private institutions explore the resources in a progression infinitely superior to the regenerative capacity of the planet, then eliminating its resilience (VEIGA, 2005; VEIGA; CECHIN, 2010).

With the change from the economic and financial focus to a more sustainable perspective of life on the planet, the fighting against the scarcity of resources requires a comprehensive and ongoing social effort of all players of society. Thus, the challenge is to greatly increase productivity with the least possible use of non-renewable resources, and to establish a more conscious consumption (MOORE; REES, 2013).

Based on the perspective of use of resources for a conscious production and consumption, this paper aims to discuss this reality that often does not take into account the different social and

environmental elements involved in the production process or in consumption. Thus, it is argued that an attitude focused on conscious production and consumption shall assist to deal with the problems that afflict the contemporary society, the same society which often consumes by hedonism, collaborating to an unconscious and inconsequential degradation of the environment.

Therefore, the focus of this article is the use of water. It is indispensable to life, leisure, professional activities, and industrial development, besides impacting political, economic and social aspects of the planet. It is noteworthy that one of the main concepts explored in this work is “virtual water” since this condition of the resource is not characterized by its physical presence in the final product (ALLAN, 1998; HOEKSTRA; HUNG, 2002; CARMO *et al.* 2007). In this manner, water is used to produce a specific product, but often this product does not present this feature in its final appearance.

Given this reality, it is imperative to build awareness with regard to the healthy consumption of water by man, who is the greatest benefitted from this natural resource, but unfortunately, has given little or no importance to its proper use and preservation. Based on this context, an important question arises: what decisions of water use in production and consumption do affect society? Therefore, the main goal of this paper is to present the direct relationship between production and consumption of water and environmental sustainability in order to foster some reflection about conscious consumption of this liquid that is so important to life.

As for the discussion in this article, it should be noted that an exploratory and descriptive approach was used to build lines of reasoning to understand the production and consumption of water and also to discuss and analyze the rational use of water and its theoretical and practical implications. The analytical procedure applied in this paper was a critical interpretation understood as a hermeneutical exercise.

2 Conscious Production and Consumption of Water

2.1 The use of water Resources

The human body consists of 75% of water, and in case of illnesses, one of the key recommendations of doctors is to drink plenty of water. Therefore, life itself needs water to grow plants, trees, rivers, and dams. The importance of water for the survival of living beings is undeniable. It is worth to notice that about 70% of the surface of the Earth is covered by water, with a volume of nearly 1.4 billion cubic kilometers. Out of this total, 97.5% consists of seawater and only 2.5% in freshwater. Approximately 30.2% of the total volume of freshwater on the planet can be used for plant and animal life in lands, while 69.8% are at the poles, in glaciers and ice soils (INSTITUTO CARBONO BRASIL, 2014).

Nevertheless, access to drinking water and to sanitation is one of the themes in discussion to achieve the Millennium Development Goals set by the United Nations, whose studies estimates that 92% of the global population will have access to safe drinking water by 2015. However, according to the UN, at least 11% of the world population, which is equivalent to 783 million people, does not have access to this resource. In addition, 1.1 billion people are still with no sewage systems, and about 4.000 children die every day from diseases associated with lack of quality or lack of water treatment (ECODESENVOLVIMENTO, 2012).

Brazil has 13.7% of the planet's fresh water, and is part of the select group with water reserves (AMAE, 2014). In fact, it is necessary to understand that having this resource available in the country does not mean that everyone will have access or will continue to have access to it. Translate into numbers, water consumption in Brazil is divided into: 59% are consumed in agriculture, 22% in household use, and 19% industrial use (AMAE, 2014). On the issue of domestic use, it can be said that much of the use of this liquid is related to waste. Hidden leaks, broken, unregulated or old landfills and the lack of rational use of water are some of the reasons why we are wasting this liquid out. We cannot forget that Brazilians uses treated water to flush and wash their streets.

Another example of waste is in the bath. A shower lasting 15 minutes with the water valve half-open consumes 243 liters of water, but if you keep the valve closed while soaping, the bath time will be five minutes shorter and you can reduce the total water consumption to 45 liters (ECODESENVOLVIMENTO, 2012). This is a very worrying scenario, since the water lost every day in Brazilian capitals is estimated at 6.14 billion liters per day, an amount which would meet the needs of a daily consumption of 38 million people, equivalent to the entire population of a country such as Argentina (WHATELYC, 2014).

From 2004 to 2013, the consumption of water in 33 municipalities in the metropolitan region of São Paulo increased by 26%, while production grew only 9% (BRENHA; GERAQUE, 2014). As stated

in the technical standards of Sabesp, it is estimated a consumption *per capita* of 150 liters a day in São Paulo (SABESP, 2012). In addition, there are other values for other types of consumption such as in prisons (300 liters a day) and apartments (200 liters per day). In a study conducted by Pedro Luiz Côrtes, professor of Environmental Management at USP, it was shown that a São Paulo dweller consumes on average 27% more water than a German, and 9% more than a French dweller (BRENHA; GERAQUE, 2014). In the case of Brazilian households, one of the main reasons for the boost in consumption per capita was the increasing income, since people started using more washing machines and dishwashers, washing cars more frequently, bathing with more powerful showers etc. Thus, as the standard of living has evolved, water consumption related to consumerism wishes also increased (BRENHA; GERAQUE, 2014).

Statements about household water consumption highlight that water scarcity in the world is also aggravated by social inequality, lack of sustainable management, and use of natural resources. In regions where the situation of lack of water has already reached critical levels of availability, and in the countries of the African continent, the average of water consumption is 10 to 15 liters *per capita* a day (CETESB, 2014). This scenario is quite different from the average of 150 liters a day in Brazil. In addition, consumption is not the only waste. In 2013, 25% of the water was lost on the way between the dams and homes. It is noteworthy that Japan's cities lose 11% of the water that it captures, and the goal of Sabesp is to decrease to 18% of loss by 2020 (BRENHA; GERAQUE, 2014). In this manner, governments do not have an option to separate the population policy from the water supply. The problem in the urbanization process is reflected directly on the water quality of sources that supply the cities (AMAE, 2014).

Another important point is environmental pollution; one of the main factors that contribute to the degradation of water resources in Brazil and in the world (AMAE, 2014). According to the UN, 77 million people in Brazil, a number equivalent to the population of Germany, do not have safe water. In addition, 60% of the population do not have proper water treatment or sanitation. Thus, regular water supply, with uniform quality, is still a distant reality (VEJA, 2014).

Therefore, to be considered appropriate for use, water is not required to have the same characteristics for different use purposes. The parameters for supply are different as in the household, industry and irrigation (INSTITUTO CARBONO BRASIL, 2014). This situation hampers the quality of the water when analyzing the demand and the reality of this resource at each location. While European Union countries allow the use of only five pesticides in drinking water, in Brazil the water may contain 22 types of pesticides, 13 heavy metals, 13 solvents, and six disinfectants to be consumed (VEJA, 2014).

In the irrigation process, great part of the water is filtered by the soil, where it reaches the groundwater and is stored. One aspect that should be emphasized is that the water often is returned to Nature contaminated by pesticides. Due to deforestation, it is lost the process in which water infiltrates the soil through the trunks and roots of trees and other vegetation, which acts as biofilters, recharging aquifers and ensuring the sustainability of water source (TOLEDO, 2014).

One issue that should be highlighted is that the water problem is not only local, because most aquifers are located on the borders of many countries. According to an inventory of UNESCO, out of the 273 trans-boundary aquifers, 155 are located in Europe, 68 in the Americas, 38 in Africa, and 12 in Asia, and the volume of fresh water aquifers present in these sites is a hundred times bigger than that existing on the surface of the Earth. Moreover, 65% of this water is used for irrigation, 25% for human consumption, and 10% in industry (INSTITUTO CARBONO BRASIL, 2014).

As above mentioned, problems with the collection and supply also have a direct relationship to regional development, and income can also determine the quantity and quality in the consumption of this resource. In Brazil, in places where the population earns a quarter of a minimum wage there is a 35% water deficit. Already in places where income is five times the minimum wage, 95% of the population has appropriate access to water supply. For the UN, the price of water should be fixed, and their supplies, following international standards, could not represent more than 5% of a family budget (VEJA, 2014). However, the problem is apparently not related to prices. The price of water and sanitation rate in Brazil is considered low by international standards. According to the Global *Water Intelligence*, while the average rate in the country is around US\$ 1.50 per cubic meter, in Denmark, it is US\$ 8.11. Other countries also have a higher rate, such as the UK, (4.33 USD), France (4.08 USD), Canada (3.30 USD), USA (3.09 USD), and Japan (2.63 USD) (CARRERA, 2014).

According to a report of the United Nations Educational, Scientific and Cultural Organization (UNESCO), some factors for the possible lack of water are due to intense urbanization, inadequate

agricultural practices, and pollution produced in production and consumption. These factors hinder the supply of clean water in the world (UNESCO, 2015). The use of water in the production of goods and/or in services is not often recorded in all stages of the process. Note that to produce a particular good water is used since its initial phase, like the production of bread, which since the very growing phase of its ingredients consumes a lot of water (GERBENS-LEENE; MEKONNEN; HOEKSTRA, 2011). According to research conducted by Arjen Hoekstra of the University of Twente, in the Netherlands, Brazil is the fifth country with the largest net export of "virtual water", that is, water incorporated into the production process.

Thus, water is used in the processing of grain, meat, and even in industrialized goods that a country exports. Agricultural commodities are among the main export items of Brazil. Whereas agriculture accounts for over a quarter of the national GDP, Brazilian water already appears as a highly-rated element in the international market, and Brazil is one of the largest exporters of soybeans, beef, and sugar. In environmental terms, it means the transfer of virtual water to other countries where there is water shortage (WICHELNS, 2004; CARMO *et al.*, 2007; GERBENS-LEENES; MEKONNEN; HOEKSTRA, 2011).

According to UNESCO, Brazil exports about 112 trillion liters of fresh water per year, equivalent to almost 45 million Olympic swimming pools. Carmo *et al.* (2007) argue that the analysis of studies undertaken under the "Virtual Water Trade Research Program" (UNESCO) shows the relationship between world "tank-countries" of fresh water and their ability to generate foreign exchange.

However, water resources involved in the production of export goods may become scarce even in regions where there is relative abundance. Despite the water crisis, it is claimed that Brazil should not change its business profile, but make use of water more efficiently. It is possible to increase the efficiency of water use by producing the same food with less water, with better irrigation technology and best practices, avoiding waste and practicing organic farming (HOEKSTRA; HUNG 2002; GERBENS-LEENES; MEKONNEN; HOEKSTRA, 2011).

3 Conclusion

Consumption of goods and services in a healthy society lies in the establishment of relationships between consumers and suppliers. However, this relationship has become increasingly complex, especially due to the exploitation of finite resources. From 2004 to 2013 the consumption of water in 33 municipalities in the metropolitan region of São Paulo increased by 26%, while production increased only 9%. On average, a São Paulo dweller consumes 27% more water than a German, and 9% more than a French citizen.

Thus, the habits of a society can determine the manner goods and services are produced and delivered. Such logic covers both superfluous products and products related to the basic needs such as food and water itself. As discussed in this study, the process of capturing and supplying water in Brazil and abroad has been under and in-depth analyzes. Water is essential to life, and it cannot run out or become a simple flow, free from market supply and demand. Thus, it is necessary to adopt solutions towards conscious consumption, thus improving its consumption, recycling, and reuse.

Moreover, this scenario defines the importance of understanding the concept of virtual water, and besides minimizing future impacts, it is already perceived in the present moment, as the example of what happens to the Cantareira Water Base system in São Paulo.

As above noted, most of the water is concentrated in agriculture, and its return to the environment is often hindered by the use of pesticides and by deforestation. In industrial and household use, it is also contaminated when returned and is not properly treated due to lack of sewers and sanitation.

Water problem is related not only to its absence when is necessary to take a bath or wash a car. We cannot forget that scarcity leads to diseases and limited quality of life. Furthermore, lack of water can be directly related to the level of development of localities, as in some African countries, where people survive with 10 to 15 liters of water a day, much below the 150 liters *per capita* a day estimated by SABESP in Sao Paulo.

A valid reflection is: whether people choose to act as citizens who consume or as consumers who act as citizens, the water problem is everyone's fault; a local and global problem by destination, reflection of transnational aquifers. Then, considering that Brazil is the largest hydropower in the planet, it can be concluded that to save water and use it consciously is the duty of every Brazilian citizen.

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The Role of Governance in Global Risks

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Abstract: Urban population growth rates are rising, which allows increased vulnerability to various risks. In face of such events, the World Risk Index calculated for the first time in 2011 the disaster risk for 171 countries. This index consists in 28 indicators related to four components, which are: a) exposure to natural hazards; b) susceptibility; c) coping capacities and d) adaptive capacities. The goal of this article is to analyze the relationship between governance and social progress, considering the aforementioned components of exposure, vulnerability, susceptibility, coping capacities and adaptive capacities in face of global risks in 132 countries. Data was analyzed with factor analysis and multiple linear regression techniques using MINITAB 16 software. This study has acknowledged that, regardless of however effective public policies may be in reducing risks, inherent crisis will continue to take place with potentially destructive consequences. This justifies the role of governance in developing actions that can deal with such events and enable the recovery from such events.

Key words: Governance; Global risks; Social progress

1 Introduction

In 1950, two thirds of the world population lived in rural areas. In 100 years, this ratio will be reversed and two thirds of the population will live in cities. This change began in 2007 when the 50% threshold was crossed. This reflects the new scenario of growing urban cities that need to comprise over 7 billion inhabitants. In contrast, the population in rural areas is declining.

Urban population growth rates are rising, which allows increased vulnerability to various risks. Data reveal that over 15% of the world population is in multidimensional poverty, around 80% lack comprehensive social protection, around 12% suffer from chronic hunger and nearly half of all workers are in informal or precarious employment.

Since the first Global Human Development Index Report (HDI) of the United Nations Development Program (UNDP) was published in 1990, most countries have recorded significant human development. However, society is still vulnerable to risks, which is why the latest report considered vulnerability and resilience as fundamental aspects of human development

In face of such events, the World Risk Index, published by the Alliance Development Works and United Nations University Institute for Environment and Human Security for the first time in 2011, calculated the disaster risk for 171 countries worldwide. The index consists in 28 indicators related to four components, which are: a) exposure to natural hazards; b) susceptibility; c) coping capacities and d) adaptive capacities.

The current report acknowledges that, regardless of however effective public policies may be in reducing risks, inherent crisis will continue to take place with potentially destructive consequences. This is why coping and adaptive capacities allow society to deal and recover from such events. This study aims at analyzing the relationship between governance and social progress, considering the components of exposure, vulnerability, susceptibility, coping and adaptive capacities in face of global risks.

2 Theoretical Reference

The authorities and the population need to understand the threats they face and develop a shared information base on disaster losses, threats and risks. An accountable and competent government that guarantees a sustainable development is necessary to ensure the management and organization of cities before, during and after a natural disaster.

2.1 Governance

Governance has become a key concept. Its original meaning was previously associated with a developmental and political debate where the term was used to refer to development policies guided by certain premises, such as management, accountability, transparency and rule of law of the public sector, which were determined by the United Nations (UN) and Organization for Economic Cooperation and Development (OECD).

In the current context, governance can be understood as a new generation of administrative and State reforms whose goal is joint action, performed in an effective, transparent and shared manner. This action is the responsibility of the State, enterprises and civil society, which aims at an innovative solution for social problems that could create likelihoods and opportunities for a sustainable development in the future for all.

Significant contributions on this topic have arisen from regional researches. Governance, in a first instance, can be simply understood as the structures and ways in which city regions are 'managed', in an administrative, legal, public, private, local, national and European sense. In political science, public governance is associated with changes in political management. It is seen as a growing trend towards self-management in social, economic and political spheres, and towards a new composition of forms of management.

Whether the legitimating force of public governance procedures is enough to fundament this new way of exerting power, i.e., the power of society through cooperation, is a question that needs to be raised. This would be the perspective of a polis, where citizens, in unison, would concern themselves with the nation and watch over its public organization as entities that deal with what is public and what public means.

2.2 The four components

The World Risk Report analyzed the four components related to risk: a) exposure; b) susceptibility; c) coping and adaptive capacities and d) vulnerability. The report creates the opportunity, among other results, to reflect on our capacity to deal with adverse events and recover from them.

Exposure is defined as entities, such as the population, conditions of built-up areas, infrastructure components and environmental areas that are exposed to the impact of one or more natural hazards (earthquakes, cyclones, droughts, floods and sea level rise). Susceptibility is considered the likelihood of suffering harm, loss and disruption in an extreme event. It describes the characteristics and framework conditions of a society.

The terms coping and coping capacity comprise various abilities of societies to minimize the negative impacts of natural hazards and climate change through direct action and the resources available. According to researchers at the Stockholm Resilience Centre, coping can be defined as the ability of long-term system deal with variations or changes and continue developing. For an ecosystem like a forest, this may mean dealing with storms, fires and pollution, as for a society has to do with the ability to deal with the political uncertainties or natural disaster in a way that is sustainable in the short, medium and long term.

Coping is a concept that has been used to explain phenomena that overcome or transcended unfavorable situations. It is an issue of extreme importance, because it implies greater knowledge of how we can strengthen the capacity of resistance of society and nature, learning to deal with the tensions caused by the climate change and other environmental impacts. Cities or countries resilient are those who managed to recover quickly from the impact of natural disasters or economic conditions and effects I social unfavorable or external such as riots or wars, or extreme events unforeseeable situations.

Coping capacity refers to a set of cognitive competencies and behavioral strategies used by an individual to deal with the demands of stressful situations. Adaptive capacity, on the other hand, is understood as a long-term process that includes structural changes. Moreover, adaptation focuses on measures and strategies that deal with the negative impacts of natural hazards and climate change in the future.

Vulnerability comprises the components of susceptibility, lack of coping capacities and lack of adaptive capacities, and relates to social, physical, economic and environmental factors which make people or systems susceptible to the impacts of natural hazards, the adverse effects of climate change or other transformation processes

Structural vulnerabilities create profound inequalities among groups and express generalized poverty based on the formation of socially acknowledged and established groups. Our society's scenario can be seen through child vulnerability, i.e., in every 100 children, 68 do not receive early childhood education and 25 live in poverty lacking food, sanitation and hygiene. This leads to higher risks of infection and stunted growth. Around 156 million children suffer from stunting due to undernutrition and infections, which contributes to the 35% death rate from measles, malaria, pneumonia and diarrhea.

2.3 Social Progress Index

The Social Progress Index (SPI) analyzes a countries' social progress associated with its economic growth. The aim of this indicator is to show policymakers, international development organizations,

enterprises and civil society organizations that they must see beyond economic indicators to measure a nation’s social progress. They need to have a holistic and highly rigorous vision.

Instead of using economic indicators, especially GDP, to measure a country’s progress, the index created by Harvard researchers evaluated data from 52 social and environmental indicators grouped into three main categories: basic human needs, foundations of wellbeing and opportunity.

Figure 1 illustrates the theoretical model proposed by this study to try to understand the relationship between governance and the four components related to risks, as well as, the effects of these components in social progress.

3 Result Analysis and Discussion

For our purpose we’ll be dealing with 132 countries divided into 3 Regions: the Iberoamerican AIBER (21 countries), The Advanced Economies AVECO (28 countries) and the rest of the 132 countries OTHERS (84 countries). Table 1 shows the means for each one of the 3 Regions (3R) of Synthetic Indicators such as Social Progress Index (SPI), Human Development Index (IDH), and Governance (GOV), as well as the ones concerning Analytic Indicators related to Risks to Natural Disasters (DESNAT), Exposure (NEXPO), Vulnerability (IVULN), Susceptibility (INSUCEP), Lack of Coping Capacities (CAPAFRSIT) in difficult situations and lack of Adaptive Capacities (CAPADAP); as well as the Fs of the corresponding ANOVAS.

Table 1 Means and F’s for Rescaled (0–100) and positivized Variables (the higher the better)

3R	SPI	IDH	GOV	DESNAT	NEXPO	IVULN	INSUCEP	CAPAFRSIT	CAPADAP
AIBER	64.41	65.62	42.48	72.93	68.86	58.17	71.56	71.56	61.67
AVECO	90.3	87.36	83.25	89.75	79.15	86.26	90.51	90.51	85.35
OTHERS	42.63	46.74	33.36	76.47	77.73	42.56	57.69	57.69	42.9
F ANOVA	83.97	43.45	97.02	10.87	3.24	57.93	21.77	97.08	58.52

No doubt that AVECO countries as a whole are doing better than the AIBER countries and these ones doing better than the OTHERS countries. As may be seen in the following figure 1.

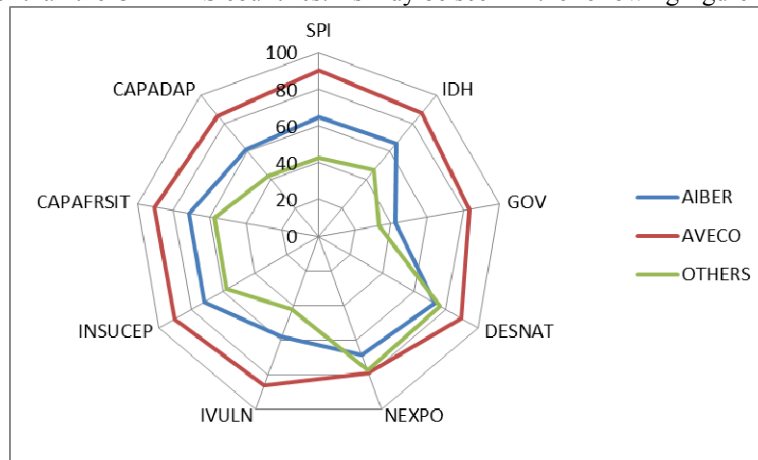


Figure 1 Comparing the 3 Regions regarding the Basic Indicators

Moreover as may be seen in the Dendrogram of Figure 2, Synthetic and Analytic Indicators are closely correlated except for the case of Exposure and Risks to Natural Disasters, while Principal Component Analysis shows that by far the most representative Analytic Indicator is the one regarding Vulnerability (INVUL) followed by far by Exposition (NEXPO); and moreover one may have nice Regression Model for Vulnerability such as the following: $IVULN = - 0.48 + 0.755 HDI + 0.236 GOV$ ($R^2 = 92.7\%$, $p=0.000$ for both coefficients).

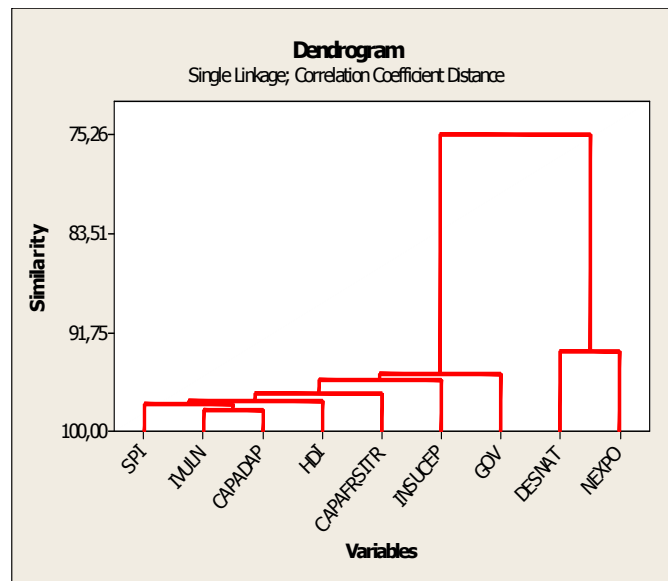


Figure 2 Dendrogram of Synthetic and Analytic Indicators

Among the 10 countries with the highest social progress index, three countries are worth noting: New Zealand with 88.24%, Switzerland with 88.19% and Iceland with 88.07%. These countries present excellent data on account of their public policies being aimed at meeting the basic needs of their citizens, at establishing the necessary infrastructure and tools to improve their quality of life and at creating an adequate environment so all may find equal opportunities to pursue their full potential

But besides Social or Living Conditions, Governance seems to be the most Critical Development Factor, as may be seen in Figure 1 the Advanced Economies (AVECO) are far away from the rest including our Iberoamerican Region (AIBER). Of course governance structures vary among countries due to various factors such as political regimen, legal system, capital market structure, historical experience with industrialization, geographical conditions and cultural conditions. The result of such an institutional and historical progress means different structures and different rates at which they can impact social progress. The top-ranking countries are Finland with 100%, Norway with 99.07% and Sweden with 99%.

The futurist Eleonora Massini used to say that among the three basic Transformations going on today, the Fastest are that ones in Science and Technology, followed by far from the Socio Cultural and these also much faster than The Institutional Ones, and no doubt this lack of Synchrony affects all systems . Moreover slowness and quickness are seen in both nature and society changes. After all, the so-called catastrophic events develop quickly in the same way societies lacking technological resources are at the mercy of the slowness of time. The countries with the highest exposure to impacts from one or more natural risks were the Philippines with 52.46%, Japan with 45.91% and Costa Rica with 42.61%.

The highest vulnerability rates regarding social, fiscal, economic and environmental aspects are seen in Niger with 77.12%, Central African Chad with 75.72% and Liberia with 72.93%. The concept of a population’s social vulnerability has been used to characterize social groups who are affected the most by stressful environmental situations, including those related to climate. Vulnerability as the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impacts of a climate disaster.

The highest susceptibility rates, i.e., the likelihood of suffering harm, loss and disruption in an extreme event, belong to Mozambique at 69.89%, Madagascar at 65.81% and Tanzania at 64.27%. Resilience is a dynamic process which results in a positive adaptation within the context of significant adversity. Cities and coping countries prepare to react to external events to great adversities of organized emergency reducing way materials and losses of lives, as well as acting in front of the synergy and proactive global mega trends and unpredictable events. Possibly some and risks can be envisaged, of possible leveraged opportunities from management instruments, as the SWOT, and analysis of strategic foresight methodologies. The greatest lack of coping capacities in difficult situations is found in Sudan with 93.05%, Chad with 91.80% and Yemen with 91.03%.

Adaptation is when an individual has met the social expectations related to his or her development

or when there are no signs of mal-adjustment. The countries with the greatest lack of adaptive capacities were Togo with 71.08% and Niger with 68.5%.

Based on these results, we can infer that it is the responsibility of the State, enterprises and civil society to develop policies that minimize the vulnerability and increase the coping capacities in difficult situations of their citizens.

International organizations such as the World Bank and UNDP are recommending to countries the creation of centers for studies in coping, as well as the adoption of the theme at the local level regional. For this purpose, it is important to incorporate the recommendations and examples about the resilience of the Rockefeller Foundation, indicating in particular that adaptation projects are most effective when they involve infrastructure, both institutional and community side.

An example of such initiatives is that of the Government of Malaysia which has vision to the nation-building resilient promoting unity, instilling the spirit of patriotism, nurturing political maturity, cultivating a society more tolerant, with positive values and raising the quality of life as well as increasing the country's economic coping. Moreover, we can consider that social progress is related to a country's level of exposure and type of governance.

4 Conclusion

The role of governance is crucial in steering society to be able to cope with and recover from global risks. Strategies need hence to be implemented to develop coping in countries and increase the index of social progress, including:

(1) Policies to create resilience: in the year 2030, according to the UN, more than 80 of the world's population will live in urban areas; in Latin America the percentage will be even higher, reaching almost 90. The identification of the issues and the development of strategies to address these realities are vital points, as well as the establishment of policies to improve accuracy in making decisions as to investment of resources.

(2) Decentralization of the information: decision-makers require quality information and sharing experiences with leaders of other countries in order to react quickly and intelligently in crisis situations. Thus the formation of a network of Ibero-American States leaders is vital to share knowledge and good government practices.

(3) Prevention, leadership and Social Cohesion: it is necessary to involve the different actors of society in the elaboration of prevention plans and strategies to deal with adversity.

Through these actions environments with potential risks may analyze the reaction capacity and prevention or mitigation strategies may be implemented and monitored.

A participating society represents abled individuals, who work with the authorities, to make decisions and plans for their cities. This context may provide the conditions to implement measures, anticipate disasters, predict disasters with the aid of technology and protect the infrastructure, goods and members of a community, including homes, cultural heritage, environmental and natural and economic wealth.

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Empirical Research on the Impact from Export Technology Diffusion to Environment Regulation: Evidence from 2007-2011 Industrial Panel Data of China*

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Abstract: when environmental problems are more and more acute, the technology has been an important means for environmental governance. Based on 2007-2011 China's industrial panel data which is reclassified by GB/T 4754-2002 national industry classification and SITC standard, in this paper we empirically test the impacts from export technology diffusion and independent R&D to environmental regulation. The results show that export technology diffusion of cleaning industry has a significant negative effect to environmental regulation, but in pollution-intensive industries it is significant positive effect. We also find that independent R&D has negative effect to environment regulation, but second R&D has positive effects.

Key words: Export technology diffusion; Independent R&D; Environmental regulation; Panel data; PCSE Robust variance

1 Introduction

Currently the industrialization not only promotes world economic prosperity, but also accelerates environmental consumption. While the environment gets worse, using the science and technology to improve environmental quality has become an important means of pollution control. With the rapid growth of China's industrial exports, foreign high-tech standards, industrial standards, environmental standards and so on also indirectly promote the technical progress of China's export industry, so export technology diffusion has become an important channel for technological progress. If we can clear the effect from technology to environment is positive or negative, it will help us using appropriate means to protect environment, and realize "multi-win" of technology, economic and environment.

Now the main research of technology and environment regulation mostly based on the Porter hypothesis that is felicitous environment regulations may be stir corporations to innovation, so environmental regulations will be good for the competitiveness of corporations. Different from the hypothesis, Zhang Cheng (2011)^[1] and Jiang Fuxin (2013)^[2] considered that U-type relationship exist between the environmental regulation intensity and technological innovation, while Zhang Zhongyuan (2012)^[3] and Guo Yan(2013)^[4] support the hypothesis.

Although the philosophy research and the extended research of Porter hypothesis has shown some relationship of environmental regulation and technology, but the research on the impact from technology to environmental regulation is also shortage, so the analysis of this paper may provide a guide to enterprises and governor adopt appropriate measures to realize technology, environment and economic multi-win.

2 Modeling

A Cobb Douglas production function was constructed, in addition to labor L and capital K , E was introduced as the third production factor input, and A was set as technical level, so the production function is:

$$Q = A \cdot F(K, L, E) \quad (2)$$

Assuming Q keeps constant returns to scale, based on the factor demand equation we can get the cost function:

$$C = H(P_K, P_L, P_E, P_M, A) = A^{-1} P_K^{e_K} P_L^{e_L} P_E^{e_E} P_M^{e_M} Q \quad (3)$$

P_K , P_L , P_E and P_M respectively represent the price of capital, labor, environment and raw

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materials, while e_K , e_L , e_E and e_M represent the price elasticity of capital, labor, environment and raw materials. According to Shepard theorem, the demand of production factors equals partial derivative of the cost function to the price of the factor, so the partial derivative of environmental factor price of (3) is solved:

$$E = \frac{\partial C}{\partial P_E} = \frac{e_E \cdot A^{-1} \cdot P_K^{e_K} P_L^{e_L} P_E^{e_E} P_M^{e_M} \cdot Q}{P_E}, \text{ if } P_Q = P_K^{e_K} P_L^{e_L} P_E^{e_E} P_M^{e_M}, \text{ then } \frac{P_E \cdot E}{P_Q \cdot Q} = e_E \cdot A^{-1} \quad (4).$$

That is, the ratio of total environment cost in total product output value has function relationship with technical level. When environmental regulation level growing, to meet the requirements of emission the manufacturer may be increase the input of environment, so the environmental regulation level can be described as the ratio of total environment cost in total product output value, ER is used to represent the environmental regulation, (4) is changed as

$$ER = e_E \cdot A^{-1} \quad (5)$$

The technical level is set as $A = e^{g(EX, RD) + \delta}$, EX and RD respectively represent export technology diffusion and independent R&D. The function $g(\cdot)$ can be set as:

$$g(\cdot) = \alpha_1 \ln EX + \alpha_2 \ln RD \quad (6)$$

Put (6) in (5), and take the logarithm on both sides of (5), the basic model is: $\ln ER_{it} = \beta_0 + \beta_1 \ln EX_{it} + \beta_2 \ln RD_{it} + \varepsilon_{it}$, then an cross term of export technology diffusion and independent R&D is set to measure the secondary innovative, so the model is:

$$\ln ER_{it} = \beta_0 + \beta_1 \ln EX_{it} + \beta_2 \ln RD_{it} + \beta_3 \ln EX_{it} \cdot \ln PE_{it} + \varepsilon_{it} \quad (7)$$

i is individual, t is time, β_0 is intercept, ε_{it} is random error term and $\beta_1 - \beta_3$ is coefficient.

3 Data Source and Processing

3.1 Regroup the industrial sectors

Because the industrial classification between national economical industry classification (GB/T 4754-2002) and SITC standard is different, basing on the research of Sheng Bin (2002)^[5] and Li Xiaoping (2006)^[6], we unified standard and regrouped 33 China's industrial sectors in which the production and supply of electric power, gas and water are excluded¹. According to the definition of pollution intensive industries by Xiao Hong (2008)^[7] and Li Bin (2010)^[8], 33 industrial sectors are divided to 17 pollution intensive industries and 16 clean industries².

3.2 Export technology diffusion

Now CH model and LP model were used widely in calculating international technology diffusion.

In CH model, $S^{fm} = \sum_j \frac{m_{ij}}{m_i} S_j^d (i \neq j)$, S^{fm} is international technology diffusion, m_{ij} is total goods

¹ 33 regrouped industrial sectors are: 1 mining and washing of coal, 2 extraction of petroleum and natural gas, 3 mining and processing of ferrous metal ores, 4 mining and processing of non-ferrous metal ores, 5 mining and processing of nonmetal ores, 6 manufacture and processing of foods (combined processing of food from agricultural products and manufacture of foods), 7 manufacture of beverages, 8 manufacture of tobacco, 9 manufacture of textile, 10 manufacture of textile wearing apparel, footwear and caps, 11 manufacture of leather, fur, feather and related products, 12 processing of timber, manufacture of wood, bamboo, rattan, palm and straw products, 13 manufacture of furniture, 14 manufacture of paper and paper products, 15 printing, reproduction of recording media, 16 manufacture of articles for culture, education and sport activities, 17 processing of petroleum, coking, processing of nuclear fuel, 18 manufacture of raw chemical materials and chemical products, 19 manufacture of medicines, 20 manufacture of chemical fibers, 21 manufacture of rubber, 22 manufacture of plastics, 23 manufacture of non-metallic mineral products, 24 smelting and pressing of ferrous metals, 25 smelting and pressing of non-ferrous metals, 26 manufacture of metal products, 27 manufacture of general purpose machinery, 28 manufacture of special purpose machinery, 29 manufacture of transport equipment, 30 manufacture of electrical machinery and equipment, 31 manufacture of communication equipment, computers and other electronic equipment, 32 manufacture of measuring instruments and machinery for cultural activity and office work, 33 manufacture of artwork and other manufacturing

² 17 pollution intensive industries: 1, 2, 3, 4, 5, 6, 9, 11, 14, 17, 18, 20, 21, 22, 23, 24, 25.

and services export from country i to country j , $m_i = \sum_j m_{ij}$, S_j^d is R&D capital stock. However, in LP model it is considered that the capital overflow of one country merged by two countries is much higher than the sum of these two countries' R&D overflow, m_i is modified to y_j which is GDP of country j , so international technology diffusion is defined as $S^{fm} = \sum_j \frac{m_{ij} S_j^d}{y_j}$.

LP model is chosen to calculate export technology diffusion in this paper, in order to measure the contribution of foreign R&D capital stock to industries, $\ln IM_{it} = \frac{m_{it}}{y_{it}} \ln S_{it}^{fm}$ is set, m_{it} are the total export from some industrial sector of country i to all trading partners on t time.

The main developed countries and some newly industrializing countries which frequently trade with China are chosen for calculating the foreign R&D capital stock, including Canada, USA, England, German, France, Italia, Japan, Russia, Singapore, Korea.

The export data of China's industries which are obtained from COMTRADE database are used to calculate m_{ij} (the export from China to 10 countries) and m_{it} (the export from 10 countries to China). y_j (GDP of countries) is obtained from the database of the World Bank. After the unit of data unified, m_{ij}/y_j can be got.

Basing on R&D expenditure ratio of 10 countries in 2013 *China Statistical Yearbook on Science and Technology*, R&D expenditure can be calculated and converted to RMB according to the average exchange rate of that year. Referring the R&D stock calculation method of Wang Jin (2011)^[9], 10 countries' R&D stock S_j^d and S^{fm} measured by RMB can be got, and then we got EX_{it} , the export technology diffusion of China.

3.3 Independent R&D

The independent R&D is obtained from intramural expenditure on R&D in industrial enterprises in 2008-2012 *China Statistical Yearbook on Science and Technology*, and the method of data processing was same as the data of export technology diffusion.

3.4 Environment regulation

The ratio of environment protection input to gross industrial production of industrial sectors was used to represent the environment regulation. Because the industrial sector data of environment protection input is difficult to obtained, so it is substituted the sum of annual expenditure of industrial waste gas treatment facilities and annual expenditure of industrial waste water treatment facilities in 2008-2012 *China Statistical Yearbook on Environment*.

3 Empirical Analysis

Table 1 The Regression Results on Different Type of Industrial Sector

Variable	Pollution Intensive Industry		Clean Industry		Whole Industry	
	Coefficient (Std. Error)	t- Statistics (Prob.)	Coefficient (Std. Error)	t- Statistics (Prob.)	Coefficient (Std. Error)	t- Statistics (Prob.)
lnEX	12.5340 (2.810541)	4.4596***	-37.3479 (7.814353)	-4.7794***	-34.8835 (7.466824)	-4.6718***
lnRD	-0.4735 (0.089074)	-5.3158***	-0.7256 (0.201086)	-3.6083***	-0.6087 (0.084355)	-7.2159***
lnEX*lnRD			7.5797 (1.265057)	5.9916***	7.1045 (1.214222)	5.8511***
	R ²	0.9868	R ²	0.9976	R ²	0.9979
	F - Statistics	273.22***	F - Statistics	1436.34***	F - Statistics	1751.04***
	D.W Stat.	1.9970	D.W Stat.	1.7118	D.W Stat.	1.8684

*** was presented that parameter estimates is significant at 1%.

In order to explicitly analyze the impact from export technology diffusion and independent R&D to environment regulation, the panel data model is used respectively in pollution intensive industry, clean industry and the whole industry. During empirical analysis, the software Eviews5 was used to determine the model type through F-statistics and Huansman test; the result showed that the model had variable intercept

and fixed effect. The industries may have some correlation with each other, such as the relationship between upstream and downstream, so cross section heteroscedasticity and contemporaneous correlation are allowed in the model. PCSE robust variance model was used to evaluate the model. During evaluation process, insignificant variables were eliminated; the result was shown on table 1.

1) Export technology diffusion has significant negative effect on environment regulation in clean industry and the whole industry, while has positive effect in pollution intensive industry. Comparing the coefficient of their, the negative effect in clean industry from export technology diffusion to environment regulation is so strong to pull down the environment regulation level of the whole industry.

2) No matter in pollution intensive industry, clean industry or the whole industry, independent R&D has significant negative effect on environment regulation, but the coefficient is smaller. It maybe indicates if guided reasonably by country or industry, the positive effect will be motivated.

3) The cross term of export technology diffusion and independent R&D has significant positive effect on environment regulation in clean industry and the whole industry, that means the second R&D, which upgrades export products to meet foreign technology standard, will promote the environment regulation level.

4 Conclusions

4.1 Result analysis

1) In pollution intensive industry, export technology diffusion is benefit to the environment regulation, on one hand it maybe caused by the increasing quality demand of products, on the other hand, the growing market access conditions of China's export products such as green barriers and TBT from our trade partners has been the invisible impetus for environment regulation. Though these barriers restrict the quality and quantity of our export products to some extent, but in the view of sustainable development, this will promote the industrial sectors increase the input of R&D, enhance production efficiency and accelerate the environment technology upgrade. So the higher foreign environment regulation will drive the growth of China's environment regulation in export industrial sectors.

2) In clean industry, export technology diffusion has negative effect on environment regulation, which maybe is due to the trade partner paying more attention to the cheaper resource and labor but not technology capacity. According to the research Wang Yujing (2010)^[10], most of the export volume top 10 of industry are pollution intensive industry. Because of the great influence of extensive production and trade pattern, the negative effect in clean industry even decrease the environment regulation level of the whole industry.

3) Focusing on the extent of environment impact, most of the higher positive effect from export technology diffusion on environment regulation came from capital or technology intensive industries, so the capital and technology capacity of enterprises could well be the important safeguard for environment improvement.

In the sight of independent R&D, we should change the emphasis from expending scale to reducing pollution and energy consumption, raising productivity, and so on. Then the positive effect on environment regulation from independent R&D will appear as early as possible.

In addition, the second R&D is also an important power for environment improvement, so we should pay close attention to the trend of foreign developed production and environment technology, and then with the help of second R&D produce the high quality product that met the international standards.

4.2 Policy suggestion

1) We should objectively treat the protectionist measures as environment or technology barriers. In pollution intensive industry, the moderately enhanced environment regulation and more stringent trade policy should be carried out, which can not only motivate the environment technology R&D of substantial enterprises, but also decrease the production and export of pollution intensive product.

2) Now the positive industry policy is needed to help enterprises to conquer the extensive production and trade, and realize the industrial structure optimization, so the environment problems can be radically solved. Various technology incentives, such as financial subsidies, tax rebate, green credit, government pre-emption and price subsidies of green product, can be used to encourage R&D, upgrade the technology and product, and shift the emphasis from extensive production technology to green production and environment technology, then the greener production process, trade and high value-added product will help the whole industry realize the sustainable development.

3) The powerful enterprises of industry should play the leading role on capital, technology and

industrial standard, and promote the overall level of industrial technology to realize the multi-win of technology, economic and environment.

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Necessity and Feasibility: A Study on the Redeployment of Chinese Higher Learning Institutions in the Countryside at Present

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Abstract: With the analysis on the economic practices and literatures in the developed countries, based on the fact that China is now in the booming period in its economic development, the article puts forward the suggestion that some Chinese colleges and universities should move to the vast countryside from big cities. With the analysis on the necessity and feasibility of the emigration of higher learning institutions from big cities, the article gets the conclusion that the redeployment of Chinese higher education institutions in the countryside is economically and socially beneficial to the national development.

Key words: Necessity; Feasibility; Redeployment; Higher learning institutions; Chinese countryside; National development

1 Introduction

With the industrial and economic development, urbanization has become a general tendency in China.

Compared with western big cities, the majority of Chinese cities are super big cities even nowadays. More and more people are still moving to the cities to get more chances.

In the past, because of the underdevelopment of economy and agriculture was the dominant industry, Chinese cities were regarded as the places for better life and places for social elites to accelerate the market economy and industrialization. The major social resources were poured into them. The cities have better infrastructures, better living conditions and higher salaries. Because of this, the majority of factories, colleges and universities and governmental agencies were all there. This greatly contributed to Chinese market economic development. Because of the exemplary role of cities, urban life way has greatly changed Chinese farmers' life way and ideas, and China becomes more and more industrialized. Since the opening up and reform policy was carried out in China, China has been becoming more and more globalized. Its economy has become a key part of the world economy. China's economic development now influences the global economy. Chinese economy has shared many characteristics of other mature economies in the world. The cities in China have become as developed as the western ones. The founding period of Chinese market economy--- extensive development period has finished. It is now the turning point of Chinese economy. The next period--- booming period has begun. In order to gain durable national economic development, the urbanization of the countryside has become the main tendency.

During the booming period, economy development should focus on its social responsibility and durability. The development of Chinese cities has become matchable with the cities in the developed countries. But because of the lack of experience in the planning of modern cities, Chinese city diseases have become more and more obvious. Overpopulation, traffic jams, high apartment prices, city pollution are some of them. This makes it very costly to increase the economy in the big cities and the expansions of higher learning institutions in cities are very costly. On the other hand, the vast Chinese countryside is still underdeveloped. Except the road system, telecom systems, and power supplies, the other infrastructures in the Chinese countryside are still comparatively backward. This current situation discloses a good chance to add to the Chinese economic development and speed up the social and cultural development in Chinese countryside. Among all the businesses in big Chinese cities, from the angels of necessity and feasibility, the emigration of colleges and universities to the countryside will contribute a lot to the Chinese civilization and economy.

2 The Necessity of the Redeployment of Chinese Colleges and Universities in the Countryside

2.1 The functions and characteristics of higher learning schools

Higher learning institutions have two most basic functions: inheritance and creation. In higher learning institutions, for one thing, the older generation teaches the younger generation knowledge

accumulated by all the human beings; for another, college people create and innovate new things with their imagination, creativity and knowledge, and usually bring about new civilizations.

Colleges and universities symbolize the civilization degree of the country where they are. They can greatly improve the civilization level in the communities around them. College people are usually the social elites; they usually determine the future of their country. Colleges and universities are usually the leading power of modern civilization, their exemplary function in a society is irreplaceable.

2.2 The status quo of Chinese higher education

According to the Chinese Ministry of Education, till the end of 2012, the number of Chinese colleges and universities is 2198. By the end of 2013, the total asset size of the higher education institutions in China is over 700 billion RMB *yuan*. With the economy development, because of the steady increase of land price, the size is becoming bigger and bigger. This is a very big asset size and it is a very important part of the national economy.

In 2012, the number of college students in China is 24.681 million. The average potential consumption power of each college student is over 600 RMB a month. The total consumption of Chinese college students is very big. The consumption of the college students in a place can change the economic situation of the communities nearby.

Because of the size of the college assets and the huge number of Chinese college students, the redeployment of Chinese colleges and universities is sure to contribute a lot to the national economic development. Economically, the building of the new campuses and the new residents in a place are sure to accelerate the economic development in a place. The locals will have more employment chances, and new businesses are sure to come out in the new location. This will be an important factor to add to national economic development.

2.3 The status quo of Chinese countryside

Compared with the Chinese cities, the Chinese countryside is still very backward in many ways. At present, the majority of Chinese countryside is still agriculture-dominant. Backward and separate agriculture farming way makes it difficult for the farmers to make enough money to have a wealthy life. So many young people living in the countryside in China go to cities to find jobs there to make money. Though Chinese government has invested a lot of money in improving the infrastructures in the countryside and accelerating the urbanization of the countryside, the life and economic conditions in the countryside are still very backward. Backward educational institutions, insufficient cultural facilities, lack of employment chances all hinder the rapid development of the countryside. Up till now, nearly half of the Chinese population are still living in the countryside. The ideas of the countryside residents about life will greatly influence the national all-around development. To improve the ideas of the residents in the vast countryside is a key part to accelerate the modernization and civilization in the countryside. As the exemplary part of modern civilization, colleges and universities can serve this purpose perfectly. A college or university in a countryside community will greatly improve the local people's modern consciousness. It will not only provide necessary cultural facilities (libraries, gyms, etc.), it will also provide career educational opportunities for the farmers. What's more, the people working or studying in the college or university will bring the locals many modern ideas to accelerate the modernization of the locals' ideas.

On the other hand, the land price in the vast Chinese countryside is low; the living cost is not high, and the environment is much better for a college or university than that in the cities. Nowadays Chinese countryside can provide necessary power supplies, communications, and traffic service for educational institutions. The emigration of Chinese colleges and universities to the countryside won't have substantial difficulties. The colleges and universities are educational institutions, and they do not rely on the urban environment so heavily. Built in the countryside, universities and colleges can still function well, and this will not influence their social responsibility. What's more, emigration of colleges and universities to the countryside can greatly accelerate the modernization of the countryside; their contribution to the society is enlarged greatly.

During the booming period of China's economic development, the modernization of the consciousness of the residents in the countryside is the problem that should be solved first. Modern ideas will contribute a lot to the healthy national development. In this sense, it is necessary to emigrate the higher education institutions in Chinese big cities to the countryside (It is in fact a practice in the developed economies that most colleges and universities are not built in the cities.).

2.4 The benefits from the emigration of Chinese colleges and universities to the vast countryside for the cities and higher learning institutions themselves

For the cities, though the emigration may reduce the consumption power of the total population, the emigration of the higher education institutions to the countryside will bring them more benefits than harms. They will have more land to build more urban facilities and buildings for other businesses and the needy people. The total population in the cities will become smaller. The city diseases will be less serious. These are all great improvements for Chinese cities.

For the higher education institutions, they will have better environment and lower educational costs in the countryside. They can plan and build desired new campuses to satisfy their needs. They will be away from city diseases. And the new environment will benefit the students and the staff members a lot. After all, their social responsibility of educating citizens is not influenced at all.

3 The Feasibilities of Emigrating the Higher Education Institutions to the Countryside in China

3.1 The surplus after selling the old campus and building the new one

As for the emigration, cost is the biggest concern. If it is worthwhile, with the advantages we analyzed in the previous part, we won't have much reason to say no to it. In this part, we will take a famous university in China, Wuhan University of Technology (Suppose the university decided to move to the countryside), as an example.

3.1.1 The value of the fixed assets of Wuhan University of Technology that should be dealt with

The fixed assets of Wuhan University of Technology are the main part that will decide the value of its emigration to the countryside. Other forms of assets like intelligence property and fames etc. won't be influenced greatly by the moving of the campus.

Among the fixed assets, the campus land and the buildings are the parts that cannot move to the new campus site. The other assets like laboratory equipment, vehicles, teaching devices, etc. can be moved to the new campus. So by comparing the value of the campus land and buildings of Wuhan University of Technology in Wuhan City and the cost of building a similar-sized campus in the countryside, we can figure out whether it is worthwhile for the university to move to the countryside.

Campus size of Wuhan University of Technology:

$$4300 \text{ mu} \approx 4300 * 666.6 \text{ m}^2 = 2,866,380 \text{ m}^2$$

The average land price around Wuhan University of Technology in Wuhan City in March 2014 is 8974.23 RMB¹. The total land value of the campus in Wuhan City is:

$$2,866,380 * 8974.23 = 25,723,553,387.4 \text{ RMB}$$

The total size of campus buildings in Wuhan University of Technology is 1,640,000 m².

3.1.2 The cost of building a new campus of the same size as the old one

The construction costs in Wuhan City for per m² are as Table 1:

Table 1 Construction Costs for Per m² in Wuhan City²

Pile foundation	70-100 RMB / m ²
Steel Reinforcement	160-300 RMB / m ²
Concrete	100- 165 RMB / m ²
Masonry	60- 120 RMB / m ²
Plastering	25-40 RMB / m ²
Outer wall building	50-1000 RMB / m ²
Interior water and electricity installation	60-120 RMB / m ²
Roofing works	15- 30 RMB / m ²
Doors and windows	90-300 RMB / m ²
Earthworks, public entrances, flues and public places decorations	30-150 RMB / m ²

We choose the highest cost in each kind of construction and calculate the average as the construction cost of per square meter. So the highest construction cost of every square meter at present is: $(100+300+165+120+40+1,000+120+30+300+150)/10=232.5$ RMB

¹ The price is the price for residential land price, cited from http://fdc.soufun.com/data/land/land_wh.htm. The price is close to the average land price in the area around Wuhan university of Technology, not the highest, neither the lowest.

² The figures are cited from <http://www.hbcost.com>.

So if we build 1,640,000 m² architecture in the new campus, the highest cost at present is: 1,640,000 × 232.5=381,300,000 RMB

According to the price of land on the www.china.cn, the land price in Shenlongjia Forestry District is less than 500,000 Yuan per *mu*¹. If we buy 4300 *mu* land for the new campus (the same size as the old campus in the countryside), we can calculate the possible cost for the land. The cost for buying the new campus land of the same size is:

$$4,300 \times 500,000 = 2,150,000,000 \text{ RMB}$$

3.1.3 The surplus after selling the old campus and building a new one

With the figures we gained from above, we can easily get the surplus of dealing the old campus and building a new campus:

$$25,723,553,387.4 - 381,300,000 - 2,150,000,000 = 23,192,253,387.4 \text{ RMB}$$

We can put the figures above in Table 2 so we can have a clear view about the cost and the surplus.

Table 2 Surplus after Selling the Old Campus and Building a New One

Land value of the old campus	The cost of the land for the same size new campus	The cost of building the buildings of the same size	Surplus after getting a new campus
2,866,380 × 8,974.23 = 25,723,553,387.4 RMB <i>yuan</i>	4,300 × 500,000 = 2,150,000,000 RMB <i>yuan</i>	1,640,000 × 232.5 = 381,300,000 RMB <i>yuan</i>	25,723,553,387.4 – 381,300,000 – 2,150,000,000 = 23,192,253,387.4 RMB <i>yuan</i>

Even if we need to spend money moving the other school property to the new campus, the expenditure is too small compared with the surplus. The surplus is really a huge one which is even big enough to build two good enough universities even in some cities in China. If we use all this money as the developmental funds for the university, it will greatly improve the conditions of the university. It is enough to make Wuhan University of Technology one of the best universities in the world from the angel of facilities.

3.2 Another important concern

Another important concern is the willingness of the staff members of moving to the countryside. In the past, cities were the places of better living conditions and better welfare in China. They could provide residents better facilities and better chances of employment. And usually people living in the cities had higher salaries. That was why people wanted to go to the cities and the government had to set limitations on people's emigrations to the cities from the countryside.

Among the concerns of the staff members, the pay is the key one. But staff members in the colleges and universities are governmental employees. They are paid by the government. If the government pays them the same as they work in the cities (In fact, the government loses nothing by doing this), this won't be a problem anymore.

The staff members' another concern is about their personal property. With the economic development, apartments and family vehicles become important parts of personal property. Some staff members may have personal enterprises.

As for the apartments, because the apartment price in Chinese cities is much higher than that in the countryside, selling their apartments in the cities and buying or building new houses in the countryside will not only improve the housing conditions of the staff members, but also help them make a lot of money. For example, an apartment of 120 m² is worth 1200,000 RMB around the campus of Wuhan University of Technology in Wuhan City. But a 3-floored new house about 200 m² is about 500,000 RMB in the countryside near Huangshi City in Hubei Province. Selling the apartment in the city and buying a new house in the countryside, the staff member will have about 700,000 RMB left. This sum of money will be about a common staff member's 7 years' salary. The staff member will not only improve his or her living conditions greatly but also have a big sum of money to invest in other businesses to bring him or her other income. This is a big lure for any common person.

As for personal enterprises, the owners can still visit their enterprises in the cities in free time in their private vehicles. They can manage the enterprise affairs through the Internet. In fact, the location of the new campus usually won't be too far away from the original city. This is not a problem.

Even if the staff members have relatives who still live in the cities, they can visit them by driving

¹ The price is cited from <http://www.china.cn/paimai/1872317829.html>. The price is in fact much higher than that in other countryside area. To use this price is to emphasize the cost-effectiveness of the emigration.

their family vehicles. Nowadays, Chinese countryside can provide good enough transportation for them. This is not a problem either.

Nowadays, the small towns in China can provide colleges and universities necessary conditions. Besides, the clean air, low living cost and good nature environment are blessings for the staff members and students. With the same pay and better living conditions, people working and living in the new university have no reason to say no to the life in the countryside.

4 Conclusion

The size of Chinese higher education business is tremendous; the number of college students in China is very big; the redeployment of the Chinese higher learning institutions in the countryside will not only contribute a lot to the national economic development in a certain period, it will also contribute a lot to the modernization and civilization of the vast Chinese countryside and to the healthy national development. With good planning and strategic arrangement, it is sure to be a worthwhile measure in the economical booming period in China.

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Evaluation Research on the Construction Degree of Urban Ecological Civilization Based on Fractal Theory: A Case Study of Zhangjiakou City in China*

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Abstract: The construction of ecological civilization is a long-term plan related to the people's living standards and the nation's future, and it is the whole process integrating economic development, political construction, cultural construction, and social construction. On the basis of fractal theory, this paper establishes Evaluation Index System of Ecological Civilization Construction Degree (ECCD), which combines the current situation of ecological civilization construction of Zhangjiakou city of China with ecological economy, ecological environment, ecological culture, and ecological management indicators. The research shows that the current degree of ecological civilization construction of Zhangjiakou City is 0.908, which means it is in the primary stage of ecological civilization. Based on this result, further countermeasures to strengthen the ecological civilization construction of Zhangjiakou city of China are proposed.

Key words: Fractal Theory; Construction of Ecological Civilization; Evaluation; Zhangjiakou City of China

1 Introduction

The Eighteenth Party Congress Report indicated that, "The construction of ecological civilization is a long-term plan related to the people's living standards and the nation's future ... We should put the ecological civilization construction in a prominent position, and make efforts to integrate the whole progress of the economic construction, the political construction, the cultural construction, and the social construction to achieve the sustainable development of China."^[1] In response to Beijing's "spillover effects" and building the new growth pole, Hebei Province puts forward the construction of "Beijing-Tianjin-Hebei Metropolitan Economic Cluster" to achieve the harmonious and win-win development between Beijing and Hebei. As an important member of the cluster, Zhangjiakou City not only gets benefits, but also faces enormous challenges, such as ecological and environmental problems. Therefore, how to optimize the environment, adhere to the sustainable development, and build an ecological civilization city have become the primary problems to solve for Zhangjiakou City.

Compared with the primitive civilization, the agricultural civilization, and the industrial civilization, the ecological civilization is a new developmental stage of human society, and it is an inevitable choice in the context of "Society-Economy-Resource" sustainable development. In recent years, the Chinese scholars have carried out extensive and in-depth studies of the concept and connotation of ecological civilization^[2-4]. Some scholars expressed different opinions of the core of ecological civilization, but they reached a consensus, namely, "harmonious development between man and nature". Other scholars, such as Wang Guizhong^[5], Guo Suoyan^[6] and Zhang Yuzhen^[7], applied the concept of ecological civilization to many fields, and they did researches respectively on the ecological tourism, the ecological compensation and the low carbon life, established new countermeasures which regard the ecological civilization as a goal. With the continuous development of the ecological civilization construction in China, Chang Junjie^[8], Qiao Li^[9], Zhu Yulin^[10], Gao Shan^[11], etc., through carrying out empirical researches on the evaluation index system of ecological civilization construction, analyzed the situation of ecological civilization construction, and the expected achievements. To sum up, practical cases about the construction of ecological civilization are relatively insufficient in China, theories and methods of evaluation are relatively simple, evaluation indexes are uneven, and a unified norm and standard has not been formed. By referring to the sustainable index abroad, this paper finds out the evaluation index in

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accordance with the actual situation of Zhangjiakou City in China, conducts a quantitative evaluation and analysis by using the fractal theory, and puts forward countermeasures and suggestions to strengthen the construction of ecological civilization of Zhangjiakou City with the expectation to provide a reference for other cities in China.

2 An Overview of the Studied Area

Zhangjiakou City of China, also known by several other names, such as *Zhangyuan* or *Wucheng*, is located in the northwest of Hebei Province, with its longitude from 113 ° 50 'to 116 ° 30' E, and its latitude from 39 ° 30 'to 42 ° 10' N. At the junction of four provinces of Beijing, Hebei, Shanxi and Inner Mongolia, the city has been called "Beijing's Northern Door". In history, it is an important geographical and cultural city as well as a town of military importance. The city is 289.2 kilometers long from north to south, and 216.2 kilometers wide from east to west, occupying a total area of 36,800 square kilometers with a population of 4.68 million. The northwestern part of Zhangjiakou is highland and the southeastern part is lowland. The city is divided by Yin Mountains into two geographical regions, namely, Bashang district and Baxia district. Because of the continental climate, Zhangjiakou has clearly distinct seasons and large temperature differences between day and night, as well as cool summers. With the air quality ranking No. 1 in the north to the Yangtze River, Zhangjiakou has possessed a new ecological name card of "the most beautiful blue sky in the north of China".

At present, Zhangjiakou City is in a critical period of rapid development. In view of the general survey of the city, the municipal government puts forward the overall thinking of development: regarding scientific development as the theme, changing patterns as the main line, and catching-up by leapfrogging as the general requirement; adhering to the development ideas of "opening up and innovation, nation-wide entrepreneurship, creating excellence through features, and enriching the people and powering the city"; grasping the concept of "turning disadvantages into advantages and taking advantages to the extreme"; fully developing the modern industrial development model of "4+3"; and forging Zhangjiakou into "a central city connecting Beijing, Hebei, Shanxi and Inner Mongolia." The good news is that in November 2013, approved by the CPC Central Committee and the State Council, the Chinese Olympic Committee formally agreed that Beijing and Zhangjiakou made a joint bid to host the 2022 Winter Olympics.

3 Establishment of Ecological Civilization Construction Evaluation System

The Ecological Civilization Construction Degree (ECCD)^[8] is the level of the regional ecological civilization construction in a specific period. It relates to the construction of society, economy, environment, culture, and management, etc. Therefore, the evaluation of ECCD is a complex process; only after taking fully into account all aspects of a regional ecological civilization, it can be reflected realistically and effectively. Based on the connotation of ecological civilization construction and the characteristics of integrity, comprehensiveness, knowledge, circulation, etc., this paper takes the advantage of both domestic and foreign researches on selection method of sustainable index and expert scoring method to establish the evaluation index system of Zhangjiakou City's ECCD which fits with its actual situation, as shown in Table 1.

4 Evaluation Methods

4.1 Introduction to fractal theory

Established in 1975 by the American mathematician Mandelbrot, Fractal Theory is a new theory and discipline, which is used to solve complex problems and phenomena existing in nature. Nowadays, it has been widely used in various fields. Fractal stands for irregular, fragmented scores with self-similarity, scale, and self-affinity characteristics. The fractal object is a rough or fragmentary geometry, which can be divided into several parts, and each part can be regarded as an integral "copy" of the whole, reflecting not only in appearance, but also in the behavior, function, information, energy, time, and space, etc.^[12]

The city is not only a complex ecosystem, but also a thermodynamic system, and a dissipative self-organizing system. It shows obvious regional characteristics, such as spatial structure, and temporal characteristics, developing from simple to complex, from low to high, and possessing randomness, mutation, nonlinear, non-equilibrium, self-organization, self-similarity, and other features. Also, the process of constructing an ecological civilization city is dynamic with certain hidden rules, which makes the construction of ecological civilization city be nonlinearly controlled when it is divided into several

units and each unit presents self-similarity, and the fractal theory can reveal this rule [13-14].

Table 1 The ECCD Evaluation Index System of Zhangjiakou City of China

Overall Goals	Level Indicators	Secondary Indicators	Unit	Worst Value	Best Value	Status Value	Non-dimensional treatment
The evaluation of ECCD in Zhangjiakou City	Ecological Economy	GDP per capita	¥ 10,000	0.5	5	2.814	51.42
		the per capita disposable	¥ 10,000	0.3	3	1.844	57.19
		the added value of third industry accounted for GDP	%	8	50	40.43	77.21
		the public green area per capita Engel coefficient	m ²	11	60	32	42.86
		the public green area per capita Engel coefficient	%	100	0	35.6	64.4
		over 4A level scenic spots		5	15	11	60
	Ecological Environment	energy consumption per unit of GDP	t/¥ 10,000	3	0.3	1.537	54.19
		SO ₂ emission reduction	%	10	30	23.77	68.85
		COD emissions	kg/¥ 10,000	10000	1000	5170	53.67
		environmental investment accounted for the proportion of GDP	%	2.5	10	3.53	13.73
		air quality rate	%	50	100	74.5	49
		forest coverage	%	5	95	31.6	29.56
		garbage harmless processing rate	%	60	100	100	100
	Ecological Culture	the public participation in environment	—	60	100	59.2	0
		the public environment satisfaction rate	%	60	100	82.7	56.75
		the ecological civilization education popularization rate	%	60	100	76.3	40.75
		the cultural industry percentage of GDP	%	0	15	3.39	22.6
	Ecological Management	environmental decision-making capacity	—	60	100	65.4	13.5
		environmental regulation capacity	—	60	100	68.1	20.25
		environmental supervision capacity	—	60	100	61.5	3.75
environmental emergency response capacity		—	60	100	57.8	0	

4.2 Calculation of fractal dimension

Suppose that each index g_{ij} of the established ecological civilization construction evaluation index system can be regarded as the radius of a ball, which can be put into a container with a circular hole whose radius is r_n at the bottom of it. If all balls whose radius is less than r_n can go through the circular hole under certain conditions, then the number of leakage balls can be [15]:

$$N(r_n) = \sum_{i,j} H(r_n - g_{ij}) \tag{1}$$

The formula H is Heaviside function, when $g_{ij} > r_n$, the function value is 0, otherwise it is 1. For a set of given r_n , if there is a corresponding group of $N(r_n)$ which has a power function relationship with it, people can make the independent and dependent variables respectively logarithmic and differential, then formula (3) is got, D is the fitting slope of line equation $\ln N(r_n) - \ln(r_n)$ in the double logarithmic coordinates.

$$d(\ln N(r_n)) = dN(r_n) / N(r_n) \tag{2}$$

$$d(\ln(r_n)) = d(r_n) / r_n \tag{3}$$

$$D = d(\ln N(r_n)) / d(\ln(r_n)) \tag{4}$$

Through the comparison of ECCD evaluation index systems, people can find that, when the ECCD is low, there are more balls with smaller radius, which is easy to go through the circular hole. That means the positive index value of the status quo is smaller, and the reverse index value of the status quo is larger; conversely, when the ECCD is high, there are more balls with larger radius, which are difficult to go rough the circle hole. That means that the positive index value of the status quo is larger and the reverse index value of the status quo is smaller. By analyzing fitting straight lines of $\ln N(r_n)$ and $\ln(r_n)$, people know that the lower the ECCD is, the greater the value $N(r_n)$ is, and the more the slope of a straight line (fractal dimension D) is.

5 Sources of the Data

The basic data required for this study mainly comes from the statistical bulletin of Zhangjiakou national economic and social development in Zhangjiakou Economic Yearbook, and part of the data is from Hebei Statistical Yearbook, Zhangjiakou Municipal Bureau of Statistics, and so on. Among these documents, the worst value and the most optimal value of ecological civilization construction evaluation index property values are mainly determined by the actual situation of Zhangjiakou, China's national conditions, and the relevant literatures.

To evaluate the degree of the construction of ecological civilization, firstly researchers should standardize the original data. This paper takes dimensionless processes to g_{ij} by the means of the fuzzy membership function, and obtains the index normalized value, which will be multiplied by 100. The specific method is: to quantify the positive index with half ascendant of trapezoidal fuzzy membership function (Equation 5); and to quantify the reverse index with half trapezoidal fuzzy membership function (Equation 6).

$$x'_i = \frac{x_i - m_i}{M_i - m_i} \tag{5}$$

$$x'_i = \frac{M_i - x_i}{M_i - m_i} \tag{6}$$

wherein x_i is the specific number for the i index; M_i and m_i are respectively the maximum and the minimum of the i index attribute ; x'_i is a standard value for the i index whose values are among 0~1.

6 Evaluation Results

According to Table 1, if we calculate $N(r_n)$ of the line $\ln N(r_n) - \ln(r_n)$, and take $\Delta r_n = 10$ and then we will get a result as shown in Table 2. If we use the least squares method to fit the line $\ln N(r_n) - \ln(r_n)$ and we get the result shown in Figure 1. Among them, $R^2=0.969$ indicates a good correlation dimension; and the dimension of the line of $\ln N(r_n) - \ln(r_n)$ is $D=0.908$, which is the current degree of Zhangjiakou City's ecological civilization construction.

Table 2 The Numerical Calculation Results of $\ln N(r_n)$ and $\ln(r_n)$

Variable	Value									
	10	20	30	40	50	60	70	80	90	100
r_n	10	20	30	40	50	60	70	80	90	100
$\ln(r_n)$	2.30	3.00	3.40	3.69	3.91	4.09	4.25	4.38	4.50	4.61
$N(r_n)$	3	5	8	8	11	17	19	20	20	21
$\ln N(r_n)$	1.10	1.61	2.08	2.08	2.40	2.83	2.94	3.00	3.00	3.04

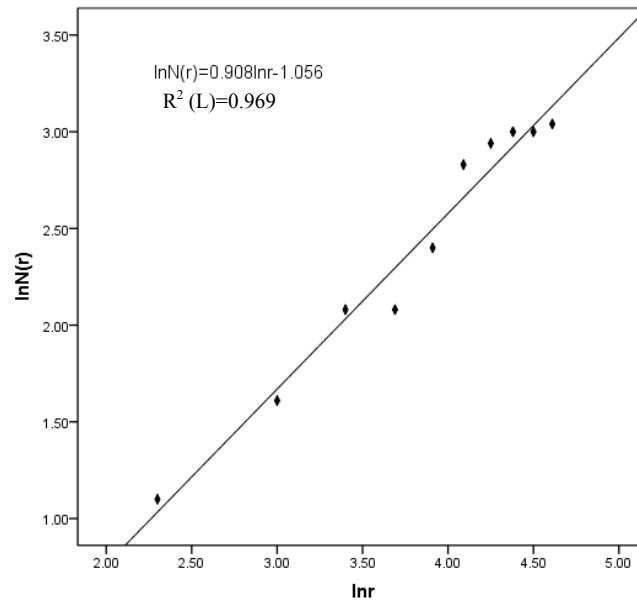


Figure 1 $\ln N(r_n) - \ln(r_n)$ Fitted Curve

Only the grade standard of construction level is determined, we can evaluate the construction level of ecological civilization city. Based on the related research home and abroad, as well as the opinions and suggestions of local experts, four grade standards of the construction of ecological civilization city are given, see Table 3. Through four grade standards, we can judge the construction level of an ecological civilization city, and then build better ecological civilization cities.

Table 3 Classifications of Construction Level of Ecological Civilization

The Construction Level of Ecological Civilization City	Advanced Ecological Civilization City	Standard Ecological Civilization City	Primary Ecological Civilization City	Non-ecological Civilization City
The Numerical Range	<0.2	0.2~0.6	0.6~1	more than 1

According to Table 3, at present, Zhangjiakou City is in the primary stage of ecological civilization. It has a beautiful ecological environment and basic infrastructure construction in line with national planning requirements, but lacks the necessary ecological functions. In recent years, Zhangjiakou attaches great attention to the construction of ecological civilization and the protection of ecological environment. By taking multiple measures, it obtains gratifying achievements in the construction of ecological civilization. Moreover, each department enforces strictly laws and regulations about environmental protection, and strengthens the city infrastructure construction and environmental remediation. In the subsystems, both ecological economy and ecological environment in Zhangjiakou are getting better and better, which is pushed forward by the Beijing-Tianjin-Hebei economic circle, where the society makes continually progresses, people's living standards have been improved remarkably, and the comprehensive economic strength gradually increases. Accompanied with the continental climate, distinct seasons, large temperature differences between day and night, cool summers, and the quality of air ranking No. 1 in the north to the Yangtze River, Zhangjiakou has possessed a new ecological name card of "the most beautiful blue sky in the north of China". However, the ecological management and culture are still in an average level, and the cultivation of citizens' ecological consciousness dominated by the government is still insufficient and monotonic, which leads to a low degree of public participation in environmental decision-making. In addition, the capacity of the government to make decisions, regulate, supervise, or deal with the emergency is quite weak. To sum up, the evaluation result is consistent with the overall situation of the construction of ecological civilization in Zhangjiakou City at present.

7 Countermeasures to Strengthen the Construction of Ecological Civilization in Zhangjiakou City

The analyses above can bring about some related preliminary results. Zhangjiakou City has been in the primary stage of the construction of ecological civilization and achieved, and it still needs to establish a scientific construction goal and determine a clear priority to the development of the planning and construction of ecological civilization system to improve the ecological civilization in Zhangjiakou to a higher stage, and finally realize the goal of building an ecological civilization city.

7.1 Making the overall planning of the development of ecological civilization construction.

The government should adhere to the principles of “being guided by ecology, spreading over all work, strengthening foundation, sustainable development, overall planning, coordinated push, low-carbon transition, green rising, deepening reform and opening up, government-leading and public participation”, respect the characteristics of local resources and the carrying capacity of environment to design Zhangjiakou’s future development locally and scientifically. Furthermore, the government should not only make the overall development plan of ecological civilization construction, but also place the concept of ecological civilization into the future implementation of Zhangjiakou’s Thirteenth Five-Year Plan, construction planning, and industrial planning etc., and put it under the supervision of the relevant agencies and departments, so that the construction of ecological civilization can be the blueprint and benchmark of urban development.

7.2 Encouraging public participation and improving the ecological civilization education system

The construction of ecological civilization requires not only the promotion of the government and the management mechanism, but also more public support and participation, which call for the public to be the main part of the construction of ecological civilization in Zhangjiakou City. Creating favorable environment and guiding the public gradually from passive to active participation, from the partial involvement to the whole involvement, endowing the public the right to speak and make decisions will benefit establishing a more open and perfect the mechanism of public participation. In order to increase public participation, we need to improve the educational mechanism of ecological civilization, provide the education training of ecological civilization for the public and group leaders, strengthen the ecological consciousness, enhance the consciousness of public participation, and raise participation ability.

7.3 Implementing ecological key projects and promoting environmental protection management

Zhangjiakou City should stick to taking the ecological environment as the lifeblood of its development, make more efforts in ecological construction and environmental protection, emphasize the construction of the “Two-oriented society”, and strive to create the environment of “blue sky and clear air, clean water and free-flowing rivers, green ground and mountains, and environmental security” by the implementation of following key projects: to highlight resource cultivation and develop eco-forestry; to stress the development of healthy food and non-pollution ecological agriculture; to strengthen the control of soil erosion; to focus on the management of “Big Five” water system”; to fully carry out the forest conservation and dry lot feeding, to implement vigorously the project of blue sky and clean water; to practice entirely efficient water-saving agriculture; to focus on building efficient water-saving irrigation demonstration area in Bashang area; to highlight the integration of resources and develop ecological tourism; and to improve living environment and develop eco-towns.

7.4 Saving resources and innovating economic development pattern

Zhangjiakou is a city that is relatively scarcity of resources, and as the upwind and water resource of Beijing, it has a special geographical position. Thus, Zhangjiakou must not only embark on the development pattern of resource-saving and strengthen the conservation of resources and recycling management, but also bid farewell to the traditional extensive mode of economic growth. The whole city need to develop solar and wind energy, and other clean renewable energy, focus on the development of green organic agriculture, tourism industry and high-tech industry, reduce energy consumption per unit of GDP, and adjust the industrial structure under the guide of the ecological civilization construction. All this will eventually benefit the achievement of the sustainable development of Zhangjiakou.

8 Conclusion

Based on the existing researches, and combined with the natural geographical features, and economic and social development of Zhangjiakou City, the paper aims to build an ecological civilization construction evaluation index system which comprises of the four major core areas, and they are ecological economy, ecological environment, ecological culture, and ecological management. In this

process, the Fractal Theory is used to estimate the current ecological civilization construction degree of Zhangjiakou City. For the construction and development of ecological civilization in Zhangjiakou, there is a long way to go. In the process of economic development, the whole city needs overall planning and all-round consideration; namely, while in the pursuit of economic benefits, the city needs to preserve the ecological environment, fulfill the social responsibilities, and realize the sound and fast development. Only in this way, the goal of ecological civilization construction will certainly be achieved at an early date.

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Construction of Enterprise Carbon Accounting System under the Low Carbon Economy

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Abstract: As global warming has become truth, is developing as a new economic model, The new economic development model has given rise to an important branch of environmental accounting, namely carbon accounting. At first, this paper discusses the carbon accounting theoretical foundation comprehensively, and then analyzes the environment of the construction of the carbon accounting system. The focus of the article is to build enterprise carbon accounting system, it covers the confirmation and measurement, record and information disclosure of the enterprise carbon accounting on the way of low carbon economy, its core is the processing of carbon emission rights, information disclosure mode and content, etc.; The purpose of this paper is to build enterprise carbon accounting system which is suitable for China's national conditions, in order to provide certain reference and theoretical support for the low carbon economy development of our country .

Key words: Low carbon economy; Carbon accounting confirmation; Carbon accounting system; Carbon accounting

1 The Development Background and Theory of the Low Carbon Economy

1.1 The development background of the low carbon economy

Low-carbon economy was published by the British for the first time in energy white paper" in 2003 , the concept of low carbon economy was caused the wide attention and recognition by the international community, low carbon economy is recognized as the most effective and critical way to solve the problem of global climate . In the midst of the heavy industrialization, China promotes low carbon economic development model in all levels actively for seeking a new road to industrialization , at the same time, the domestic accounting profession also began to discuss the related problems of the enterprise carbon emissions and trading accounting under the background of the low carbon economy for China's national conditions quietly , Combining with the economic situation of home and abroad, this requires that we must change the traditional development model of the dependence on resource consumption and environmental costs excessively for economic growth.

1.2 Concepts and theories of Low carbon economy

Low carbon economy is an economic development form which is in order to build a win-win between the social ecological development and environment protection. It reduces the high carbon energy consumption coal, oil, and greenhouse gas emissions as much as possible by the technical innovation, system innovation, industrial transformation, new energy development and other means under the guidance of the concept of sustainable development. The characteristics of low-carbon economy is to reduce emissions of greenhouse gas and construct economic development system of low energy consumption, low pollution , including low carbon energy system, low carbon technology and low carbon industry system. Low carbon energy system is to reduce carbon dioxide emissions by the developing of clean energy, including wind, solar, nuclear, geothermal energy and biomass energy instead of coal, oil and other fossil energy to(Ratnatunga 2012). Low-carbon technologies include clean coal technology (IGCC) and carbon dioxide capture and storage technology (CCS), and so on. Low carbon industry system include thermal power reduction, new energy vehicles, energy saving building, industry energy saving and emission reduction, circular economy, recycling, environmental protection equipment, energy-saving materials and so on.

2 The Concepts and Theories of Carbon Accounting

2.1 The concepts of carbon accounting

The development of low carbon economy has brought the development of carbon accounting; carbon accounting is the accounting system to promote deep integration and coordination between environment and economy development by reflecting and controlling the social environment resources on the basis of the traditional accounting. The latest research progress of carbon accounting is defined as a foreign currency as the main unit of measurement, mainly to the enterprise performance of the low

carbon responsibility of saving energy and reducing pollutant emissions, its purpose is to help enterprises to realize energy conservation and pollution reduction. Carbon accounting mainly related to carbon emissions associated with carbon accounting information disclosure, risk or uncertainty management and strategic development, and so on.

2.2 The theories of carbon accounting

2.2.1 External theory

For a long time, the space of carbon dioxide emission belongs to the category of public goods, externalization is obvious. Specification of carbon dioxide emissions is the main content of the carbon emissions trading (David 2008). Ultimately, the market capitalization, quantification approaches of emissions of carbon dioxide should be clear; it should become public goods and the resources which are gotten from paying a price in production and business operation process. It has replicability and exclusiveness in the process of using. The externalization of carbon dioxide is not only related to its amount but also because of not reasonable using by the human, the irrational economic structure and technology is not enough and so on.

2.2.2 Property rights theory

Property rights is very wide in the modern economics implication, it can be understood as a right which can choose the multiple uses of some economic goods through social force. It can be divided into two categories: private property and public property. Property rights theory is a kind of non-government interventionist scheme which solve the problem of externalizations by introducing the market mechanism, can be made through the trading policy of environment of economic management of emissions generally, the seller can sell pollution index from the reduction of pollution emission for the compensate of the external economy, the buyer buy the shortage of pollution index because of not to reduce pollution by the regulation, in order to realize the enterprise private cost close to its social cost, can achieve the optimal allocation of environmental resources. It is not hard to imagine that the result is the destruction of the resource, waste and excessive development if you can't definite or guarantee property rights clearly. If carbon resources rights are clear and can be transferred, carbon resource cost and value can be detailed evaluation measured; also, resources can be allocated effectively.

2.2.3 Sustainable development theory

Thought of Sustainable development is the long-term development of human society; it reflects a reflection of the relationship between the development of human beings and natural environment resources. Sustainable development is proposed by the world commission of environment and development in the report of "our common future" in 1987, the definition of "sustainable development" is to satisfy the need of modern people without hurting the ability of future generations to meet development needs in generally (Gregg 2002). Enterprises must take the environment effects from the production and business operation activities into account in the process of sustainable development, and measure, reflect and control the environmental resources, in order to provide services for improving the environment, using resources rationally and promoting the sustainable development of the enterprise. Implementation of Carbon accounting will affect the enterprise decision-making and economic benefits, the relevant transaction will also affect the enterprise's financial position, operating results, in order to meet the requirements of information users to understand the carbon accounting information, it requires companies have to provide the information system of carbon accounting information. So, the sustainable development theory is important for deepening the understanding of the "low carbon", as well as the formation and development of carbon accounting.

3 The Relationship Between Low Carbon Economy and Carbon Accounting

3.1 The relationship of the unity and opposites

The opposite of low carbon economy and carbon accounting is that low carbon economy is a description of development concept, but carbon accounting is a new form of economic development for management activities, which is material; The unity of them is mainly manifested in the consistency of the target, the main goal of low carbon economic model's is to respond to climate change and energy security, so as to promote the sustainable development of society and economy, carbon accounting is based on how to compensate the cost of natural resources and the accounting, its main purpose is to use accounting to reflect the problem of environment and resources, and make the environment and resources information to influence people's behavior. So target of carbon accounting is consistent with the low carbon economy. Visible, low carbon economy and carbon accounting attaches great importance to the ecological environment and material circulation rule, reasonable development and utilization of

resources, efforts to improve social benefit and environmental benefit, so as to achieve sustainable development. to achieve coordination between man and nature system.

3.2 Low carbon economy is the theoretical basis to realize carbon accounting

Low carbon economy is a concept and mode of sustainable development which correlates energy, environment and economy. On theory, low carbon economy is a kind of development, and accounting is a kind of management activities to reflect and control the enterprise economic activity. According to the development of economy, it can improve and enrich the traditional theories and methods, in order to reflect and control the consume energy and its external environment damage from enterprise production activities, as to make the enterprise accounting can reflect the economic activities, and assess their effectiveness fully and truly. In fact, Environment and resource factors must accounted in the economic activity of enterprise, which requires the accounting system to reflect. The establishment of low carbon economic development model provides the necessary theory preparation and practice basis for carrying the environmental resources and carbon emissions into the accounting system.

3.3 Carbon accounting is the necessary means to realize low carbon economy

Low carbon economy model is asked to reduce dependence on natural resources; we can not only achieve the efficient use of energy but should pay attention to the protection of the ecological environment in the process of social and economic development. As to realize the sustainable development of economy. As the leading force of the social production, enterprises are the body of the quantity, and the development of low carbon economy. To build and implement the feasible carbon accounting system is to apply quantitative carbon accounting information to fulfill its obligations to the environment to the enterprise, the evaluation of environmental responsibility, To evaluate whether the enterprise can reduce energy consumption, reduce pollution emission and improve efficiency is the objective requirement of low carbon economy development, also is the essential means to realize low carbon economy.

4 Construction of Carbon Accounting System

4.1 Environmental analysis of building carbon accounting system

Carbon accounting is from the environmental accounting. Its development can not leave from a certain macroscopic environment and microcosmic environment, macro environment is primarily policy factors, the micro environment factors are from the market, before the constructing of carbon accounting system, we have to analysis policy environment and market environment to prepare for it well.

4.1.1 Macroscopic environment

The clean development mechanism is our country to participate in most project mechanism, the main content is: in the Kyoto protocol, developed countries carry out the project level with developing countries by providing funding and technology, they make project investment which not only conform to the requirements of the sustainable development policy, but have greenhouse gas emission reduction effect in developing countries. In return to get some or all of the emissions reductions for investment project, as a part of its emissions reduction obligations, the lines is defined as a certified carbon emission reductions in the clean development mechanism (CDM).

Carbon emissions trading mechanisms refers to that countries transferred its carbon emissions reduction obligations which is over fulfilled to another country directly by trading. It is from annex 1 in the "Kyoto protocol", including the "emission reduction unit", "emission reduction certified", "distribution of the number of units", "removal of units" such as carbon reduction unit certified(Larry 2013).

Joint performance of the mechanism, is refers to the developed countries fulfill project based in return for carbon emission through trading in the transitional developing countries. Carbon emissions produced in the joint performance of the project is called reduction unit.

4.1.2 Micro environment

Carbon markets are the soil of accounting for growing, the development of accounting can not leave from the market environment, carbon emissions trading market is important in the development of carbon accounting market environment. In order to lay a foundation for the later construction enterprise carbon accounting system. We must understand the relevant market environment. For the moment, in carbon emissions trading market, compliance of trading market is given priority; voluntary compliance trading market is minority. According to the report by world bank in 2011, From carbon emissions trading volume and the trading amount in the global main large carbon emissions trading market, the carbon emissions trading market dominant is based on the quota of carbon emissions trading, the trading

of several large carbon emissions trading system is in large number. Carbon emissions trading on the basis of the project is mainly based on CDM project of certified carbon emissions, it makes amount of carbon emissions trading on the basis of the project, most of the joint project implementation mechanism of emissions trading unit and the number of carbon emissions trading market is little voluntarily (Janet 2008). Based on the above analysis, you can see that global carbon emissions trading market has begun to take shape, it is feasible to obtain the fair value of the carbon emissions.

4.2 Confirmation of carbon accounting

4.2.1 Confirmation of measurement principle

To distinguish the type of market. By above knowable, at present, carbon emission rights have two different types of trading markets mainly, one is a mandatory compliance, the other is a voluntary compliance trading.

To distinguish the type of transaction. Because there may be a variety of transaction type, so we cannot treat as the same even in the same transaction market. even if there is a mandatory compliance, but type can be based on the quota, may also be based on the project (Jonatan 2011).

To distinguish the purpose of use. Carbon emission rights obtained by enterprises are for different purposes, for different purposes, the choice of enterprise must be different. Even if the market and the transaction type is same, but because of different uses, the accounting measurement still have differences, so we also need to distinguish purposes.

4.2.2 To confirm the measurement content

Because of the different nature of trading, the measurement of carbon emission rights is also different, as mandatory compliance market transactions for example, make division according to the different combination of the transaction type and uses.

① Transaction type: on the basis of quota, use: emissions plan for private use. Confirm the measuring specific content as shown in table 1.

Table 1 The Confirmation of Measurement Based on Quota Trading Plan for Private Use

Project	specific content
Initial confirmation	Carbon emissions that are acquired from the government's free accounting treatment; From a government auction for carbon emissions or purchase from the secondary market on the basis of quota of processing of carbon emissions
Subsequent measurement	Emissions of greenhouse gases yes accounting: carbon emission rights value changes in accounting: amortized during the period of accounting: final carryover and cases submitted to the accounting treatment: enterprise accounting change hold carbon emissions purposes

② the transaction type: on the basis of quota, application: permits plans to sell. Confirm the measuring specific content such as table 2

Table 2 The Confirmation of Measurement Based on Quota Trading Plans to Sell

Project	specific content
Initial confirmation	Carbon emissions that are acquired from the government's free accounting process, from the government by auction of carbon emissions accounting treatment, from the secondary market to buy based on the quota of the accounting treatment of carbon emissions
Subsequent measurement	Carbon emissions accounting value changes, to sell carbon permits to accounting, the accounting treatment of the final presentation, enterprise change hold carbon emissions accounting purposes

③ Transaction type: on the basis of the project, use: emissions plan for private use. Confirm the measuring specific content as shown in table 3.

Table 3 The Confirmation of Measurement Plan to Use Based on Project

Project	specific content
Initial confirmation	Through project cooperation in carbon emissions accounting, on the secondary market to buy based on the project of carbon accounting
Subsequent measurement	The same as ①

④ Transaction type: on the basis of the project, use: permits plans to sell. Confirm the measuring specific content as shown in table 4.

Table 4 The Confirmation of Measurement Plan to Sell Based on Project

Project	specific content
Initial confirmation	Through the project cooperation in carbon emissions accounting confirmation, on the secondary market to buy based on the project of accounting confirmation.
Subsequent measurement	The same as ②

4.3 Accounting records of carbon

4.3.1 Account settings

Based on the above analysis, when the accounting account Settings to make it satisfy the requirement of conventional financial accounting work, and meet the needs of the carbon accounting work. When in the specific design, can from the following aspects:

1) Add general ledger subjects “carbon emissions”, in view of the carbon in the new situation, new business accounting and management of the new requirements set, it can reflect the carbon emissions of the specific subject, and can judge the implementation of its environmental responsibility, in a timely manner so as to take measures in a timely manner to improve governance.

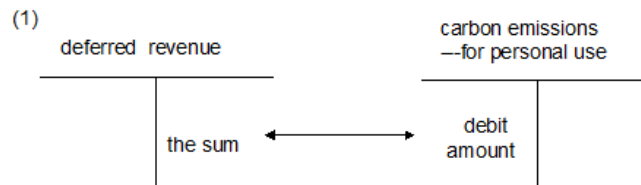
2) Add detail course, set under the “carbon emissions” subject “personal use” and “sell” two subsidiary subjects, according to the different USES of company carbon emission rights classification collection summary.

4.3.2 Accounting treatment

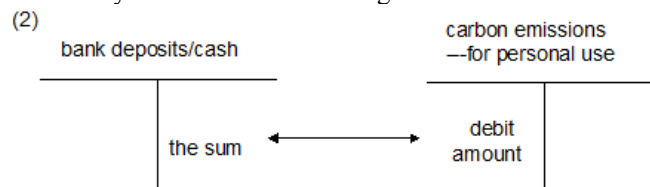
As mandatory compliance market transactions for example

1) Transaction type: Based on the quota, application: emissions plan for private use

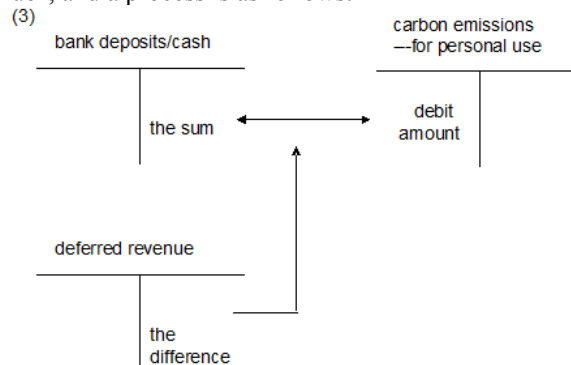
Carbon emissions way free from the government. In accordance with the fair value as obtained confirmed that involves accounting account for “carbon emissions - for personal use” and “deferred revenue”, processing is as follows:



Carbon emission right can be got from government by auction. When the sale cost is greater than the fair value, it is confirmed by auction cost. Processing is as follows:

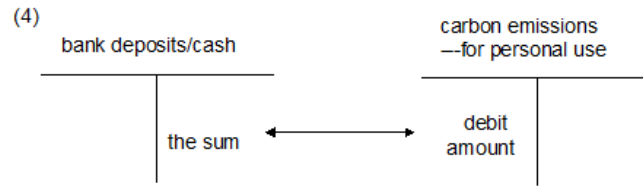


When auction cost < fair value, at fair value, involving accounting account again, borrowers' difference “deferred revenue”, and a process is as follows:

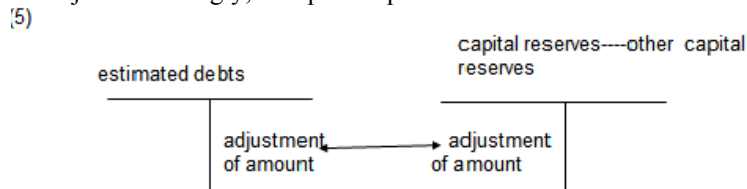


Carbon emissions from the secondary market to buy. Carbon emission rights obtained by this way, the purchase cost is equal to the fair value, this is in the market of fair trade both parties of a voluntary

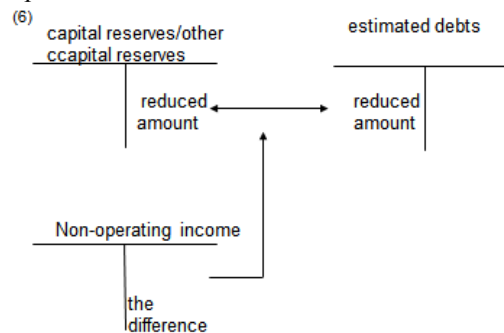
deal price, according to the purchase cost can be confirmed, involving accounting account for "carbon emissions - for personal use" and "bank/cash on hand", processing as follows.



Deferred revenue. Deferred revenue according to adjusted the book balance of the processing, the non-operating income at the current, the premise according to the use of carbon emission rights plan, and adjust the early spread of deferred earnings. When the deferred revenue is a credit balance, processing as "deferred revenue" debit, "non-operating income" lenders, when the deferred revenue for the debit balance, "non-operating income" debit, "deferred revenue" lenders. Greenhouse gas emissions. In accordance with the fair value of the liabilities, confirm the enterprise cost, fair value for emissions, and specific treatment for "manufacturing cost/management fee/cost of sales/production costs, such as "debit," estimated debts lenders. Adjustment is expected liabilities, according to the fair value of the carbon emissions(Kenneth 2004). The fair value increases, the estimated debts to adjust its book value, capital reserves also adjust accordingly; the specific process is as follows:



Fair value decrease, the capital reserves to offset (if the preexisting for appreciation and confirmation), capital reserves enough write-downs, would need to be accounted for as non-operating income account, the specific process is as follows:



The final balance sheet date accounting. The final accounting, follow the principle of first in first out, return to the government carbon emissions, and the actual emissions equivalent to the final at the same time carry forward capital reserves and carbon emission rights impairment provision, should correspond to actual emissions.

2) Transaction type: on the basis of the project, use: emissions plan for private use

Emissions through project cooperation, in accordance with the fair value can be confirmed as obtained (usually can choose acquisition cost), involving accounting accounts for "carbon emissions - for personal use" and "bank deposit cash/library", processing is as same as (2)

Carbon emissions in the secondary market to buy, and initial recognition through project cooperation in confirm the identity of the practice of carbon emissions. Described in the subsequent measurement and (1) accounting, no longer here.

3) Transaction type: on the basis of quota, use: permits plans to sell. Company plans to sell carbon permits to accounting, method is similar to in stock, but with inventory and not identical, to establish accounting account for "carbon emissions-for sale". "Is the explanation of China's accounting standards for stock inventory is refers to the enterprise in everyday activities held for the sale of finished goods or commodities, in the production process in the product, in the production process or provide labor services process consumption of materials, materials, etc." The explanation shows that companies hold for plans to sell carbon permits, the basic characteristics and the definition of inventory, but on the other

hand, from the definition of inventory, inventory is a physical form, in contrast, carbon emissions, is no physical form. In conclusion, if you plan to sell carbon permits to directly recognized as the inventory, it is not appropriate, you should add “carbon emissions – sell” course, confirm measurement of carbon emissions. Carbon emissions way free from the government. In accordance with the fair value as obtained confirmed that involves accounting account for “carbon emissions–sell” and “deferred revenue”, processing is as same as (1)

Carbon emissions from the government by auction. When the auction cost or fair value, confirmed by sale cost, involving accounting account for “carbon emissions-for personal use” and “bank/cash on hand”, processing is as same as (2)

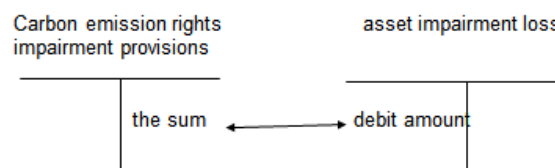
When auction cost < fair value, at fair value, involving accounting account again, borrowers difference “deferred revenue”, a process is as same as (3)

Carbon emissions from the secondary market to buy. Carbon emission rights obtained by this way, the purchase cost is equal to the fair value, this is in the market of fair trade both parties of a voluntary deal price, according to the purchase cost can be confirmed, involving accounting account for “carbon emissions - for personal use” and “bank/cash on hand”, processing is as same as (2)

Subsequent accounting treatment is mainly related to the carbon emissions of self-use value change, can be divided into value-added and impairment of two cases. Carbon emissions rise in value, if the initial measurement involves a deferred income, carbon emissions and the book value of the deferred income increase, processing for the increase in “carbon emissions – for” debit, “deferred revenue” credit, if the initial measurement without involving deferred income, processing for the “carbon emissions – for” debit, “capital reserves, other capital reserve” lenders, in addition, still need to write down impairment provision if there is a provision for impairment loss of the original; Carbon emission rights impairment, if initial measurement involves the deferred income, when processing to reduce the forehead, “deferred revenue” debit, “carbon emissions-for private use” credit, if the initial measurement without involving deferred income, processing to reduce the amount of the asset impairment loss debit, “carbon emission rights impairment provision” lenders, value-added have previously included in the capital reserves, need to offset capital reserves.

Deferred revenue. Deferred income according to adjusted the book balance of the processing, the non-operating income at the current, the premise according to the use of carbon emission rights plan, and adjust the previous share of deferred income, treatment as “deferred revenue” debit, “non-operating income” lenders. Impairment test. Plans to sell carbon emissions if made free from the government or auction, when cost is < the fair value, to compare costs and net realizable value of carbon emissions, according to both the smaller adjust the book value. That there are two kinds of circumstances, when the entry value > net realizable value, the difference between the two confirmed as carbon emission rights impairment provision, involving accounting account for “asset impairment loss” and “carbon emission rights impairment provision”, the process is as follows:

(7)



When the entry value < net realizable value, the two cases, one if the original impairment provision, should be in the provision of the amount of the impairment of converted back and there is no provision for impairment of a second if the original is made of, does not make the accounting treatment. Plans to sell if carbon emissions from the secondary market to buy or obtained from the auction, when purchase cost or fair value, are “lower of cost and net realizable value” for impairment test. , same as above is divided into two cases. The sale of carbon emissions. Plans to sell carbon emissions in accordance with the sale income amount is recognized as the other business income, namely debit “bank/cash”, “other business income” is credited to account the corresponding cost, shall follow the principle of first in first out, and the specific processing is: borrow other businesses “cost”, credit “carbon emissions - for sale”, if there is provision for impairment loss, debit “other business cost”, “carbon emission rights impairment provision”, credit “carbon emissions - for sale”.

5 Conclusion and Prospect

With the development of low-carbon economy, the importance of carbon accounting has been self-evident, theory and practice in our country are making unremitting efforts. In this chapter, from the perspective of the enterprise accounting practice case carbon, carbon accounting practice processing has carried on the concrete discussion, and the future application of carbon accounting are further analyzed. Believe that through the joint efforts of theory and practice, the theoretical framework and method of carbon accounting system will be constantly to improve and develop, thus for enterprise development provide effective guidance of carbon accounting practice.

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Measuring the Coordinated Development of Economy, Society, and Environment in Municipalities and Provinces of China

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Abstract: Sustainability is commonly interpreted by a triangle framework of Economy, Society, and Environment. The realization of sustainability depends on the simultaneously improvement in the three phases. Accordingly, this paper possesses a new perspective of coordinated development of Economy, Society, and Environment to track the progress of sustainability transition. Coordinated development pursues the improvements in two dimensions. One is the coordination interrelationship among the three pillars, and the other one is the general level of the three pillars' development. Based on this, a synthetic index is used to measure the coordinated development in Chinese municipalities and provinces during the years from 2004 to 2010. The result shows that the evolutions of the coordination interrelationship in cities or provinces are similar to each other in the same region. It further reflects the effects of economic development exerted on social development and environmental quality own the feature of regionalization. What's more, by analyzing the reason for the coordinated development changes in different regions, the study identified the influence factors of development strategy in China. Then a case study is followed to explain the process in detail.

Key words: Sustainability assessment; Coordinated development; Synthetic index

1 Introduction

Sustainability is the conclusion achieved by the long-term development experience of human race around the world and is the inevitable choice for future development from the perspective of system thinking. As people's perception of their interactions with the nature deepening since 1960s, the world has reached a consensus on pursuing sustainable development. However, there is still a huge gap between conceptual framework and practical measures. In China, the government has been paying great effort to promote sustainability transition from the beginning of 21 century, but the situations vary among different regions. Generally speaking, the problems caused by the discordance among economy, society and environment are increasingly severe, such as resource depletion, environment degradation and poverty.

The conceptualization of sustainability is based upon system thinking. There are three pillars that are interacted with each other inside the system, economy, society, and environment^[1]. The realization of sustainability depends on the simultaneously improvement in the three phases. Therefore, the process of sustainability transition can be considered to be the development of the three pillars while they are coordinated to act together harmoniously. Based on this, this study possesses the perspective of coordinated development to measure and analyze the sustainability levels of regions in China.

Since in the 1980s the Brundtland Report linked the environment conservation with human's development, the interactions between economy and natural environment have been extensively studied. Although there are a great number of studies on sustainability assessment, only a few of them considered the coordination among economy, society, and environment, e.g. the sustainable development index that involved system coordination indicators^[2] and a coupling model of coordination between urbanization and the environment^[3]. In conclusion, the research on coordinated development among the three pillars of sustainability still in early stages. Studies in this field mainly focused on the mechanism of the interactions between human's development and the environment, while few of them developed complete evaluation models and applied in empirical studies.

The remainder of this paper is organized in such a logic way. In the second section, a framework of coordinated development evaluation is developed consistent with the decomposition of the connotation of coordination development. Then in the third section, by collecting and processing the panel data of 30 municipalities and provinces from 2004 to 2010, the coordinated development levels of these objects in each year are calculated based on the mentioned evaluation method. Depending on the analysis result, hopefully the following questions are to be answered: (1) if the evaluation method is able to reflect the coordination relationships between economy, society, and environment? (2) if the coordinated

development levels of these regions are different from their comprehensive development levels? (3) what is the main factor that influence the evolution of coordinated development?

2 Methodology

In the framework of sustainability given by WCED, it is a complex system of three pillars that have interrelationships with each other, economy, society, and environment. Meanwhile, the three pillars are three subsystems that are constituted by multiple related actors, such as individuals, social or economic organizations, and natural capital. In the system running, each of their activities has interdependencies with others, which means how well an activity runs will influence the performance of other activities. Coordination is the management of the interdependencies among the activities in the system, while development is the comprehensive improvement of those activities' performance. The realization of sustainability transition depends on the progress in both the two dimensions. Therefore, the synthetic index of coordinated development consists of two elements: one is the coordination degree, the other one is development degree.

Before we introduce the methods of coordination degree and development degree, first the way by which we determine the development levels of economy, society, and environment has to be illustrated.

2.1 Indicator system

We use a top-down approach to select representative indicators for economic, societal, and environmental subsystems from the references for the purpose to demonstrate an in-depth understanding of coordinative relationship among the three subsystems. Firstly, the significant factors for each subsystem are identified by qualitatively analyzing the literatures. Then according to the availability of data for regions in China, we carefully developed several indicators to measure each factor (Table 1). Finally, the development level of each subsystem can be assessed by integrating the factors with their weights.

2.2 Data sources

We collected the data of all municipalities and provinces in China except Tibet (because of data unavailability) from 2004 to 2010 for the empirical study. Societal and economic data were obtained from the China Statistical Yearbook, Environment-related data were obtained from the China Environment Yearbook, Energy-related data were collected from the China Energy Yearbook.

Data normalization was performed using formula (1) and (2).

Table 1 Indicators of the Coordinated Development of Economy, Society, and Environment

Subsystem	Factor	Indicator	Unit
s ₁ . Environment	Resource	x ₁ . Energy consumption of per 10,000 yuan of GDP	tons of standard coal equivalent/10,000 Yuan
		x ₂ . Water consumption per 1,000 yuan of GDP	m ³ /person
	Environment friendly	x ₃ . Proportion of days of air quantity equal to or above Grade 2 in the whole year	%
		x ₄ . Percentage of natural reserves in the region	%
		x ₅ . Waste gas removal rate	%
		x ₆ . Proportion of industrial waste water meeting discharge standards in total volume	%
		x ₇ . Ratio of industrial solid wastes utilized	%
s ₂ . Economy	Economic level	x ₈ . Per Capita GDP	10,000Yuan/person
		x ₉ . Proportion of tertiary industry in GDP	%
		x ₁₀ . Urban Unemployed rate	%
	High technology industry	x ₁₁ . Proportion of gross output value of high-tech industry in GDP	%
		x ₁₂ . Proportion of internal expenditure on R&D in GDP	%
		x ₁₃ . Number of patents for each 10,000 people	piece/10,000 people
s ₃ . Society	Social equity	x ₁₄ . Ratio between the income of urban households and the income of rural households	%
	Social well-being	x ₁₅ . Endowment insurance coverage	%
		x ₁₆ . Engel's coefficient of residents	%
		x ₁₇ . Number of public vehicles for each 10,000 people	%
		x ₁₈ . Number of bed in health care institutions for each 10,000 people	piece/10,000 people

In the case that the highest score is the preferred score, the raw scores of indicator x_{jt} are normalized in formula:

$$x_{jt}' = \frac{x_{jt} - \min\{x_{jt}\}}{\max\{x_{jt}\} - \min\{x_{jt}\}} \quad (1)$$

Where x_{jt} is the value of the indicator j in the year t , x_{jt}' is the corresponding normalized one. $\min\{x_{jt}\}$ and $\max\{x_{jt}\}$ indicate the minimum and maximum value of the indicator j of an observation among all years.

In the case that the lowest score is the preferred score, the raw scores of indicator x_{jt} are normalized in formula:

$$x_{jt}' = \frac{\max\{x_{jt}\} - x_{jt}}{\max\{x_{jt}\} - \min\{x_{jt}\}} \quad (2)$$

2.3 Development degree

The development degree is used to represent the comprehensive performance of all the activities in economic, social, and environmental subsystems. We analyzed the level of each subsystem's development using the entropy method^[4]. The weight of each indicator was calculated according to information entropy and variations in the indicators.

First, we calculate the proportion of the indicator j in the year t :

$$y_{jt} = x_{jt}' / \sum_{t=t_1}^T x_{jt}' \quad (3)$$

Secondly, we analyze the information entropy of the indicator:

$$e_j = -\frac{1}{\ln T} \sum_{t=t_1}^T y_{jt} \times \ln y_{jt} \quad (0 \leq e_j \leq 1) \quad (4)$$

Where t_1 is the beginning year, T is the last year.

Then, the entropy redundancy is:

$$d_j = 1 - e_j \quad (5)$$

So, the weight of the indicator can be determined by the formula below:

$$w_j = d_j / \sum_{j=1}^n d_j \quad (6)$$

Where n is the amount of all the indicators in the indicator system.

Therefore, we can evaluate the development level of each subsystem as follows:

$$s_{it} = \sum_{j=1}^m w_j x_{jt}' \quad (7)$$

Where m is the amount of all the indicators in the subsystem i , w_j represents the weight of the j indicator, s_{it} represents the development level of the i subsystem in the year t .

The development degree is the integration of economic, social, and environmental subsystem. We use arithmetic mean to calculate the development degree:

$$D_t = \sum_{i=1}^3 s_{it} / 3 \quad (8)$$

2.4 Coordination degree

To judge whether a system is coordinated, the factor that has to be clearly confirmed firstly is the criteria of the optimal performance of the system, that is, what the status of each subsystem is when the whole system performs best. Then by measuring the disparity between the current status and ideal status of each subsystem, how the system is coordinated can be judged.

This paper adopts the model of distance coordination degree^[5] that takes the quantitative analysis of the system's ideal performance as the prerequisite step of the evaluation process.

2.4.1 Identify the ideal performance of each subsystem in the coordinated development

Firstly, we have to quantitatively confirm that the three subsystems have interactions with each other. That is the reason that the ideal performance of each subsystem depends on the one of other subsystems.

Table 2 ADF Test Results

Variables	Details	Probability	stationarity
Δ^2 (GDP)	With trend and intercept, lag = 6	0.0020	stationary
Δ^2 (TEC)	With trend and intercept, lag = 1	0.0000	stationary
Δ^2 (PETI)	With trend and intercept, lag = 2	0.0000	stationary

In this study, we use co-integration analysis to confirm the long-term relationships among the subsystems of economy, society and environment.

At the beginning, we choose the most common variables to represent each subsystem. We found the GDP for economy, the Total Energy Consumption (TEC) for environment, and the Percentage of Employed Persons in Tertiary Industry (PETI) for society. The data at a national level from 1985 to 2011 is collected in the China Statistical Yearbook for the analysis.

Table 3 Co-Integration Test Result

Variables	Details	t-statistic	0.05 critic value	Result
GDP-TEC	Without intercept, and trend, lag period is 1	-2.411392163	-1.955019555	Co-integration relationship exist
Cointegration equation: $GDP = -133539.5 + 1.543973TEC$			Adjusted $R^2 = 0.962045$	
GDP-PETI	Without intercept, and trend, lag period is 2	-2.3528023	-1.955680827	Co-integration relationship exist
Cointegration equation: $\ln GDP = -4.307517 + 4.787123 \ln PETI$			Adjusted $R^2 = 0.981451$	
PETI-TEC	Without intercept, and trend, lag period is 2	-2.476742178	-1.955680827	Co-integration relationship exist
Cointegration equation: $PETI = 14.74707 + 0.0000669TEC$			Adjusted $R^2 = 0.811931$	

(1) The unit root test

We test the unit root using ADF test and reach the conclusion in Table 2. Under the 5% confidence level, the variables are stationary in second-order (Table 2). There seems to be a co-integration relationship among them.

(2) The EG co-integration test

We employ EG method to test the co-integration relationship among the subsystems. As it is shown in the Table 3, there are co-integration relationships among GDP, TEC and PETI under the 5% confidence level. Meanwhile the coefficients in the co-integration equations are all positive, indicating that the economic, social, and environmental subsystems influence each other positively (Table 3).

Therefore we can assume the ideal status of the coordinated development of economy, society, and environment as follows: When the three subsystems are finely coordinated, they should develop simultaneously. Their development levels should be relatively consistent with each other and they are all encouraged to catch up the best one of them. Therefore the ideal coordination of the whole system is realized when the levels of the three subsystems are all equal to the highest value of their development degree.

$$(s_{1t}', s_{2t}', s_{3t}')^T = (\max(s_{1t}, s_{2t}, s_{3t}), \max(s_{1t}, s_{2t}, s_{3t}), \max(s_{1t}, s_{2t}, s_{3t}))^T \tag{9}$$

Where s_{it}' represents the ideal performance of the i subsystem in the year t .

Distance between the current performance and the ideal performance of the system

$$G_t = \sqrt{\sum_{i=1}^3 (s_{it} - s_{it}')^2 / \sum_{i=1}^3 g_i^2} \tag{10}$$

Where $g_i = \max_t \{ |s_{it} - s_{it}'| \}$ is the possible largest distance between the current performance and the ideal performance of the subsystems.

Model of coordination degree

$$r_t = (\sqrt{1 - G_t})^k \tag{11}$$

By the formula, when the score of r_i is higher in the range from 0 to 1, the subsystems are more coordinated. k is the adjustment coefficient, determined by the dimensionality of the subsystem.

2.5 Coordinated development index

Based on the coordination degree and development degree, an synthetic index is developed as the coordinated development index that is used to express the evolution of the system of economy, society, and environment, systematically.

$$Z = \sqrt{D_i r_i} \tag{12}$$

3 Results and Discussion

Overall, as it is shown in Figure 1, the scores of coordinated development index in municipalities and provinces are rising in fluctuations from 2004 to 2010. The eastern coast area has remained the highest level in China, while the northwest area went relatively backward, but has been maintaining a good development trend later, which in 2006 generally reached the national average. The year of 2006 was a turning point for the coordinated development index of all regions. From 2006 to 2008, the coordinated development index had declined in most parts of the country, but after 2008, recovering a good momentum with a unify trend, all economic zones continuously improve their levels of coordinated development.

The reasons of economy, society, and environment for changes of the coordinated development index can be concluded as follows:

3.1 The reason for the decline of the coordinated development index

The decline is mainly brought by the problem of unbalanced speed of economic, social, and environmental development. On one hand, the rapid accumulation of physical capital is realized by depleting the natural capital, on the other hand, the economic growth can not improve the social well-being in short term. As a result, the gaps between economy and society, environment are enlarged, and the coordination degree gets worse. So even if the development degree increased, the coordinated development index would decline.

3.2 The reason for the increase of the coordinated development index

When the coordinated development index increases, it is the process of the three subsystems to coordinate with each other and develop simultaneously. When the economics has accumulated the achievements to some extent, it will slow down and transfer the accumulation to the improvements in social development. Meanwhile, investments will be plunged into technical innovation and industrial upgrading. The low-efficient technologies are to be removed and replaced with technologies that are green and efficient in resource use. During this period, the gaps between economy and society, environment are narrowed and their developments are strengthened, the coordinated development increases.



Figure 1 The Map of China for Coordinated Development in 2010

4 Conclusion

Sustainability is commonly interpreted by a triangle framework of Economy, Society, and Environment. The three pillars of sustainability are interacting with each other according to some coordination mechanisms. So, the performance of each pillar is influenced by others. It is necessary to study the interrelationships among them in order to realize the simultaneous improvement in the three phases. In this paper, we analyze sustainability assessment framework from a new perspective, that is, coordinated development. Based on this, an index system of coordinated development index is developed and used to measure the situations in Chinese municipalities and provinces during the years from 2004 to 2010. The result shows that the evolutions of the coordination interrelationship in cities or provinces are similar to each other in the same region. It is resulted from the driving effects of economic development exerted on social development and environmental problems. In a further study of typical regions of coordinated development, the economics, political backgrounds, and geography conditions have been analyzed to explain the coordination development index.

Based on the driving effects of economy and the current development pathway in China, we highlight policies that stimulate public and private investment in development of low-carbon, resource efficient, socially inclusive innovation and technologies to drive sustainability. The pathway of coordinated development will vary considerably among nations, as it depends on the specifics of each region's natural and human capital and on its relative level of development. But first of all, for all of them, enabling conditions including policies, incentives, will be required. Any strategy to economic growth should consider the impact of environment. It is believed that government policies play a critical role within economics to encourage innovation in clean and energy-efficient technologies that is a very important drive for sustainable development. In addition, the public policies concerning the livelihoods of the rural poor are also significant for a harmonious status of human community.

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Privacy Risk Identification in Social Networks Based on LDA Model

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Abstract: With the continuous development of Internet of things, cloud computing and mobile internet, social networks play an increasingly important role in our lives. People rely on the social network to send information, while the privacy incidents also occur frequently. In this paper, we apply LDA (Latent Dirichlet Allocation) to microblog's short text, and propose a social network privacy identification method. We present a Gibbs sampling implementation for inference of our model, and identify the text information may cause privacy risks. Before social network users publish information, it can provide an early warning, in order to reduce the incidence of privacy disclosure in social network.

Key words: LDA; Social network; Privacy risks; Risk identification; microblog

1 Introduction

With the continuous development of network applications industry, social network, an emerging interpersonal communication platform, has been got the booming development. But there are a lot of privacy information in social networks. While many enterprises analyze the big data to study the law of social operation, it leads to the disclosure of personal privacy and makes a serious threat to the personal information of social network users. For example, you can easily obtain our position and the daily travel data, via GPS, mobile phone positioning, etc. in the era of big data. Some research shows if you have four space points of the mobile phone positioning plus large data mining, you can determine the identity of the mobile phone holder. Therefore, the privacy protection of social network data is essential for the healthy development of network society, but also the imperative of social network research. Prospective studies are needed in the social network privacy risks for achieving the protection of personal privacy.

At present, the researches of privacy risks in social network mainly focus on method and model from the perspective of the enterprise. The initial treatment of privacy protection in social networks is based on the idea of simple anonymous, where the social graph will be replaced by the same composition. It mainly makes the identification information hidden or replaced by moot identification, which laid the foundation for the other anonymous methods. Social network privacy protection method based on clustering is widely used, which is based on the different degree of privacy, the nodes of different structures or the edge of different sensitivity to packet process. K-anonymity, L-diversity, (a, k)-anonymity are the typical models of social network privacy protection, on the basis of which a lot of improvements were made. Lan Lihui et al.(2011) regard the neighborhood information as the attacker of background knowledge to identify the target node. They put the K-anonymity into the social network privacy protection to propose a data published method of privacy protection in social network. Another example (James Cheng, 2010) (Zhang Xiaolin, 2012)reference K-anonymity, it proposes K-isomorphism in social network privacy protection.

As can be seen from the above studies, the current research on the incidence of privacy disclosure in social network is mostly concentrated in the macro level of privacy attacks and threats, not how to protect personal privacy for social network users to prevent privacy risks. In this case, this paper provides an early warning from the perspective of social network users, in order to reduce the incidence of privacy disclosure in social network.

2 LDA Model in Text Categorization

2.1 The basic idea of LDA model

LDA is a modeling method of thematic analysis for the text data, and it is a typical hierarchical Bayesian model, which is composed of three layers: documents, themes and words. The basic idea is that each document can be expressed into a mixed distribution of the underlying theme, and each them is vocabulary probability distribution of all the words. The Bayesian network diagram of LDA model is shown in Figure 1, which is determined by the parameter document collection layer (α , β). In Figure 1, α reflects the relative strength of the relationship between implicit topics in the document collection; β reflects probability distribution of a word entry in a particular topic; Random variable θ is the

probability of each theme occurring, and it is a column vector of $k \times 1$, every one of which represents the probability that each element of a topic occurrence; z indicates the implicit theme's probability of the current document on each word; w is the words of target document, and its value can be obtained by observing; M is the total number of texts; N represents the total number of words. In the boxes, it denotes this operation is repeated N times and M times.

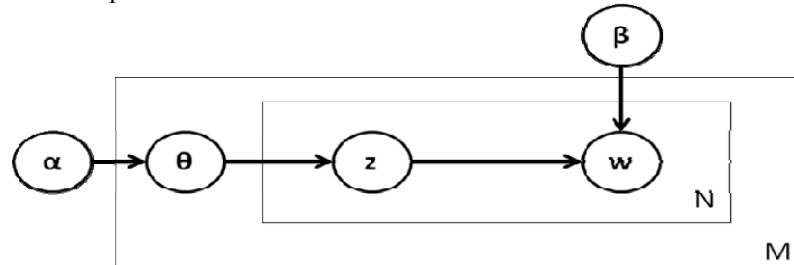


Figure 1 Bayesian Network Diagram of LDA

In the LDA model shown above, the word of the text is observable data, and the theme of the text is implicit variable. According to the rule of text generated and the known data, topic structure can be obtained through the probability deduction in the LDA model. There are some commonly used methods, such as Gibbs sampling, variational Bayesian, expectation propagation and so on.

We use the Gibbs sampling in this paper, and its training process is as follows:

- ① Each feature word in each text is given a random theme number z ;
- ② Repeat scanning the entire corpus, and use the Gibbs sampling for each feature word to recapture its themes and updates
- ③ Repeat the above sampling procedure, until Gibbs sampling convergence;
- ④ Count the entire corpus theme- characteristic words co-occurrence frequency matrix, which is the LDA model

2.2 LDA model in text categorization

LDA model is a popular unsupervised learning algorithm in recent years, which is able to achieve automatic mining of large-scale document text theme. Compared with the traditional theme of text classification algorithm, it does not need the manual identification of corpus in LDA model, so it can realize the automatic mining of text topic, which has significantly improved the efficiency, reduce human factors on the classification results and other advantages.

The essence of the generative classification algorithm is to model for the joint distribution of (object, type), and the appropriate classification decision rule is formulated as follows:

$$\hat{c} = \arg_c \max p(x | c)p(c) \tag{1}$$

Among them, c represents the category, x indicates the target document, the core of this formula is the class conditional probability $p(x | c)$, which express the document probability x in the case of category c , where the LDA is used as the class conditional probability to get LDA classifier(Li Wenbo,2008), shown by the following formula:

$$\hat{c} = \arg_c \max p_{LDA}(x | \alpha_c, \beta_c)p(c) \tag{2}$$

LDA model is Divided into stages of training and inference. In the stage of the training, it establish the corresponding sub-LDA model for each category of document by independent training. Thus, it share a theme in the class and it is separated among classes. In the stage of the inference, it use the sub-child LDA model to generate the target document x , in order to obtain the probability of corresponding category, which is substituted into the formula (2) to infer the category of the target document x .

LDA models are generally used for long texts, but in this paper it is used for short text in the microblog. And there are some difference between the microblog text and the text of the traditional network: ①Microblogging content is usually short text data, whose length has certain limitation, such as Sina micro and Tencent micro limit their 140 characters or less; ②The writing is casual, text is a word or two, and there are serious data sparseness; ③A large number of network language, symbolic language and new words make the data noise and require higher criterion to data preprocessing; ④microblog users can publish information in real time via mobile phones, computers, and a variety of ways, with the rapid update and the large scale data. The above characteristics give the establishment of LDA topic

model challenges.

3 Experiment

3.1 Experimental preparation

In this paper, The data grab on Sina micro. It must be carried out a data pre-processing before used in the LDA model: removal of the word pause. Stop word means the pronouns, modal particle and other commonly used words, whose frequency of occurrence in the text is very high, but it is moot for theme mining. At first, a preliminary stop words dictionary is established, and then the stop word dictionary is constantly updated through the analysis of experiment data processing. Finally, it set up a suitable stop words dictionary.

3.2 Experimental results

The parameters of this paper, $\alpha=50/T$ (T is the number of themes), $\beta=0.01$, are provided with reference to (Giffiths T, 2006). The set of topic number T mainly refers to the convergence conditions of “confusion degree curve (Perplexity)”:

Perplexity is not only a commonly used indicator to measure the performance of probabilistic graphical models, but also a commonly used measure of theme modeling. It denotes the uncertainty of the forecast data, so the smaller value indicates less uncertainty, better forecasting performance and the higher generalization. The specific definition of Perplexity is as follows:

$$Perplexity(W) = \exp \left\{ - \frac{\sum_m \ln p(\omega_m)}{\sum_m N_m} \right\} \quad (3)$$

Among them, W represents the words that can be observed in the test set, namely the word entry in Figure 1; Nm indicates the number of words. We set the different parameters of α and T to calculate perplexity in order to make it optimal and determine the optimal α and T. At the moment, the model's generalization ability is the strongest. The Perplexity curve of the LDA model in this paper is shown in Figure 2:

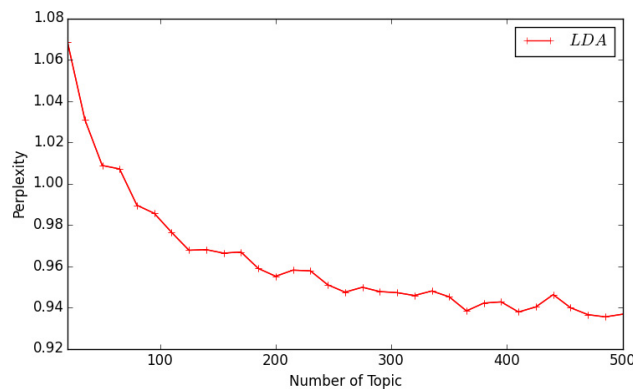


Figure 2 The Perplexity Curve of LDA

As can be seen from the graph, when T=260, $\alpha=50/260 \approx 0.192308$, the Perplexity of the LDA model is smaller and the Perplexity curve leveled off. So the parameters of the LDA model : $\alpha=0.192308$, $\beta=0.01$, T=260. At the moment, the overall effect of privacy risks mining based on LDA model is shown in Figure 3. In Figure 3, it shows the only first eight topics in the mining. According to the corresponding keywords in each topic, you can find out: Topic 1 is identity-related topics with students. If the social network users publish this information, it will reveal the identity of their students, sometimes even disclose their qualifications and school information; Topic 2 is related to the location information. It will disclose the user's location information, and sometimes even disclose their residence and native place. It needs to be noted that, because the city data is scattered and the word frequency of single city through thematic analysis is too low, we make a pre-processing before the data input. So it makes all the specific city information instead of "city"; Topic 3 is related with the birthday. It has become a trend to express wishes to relatives and friends for the birthday through microblogs, but it will reveal the user's relationship with relatives or friends as well as their birthday date. Topic 4 is related to the physical condition; Topic 5 is associated with personal daily schedule (travel, shopping, etc.)and

personal cycle regularity activities; Topic 6 is related to Marriage status; Topic 7 is related to the social network users' mood; Topic 8 is about the relationship between the social network users with their friends and relatives. This show the model has the higher accuracy of their corresponding keywords and the stronger independence between topics.

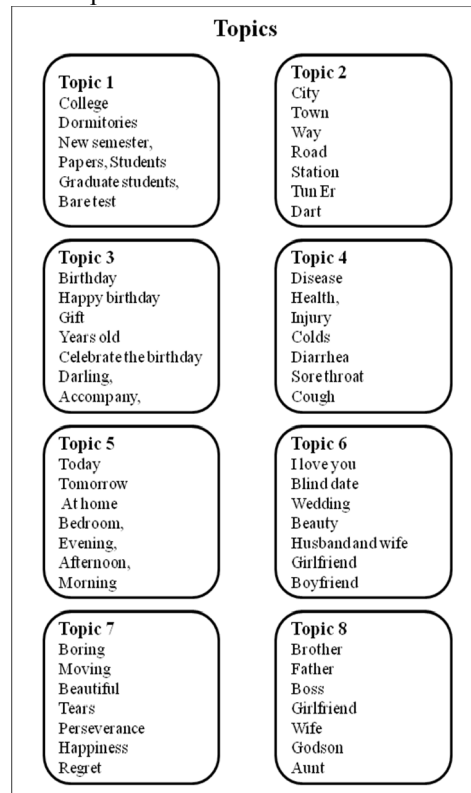


Figure 3 The overall effect of LDA model

4 Conclusion

Today, there are a lot of privacy issues in social networks, so this paper provides an early warning from the perspective of social network users, in order to reduce the incidence of privacy disclosure in social network.

This paper is mainly aimed at a message to provide an early warning of privacy risk, which the social network users publish. The further research will be focused on the analysis of all the information on the same social network users. We will exploit their potential privacy risks through the relevant method of data mining in order to provide early warning for social network users.

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Path Analysis on Factors of Real Estate Enterprises Low-Carbon Competitiveness

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Abstract: Due to high carbon emissions, real estate has become the focus in the reform of saving energy and reducing emissions. After reading various literature, the author found that most scholars set research direction in evaluation index system of Low-carbon competitiveness. Therefore the author tries to find out the main factors affecting the Low-carbon competitiveness of real estate on the basis of existing research, then to find out the driving factors by assuming, calculations and conclusion. In the end put forward the suggestions to improve Low-carbon competitiveness of real estate.

Key words: Real Estate; Low-carbon Competitiveness; Path Analysis; Low-carbon economy

1 Introduction

In the strategic context of China's low carbon economy, as the main force of China's economic development in recent years, the real estate industry shoulders a huge social responsibility of energy conservation, low-carbon frequent introduction of relevant policies are aimed at deepening the reform of the industry. The author tries to discuss factors of real estate enterprise low-carbon competitiveness and find their interactions by hypothesis testing methods.

In the present analysis, the first author extracted four explanatory variables from a large number of relevant literature, they are: strategic planning for low-carbon (A), low-carbon policy execution (B), control of raw materials(C) audience to buy the concept of low-carbon (D); then selected two types of indirect indicators after principal component analysis on massive basic indicators: low-carbon technological capacity (E) and low-carbon operation capacity (F);finally selected on the basis of higher weights index, and revise the scale By Delphi method. As shown in table 1.

2 Index Design & Assumptions

Based on the definition of the above factors, it could be shown in relevant research model blow.

Then, based on the model, the author proposes the following hypothesis group:

H1a:Strategic planning for low-carbon and low-carbon technological capacity are positively correlated.

H1b:Strategic planning for low-carbon and low-carbon operation capacity are positively correlated.

H2a:Low-carbon policy execution and low-carbon technological capacity are positively correlated.

H2b:Low-carbon policy execution and low-carbon operation capacity are positively correlated.

H3a:Control of raw materials and low-carbon technological capacity are positively correlated.

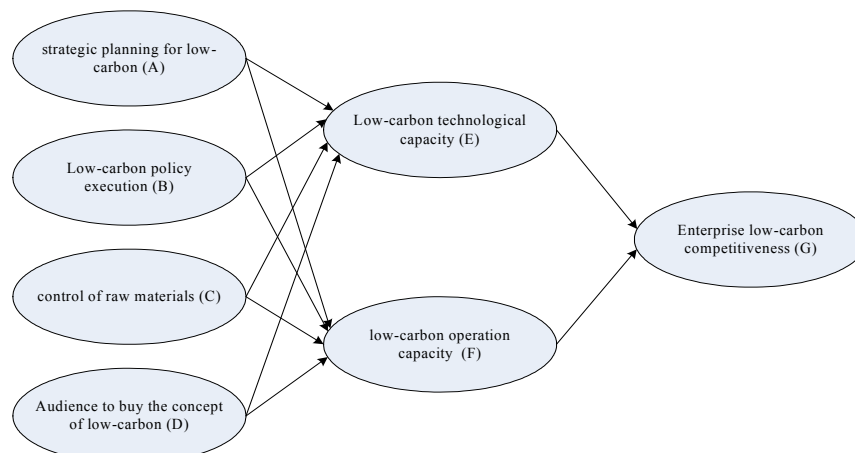


Figure 1 Real Estate Business Model of Low-Carbon Competitiveness

H3b:Control of raw materials and low-carbon operation capacity are positively correlated.

H4a:Audience to buy the concept of low-carbon and low-carbon technological capacity are positively correlated.

H4b: Audience to buy the concept of low-carbon and low-carbon operation capacity are positively correlated.

H5:Low-carbon technological capacity and enterprise low-carbon competitiveness are positively correlated.

H6:Low-carbon operation capacity and enterprise low-carbon competitiveness are positively correlated.

And in order to describe the explanatory variables, scale design in which four categories of explanatory variables are as follows:

Table 1 Explanatory Variables Scale

Strategic planning for low-carbon (A)		Low-carbon policy execution (B)	
A1	Annual business planning in low-carbon environmental emphasis	B1	both corporate profits and ecological benefits
A2	Companies mentioned in the prospectus of the proportion of low-carbon development	B2	enterprise operations carbon self-check
A3	The degree of concern about the low-carbon business forums and meetings	B3	peers carbon assessment
A4	Business-related professional talent recruitment requirements	B4	whether there received a warning and punishment of the environmental protection department
A5	companies to buy carbon emissions trading carbon credits	B5	drafting industry standard quantity
Control of raw materials (C)		Audience to buy the concept of low-carbon (D)	
C1	building insulation material known as carbon utilization	D1	audience defined the extent of carbon
C2	carbon building sound-absorbing material utilization	D2	audiences private car emissions
C3	carbon building wall material utilization audience	D3	level of support for new energy
C4	Building protective material carbon utilization	D4	Audience awareness of environmentally friendly materials
Low-carbon technological capacity (E)		Low-carbon operation capacity (F)	
E1	outdoor environment of low carbon technology capability	F1	Enterprise applications for low-carbon R & D Input
E2	The ability to maintain the structure of energy consumption technology	F2	Whether a company has the relevant corporate standards and industry standards
E3	Possible use of renewable energy degree	F3	Prospectus disclosure of business-related low carbon projects
E4	Interior carbon smart index	F4	The amount of corporate profits for three consecutive years
Real Estate Enterprises Low-carbon Competitiveness (G)			
G1	Whether the enterprise qualifications obtained ISO14000		
G2	Blowdown rate compliance level		
G3	The degree of utilization of waste		
G4	Situation in recent years to obtain the environmental protection department of special subsidies		
G5	Public recognition of the extent of the company's environmental image		

Firstly, the investigation team produced a detailed questionnaire to China's existing 40 real estate companies and 180 consumers conducted a detailed investigation, the questionnaire recovery was 75%, which is suitable for further scientific analysis.

After comparison criteria Cronbach's Alpha coefficients, the index values are above 0.8, below the acceptable range. This article refers to the heading for all low-carbon competitiveness under variable

factor analysis, KMO value reached 0.904 factor to meet the conditions for further analysis.

Finally, the author uses principal component analysis to extract four factors with eigenvalues greater than 1. From the analysis results showed that each of the major variable factor corresponding relations are relatively close, we can basically explain the four low-carbon green competitiveness variables. In addition, the total percentage of variance explained reached 70.872%, basically explained the target variable.

Therefore based on these estimates, it is believed that the reliability and validity of the survey are both reliable.

3 Results

After fitting degree test, the Corresponding IFI, RMSEA, Chi-square are fitting standard ratios, GFI, AGFI, TLI value is not reached the adaptation of standard , but basically at acceptable within range, so it is still suitable for further analysis.

Structural equation model fitting results are shown below(all path showed statistically significant (P <0.05)):

Table 2 The Structural Equation Model Fitting Results

Model Path		Coefficient	P	Hypothesis	Judge	
Low-carbon technological capacity	<---	Strategic planning for low-carbon	0.765	<0.001	H1a	True
Low-carbon operation capacity	<---	Strategic planning for low-carbon	0.402	0.006	H1b	True
Low-carbon technological capacity	<---	Low-carbon policy execution	0.606	0.012	H2a	True
Low-carbon operation capacity	<---	Low-carbon policy execution	0.411	0.004	H2b	True
Low-carbon technological capacity	<---	Control of raw materials	0.387	0.002	H3a	True
Low-carbon operation capacity	<---	Control of raw materials	-0.163	0.313	H3b	False
Low-carbon technological capacity	<---	Audience to buy the concept of low-carbon	-0.171	0.297	H4a	False
Low-carbon operation capacity	<---	Audience to buy the concept of low-carbon	0.303	0.012	H4b	True
Low-carbon Competitiveness	<---	Low-carbon technological capacity	0.319	0.005	H5	True
Low-carbon Competitiveness	<---	Low-carbon operation capacity	0.572	<0.001	H6	True

After analyzing the data table above, it comes to the corresponding variable diagram:

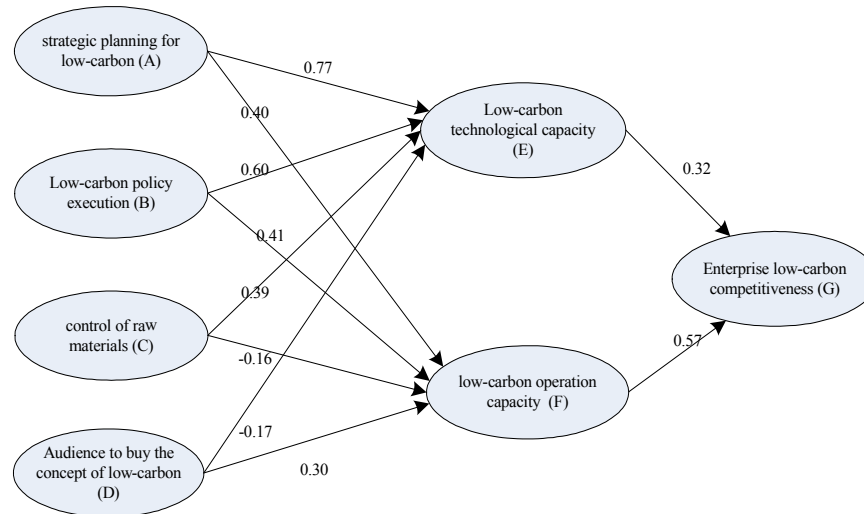


Figure 2 Fitting Relationship of the Main Variables

4 Conclusion

(1) In contrast, a positive correlation with the degree between low-carbon competitiveness and the low-carbon technological capacity is lower than expected. This shows that at this stage of China's real estate enterprises have yet to technical emission reduction in a prominent position, and more to low-carbon development from the perspective of management and operations.

(2) Product carbon raw material control and operational capacity share the poor regression effect, which hypothesis is not consistent with expectations. From this, the carbon raw material control companies and not directly stimulate enterprises to achieve a low-carbon development in the management process; in the operating mechanism of enterprises, materials and operation of low-carbon low-carbon concept is relatively independent, in the procurement chain curb carbon-containing green part only enterprise development, and not as a comprehensive assessment of green competitiveness.

(3) From the operational point of view the results of structural equation, low-Carbon strategic planning of real estate enterprises shows high impact weight; Real estate company's strategic planning have significant positive correlation, not only for Low-carbon technological capacity but also Low-carbon operation capacity.

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How Is It Getting into Chinese Business Culture: A Possible Path for Foreign Enterprises to Venture inside the Country

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Abstract: The current research paper refers to the main aspects of Chinese business culture view from a foreign perspective, introducing important points which highlight the benefits of getting into the Chinese market. In the other hand; makes a meticulous study of the common Chinese executive behavior and consumer as well. Finally this work frame the significant importance of the culture influence when doing business, regarding some key philosophy Confucius' standpoints that may influence decisions-making by the time of negotiating. All of this study development intends to come out with different conclusions and suggestions in order to tender a guide towards foreign enterprises who look for doing business in China successfully.

Key words: Business culture; Guanxi (reputation); Westernization; Relationship; Global environment

1 Introduction

China raises passions, some are afraid of it and may be cataloged as the source of a serie of threats and tragic omens, while others love it, look this country with fascination and deposited in it the hope of a prosperous future. Without going into value judgments about how accurate or not these visions are: China is different and distant.

Has codes, protocols and own forms of relationship, so appealing to a pragmatic view, the only certainty is that those seeking to do business with this economy, looking to become the number one in the world in the short term, should have some clear key to its culture not to fail in the attempt elements.

China has experienced over the past three decades, one of the most rapid and dramatic economic transformations in modern history, with rates in excess of ten percent annual growth. This transformation process is causing China be among the preferred countries for international business. Not surprisingly, turns out to be the third largest economy in the world and arguably the center of gravity of the world economy that is shifting inexorably towards this country.

Its advantages in cost besides being the most populous country in the world with about one thousand three hundred million, three hundred million inhabitants of which belong to the high-middle class allowed to name it "the world's biggest potential market." For this reason, since the early eighties some countries have begun to make a significant and sustained effort to develop their presence in China.

Despite all the prosperous impact that this country displays to the world, being involved or simply take part of it for sure is not an easy job; since due of its large history background and all the cultural customs that come along linked to each other, the only fact getting used living in China, entailing all the possible daily manners that a foreigner should know by the time executing a common task, wouldn't be as simple as it sounds. Experiencing the culture itself innerly might be the best way to deeply understand different behaviors that in some way would shock us in a determine time. The interesting and beautifulness of this world is to realize its enormous diversity about customs, education, traditions, etc. So the challenge is to find out a perfect adjustment of our beliefs and thoughts, to take part in a new culture in order to follow the already system and communicate fluently regarding slenderly cultural aspects.

2 Literature Review

2.1 Attractiveness of China as a market

During the first decades of the century, the Asia-Pacific region is having and will have a major attraction for international companies. It is projected that the region will become a technological, political and economic power with a simultaneous increase in consumer demand (Czinkota and Ronkainen, 2002).

According the ranking of Foreign Direct Investment (FDI) Confidence Index, FDI is lead by China since the year 2003. This is because China has a number of advantages over the medium and long term: its high integration into the world economy, its good physical infrastructure, a development model that generates many jobs and relative macroeconomic stability (Bustelo, 2008). These advantages come

largely by China's development model, that is, the so-called Beijing Consensus, which has as key components the "state capitalism" gradualism, opening up, political authoritarianism and innovation and flexibility (Fanjul, 2009).



Figure 1 Data of Chinese GDP in the Last Years

As the graph illustrates, the growth rates of Gross Domestic Product (GDP) in China in recent years are around ten percent, providing significant opportunities to companies that choose to settle in this country. The Gross Domestic Product (GDP) in China was worth 8230 billion US dollars in 2012. Therefore it represents 13.27 percent of the world economy.

The attractiveness of China as a target market is that it is a vast market with a high middle class of three hundred million people looking through purchases of Western brands, meet the needs of social recognition, prestige and status. Is important to notice that Chinese entrepreneurs and the "beautiful Chinese people" holders of the maximum income level, have become a priority target for Western luxury brands. China is the third largest consumer in the world, luxury goods, after the United States and Japan (Sanchez-Monasterio, 2009a). Whether the aim is to do business among Chinese or towards Chinese consumers, the key is to optimize brand positioning and Western products in the mind of the Chinese consumer which respond to their needs. Basing on demographic data, it is estimated that in the next decade the number of dwellings with inhabitants of the upper middle class and age between 30 to 60 years will increase by 128%, which represents a potential market that is not at all negligible. The forecast is that in 2020, in China there will exist a high-middle class of six hundred million people (Sanchez-Monasterio, 2009b). Also, the retail sector is more developed in the densely populated areas of cities, where the large concentration of young professionals is recorded. These areas are the main focus of selling Western products. Urbanization, lifestyle changes, developing new marketing channels and communication, also differentiate the consumption pattern. However, although China is urbanizing rapidly, it remains a country of extremes and business formulas that are valid in other countries may not work if they are applied in China without having taken into account a number of features like the "culture" itself.

2.2 China: customs and traditions of an ancient people

China has become the largest capitalist market in the world, the reality is that, from a cultural point of view, values survive from an ancient culture, with strong rural roots, that makes profound differences between the modus operandi of the Chinese executives and their counterparts in the capitalist world.

When a western executive visits China to negotiate agreements (purchase, distribution, manufacturing, joint venture, etc.). Should bear in mind the differences in the Chinese business culture to succeed in their negotiations and establish stable and profitable relationships with their customers, suppliers or Chinese partners. It could be sate that there some very important cultural elements that determine, to a greater extent, the behavior of Chinese executives during negotiations with foreign companies.

2.2.1 Personal Contacts

The most important asset that Chinese executives have is not the training or experience but the personal contacts network (Guanxi), i.e. what might be called "social capital" that used to advance professionally. This network consists of family, classmates of school or college, friends, acquaintances, coworkers, etc.. The Guanxi operates on the principle of reciprocity, which the Chinese call "hui bao". When a favor is done to someone later it is expected to be returned, although not immediately, but throughout the relationship. It's like Chinese executives record an accounting of favors done and

received them back with every member of their network of personal contacts. If someone does not respond to the favors that have been made is negatively marked for future business.

2.2.2 The intermediary

Because of many invasions that have experienced, Chinese people are very distrustful and suspicious of anything that comes from abroad, on the other hand, have a certain feeling of superiority, not forgetting its denomination as “the empire of center” increased by its enormous economic and political power. This double component of superiority and mistrust make almost forced foreign companies to use an Intermediary to negotiate with Chinese companies. Choosing a good intermediary either a Chinese with good connections (in the sector of the company’s activity) or a Western that is settled years in China and has a good “Guanxi” would be crucial for success.

The Intermediary functions are multiple: to establish initial contact and set meetings, initiate business conversation, interpret the answers and gestures of Chinese negotiators, resolve differences as well as keep constant track of the agreements being achieved.

2.2.3 Hierarchy

Derived from the philosophy of Confucius, respect and obedience to superiors are essential values in Chinese culture. This cultural element has three implications in negotiating with Chinese companies: first, foreign companies must send the appropriate level of representatives to China for the agreement to be achieved, in addition, during the negotiations must show a deference treatment, recognizing their top hierarchical position towards Chinese executives of the company, and finally, keep in mind that, during the negotiations, senior executives never face the other party, or get to discuss important issues. The role of "hard" negotiator does the second-level executives.

2.2.4 Harmony in relationships

Achieving agreement requires parties to develop personal relationships based on respect, friendship and positive feelings. Building these relationships takes time and it will be necessary to get involved in the country’s culture itself as well as holding numerous meetings between parties. It helps to hold lunches or dinners in which is talked about numerous subjects except business. The case is to create a relationship of trust, which without it is unthinkable to do business.

2.2.5 Global reasoning

Because the Chinese language consists of signs (ideograms) that represent words or concepts, not a sequence of letters as in Western languages, Chinese people have a comprehensive approach to the topics and do not negotiate one by one in sequential way, that is to say, treat all issues (prices, quantities, delivery terms, etc.) together, so that the agreement reached has to be global, not item by item. That approach may delayed negotiations since cannot progress step by step as is customary in Western culture.

2.2.6 Saving

The harsh living conditions Chinese had to endure made them used to be good savers to ensure the well-being in old age since in China there is no public health system or pension. Among large countries, China is having a higher savings rate, above 50% of GDP (Fanjul, 2009). To achieve these savings Chinese appeal to both professional and personal life, such as extreme bargaining tactics: they are very aggressive when negotiating prices, reaching extremely low and very far prices from what they are really willing to pay, just as tactic to weaken the other party.

2.2.7 Reputation or lose face

An essential element of the business culture in China is the Mianzi (face) or “reputation” that Chinese people have with their personal relationships (Guanxi). Some probably negative actions that could make one “lose face” towards a Chinese negotiator are: interrupt while this person is speaking, have a direct confrontation or make the person realize about his or her mistake. Whether during negotiations got someone to “lose face” in front of his or her peers to a member of the Chinese negotiating team, will be a negative reaction and get tough to reach an agreement because decisions are made in group and the offended person will push for negotiations fail. As opposed to the concept of “losing face” there is also the term “give face” (Gei Mianzi) which might be achieved complimenting or praising one’s work in front of a superior. The latter is highly recommended as it will enhance the reputation of the person and take a more favorable position for the deal.

2.2.8 Resistance at work

The Chinese are great negotiators and their culture capacity and resistance at work is valued more than talent or creativity. This strength is reflected in different ways during the negotiations: first, hard work in preparing, analyzing all the issues to be negotiated; they prefer long sessions in which the parties exchange many questions, sometimes are repetitive in those, however they are very patient

during the negotiation and delay decision making as a pressure technique. Finally, they never lose their composure as it is considered a sign of weakness.

2.2.9 Ethic

In the West is tend to think that Chinese companies do not act ethically, at least by the standards of what is meant by “fair play” (Sanchez-Monasterio, 2009a). A good example is the practice of change and renegotiate the terms of a contract that has already been signed. To understand the concept of ethics in China, must turn to the philosophy of Confucius, one of whose maxims is that "morality is based on the circumstances of the time and not on universal principles." This statement opens the door to continuous changes in the agreed conditions, which in Western culture are considered bad practice and are even cause for judicial proceeding while in China are perfectly acceptable.

3 What is the Chinese Consumer Looking for

Apple has taken China by storm. A Starbucks can be found on practically every major street corner in coastal cities and beyond. From Nike to Buick to Siemens, Chinese consumers actively prefer Western brands over their domestic competitors. The rise of microbloggers, the popularity of rock bands with names like Hutong Fist and Catcher in the Rye, and even the newfound popularity of Christmas all seem to point toward a growing Westernization.

However cannot be deceived by appearances. Consumers in China aren't becoming “Western.” They are increasingly modern and international, but they remain distinctly Chinese. It is that successful Western brands craft their message here to be “global,” not “foreign” so that they can become vessels of Chinese culture.

Understanding China's consumer culture is a good starting point for understanding the nation itself, as it races toward superpower status. Though the country's economy and society are evolving rapidly, the underlying cultural blueprint has remained more or less constant for thousands of years. China is a Confucian society, a quixotic combination of top-down patriarchy and bottom-up social mobility. Citizens are driven by an ever-present conflict between standing out and fitting in, between ambition and regimentation. In Chinese society, individuals have no identity apart from obligations to, and acknowledgment by, others. The clan and nation are the eternal pillars of identity. Western individualism, the idea of defining oneself independent of society doesn't exist.

Chinese at all socioeconomic levels try to “win” that is, climb the ladder of success while working within the system, not against it. In Chinese consumer culture, there is a constant tension between self-protection and displaying status. This struggle explains the existence of two seemingly conflicting lines of development. On the one hand, it is seen stratospheric savings rates, extreme price sensitivity and aversion to credit card interest payments. On the other, there is the Chinese fixation with luxury goods and a willingness to pay as much as 120% of one's yearly income for a car. (Doctoroff, 2012)

4 Entrepreneurship of a Business Management in China

4.1 Cultural elements that influence business management and success

Companies need to adapt to the markets where they operate. Harris and Moran (2001) propose ten key needed for global leadership, that is, for firms operating in multicultural environments concepts. These concepts are: global leadership, intercultural communication, cultural sensitivity, acculturation (defined as the fit and effective adaptation to a specific culture, either a subculture within the country, or abroad), cultural influences on management, effective intercultural performance, changes in international business, cultural synergy, work culture and global culture. The understanding and use of these concepts are critical to the successful performance internationally.

According Grande (2004), the reasons that induce cultural adaptation are diverse: physical environment, legal environment, cultural environment, perceptions, language, tastes, ethical and religious values, ethnocentrism, symbols and forms of communication.

Therefore it is highlighted the key cultural elements that should be considered by companies from abroad that decide to market and do business in China:

Physical environment. China, due to its large size, has many contrasts and can be referred about a different set of markets with own features that pass through a transformation process parallel to that experienced by society. For example, Western China, without a developed infrastructure, desert and lower population density, is less exposed to Western products.

Legal environment. The People's Republic of China is a socialist republic ruled by the Communist Party of China. In the 1970s a series of reforms aimed at the market, among others, led to the adoption

of the Sino-Foreign Equity Joint Venture Law that was introduced in 1979 (Grande, 2004). This law established the legal framework to regulate foreign investment. During the following years, the most common way for a foreign company to operate in China was to have a local partner that has relationships and contacts with authorities. Today, in an increasingly way, foreign direct investment enters China as one hundred percent foreign companies.

Cultural environment. The vast territory of China has resulted in a great cultural diversity. In the field of business is important to highlight building relationships or interpersonal networks, better known as "Guanxi" (Adams, 2007). "Guan" means "door" and "xi" means "ties." Semantically can be defined as a door or a connection between two people created by a mutual bond between them. For foreign businesspeople working in China, building elements of trust is even more urgent than local managers. This network of relationships is key to establishing business alliances and contacts with managers, customers, suppliers and employees (Hernandez-Nieto, 2006). Therefore, it is necessary to understand the importance of "Guanxi", reciprocity, and trust by the time doing business transactions in China. Knowing the protocols and build trusting relationships are steps that cannot be ignored in the development process of "Guanxi" in a foreign company that wants to venture into China.

The symbols. They vary across cultures. In China for example, animals are seen as bearers of happiness, the color "gray" is reserved for inexpensive items and the number eight is perceived as the number of fortune. The phonetic pronunciation of the number "8" is "bā" exactly the same pronunciation as the word "progress" and "fortune". For these reasons it is frequently seen in commercial establishments, retail prices of their products that this number predominates. The opening ceremony of Beijing Olympics was on August 8, 2008 at 8:08 pm. Just to mention that buying a phone number in which the number "8" predominates costs up to 3 times more than any other mobile number.

Forms of communication and negotiation. They vary by culture. There are a number of cultural elements which are relevant for foreign companies, in particular, the following aspects should be taken into consideration:

- Hierarchical relationships and very formal style of communication.
- There is no room for individualism.
- Trust and personal relationships (Guanxi) are vital.
- They tend to take a long term vision.
- Staring bothers them.
- They have less experience of the modern legal system.

5 Design of a Differentiated Marketing Plan

Besides adapting to cultural differences, the success of foreign firms in China happens to have other considerations. For example, to target middle-class consumers, forging local relationships, leverage global networks and flexible way to trace output can be useful recommendations to establish successfully in this market (Adams, 2007). Moreover, competition from both foreign multinationals and Chinese companies themselves is very high.

Now it is necessary to take into account a number of key concepts to be included in the marketing plan to position itself successfully within this market. What becomes a complex challenge is the need to position the product so that is accepted by more consumers. For example, should pay attention to pricing decisions. Every Chinese consumer has for each product a maximum price willing to pay and a minimum price as well that if it is lower, generates suspicion on the actual quality of the product. In addition, there are considerable differences between the sales price to the public in China and the price in Europe for example; it is well known that European currency about any product may be six times more than any price in the Chinese currency.

Cannot be forgotten that in China the customer is "God" (Sanchez-Monasterio and Casaburi, 2008a). Customers become the focus of any marketing strategy. Noting that the "merchandising" in China happens to be a very effective tool that encourage the purchase of the product, something that rarely happens in Europe. The enormous potential of merchandising benefits greatly those western products that, for cultural reasons, not take part of Chinese daily consumption.

6 Conclusion

The actual size of the Chinese market for western products is three hundred million people today, and not one thousand three hundred million people, also is expected to upper the Chinese high middle class to become six hundred million people by 2020. This is an excellent critical mass which is, in turn,

concentrated in large cities such as Beijing, Shanghai, Guangzhou, Chongqing and Hong Kong, among others.

Companies should be able to operate in a global environment, respecting cultural diversity, recognizing personal needs, values, standards and expectations are culturally conditioned. This means being alert to the impact of culture shock in the successful management of transitions, and develop the skills necessary to avoid ethnocentrism.

The importance of choosing a good name, take into account the peculiarities of the Chinese consumer, not ignoring the phenomenon of censorship and legal benefits of Chinese foreign versus local companies happen to be crucial elements for Western companies to achieve enter the Chinese market successfully.

The family, forming related groups and personal relationships (Guanxi) are also primordial in Chinese culture. Thus, the traditional component is a common and consistent element in consumption patterns and becomes essential.

It has also shown the importance of establishing joint ventures with a local partner, and the importance of considering the ethical and religious as well as the type of political power. In short, the future challenges for the companies that decide to trade and sell their products or services in the giant Asian ought to consider cultural elements, trying to overcome the language barrier and establishing relationships with local partners (Guanxi), among others.

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Performance Appraisalment for Innovative Green Supply Chain Based on Fuzzy Comprehensive Evaluation

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Abstract: This paper considers the following five aspects: financial, customer, process, development and environment of the performance of innovative green supply chain. Then, three layers' performance evaluation index system of green supply chain was constructed, which are consisted of 5 primary indicators, 13 secondary indicators and 27 thirdly indicators. On this basis, using the combined weighting method, analytic hierarchy process and entropy method to determine the weight of each index. After that, the AHP-Fuzzy Evaluation Model is established based on the fuzzy comprehensive evaluation. Thus, we can comprehensively and objectively assess the overall performance evaluation of green supply chain.

Key words: Fuzzy comprehensive evaluation; Performance appraisalment; Green supply chain; AHP; Entropy method

1 Introduction

Nowadays, sustainable development has become the target of mankind. And environment problem has got more and more people's attention. Based on the situation, green supply chain has increasingly become the research hotspot. On the basis of traditional supply chain management theory, the green supply chain management added the "green concept" and "environmental consciousness", realizing the overall green requirement during the links in supply chain, which includes product design, production, sales, after-sales service and become a waste. A scientific and standardized appraisalment index system can comprehensively and objectively assess and appraise the performance evaluation of green supply chain as a whole. Finally, the coordinated optimization of enterprise social and economic benefit can be achieved.

On the researches of relationship between green supply chain management and enterprise performance, foreign researches are mainly listed below: In 1998, Johnson^[1], who used the balanced scorecard to identify and selected the environmental performance indicators, pointed out that the improvement of environmental performance can promote economic performance; In 2000, Roland Clift and Lucy Wright^[2] studied environmental impact on the relationship between the corporate profitability by applying the method of the life cycle.

The green supply chain management in our country is still in its infancy. Most of researches are focused on aspects such as introductions of the concepts and the system structure^{[3]-[6]}, however related detailed researches are relatively blank.

Above all, on the basis of previous studies, this paper constructs the green evaluation index system by applying analytic hierarchy process and entropy value method which is to determine the index weight, using fuzzy comprehensive evaluation method to evaluate. Then, this paper makes a little contribution on providing guarantee to improve green supply chain.

2 Construction of Performance Appraisalment Index System

The expectation objective of the innovative green supply chain is to realize the overall green requirement during the links in supply chain, which includes product design, production, sales, after-sales service and become a waste. A good supply chain management ensure the effective and efficient running of the supply chain. Also, a scientific and standardized appraisalment index system can be constructed to access and evaluate the overall performance appraisalment of the innovative green supply chain. It provides the basis for decision-making and improves the healthy development of the green supply chain. Finally, the coordinated optimization of enterprise social and economic benefit can be achieved.

In this paper, the construction of performance appraisalment index system for green supply chain is based on the traditional index system for supply chain. In the traditional index system, it evaluate the performance of the supply chain from four perspectives, including financial value, customer service, operation process and development potential. As for the green supply chain, the environmental

influences are taken into consideration. The environment performance was divided into three secondary indicators. The details of each perspective can be find in the following sections.

Then, the performance appraisalment index system of innovative green supply chain can be constructed as follows. There are 5 primary indicators, 13 secondary indicators and 27 detailed thirdly indicators.

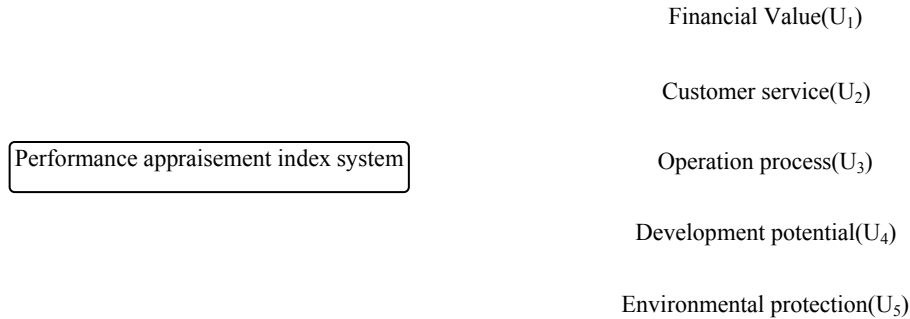


Figure 1 Primary Indicators of the Performance Sprraisalment Index System for Green Supply Chain

2.1 Financial value’s perspective

The evaluation of financial index is the key point in the enterprise performance evaluation, which can directly show the level of enterprise performance. According to the characteristics of the green supply chain , we can choose two aspects to construct the index system: the green supply chain’s perspective and shareholders’ perspective. The corresponding index higher, indicating that the better the performance of green supply chain.

Table 1 Financial Value’s Secondary and Thirdly Hierarchy

Secondary Indicators	Thirdly Indicators
Green supply chain’s perspective	Return on total assets(u ₁₁)
	Total assets turnover(u ₁₂)
	Profit growth rate(u ₁₃)
Shareholders’ perspective	Return on equity(u ₁₄)
	Assets ratio(u ₁₅)
	Debt asset ratio(u ₁₆)

2.2 Customer service’s perspective

One of the core content of supply chain management is to conduct customer management. Therefore, we selected as an indicator of customer satisfaction, which is positively correlated with the level of supply chain performance, and higher customer satisfaction means the better performance.

Table 2 Customer Service’s Secondary and Thirdly Hierarchy

Secondary Indicators	Thirdly Indicators
Product/service capability	The qualification rate of product quality(u ₂₁)
	The rate of order completion(u ₂₂)
	Demand wait time(u ₂₃)
After-sales capability	Demand repairmen time(u ₂₄)
	The rate of customers’ complain(u ₂₅)

2.3 Operation process’ perspective

The index of operational processes can reflect operating efficiency of the green supply chain. Green supply chain is different from the traditional supply chain, which emphasizes performance of operational processes, so the index of operational processes can be divided into three aspects: production, transportation and efficiency.

Table 3 Operation Process’s Secondary and Thirdly Hierarchy

Secondary Indicators	Thirdly Indicators
Production capability	The increase rate of production capability(u_{31})
	Labor productivity of employee(u_{32})
Transportation capability	The rate of on time transport(u_{33})
	Space length of green supply chain(u_{34})
Supply chain efficiency	The rate of order waiting(u_{35})

2.4 Development potential’s perspective

Evaluation system should emphasize the importance of the future rather than short-term profit and growth. Therefore, we focus on internal research capacity, new product profitability and training capacity. These three indicators is positively correlated with supply chain performance, the corresponding index higher, indicating better supply chain performance.

Table 4 Development Potential’s Secondary and Thirdly Hierarchy

Secondary Indicators	Thirdly Indicators
Research capability	Rate of accurate market forecast(u_{41})
	Development-success ratio(u_{42})
Profit capacity of new product	The growth rate of new product output(u_{43})
Employee training capacity	The rate of research investment(u_{44})
	Per employee training cost(u_{45})

2.5 Environmental protection’s perspective

Environmental performance is an important part of the performance evaluation system. Environmental performance is constituted by the three dimensions, environmental impact, resource utilization and green culture. We can separately set corresponding evaluation based on the three dimensions.

Table 5 Environmental Protection’s Secondary and Thirdly Hierarchy

Secondary Indicators	Thirdly Indicators
The environmental impact	Pollutant total amount(u_{51})
	The recovery rate of environment(u_{52})
Resource utilization	The recovery utilization rate of salvage(u_{53})
	The comprehensive utilization of resources(u_{54})
Green culture	The index of environmental awareness(u_{55})
	Customer identity of green product(u_{56})

3 Establishment of AHP-Fuzzy Evaluation Model

3.1 Introduction

Fuzzy comprehensive evaluation is a comprehensive evaluation method of the object system used fuzzy factors involved, which has the advantage towards what is in terms of fuzzy evaluation , but it lacks a clear hierarchy. The AHP is a hierarchical evaluation method, it can simplify complex issues, that the overall goal will be divided into smaller goals and then be turned subdivided into sub-objectives which can be evaluated.

In this paper, AHP and FCE will be applied together and to build AHP-Fuzzy Evaluation Model. Firstly, using AHP to determine the weight of each index layer. In determining the index weights, the entropy method will be simultaneously employed to adjust the index weight, making results more objective; Secondly, according to the each factors established centralized is to determine the membership of each element; And finally, use fuzzy comprehensive evaluation method to evaluate the outcome. Thus, we will get better performance evaluation of Innovative Green Supply Chain .

3.2 Determine the hierarchy

In this paper, the performance appraisalment index system of innovative green supply chain can be divided into three levels. It concerns five following aspects: financial value, customer service, operation process, development potential and environmental protection. Each aspect can be divided into several indicators.

The hierarchy of AHP-Fuzzy Evaluation Model can be given as follows:

Level one (the target layer):

$$U = \{ \text{Performance of green supply chain} \}$$

Level two (the evaluation criteria layer):

$U = \{u_1, u_2, u_3, u_4, u_5\} = \{ \text{financial value, customer service, operation process, development potential, environmental protection} \}$

Level three (the index layer):

$U_i = \{u_{i1}, u_{i2}, u_{i3}, \dots, u_{im}\}$ ($i=1,2,\dots,5$ is the number of primary indicators)

3.3 Determine the weight set

$$W = \{W_1, W_2, \dots, W_5\} \tag{1}$$

The weight set W is for the primary indicator evaluation item U_i . w_i represent the weight of U_i for U ; Similarly, the weight set W_i is for the secondary indicator evaluation item u_{im} .

$$W_i = \{w_{i1}, w_{i2}, \dots, w_{im}\} \tag{2}$$

Meanwhile, the following criteria should be met.

$$\sum_{i=1}^n w_i = 1, w_i \geq 0 \tag{3}$$

3.4 Determine the weight of evaluation items (AHP model)

AHP method will be used to determine the weight of each evaluation item.

3.4.1 Construct judgment matrix

$$D = \begin{pmatrix} d_{11} & d_{12} & \dots & d_{1m} \\ d_{21} & d_{22} & \dots & d_{2m} \\ \dots & \dots & \dots & \dots \\ d_{n1} & d_{n2} & \dots & d_{nm} \end{pmatrix} \tag{4}$$

The judgment matrix was given by experts. d_{ij} stands for the important value of item i in relative to item j .

3.4.2 Consistency test

Consistency test should be done when the judgment matrix are not remain consistent.

$$CI = \frac{\lambda_{\max} - n}{n - 1} \tag{5}$$

CI measures the degree of judgment matrix deviating from the consistency. λ_{\max} is the maximum eigenvalue.

$$\lambda_{\max} = \sum_{i=1}^n \frac{(AW)_i}{nW_i} \tag{6}$$

When $CR = \frac{CI}{RI} \leq 0.1$, we consider the judgment matrix has desirable consistency. Otherwise, the judgment matrix need to be adjusted.

3.4.3 Hierarchical single arrangement

Calculate the product of each element of each line in the judgment matrix.

$$Mi = \sum_{j=1}^n a_{ij}, i = 1, 2, \dots, n \tag{7}$$

$$\bar{W}_i = \sqrt[n]{Mi} \tag{8}$$

Process the vector $\bar{W} = [\bar{W}_1, \bar{W}_2, \dots, \bar{W}_n]^T$ by normalization. Then, the W is requested eigenvalue.

$$\bar{W} = \frac{\bar{W}_i}{\sum_{j=1}^n \bar{W}_j} \tag{9}$$

3.4.4 Hierarchical total arrangement

According to single arrangement, the total arrangement can be get.

3.5 Modify the weight of evaluation items (Entropy model)

The higher the order level, the larger the information entropy, and the less value the information. Based on the definition, the entropy value of number j evaluation item is H_j

$$H_j = -\left(\sum_{i=1}^m f_{ij} \ln f_{ij}\right) \div \ln m \tag{10}$$

$$f_{ij} = \frac{b_{ij}}{\sum_{i=1}^m b_{ij}} \tag{11}$$

$$a_j = \frac{1-H_j}{n-\sum_{j=1}^n H_j}, \sum_{j=1}^n a_j = 1 \tag{12}$$

$$A = (a_j)_{1 \times n} \tag{13}$$

The average of weight value calculated by AHP and entropy method should be used as the comprehensive and final weight value. The combination of the two method, fully consider the experience of the experts and make the result more objective.

3.6 Determine the evaluation set

The evaluation set of green supply chain’s performance are as follows:

$$V = (v_1, v_2, v_3, v_4, v_5) = \{ \text{Excellent, Good, Middle, General, Poor} \}$$

3.7 Determine each factor’s membership R

r_{ij} represent the degree of membership that u_i belongs to the number j item x_j in the evaluation set.

Then, we can get the single factor evaluation set of the number i factor u_i

$$r_i = (r_{i1}, r_{i2}, \dots, r_{in}) \tag{14}$$

I stands for the number of evaluation criteria indicators. R_i is the single factor judgment matrix.

$$R_i = \begin{bmatrix} r_1 \\ r_2 \\ \dots \\ r_m \end{bmatrix} = \begin{bmatrix} r_{11} & r_{12} & \dots & r_{1n} \\ r_{21} & r_{22} & \dots & r_{2n} \\ \dots & \dots & \dots & \dots \\ r_{m1} & r_{m2} & \dots & r_{mn} \end{bmatrix} \tag{15}$$

3.8 Fuzzy comprehensive judgment

Then, the evaluation results A can be get.

$$A_i = \sum_{i=1}^n (w_i r_{ij}) = (a_{i1}, a_{i2}, \dots, a_{in}), j = 1, 2, \dots, m \tag{16}$$

$$A = W \bullet R = (W_1, W_2, \dots, W_l) \bullet [A_1, A_2, \dots, A_l]^T = (a_1, a_2, \dots, a_n) \tag{17}$$

a_j is the calculated evaluation value. Based on the maximum membership principle, the evaluation level which the $a_{j \max}$ corresponds to should be the comprehensive evaluation results. It’s the evaluation level of the green supply chain.

4 Conclusion

In this paper, based on the predecessors' research, a green supply chain performance appraisalment index system has been established, combining analytic hierarchy process (AHP) and entropy value emethod to determine the weight of each index, which gives full consideration to the expert's experience. What’s more, the system makes empowerment results more scientific and objective. However, there are also some shortcomings. First of all, the selected evaluation indexes in this paper need to be further verified in practice and adjustment, which can make its can better reflect the overall performance of green supply chain. Besides, the second problem is that the model is established in a paper, instead of producing from a test.

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Research on Disability-Prevention Service Chain under Sustainable Perspective*

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Abstract: Disability prevention is an important measure to enhance the quality of our population. Based on the sustainable theory, the thesis proposes the concept of prevention mechanism, building and working methods. The thesis clarifies the chain of supply chain, object chain, demand chain and service chain relational model which links the service object, service content, service agency, and service stage and constructs the model of disability prevention mechanism. Combined with the model of disability prevention mechanism, the thesis proposed policy support, linkage mode, management mode and other aspects of countermeasures to solve these problems.

Key words: Sustainable theory; Disability-prevention service chain; Building; Countermeasures

1 Introduction

Disability prevention is a kind of fundamental work to improve the population quality and comprehensive competitiveness of a country. It is concerned with survival, health and development of all citizens of a country. To actively promote the disability prevention is the important task to develop the enterprise for the disabled in China. It is the important target of the public health and people's health, and also the important measure in the new period to improve the population quality in China in the new period. To enhance the intervention of disability prevention and reduce the occurrence of disability, is conducive to reducing the disability rate of newly-born population and improving the living standard and living quality of people. In the meanwhile, the disability prevention reflects the humanitarian spirits. It is an important aspect for the continuous improvement of a country's social civilization.

Disability prevention is targeted at the hazards leading to disabilities including heredity, traumas, development, diseases, environment and behaviors and so on. To adopt the effective measures and channels, prevent or reduce the occurrence of disabling diseases and injuries, limit or reverse the disabilities caused by diseases and injuries, and prevent the disabilities from becoming physical disabilities after the occurrence of disabilities, are the effective channels to prevent, control and delay the occurrence and development of disabilities. The government of China is always paying high attention to the disability prevention, and always insisting on taking the disability prevention as the important content to develop the enterprise for the disabled, for which, the phased achievements have been made. Cheng Kai has pointed out that the disability prevention in China has been added into the ordinances for China to develop the enterprise for the disabled. The specific projects have been carried out, the disability prevention in the key fields has been enhanced, and the precious work experience has been explored. (Cheng Kai, 2011) From this, it can be seen that since the implementation of the reform and opening-up policy, great progress has been made in the aspect of disability prevention in China, which creates the safe and reliable living environment for the broad masses of the people. However, it is undeniable that there are still problems in the disability prevention mechanism in China, which remains to be further perfected in the aspect of disability prevention mechanism. It still has a long way to go to establish and improve the disability prevention mechanism. As far as the scholars including Zheng Xiaoying and Cui Bin are concerned, the problems including the lack of systematic planning in the measures and strategies of disability prevention; unclear liability subjects; being hard to implement the policy measures and prevention; and scarce resources of the government and society used for disability prevention. (Zheng Xiaoying, Cui Bin, 2013) Towards the problems in the disability prevention in China, the scholars including Cui Bin and Chen Gong have presented the corresponding countermeasures in the aspects of establishing disability prevention mechanism, improving disability prevention system, popularizing disability prevention knowledge, carrying out the key intervention of disability prevention,

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and establishing the support and guarantee environment of disability prevention and so on.(Cui Bin, Chen Gong, 2011)

Above all, at present, the researches of scholars concerning disability prevention are mostly concentrated on the development history of disability prevention, the problems in disability prevention and its countermeasures and so on, and a system perspective is lacked comparatively to analyze and solve the problems of disability prevention. Therefore, in the angle of sustainable theory in the paper, the system analysis is carried out towards the problems in disability prevention mechanism. With the continuous progress development of human society, the level of industrialization and urbanization improves continually. While the human beings enjoy the highly developed material civilization achievements, the harmonious relationship with nature gradually collapses, and problems in environment and resources emerge in endlessly and become increasingly fierce. The development of human society is in the crossroad concerning the fatal rise and fall constantly. In as early as the beginning of the 20th century, the western scholars have been worried about the issue. In *The Economics of the Coming Spaceship Earth*, Boulding put forward the “economic theory of spaceship”.(Gro Harlem Boulding, 1966) In the *A Blueprint for Survival* (Goldsmith, 1972) written by some scientists led by Goldsmith, the editor-in-chief of *Ecologist*, a British magazine, it revealed that the unharmonious development of human beings makes disastrous impact on natural environment and social environment; and the theory of sustainable development rises in response to the proper time and conditions, and gradually becomes the focus concerned by the various countries in the world.

From incubation to establishment, the concept of sustainable development undergoes a process of continuous exploration and improvement. From the view of ecology, Ridley Ford brought forward that sustainable development maintains fundamental ecological processes and the system of life supply;and makes best use of all kinds of species and ecosystem.(Rogers, 2007) From the view of society, Kuypers came up with the definition that sustainable development not only boosts the economy, but also changes the mode of life in the society.(Lan Moffatt, 2007) Among which, Brundtland’s definition of sustainable development is widely accepted and recognized by the international society, which is “the development satisfying the requirements of contemporaries and not damaging the capacity of the posterity to satisfy their requirements”.(Brundtland, 1987) Sustainable development contains rich theoretical connotations. It supplements and is closely associated with mutual development, harmonious development, equitable development, efficient development and multi-dimensional development. The above aspects supplement and are closely linked to each other. The scholar Niu Wenyuan opened a new path and presented that the understanding of human beings towards the connotations of the theory of sustainable development undergoes the long course from survival to development and then from development to sustainable development. Besides, he put forward the concepts of “external response” and “internal response”, and revealed the essential connotation of sustainable development.(Niu Wenyuan, 2012) In the aspect of specific contents, sustainable development is the harmonious unity of ecological sustainability, economic sustainability and social sustainability.(Tolba, 1990) It requires human beings to focus on ecological sustainability, highlight economic efficiency and pursue for social equity, thus realizing the overall harmonious development of human society. From the above, it can be seen that sustainable development plays an essential role to the development of human beings. Liu Zhongyan and Ji Zhong et al. hold the view that sustainable development can optimize the living space of human beings and provide the foundation for the development of human beings. It can better meet the basic requirements of human beings and promote the all-round development of human beings. Besides, it can promote the deepening of the understandings of human beings towards their own values and the values of nature, thus obtaining freedom in correctly harnessing the natural forces.(Liu Zhongyan, Ji Zhong, 2005)

In conclusion, sustainable development, after all, is the all-round development of human beings. To be people-oriented is the basic value orientation of sustainable development. As the life expectancy of population lengthens, the risks for people to be disabled gradually increases and the period of disability is also obviously prolonged, which might generate huge consumption of social resources. In the aspect of environment, disability generates many adverse effects on the living environment of human beings. Whether in educational environment or employment environment, the disabled are always in the inferior position, which largely reduces the requirements on their survival and development. In the aspect of material resources, disabilities affect people’s basic requirements on basic necessities of life, and severely limit the disabled in their daily life in different degrees. As for the group with relatively high degree of disabilities, disabilities severely affect the daily behaviors of the disabled. In the aspects human resources, the adverse effects of disabilities on human resources are mainly expressed in the two aspects, i.e. physique and knowledge & skills. Due to the limitations of the disabilities, the disabled are

always in the inferior position in living, studying and social interaction; while extremity disabilities further restrict the abilities of the disabled in grasping knowledge & skills, which is also the key factor leading to the low overall quality, low educational level and weak social adaptability of the disabled.

From the above, it can be seen that towards the adverse effects of the disabilities on social resources, the construction of the disability prevention mechanism is of great importance. And both national and foreign scholars put forward that the enterprise for the disabled should be in the perspective of sustainable coordinated development.(Gong Xiao, Wang Pingyi, 2015) Therefore, in the paper, in the perspective of the theory of sustainable development, the research is conducted towards the disability prevention mechanism in the three aspects, i.e. the theory of disability prevention mechanism, systematic disability prevention mechanism, and operational measures of disability prevention mechanism, among which the idea of disability prevention mechanism is the core to build the mechanism. Systematic disability prevention mechanism is the framework to build the mechanism. Operational measures of disability prevention mechanism are the working methods to build the mechanism. The above three are closely linked to each other.

2 The Concept of Disability Prevention Mechanism

Disability prevention is an important content that cannot be ignored in the construction of social security, it is also a kind of construction of ecological system which entails establishing a relationship with other social systems so as to acquire a stable and effective network of social resources and guarantee a normal operation of disability prevention mechanism. The *Beveridge Report* proposed that a social security program with mutual cooperation should be built for forging a good social security environment.(J·R·Hay, 1978) It also pointed out that the social security must be achieved through the cooperation between countries and individuals, it should be the common responsibility and moral duty of individuals, the state and society, it is the manifestation of collaboration among the three pillars: the state, society and individuals. Therefore, we should regard disability prevention as one of the most important aspects of the social security, and we should construct a macro, meso and micro docking system from the national government level, social organization level and individual level, forming a stable ecosystem.

2.1 The macro policy level

The “Twelfth Five Year” period is the key period of building a moderately prosperous society in an all-round way in China, it is also the crucial period of deepening reform and opening-up and accelerating transformation of the mode of economic development. Establishing and perfecting the basic public service system, and promoting the equality of our basic public services become an important national policy of China currently.

Disability prevention shows an urgent entailment of building a harmonious socialist society and maintaining social fairness and justice. It has great bearing on advancing social construction that takes people’s livelihood as its key point and ensuring the most direct and the most realistic interests people concerned about. It is of great significance in social security for the disabled and public service system in China, embodying the happiness and benefit of “healthy community” and “disabled community”. So the important position of disability prevention should be highlighted. Standing on the height of the construction of our national public service system, we should increase the proportion of disability prevention in the construction of national public service system so as to provide better services for the “healthy community” and “disabled community”.

2.2 The macro management level

Disability prevention is a matter concerning such departments as health, family planning, civil affairs, human resources, social security, transportation, safety, environmental protection and the disabled persons’ federation organization. A single department is difficult to carry out disability prevention work effectively. Therefore, a comprehensive leadership coordination mechanism should be established at the government level so as to coordinate with all parties and forge a disability prevention working committee leadership and new work pattern of each department.

2.3 Medium organization level

Among China current social organizations, disabled persons’ federation’s organization form is unique. It composes of the official working committee for the disabled, at the same time, also the semi-official managerial disabled persons’ union, and the civilian association for the disabled. This organization form has its drawbacks and its advantages. The advantage lies in that it can perfectly play a pivotal role, which is defined by the academic circles as a social organization with connecting functions.

We should make full use of the disabled persons’ federation, balancing interests among government agencies, social organizations and public concerns, thus better joining all levels of society together.

2.4 Disability prevention service chain

“Service chain theory” believes that there is a certain relation among the service agencies, like a “chain”. When the service agencies form the “chain” relationship, multiple service chains within an area will form a service system, of which each service chain comprises of nodes to meet the requirements of their own “chain”. And these service enterprises and institutions make up the nodes on the chain. The nodes on chains provide needed services, thus improving the efficiency and quality of service.

The “service chain” theory supposes that to maximize servers’ satisfaction, all kinds of related enterprises, institutions and social sectors can be organically combined and form a network. Relevant social forces can be incorporated into the network, like the government, enterprises, social groups, non-governmental organizations, etc, and, according to the requirements of the “service chain”, play different roles, and jointly provide needed services.

To apply the theory of “service chain” requires that we should construct a disability prevention service chain, to get the disability prevention service enterprises, social organizations and government parts together which form a mesh structure, that will finally maximize the quality and efficiency of disability prevention work.

3 The Construction of Systematic Disability Prevention Mechanism

Since the reform and opening-up, China’s disability prevention mechanism has witnessed a boom. However, given the “policy fragmentation” problems and realistic situation in disability prevention, the construction of disability prevention mechanism should be analyzed from systemic perspective. The principles of systemic disability prevention policy mechanism are as follows:

3.1 The macro, meso and micro docking

According to the concept of disability prevention mechanism, we should embed disability prevention mechanism into the national basic public service system, establish a disability prevention working committee at the government level, take disabled persons’ federation organization as a hub, establish linkage platform and build disability prevention service chain so as to realize the systematic docking of macro policies, macro management, meso social organizations and micro individuals.

3.2 The dynamic balance

Disability prevention, in terms of its essence, is service for “healthy community” and “disabled community” and a kind of public goods, so there is also a public product life cycle dynamic balance issue, including dynamic balance of the production, delivery, consumption, supply, termination, transfer and improvement of public goods.

3.3 The docking of all kinds of chains

According to the public products’ life cycle, service chain contains service chain, supply chain, object chain and demand chain, etc. Their relationship lies in: service chain organizes related service institutions and offers the consumer a all-around, whole-process and all-the-time service. We can regard disability prevention service chain as a kind of service network, and the supply chain, object chain and demand chain as productive network. Based on the public products’ life cycle, the relationship model of supply chain, object chain, demand chain and service chain is shown in figure 1:

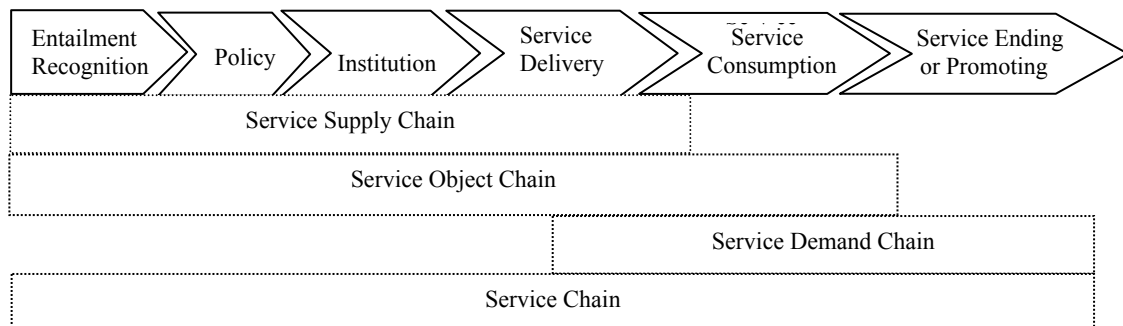


Figure 1 Based on the Public Products’ Life Cycle, the Relationship Model of Supply Chain, Object Chain, Demand Chain and Service Chain

Figure 1 shows that systemic disability prevention mechanism is the whole process of disability

prevention, so disability prevention mechanism also touches upon the management of such kind of public product. Disability prevention service can be divided into three stages: early service, mid-term service and later service.

The early service refers to the preparation before the delivery of public products, including establishment of public policy, examination and establishment of decision-making body and service institution and needs recognition, etc. The mid-term service refers to public product output, product delivery and consumption, including money, propaganda, examination of service object and service, etc. The later service refers to termination and transfer of public products supply and upgrade according to service requirement assessment. When the effect of disability prevention has been achieved, service supply ends; When disability prevention effect is ordinary, service movement can be achieved by changing service institution. Optimize service effect also can be realized by upgrading service.

According to the concept and principle of disability prevention policy mechanism, combined with public service product cycle, the model of disability prevention mechanism is shown in figure 2:

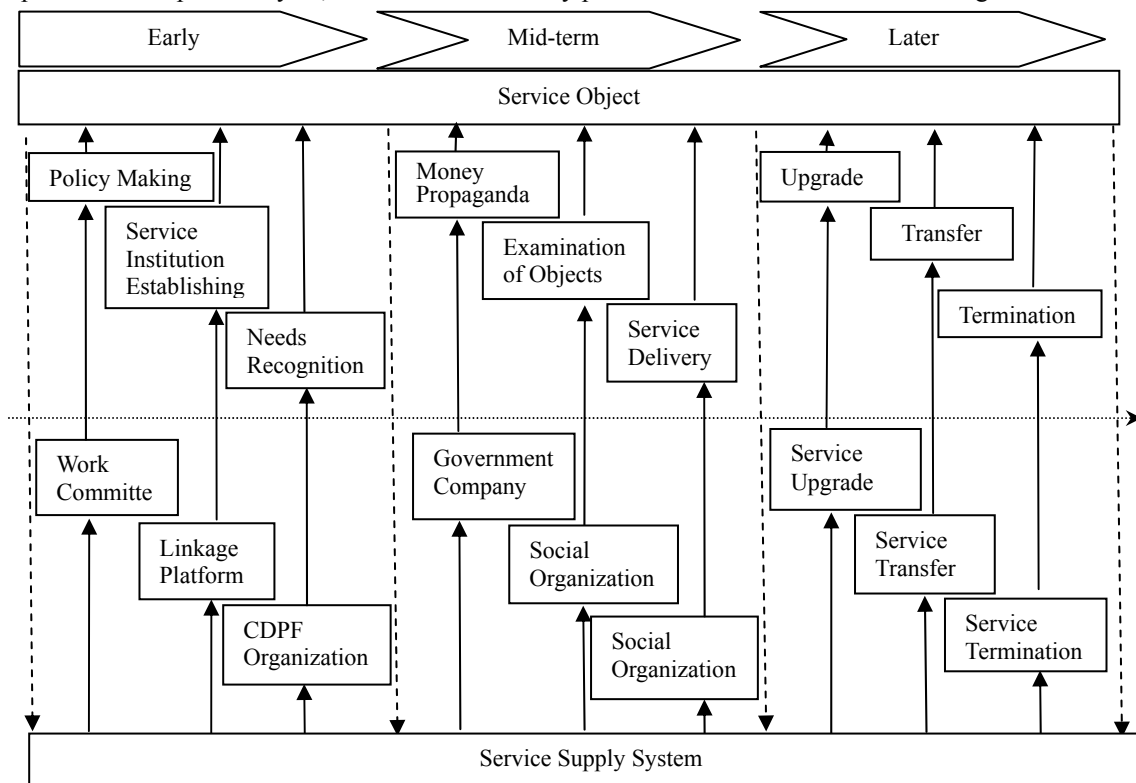


Figure 2 The Model of Disability Prevention Mechanism

4 Conclusions

By investigating the problems of disability prevention and the reality, from the perspective of the theory of sustainable development, the construction of disability prevention mechanism entails establishment and improvement of the service chain. Positive and effective measures should be carried out to crack down on problems of the mechanism. Promoting operation of the mechanism entails building foundations from such aspects as policy support, linkage mode and the management mode of ramming mechanism.

4.1 Policy support

The central committee of the communist party, on the fifth plenary session of 17, states “about making the twelfth five year plan for national economic and social development suggestion”. It pointed out that “we ought to support the development of undertakings for the disabled, and improve the service system for them likewise”, and put forward the basic national policy of enhancing China’s public service system for the twelfth five year period, and even longer. By the concept of the disability prevention mechanism, disability prevention work should be incorporated into the national public service system and be the focus of the work. The incorporation into the national public service system’s evaluating index system, and more weight it gets, will lead to more resources and spending for disability prevention

efforts.

In addition, disability prevention ordinance should be enacted at the state level. We should guide departments at all levels to strengthen the disability prevention and rehabilitation of organization and leadership, adhere to administrating according to law and earnestly perform their duties by carrying out the ordinance. And we should put forth clear requirements for establishing a perfect service system for the disabled and implementing disability prevention measures.

4.2 The way to improve the organization and linkage

Along with the continuous development of economy, disability prevention work in China has achieved a lot. However, the big base, large scale and rapid growth of the population of China and serious aging problem have negative impact on the improvement of population quality and our social economy and culture. So the disability prevention work is urgently needed.

For highlighting the principle of the development policy embedded in the concept of disability prevention mechanism, special management institution of disability prevention council should be constructed to realize direct management of disability prevention practice. Meanwhile, with the assistance from national council on disability prevention, we should establish a joint conference system, actively promoting cooperation of health and family planning, education, civil affairs, public security, transportation, safety, environmental protection and the disabled persons' federation organization.

Under the guidance of disabled persons' federation organization, we should fully mobilize social resources, such as social charity organizations, enterprises and social organizations, forming a joint effort to promote the construction of disability prevention mechanism as well as carry out disability prevention work smoothly.

4.3 The way to improve the management mode

In the management of disability prevention, we should highlight focused management, adjustments to local conditions and social governing functions.

4.3.1 Focused management

Disability is not a probability event average in social terms. During the course of human life, the likelihood of disability does not scatter evenly, and disability prevention effects also vary widely among respective periods. To improve the effects of disability prevention, the huge database should be set up, tallying up disabilities probability in the life cycle of our population and intervention recovery rates. Based on the statistical results, focus on the most needed group and at the same time work out scientific intervention measures, such as natal defects intervention, elderly disability prevention, etc.

4.3.2 Adjustments to local conditions

The second round data has shown that the disability probability has its regional attributes, and the structure and causes for disabilities vary accordingly. So in setting up policies for disabled people, the one-for-all principle is not eligible. This also requires that, when drawing out disability prevention group and intervention measures, the actual situation of local conditions should be taken into consideration.

4.3.3 The construction of informatization and managerial level

Establish a corresponding database in tune with different types of disability to form a bottom-up information management network, which paves the way for professional management and all-the-way tracking service.

4.3.4 Public awareness and spread of scientific knowledge

Mark out disability prevention as an important part of the public health propaganda, as a vital content of the media's public welfare propaganda, and none the less, as the indispensable content of spread of scientific knowledge. Fix the idea of national prevention, lifelong prevention and comprehensive prevention. Ensure the public understand and grasp the basic knowledge of disability prevention.

4.3.5 Scientific research and funds

Increase investment in scientific research over the causes for disability and put forward corresponding preventive measures. Parts of basic public health budget should be directed to disability prevention funds.

4.3.6 Social governing functions

We should give full play to the health, education, social work and various types of social organizations in disability prevention like identification of requirements, performance evaluation, rehabilitation and propaganda. Free social charity groups and enterprises' role should be played as much as possible in the process of disability prevention on fund-raising, handing-out assistive devices and the public welfare undertakings, etc.

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Research on Dissemination of Guilin International Tourist Destination Image Based on Omni-Media Perspective

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Abstract: The characterization and dissemination of tourist destination is one of the important factors that affect the tourist attraction, and also the key factor that stimulate tourists to choose the travel place as a travel destination. Based on the survey of Guilin image, this paper tries to put forward strategic vision to build a Guilin international tourist destination image spreading omni-media, deepen Guilin tourism brand image and make greater efforts for dissemination so as to promote the dissemination of Guilin international tourist destination image, which is of great practical significance to Guilin tourism and cultural industries.

Key words: International tourist destination; Dissemination of image; Omni-media

1 Introduction

Foreign countries have focused on research of tourism image and its dissemination since 1970s, and their rich theoretical achievements have played an important role in guiding China's tourism development. Effective dissemination of tourism image is regarded as an important way to enhance tourism appeal by tourism, theoretical circle, local government. In China, we focus on the study of tourism image from the beginning of 1990s, mainly from the research level, tourism image design study and tourism image marketing to conduct a comprehensive analysis and summary as well as present the problems about current tourism image study.

2 Study and Analysis of Dissemination Measurement Based on Omni-media

From the tourist destination perspective, this paper uses in-depth analysis and quantitative analysis, studies the methods and approaches of tourism image dissemination, that is the study of ways and means of Guilin tourism image dissemination under the Perspective of omni-media, explores effective ways of Guilin tourism image dissemination and provides a reference about tourism practices for government relevant departments.

2.1 Investigation of Guilin tourism image and analysis of dissemination measurement

The number of valid questionnaires about city image of international tourism attraction-Guilin is 1830. The respondents include people of all ages, different occupations, and different educational levels. Among the respondents, 30% are local people, 37.8% are foreigners working or studying in Guilin, 8.3% are Guangxi tourists, 19.6% are domestic tourists, 2.1% are Hong Kong, Macao and Taiwan tourists, and 1.2% are foreign tourists, which shows that the survey is representative and universal. According to the responses to the questionnaire, we conduct a statistical analysis, and find the following questions and suggestions existing in Guilin image dissemination:

2.1.1 Respondents lack understanding of Guilin's creating "International Tourist Destination"

Table 1 The Understanding Degree of Guilin's creating "International Tourist Destination"

The understanding degree of Guilin's creating "International Tourist Destination"	Percentage	Number of people
Scarcity	2.3%	42
Understand well	3.8%	69
Have a better understanding	21.1%	387
Know but not understand	51.1%	935
Hear about it and learning	10.8%	198
Completely unaware	10.9%	199

As what can be seen in the chart, in all respondents, more than half of the people only know the concept but not enough to understand the content of them "International Tourist Destination", which shows the inadequate propaganda of construction of a tourist destination, or people do not give this matter too much attention.

2.1.2 Respondents' level of acceptance of the image, international reputation of the Guilin city is not high

From the Guilin city image cognition perspective, respondents think it good account for 42.8%, ordinary account for 31.15%, not very good and below account for 16%, as well as the findings of international fame. Overall, people's evaluation of Guilin city image and international reputation cognition is not ideal, almost half of the respondents rate it below average. It can be said that Guilin, a famous international tourism city with years of business running, the whole city image evaluation has a big gap with its status, and international tourist destination target.

2.1.3 Respondents' ideal Guilin tourism image

Table 2 Respondents' Ideal Guilin Tourism Image

Respondents' ideal Guilin tourism image	percentage
Bright and sunny	28.14
Green and ecological	68.26
Comfortable and free	43.11
National customs	42.51
Cultural resources	24.55

Seeing from the table, we can know that people's expectations to Guilin tourism are of a multi-level, it is foreseen of multi-element integrated tourist destination. Those who want to experience the majority of green landscapes in Guilin is the majority, those who want it comfortable, free and have unique national customs are also accounting for a lot.

2.1.4 Respondents' suggested measures to make Guilin better integrating into the world

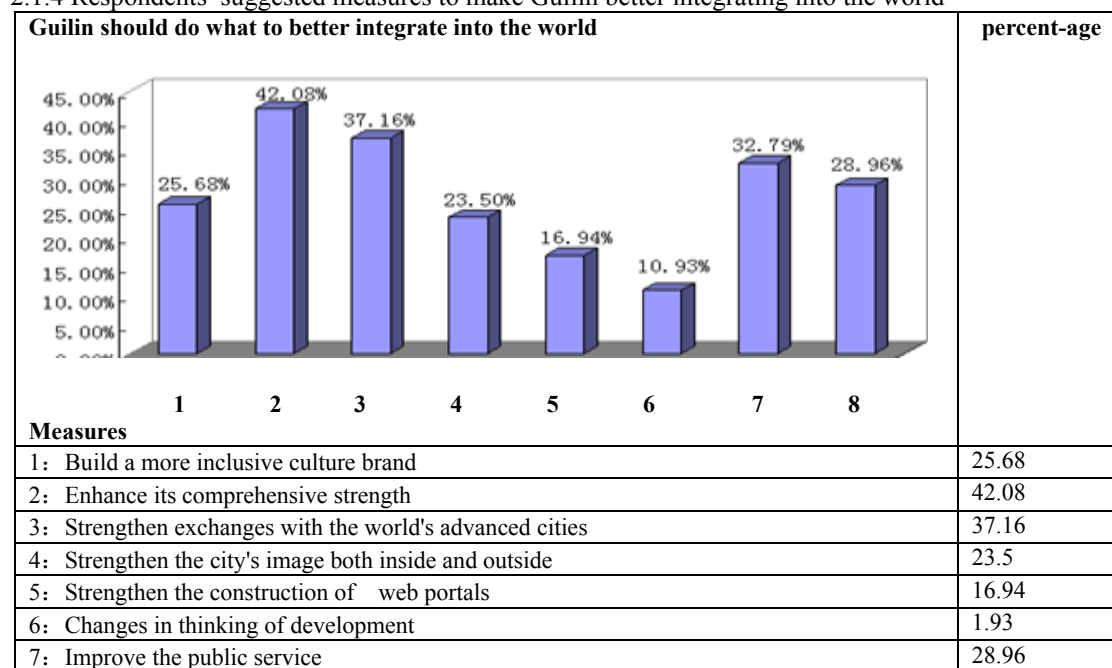


Table 3 Measures of Making Guilin Better Integrate into the World

As the world's famous tourist city, Guilin, with its unique tourism resources, has attracted numerous Chinese and foreign tourists, which not only promotes the development of tourism, but also promotes economic development. Nevertheless, nearly half of respondents still believe Guilin should try to better integrate into the world, 23.50% of them think that Guilin should strengthen the propaganda of image of Guilin both inside and outside.

2.1.5 Respondents' ways of understanding Guilin

In the present situation, the most adopted way of understanding Guilin is broadcast television transmission (60.60%), followed by the Internet, new media (55.36%), while the traditional print media dissemination comes in third (51.64%), television transmission, word of mouth spread and a large festival dissemination also occupies a certain weight.

Based on the above analysis of the survey data, we believe that to strengthen Guilin tourism image and dissemination, and improve the effect of urban outreach publicity, we should build the appropriate communication channels and methods, and also make a scientific assessment of the effect on the outside spread image of the city in order to avoid ineffective communication, timely adjust the communications strategy and direction for better effects of dissemination. Therefore, we try to put forward the omni-media model for Guilin tourism image dissemination and advance an image evaluation system of Guilin based on the propagation law.

2.2 Build the Guilin tourism image propagation omni-media model

2.2.1 Propagation forms and strategy of print media

Print media refers primarily to the print media, including newspapers, magazines, leaflets, tourist brochures, tourist maps and so on.

Newspapers have a large circulation and is cheap, spreading widely, read vastly, so it can be closely combined with modern tourism development features that general tourists and mass tourism areas; the magazines generally have more stable readership, it can be repeated read, enhancing memory, it has retained value over a considerable period of time, so to some degree it broadens and deepens the advertising dissemination results, it is more suitable for image transmission of long-term image positioning; the leaflets, tourist brochures, travel maps, etc. are practical, expressive, intuitive, they can achieve better targeted dissemination.

Main approaches of use of print media communication strategy: First, continue to allow "Guilin Evening News" to take the road close to the people, to continue to improve citizens learning the progress of Guilin's creating "international tourist destination" through Guilin Evening News. Second, let the "Guilin Daily" take the road authority, and constantly improves the confidence and credibility of party newspaper in the interpretation of Guilin tourism image building. Third, let the "Guangxi Daily", "China Daily" increase the coverage of Guilin tourism image, increase the propaganda of "international tourist destination".

2.2.2 Propagation forms and strategy of broadcast

At present, China has 744 middle and short wave radio transmitting and relay stations, 17,554 FM transmitters and relay stations, nearly 1.2 billion broadcast audience, broadcasting coverage rate was 94.5%. Advantages of broadcast are wide objects, spread rapidly, versatile, and strong infection.

Strategies of spread using broadcast are: First, according to the relatively large number of taxis in Guilin, and domestic and foreign tourists, we should develop the advantage that Guilin Radio has a lot of audience to deliver new, short, fast broadcast messages in order to timely and effectively propagate Guilin "International Tourist Destination." The second is to strengthen ties with Guangxi Radio, China Central Radio and moderately increase domestic propaganda. Third, make efforts to try to expand the international publicity of Guilin tourism image through foreign language radio.

2.2.3 Propagation forms and strategy of television

Television propagation refers to a means of mass communication way using the film and television. Movies and TV shows is the mass spread media combined sound picture. TV communication integrates text and images, time and space, vision and auditory organically, with its powerful advantage of spread, it has a broad and profound impact on various aspects of modern society: politics, economy and culture. Compared with simple tourism advertising, film and television can be more prolonged and more fully demonstrated all aspects of tourism places. For example, "The Third Sister of the Liu Family", starred by Huang Wanqiu in 1961, New China's first musical landscape feature film, have left a deep imprint in the hearts of several generations of Chinese people, it can be said that it really achieved a household name. This musical landscape feature film combined perfectly with Guilin scenery, which succeeded in shaping the image of Guilin.

Relevant plots showed in films and television give the audience a sense of reminding us of scenes, stimulating the tourists' travel desires; television strengthens attraction of tourist destinations, publicizes local natural and cultural resources, and accumulates intangible assets in the future for the locals. TV drama's general role to spread of tourist destinations are of two levels: one is the image transmitted to the audience to raise their visibility; the other is to show the charm of destination to arouse the audience's interest of tour.

Specific strategies of spreading tourism image using television are:

1) Actively seek cooperation of various types of films and televisions. Tourist destinations should actively seek various forms of television collaboration, the local government can also make investments himself, or invite the film and television production companies to make film and television works in the local places. In short, we should pay full attention to the vivid tourism image and the propagation of

high coverage of local tourism, making long-term plans for local tourism, economic and cultural development.

2) Create an international film base according to the actual situation. Make a good use of beautiful real landscapes to inspire the creators' inspiration; use a wide range of subjects to attract more audience's interest; create high-quality works to improve its image and make full use of local resources, and actively build an international film base, through which to show on the world's screen.

Once a film popular in the world, "Avatar", conquered the audience with the magnificent suspension mountain "Hallelujah Mountain", its director Cameron said "floating mountains" in the film prototype from Huangshan in China, but strongly questioned to be Zhangjiajie by the online users. However, no matter how it is controversial, Zhangjiajie has attracted a large number of tourists through Zhangjiajie is a fact. A large number of international blockbusters source cited Chinese elements, which indicates that Chinese beautiful natural scenery has been ringing-known in the international market. Guilin should seize the current rare international resort construction opportunity to better explore overseas markets, making Guilin tourism resources go to the international.

3) Carefully shoot personalized tourism image videos. These videos can give great visual stimulation and induced influence to the mass. They cut from the visual, auditory sense, giving people a full range of shock, at the same time of getting a feel of satisfaction, "strongly" implanting tourism image into the audience's minds, the audience unknowingly follow posts' intention to go with the flow of information in the good music and the screen, naturally keeping in mind the information of tourism.

Such as "Beautiful China" , the large TV documentary co-production of Sino-British in 2008, is the first performance China's wildlife and natural landscape from an unprecedented point of view, showing the charm of Chinese to television viewers; and Guangxi tourism image film "Beauty in Guangxi "depicts beautiful picture, beautiful commentary, changing background music to present the audience a paradise --- it lets the audience watch the film ,at the same time, feeling of people in the middle of a painting, unconsciously they are taken into the charming Guangxi.

Therefore, Guilin tourism image film shooting must fully explore Guilin tourism resources, according to the unique, exclusive and authoritative principle, personality, soul and philosophy of find Guilin tourism image.

4) Relying on the continuous reports whose main news is Guilin's creating "International Tourist destination" of CCTV, Guangxi TV, Guilin television, Guilin television International, etc., guiding the public to fully understand and really familiar with "International Tourist Destination," so that Guilin Tourism Image is growing in popularity, leading domestic people to establish Guilin tourism image.

2.2.4 Propagation forms and strategy of network new media

The use of network new media tools to disseminate tourism information is intelligent tourism, also known as smart tourism. It's the use of cloud computing, networking technology, through the Internet, mobile Internet, basing on the portable terminal access device (such as a laptop, iPad, smart phones, etc.), actively perceiving the tourism resources, tourism economy, tourism activities, tourists and other information, timely releasing, so that people can keep abreast of the information, and making timely adjustment arrangements about travel plans, so as to achieve the intelligent-sensing and easy-using of all kinds of tourist information. At present, the domestic who first propose the " Tourism of Wisdom" and to put it into practice is Zhenjiang City, Jiangsu Province, the city successfully developed the core technology of intellectual tourism "moving core" technology, and it was applied in the Beijing Olympic Games, Shanghai World Expo. At present, China has 18 cities selected the first "national wisdom tourism pilot cities," they are: Beijing, Wuhan, Fuzhou, Dalian, Xiamen, Luoyang, Suzhou, Chengdu, Nanjing, Huangshan, Wenzhou, Yantai, Wuxi Changzhou, Nantong, Yangzhou, Zhenjiang and Wuyishan.

Strategies of the use of network new media:

1)Take advantage of new media to carry out a full range of tourist information dissemination and services. Design network promotional platform, e-commerce platform, make notebook computers, smart phones, network platform and official Weibo, micro-channel a stereo integration, let multi-platform firstly disseminate tourism information, tourists know tourism information and purchase travel products.

2)Open is line with modern consumers' demand for mobile applications. With the promotion of 4G smart phones and widespread use of 3G smart phones, mobile applications have become an important and indispensable component of mobile software. For example, we can develop Guilin mobile application platform, which can be divided into travel press releases, line schemes, scenic navigation, casual dining, travelling shopping, accommodation, and so on. The platform combines the latest travel information and events, safari, car travel routes, business promotions, real-time traffic and ticket

information. After platform is successfully put into use, visitors can download the mobile application from it anytime and anywhere, and then achieving online queries and reservations based on individual needs, which is convenient and practical.

3) Set up two-dimensional code in the area of travelling. After setting a two-dimensional code and supporting Mobile Guide software, as long as the tourists scan the two-dimensional code in the area, they can hear the explanation online of the landscape, allowing visitors instantly see the detailed introduction of landscape.

2.2.5 Propagation forms and strategy of word of mouth spreading

Tourism product is typical of experiential products, necessities of life, the essence of entertainment and shopping of tourism is a sensory experience, and that of every tourist travel experience is not the same, if a tourist destination makes consumer satisfied about everything, it must encourage them to actively recommend it to friends and family around. Thus, self-advocacy role of tourists is a kind of word of mouth marketing.

Researchers believe that word of mouth spreading of tourism image can take the following strategies:

1) Apply "celebrity effect." Guilin has many cultural celebrities, such as Shi Tao, Ma Junwu, Li Zhongren, Bai chongxi, Liang Shuming, Bai xianyong and etc., those at home and abroad who have been to Guilin for travelling are Xu Beihong, Zhou Enlai, Deng Xiaoping, Chen Yi, Zhu Rongji, former US President Bill Clinton, Jimmy Carter, George Bush and so on. Tourism word of mouth marketing must make good use of "celebrity effect", we can invite and attract more celebrities and tourism critics go here for traveling, so that they can get the maximum perfect travel experience, and by all ways to make them use various channels to introduce others the tour destination, which helps the spreading of local tourism image.

2) Use the Internet word of mouth marketing strategy. Internet word of mouth marketing must enhance the accessibility of information, because more and more tourists prefer to use search engines before traveling to find information of tourist destination in order to increase the perception of variety of potential tourism products. Therefore, we can use the network tools such as forum, blog, Weibo and micro letter to realize word of mouth marketing, promoting the dissemination of tourism image.

3) Utilize interpersonal communication marketing strategy. According to the 2008 China Youth Daily's survey about word of mouth spreading, 82.93% respondents believe that the information provided by people travel back is more referred than a Tourist Guide Reference, which is tourism interpersonal communication marketing is after tourists' travel, they deliver information about tourism enterprises and their products to others. If visitors feel products of tourism enterprises may benefit their friends or familiar, they will tell the relevant product information to them.

2.2.6 Propagation forms and strategy of large festival activities

Festival activities spreading of tourist cities is actually a spreading way of tourist destination attracting tourists, the powerful appeal of events promotes reputation of the tourist destinations in a short time. Festivals mean influential events, including international conferences or exhibitions, major sporting events, tourism festivals, and other activities which have large propagation effects, such as the Beijing Olympic Games, Shanghai World Expo, Guangzhou Asian Games, the Guangzhou Trade Fair (China Import and Export Commodities Fair), Boao Forum for Asia, ASEAN Expo in Nanning, Nanning Folk Song Festival, which are all success cases.

Organizing large-scale festival events can quickly create the image of tourist destinations, planning large-scale festival activities can promote improvement of tourist destinations environment, so that the image of tourism continuously improve in the hearts of tourists, the level of management services of local government will be improved, so as the associated facilities and environment in the scenic spots.

The researchers believe that strategies of large-scale festivals can be considered from the following four aspects: First, apply the festival activities theme innovation policy; Second, take the festival activities precise communication strategy; Third, take festival activities serialization communication strategy; Fourth, travel fairs targets marketization strategy.

It is worthy of mentioned that according to requirements of "Development Plan of Guilin International Tourist Destination", Guilin will create an internationally influential and Guilin featured exhibition brand. To realize it, Guilin must make efforts from:

1) Focus on cultivating "Guilin International" exhibition series brands. Take Guilin International Tourism Fair, the International Forum on Tourism Trends and Outlook as the core, create "China Guilin International Tourism" series brands, focus on doing perfect, excellent brand exhibitions, such as China Guilin International Tourism Fair, the International Forum on Tourism Trends and Outlook, Guilin

International Landscape and Cultural Tourism Festival, Guilin International Animation Festival.

2) Dig new connotation, expand the scale and improve quality of Guilin Room • Car Festival, Guilin Famous Products Fair and other professional exhibitions, making efforts to develop them into well-known brand exhibitions.

3) Dig local cultural resources to create a series of county festival brands with strong local characteristics and combining with featured economic activities, such as Gongcheng Peach Blossom Festival, Yangshuo Lijiang fishing boat festival, Xing'an County, Guilin rice Festival.

4) Actively introduce and undertake domestic and international high-level conferences, forums and large exhibitions, focus on promoting the exhibition industry in Guilin to perfectly integrate into China - ASEAN Expo, and constantly enhance the influence of Guilin exhibition services industries. Form Guilin exhibition industry alliance, build Guilin Exhibition cloud platform, introduce and cultivate leading enterprises exhibition, actively explore development model of exhibition industry converging with other industries, innovation exhibition and tourism, implement demonstration projects of tourism and exhibition resource integration and coordinated development, vigorously promote the exhibition business tourism development, enhance the service capabilities and international level of exhibition industry in Guilin, strive to build Guilin as a "Chinese Landscape Exhibition of All", a national model city with innovation exhibition industry and tourism developing in harmony.

3 Establish Monitoring Evaluation System of Guilin Tourism Image

Image monitoring assessment refers to using scientific methods, standards and procedures for evaluating Guilin tourism image transmission performance, achievements and practical work as objective as possible. According to the management efficiency, competence, service, quality, public responsibility and public satisfaction degree, evaluate and divide inputs, outputs, performance reflected by intermediate results and final results in the government management of Guilin tourism image transmission. Assessment aims at improving the ability of communicating Guilin tourism image, continuously improving and enhancing communication performance. According to the actual situation of Guilin tourism image transmission, as well as related practical results at home and abroad, we recommend evaluation system should be based on the establishment of a large data system of Guilin tourism image.

As we all know, tourism industry is typical of experience economy. And this experience will not only remain in the customer's memory, but also publish on the web by reviews. According to statistics, in 2012, through Ctrip, eLong, a hornet's nest and other sites, nearly 9 million hotel reviews, travel information were included, at the same time, through the Weibo, micro-channel, travel experience information released are too numerous. Massive review data tend to make the tourism industry feel no clue. But the rapid spread of the network information will increase the effect of the negative feedback, if Guilin deals with relevant data slowly, it will affect the image of Guilin. We believe that integration of tourism-related data of public security, transportation, environmental protection, land resources, urban construction, commerce, aviation, postal services, telecommunications, meteorology, etc., meanwhile, cooperate with Baidu, Google, Taobao and other major Internet search engines and tourism electronic business operators, establish social data, tourism data and tourism-related data in one sector, implement digital management of tourism, carry out digital marketing to reach tourism network, FIT, and popularity with same trend.

In 2014, Hubei Province analyzed and monitored big data in "May Day" festival, and it benefited a lot. This year "May Day" holiday tourism market continues to hit in Hubei Province. The number of tourists is 11,582,900 in three days, an increase of 22.02%, a total tourism income of 5.709 billion yuan, an increase of 24.81%. Accompanying with visitors travel through the Internet to share travel knowledge, feelings, complaints, suggestions, which is an important part of the big data. In Hubei, 21 popular resorts were large data monitored, media report on network image is more than 1,100, Weibo reputation comment is 22,661. Among them, the users' Weibo comments on the Yellow Crane Tower is 11900, Wudang Mountains is 3468, East Lake is 1917, which are the top three, which is also consistent with the local tourism popularity; and media attention were paid in Macheng Turtle Mountain (395), Luotian thin blade (297) and the Wudang Mountains (74). These monitoring data analysis show that the Yellow Crane Tower, East Lake, Chennai, the Three Gorges Dam in Yichang, Enshi Grand Canyon, Yangyang Gurung have good network reputation, while some scenic spots share bad fame because the bus overturned, aerial lifts shut down, stop ticketing and other events. Traffic accidents, poor tour facilities, poor infrastructure lead to tourism accidents, which is one of the main incentives of negative public

opinions this year. What's more, full of tourists, reception with problems results in retention, and mandatory spending are also important source of negative network feedback. With the "big data", we can accurately predict traffic trends, and then take the appropriate measures to ease passenger flow; with "big data," we can know what kind of products visitors like, and then develop and construct marketable products; with "big Data", we can also know what kind of public services visitors need, thereby improving tourism public services... These are concrete ways, what can be imaginable is that a large data-based tourism service is very meaningful to enhance customers' satisfaction of Guilin Tourism.

At the same time, the establishment of Guilin Travel Image Control is also very necessary, which is the second targeted mining of large data. By CACA, we can carry out the network data content analysis on the network and Guilin tourism-related thematic content. Specifically, the application of content analysis in Guilin Tourism Network image information analysis is showed in the following aspects: First, guess the network communication theme inference tendencies and intentions, forecast tourism image public opinion trends, and provide decision support for the development of tourism image communication strategy ; Second, monitor the effect of the spreading of Guilin tourism image and analyze its trends; third, compare, evaluate, and identify the public information source of Guilin tourism image. It can not only achieve the planning, production, dissemination, monitoring, response and control of relevant information for Guilin image, but also more flexibly process information and knowledge.

4 Conclusion

Finally, set timely publication mechanism of Guilin tourism image. Information disclosure is not only an own supervision, but also a vivid public education of Guilin citizens. Occasional achieving analysis reports of large data of Guilin tourism image helps government and the public grasp Guilin Tourism actual image, make sure that the city image manager's voice is conveyed, a positive and favorable communication environment is created. In-depth understanding and actively collaborate the spread intentions of executives and public demands, and promote information interaction and dissemination between the administration and the public, improve the level of information dissemination, and fully meet the information dissemination needs of Guilin tourism image construction management and domestic and foreign residents, businesses, and visitors.

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Research on Current Situation, Cause and Countermeasure of Contemporary College Students' Network Literacy

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Abstract: Network changes everyone's life rapidly and deeply, so cultivating college students' network literacy is one of the new subjects that we must face in Network age. Through researches and interviews, the paper reveals current conditions and reasons of contemporary college students' network literacies and puts forward a series of countermeasures and suggestions for this phenomenon, aiming to provide ideas and references to the cultivation of college students' network literacy.

Key words: Students; Network literacy; Current situation; Reason; Countermeasure

1 Introduction

As a product of the information technology revolution, the internet develops rapidly and changes people's daily life profoundly. According to the 33rd "Statistic Report of China's Internet development" published by China Internet Information Center, by December 2013, 618 million people are using internet in China, an increase of 53.58 million over the past year, Internet penetration rate reaches 45.8 %, 3.7 % more compared with 2012. College students, as the leaders of new age, have extremely intimate relationship with the internet. According to the survey, students are the biggest group of China's netizens, accounting for 25.5 %, and Internet users with junior college degree or above outnumbered more than 20 % of the total number, clearly reflecting the great amount of student netizens. College students are also the most active groups on the internet. On the one hand, they pursue free ideas and independence of thoughts, and they are willing to use internet to accept information and express their opinions. However, on the other hand, with immature self-control and of information distinguishing ability, college students are easily influenced by the negative impact of the Internet and become the victims of internet rumors, cyber violence and cybersex. It has already been an issue that is to be settled urgently to research and analyze current situation of university students' network literacy, guide students to use the Internet properly, strengthen research and education on college students' network literacy and conduct healthy and harmonious network environment in the ideological and political education field. In September 2014, the research group conducted a questionnaire survey on network literacy of undergraduate and graduate students. 200 questionnaires were sent out and 153, accounting 76.5 % of the total, were recollected in which 148 are effective ones, 96.7 % of total retrieved ones. In October 2014, the research group interviewed college students, teachers, students' parents and netizens. On this basis, this paper aims to explore the current situation, reasons and countermeasure of contemporary college students' network literacy.

2 Current Situation of College Students' Network Literacy

2.1 Favorable evaluation of college students' network literacy

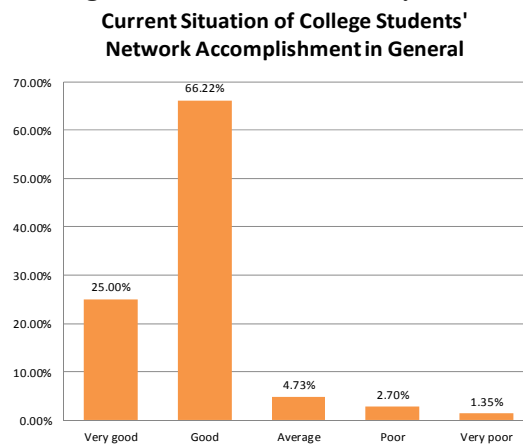


Figure 1 Comment on Current Situation of College Students' Network Accomplishment

To know the evaluation and attitude of the public to college students' network literacy, the research group sets up two subject: "Your opinion on the condition of contemporary college students' network literacy" (Options : very good, good, average, poor, very poor) and "Your opinion on contemporary college students' network literacy compared with that of the public"(Options: better, similar, worse). According to the survey, about 91.22 % of the interviewees express that college students' network literacy is generally good or nice. Those who think bad or very bad respectively take up 2.70 % and 1.35 % . (As is shown in figure 1)

82.43 % of the interviewees think college students' network literacy is better than that of the public. Only 3.38 % think college students' network literacy is worse. (As is shown in figure 2)

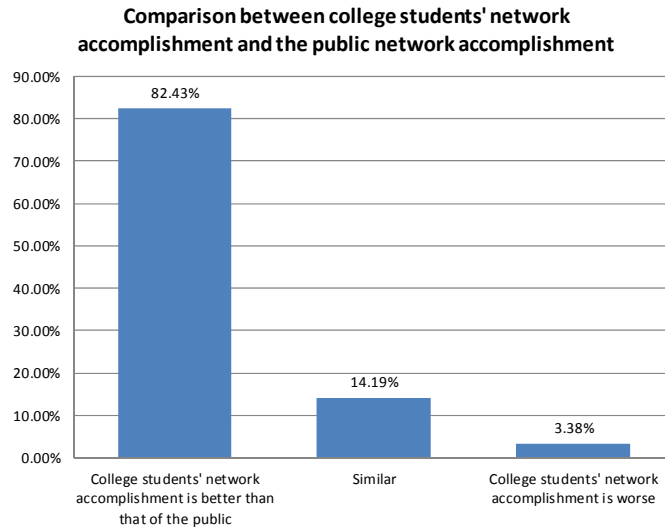


Figure 2 Comparison Between College Students' Network Accomplishment and the Public Network Accomplishment

The figure shows that the public think highly of contemporary college students' network literacy. During the research, it is found out that most interviewees have strong interest in current situation of contemporary college students' network literacy and they realize importance and urgency on cultivate and improve college students' network literacy.

2.2 Lack of network literacy among contemporary college students

Though most interviewees highly praised college students' network literacy, many students still lack network literacy in daily life. 32.43 % of interviewees think it very common that college students lack network literacy. 27.48 % of interviewees think that college students frequently behave in ways of lacking network literacy. Interviewees who think college students occasionally or seldom behave badly in network literacy respectively account 25.90 % and 24.19 % . According to the survey and individual interview, college students lack network literacy roughly in three aspects. (As is shown in figure 3).

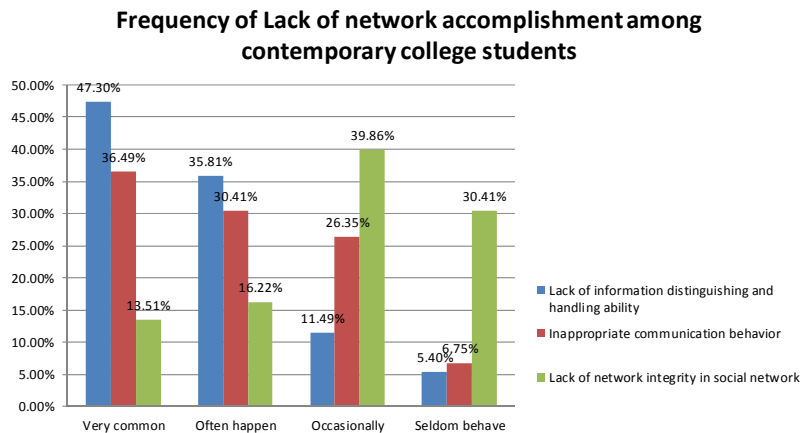


Figure 3 Frequency of Lack of Network accomplishment among Contemporary College Students

2.2.1 Lack of information distinguishing and handling ability

The internet is the inevitable product of information explosion era, and the internet is also the biggest area of social information flow. Every internet user is faced with a variety of different information all the time. The ability to distinguish and handle the information is very important part and evaluation factor in network literacy. However, according to the survey, college students are commonly lack of the ability to distinguish and handle the internet information. According to public opinion, the frequency that college students lack the ability to distinguish and handle information commonly or frequently reaches 47.30 % and 35.81 %. The lack of ability lies in the excessive pursuit of newest, latest and largest amount of information while neglecting the necessary distinguish to the authenticity of the information. Moreover, they are not willing to understand the information in depth. They merely seek for sensory stimulation rather than learn knowledge. Thus, they cannot distinguish real information and false information, so inferior and false information gradually dominates the internet, and then leads to vicious circle.

2.2.2 Inappropriate communication behavior

As a significant link between different internet users, providing vast and convenient social platform is one of the most important functions of internet. Communication behavior also becomes one of the main behaviors of internet users. Throughout this research, commonly and frequently inappropriate behavior account 36.49% and 30.41%, including vituperation, uploading bored and vulgar messages, spamming, call-over and so on (As is shown in figure 4). On the one hand, these people obviously ignore the social property of internet, suggesting that internet is their private space. On the other hand, with little knowledge of internet, they don't regular their own behaviors even if they are behaving improperly.

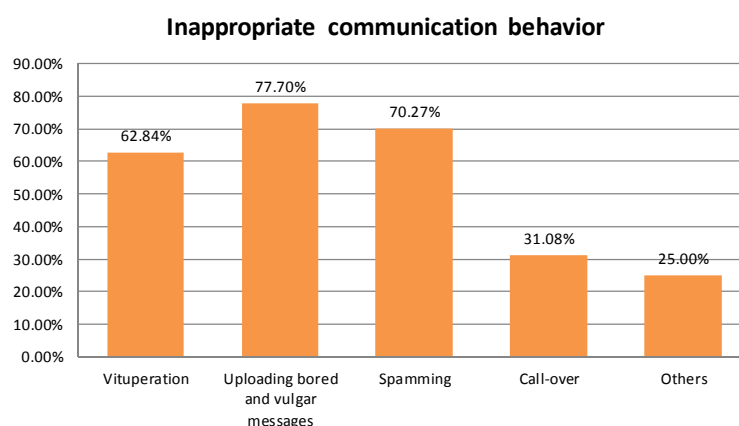


Figure 4 Inappropriate Communication Behavior

2.2.3 Lack of network integrity in social network

According to Hierarchy of Needs Theory raised by Maslow, a famous American psychologist, people are expected to be accepted by certain social circles. So that the newly emerging social internet platforms like Blog, QQ zone, Renren and Wechat become one of most concentrated and active area among college students. At the same time, social network is also an area that reflecting their lack of network integrity. The lack of network integrity mainly contains: personal information fabricating, network voting deception, rumor and network defraud (As is shown in figure 5). From the frequency of occurrence, most interviewees think that college students' dishonest behavior just occur occasionally (39.86%) or seldom occur (30.41). However, among all the dishonest behaviors, rumor and network defraud are extremely harmful to the society. So we should pay more attention to these phenomena. Other behaviors may not have serious consequences, but also have bad influence on the normal internet order, like personal information fabricating (gender, age, job, education and working experience) and network voting deception (ballot rigging), which also account for a great portion of the dishonest behaviors.

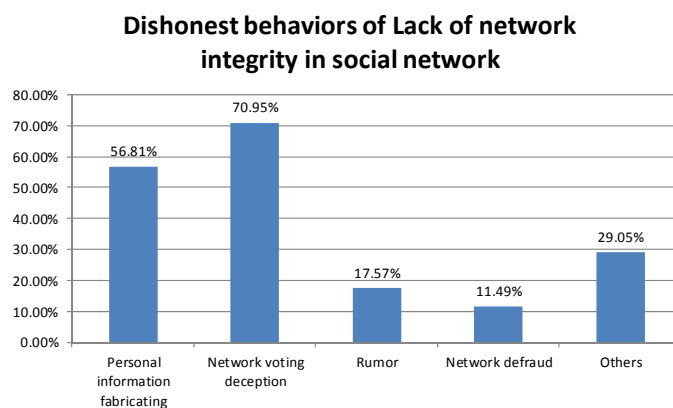


Figure 5 Dishonest Behaviors of Lack of Network Integrity in Social Network

3 Analysis of Reasons of Lacking Network Literacy of College Students

According to questionnaire and personal interview, it is easy to find that the reason leading to the current network literacy of undergraduate is complex and multilateral. Not only by the influence of social environment, but also by themselves and also their family and school and so on. To be specific, it can be classified as follows:

3.1 Urgency to improve the network literacy of the whole society

As one of the active group in the society, college students are not isolated. As the internet is an open platform for all kind of social groups, the network literacy of college students is inevitable influenced by other groups. It is intimately related to the whole society. In a society with high concentration on the network literacy and comparatively high social network literacy, the network literacy of college students will obviously improve. On the contrary, in a society which ignore network literacy and has low network literacy, the college students will surely be influenced by various kinds of negative social phenomenon. Therefore, it is extremely difficult to improve and foster network literacy. The behavior of college students that lack network literacy, such as Internet defrauding, rumor, and malicious information, is closely related to the urgency of improving network literacy of the entire society.

3.2 Omission of family in network literacy cultivation of college students

Many undergraduate are studying far from their families. What's more, many parents know little of internet because of their age and knowledge structure. Internet has gradually isolated the students from their parents and family. Internet has become the private space for college students. The cultivation of network literacy becomes a blank page in family education. However, the value of parent can highly influence or even change the value of college students. Children can be unconsciously influenced by personal example as well as verbal instruction from parents. If parents, the lifelong teachers of children, lack the basic concepts of network literacy, and the family, the lifelong school, continuously absent in the cultivation of network literacy, then it is not surprising that college students lack network literacy.

3.3 Inadequate school education management

The responsibility of improving college students' network literacy should not be shouldered merely by the colleges. School education not only contains college education, but also the fundamental education of primary and junior school. However, despite the fact that the primary and middle schools provide related courses of IT, most courses focus on the introduction of Internet and IT and little focus on network literacy. In college, only students in certain majors can learn network literacy courses, thus only getting very limited effect. The traditional model of teaching "teacher keeps teaching, students just listening" is not that match with the real problem and situation. In school management, on the one hand, some managers keep old values, thinking that college students should be repelled with Internet. On the other hand, they mistake internet addiction with the proper use of internet. Some even keep such stereotype that the students who stay away from internet is a man of good conduct. In regulation system, there is merely no related standard and no samples of bearing responsibility of lacking network literacy. It can be concluded that, in current education and management of colleges in China, the cultivation of college students' network literacy is still a blended zone, which is also the reason leading to omission of network literacy of college students.

4 Countermeasures and Suggestions on Network Literacy Cultivation of College Students

In general, network literacy cultivation of college students calls for the guidance of the mainstream value of the society and good internet environment. We should put the network literacy cultivation into family education. Colleges should strengthen guidance and construction of education and management system. It mainly includes the following aspects:

4.1 Creating good social atmosphere and consolidating foundation of network literacy cultivation

Creating good social atmosphere is the foundation and prerequisite of network literacy cultivation. On the one hand, socialist core values should play a leading role in establishing harmonious internet, carrying forward the positive energy and guiding public focus on the quality and importance of internet. On the other hand, related laws and regulations and systems should be set and perfected. All the social members, including college students, should be guided and regulated in their internet behaviors. As to the behaviors that have bad social influence or even break the law should be judged and sentenced by law. In the end, we should use legal thinking to solve problems when it comes to the lack of network literacy. In addition to the legal and system guarantee that were mentioned above, we should adhere to the principle of enforcing the law strictly and punishing all offenders under the guiding of legal thinking in real life, making legal system to become effective solutions to cope with the problems resulting from the lack of network literacy. Then it would gradually reverse trends of network "jungle society", completely putting an end to problems resulted from the lack of network literacy, such as throwing down the gauntlet in blog, then coordinating the real life and internet and lay a solid foundation to the cultivation of network literacy.

4.2 Strengthening school education management and guarantee the cultivation of network literacy

The cooperation and guidance of school education in every period is an essential part in cultivating college students' network literacy. On the one hand, as the internet is developing rapidly nowadays, school education of network literacy should quicken their steps and follow the rule of "education from young period". We should bring the contact related to network literacy in basic education and give assistance and guidance to students in different stages according to their different characteristics. On the other hand, the network literacy education for college students must realize the transition of education space from classroom to the internet. New education forms, such as opening up the official account to release information, interaction, answer questions, should be applied to replace traditional classroom teaching. College students' network literacy education should innovate in languages, integrating with current internet hotspot and making the cultivation of college students' network language literacy as an important part in improving network literacy. Then we should also construct a new language system both rigorous and down-to-earth. Finally, schools, especially colleges and universities, should strengthen the management of students' network literacy. They can timely supervise, evaluate, reward and punish college students according to their performance, setting up advanced models of network literacy, criticizing a series of behavior that lacking network literacy. Moreover, schools should also record and guide the situation of the network literacy for college students and give strong support for college students' network literacy cultivation through education and management.

4.3 Promoting family influence and sticking to the base line of network literacy cultivation

Family education is a constant and lifelong education. Family influence is not only the beginning of network literacy education, but also the base line of network literacy cultivation. Integrated with each other, they promote the improvement of each other. On the one hand, Parents should pay attention to the influence of their words and actions on college students and attach great importance on the cultivation of network literacy, setting a good example to their children. On the other hand, parents should implement responsibility education for their children and teach their children to take responsibility for their own words and actions in internet. These would have an alerting effect on children's behaviors. The parents should also guide the children to establish network literacy consciousness and stick to the basic line of network literacy. Through their coordination with the society and school, they would jointly promote the cultivation of network literacy of college students.

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Present Situation and Development of Urban Barrier Free Facilities Construction: Based on an Investigation in Wuhan of China

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Abstract: Barrier free facilities is an important part of the modern city infrastructure construction. Since 80's of last century, barrier free facilities construction has made great achievements in China, there has also been the problem. To understand the current situation and problems in our city the construction of barrier free facilities, this research selects Wuhan of China to investigate the construction of barrier free facilities, based on the research of barrier free facilities in Wuhan of China is proposed in view of improving the barrier free facilities construction and management advice and recommendations.

Key Words: Wuhan; Disabilities; Barrier Free Facilities

1 Introduction

City construction of barrier free facilities are matching service establishment designed for the disabled, the patient, the elderly and other social members, making them safe and facilitating their daily life, and usually built on road, public buildings, residential buildings and areas, including barrier free entrance, barrier-free lift, platform, bedroom, restroom, seat, information sign in braille, traffic sound& signal facility, communication tool and other relevant appliances.

The earliest barrier free facilities appeared in Switzerland, Denmark etc. in 1930s, from then on, relevant laws and regulations had been made by America, Britain, Canada and some other nations and regions. China made a quick response to this global trend during the 1980s.

In 1989, China promulgated the "Specifications for urban roads and buildings designed for the disabled people", which was abolished in June, 2001. Another policy "Notice of the issuance of the 1998 construction of the project, the establishment of standards for the construction industry, and the amendment of the project plan" was established at the same year (Zhu guangyuan, 2005). We has been perfecting the criteria of barrier free facilities for years and moreover, we has already made a great progress in the construction of barrier free facilities, from the building of ordinary appliances like the blind way, curb slope, barrier-free lift, barrier-free toilet etc. to the construction of the public places combined with barrier-free information and service. However, there are still a lot problems in the construction of barrier free facilities.

With the instant development of the society and economy as well as the deepening of China's city construction, constructing the city's barrier free facilities and building a more harmonious society have becoming urgent requirements for the local government as a result.

Wuhan as the most developed city in the middle of China, also has the biggest popularity in this area, with resident population quite close to ten million. Owing to such a large popularity, the figure of the disabled, the elder and the people with inconveniences is very big as well and consequently has huge demands in city's barrier free facilities (Wang jiangping, Wang shu, 2012). To better understand the current status of the construction of barrier free facilities in Chinese cities, this paper, taking Wuhan as a research sample and put forward some specific suggestions as a result.

2 Current Status of Barrier Free Facilities in Wuhan of China

2.1 Basic status

Guanggu national square and nine other places were randomly selected as field survey samples. And questionnaire was randomly distributed to 400 local residents. The collecting rate was 100%, 361 valid questionnaires were got, with an effective rate of 90.25%.

2.2 Constructions of barrier free facilities

Table 1 Current Status of Barrier Free Facilities in Sample Places

	Blind way	Barrier free toilet	Barrier free seats /waiting room	Barrier free lift	Barrier free cashier desk/ticket office	Barrier free entrance	Braille marks
uanggu national	1	0	0	0	1	1	0
Qunguang square	1	0	0	0	1	1	0
Yamaodepartmen	1	0	0	0	1	0	0
Xudong	1	0	0	0	1	0	0
Fujiapo	0	1	1	0	0	1	0
Hongji passenger	0	1	0	0	0	1	0
Wuchang railway	1	1	1	1	0	1	0
Tianhan theatre	1	1	1	0	1	1	0
Hubei theatre	1	1	1	1	1	1	0

From table 1, we can clearly see that blind way and barrier free entrance show the largest number among nine field research locations, with a total number of seven. Barrier free cashier desk and ticket office were built in six places. Five places have barrier free toilet and four have barrier free seats and waiting room. Only two places (Wuchang railway station & Hubei theatre) have equipped with barrier free lift. While no braille marks can be found in these nine field research locations.

2.3 Residents' response to the facility construction

Table 2 Residents' Response to the Facility Construction(N=361)

Facilities	Blind way	Sloping path	Bus stop sound service	Barrier free footbridge	Curb slope	Barrier free toilet	Traffic sound service	other
rate (%)	82.0	68.8	38.1	39.0	36.8	53.4	52.0	12.4

According to the residents' reflect, the descending order of all the barrier free facilities are list below: blind way (82%), sloping path (68.8%), barrier free toilet (53.4%), traffic sound service (52.0%), barrier free footbridge (39.0%), bus stop sound service (38.1%) and curb slope (36.8%). Taking 50% as a minimum standard of "common", facilities such as blind way, sloping path, barrier free toilet and traffic sound service are the only items that meet the requirement.

2.4 Residents' response to the facility management

Table 3 Residents' Response to the Facility Management (N=361)

Facilities status	Occupied	damaged	intact
rate (%)	44.04	74.24	25.76

According to table 3, residents' response to facilities that be occupied is 44.04%, that is to say, nearly half the number of barrier free facilities in Wuhan are regarded to be occupied. Only 25.76% facilities are intact while 74.24% are damaged, that is, merely one quarter of them still work, the others will not because of certain degree damage.

2.5 Residents' response to the facility improvement

Table 4 Residents' Response to the Facility Improvement

site	Residential area	school	Hospital	Shopping mall	Bank	Bus stop	Railway station	Coach station
Rate	63.19	45.15	71.47	30.75	43.77	56.79	53.19	48.20

According to table 4, it is generally believed that most barrier free facilities need more improvement, the descending order are as follows: hospital (71.47%), residential area(63.19%), bus stop (56.79%), railway station (53.19%), coach station (48.20%), school (45.15%), bank(43.77%) and

shopping mall (30.75%). From the statistics, barrier free facilities in hospital, residential area and bus stop are in the largest demand while shopping mall is in the lowest.

3 Existing Problems in the Construction of Barrier Free Facilities in Wuhan of China

3.1 Quantitative insufficiency

According to the data presented in table 1, these nine selected field research sites have a relative large quantity of people daily in Wuhan while the quality of the barrier free facilities only reach the medium level. As for coverage rate, barrier free facilities only cover 49.2% (31/63) of the public places, less than half.

In terms of the construction of blind way, most field research sites have built blind way while Fujiapo and Hongji passenger station have not. As one of the places with the largest traffic, passenger station, should pay more attention to the construction of blind way. Blind way, on one hand, facilitating the blind, keeps blind people away from the crowd. On the other hand, as a “safety island” in the ticket office, blind way functioned as an alarm to tighten security. Though, in most cases, the blind are accompanied by their natives or friends when they appear in public, all the potential problems should not be ignored.

As for the construction of barrier free toilet, compared with passenger station and theatre which equipped with barrier free toilet, none can be found in Guanggunational square, Qunguang square, Yamao and Xudong shopping center. The reason that account for this phenomenon might be the mobility of the crowd. Staff mobility in shopping center is much higher than in traffic station, that is, less toilets are needed for the public.

Concerning the construction of barrier free seat, all the theatres have built it, on the contrary, shopping centers have not prepare any seat for the disabled. Wuchang railway station and other passenger stations offer “special waiting room” which can satisfy disable people’s need for barrier free seats and more room for placing wheelchairs.

With regard to the construction of barrier free lift, most buildings in this city have not designed barrier free lift yet, but Wuchang railway station and Hubei theatre have. It mainly is because of the high cost for constructing and maintaining the barrier free lift, which is not affordable for a common company.

In terms of the construction of barrier free ticket office and cashier desk, shopping malls and theatres have settled them while Fujiapo, Hongji passenger station and Wuchang railway station have not built yet, which bring a lot trouble to the disabled.

In the respect of the construction of barrier free entrance, both Yamao shopping center and Xudong shopping mall have not provided any barrier free entrance for disable people. According to the research, these two places are located in the hub of the communication and can spare no room for the construction of barrier free entrance. Although, sloping paths and railings are likely to be built in these places, the developers, for maximizing more profits, did not take it into consideration at the very beginning.

On the construction of braille mark, none of the field research sites can offer it. Braille marks, specifically designed for the disabled, can facilitate their daily life through touching them. The large shortage in braille marks shows that little attention have been attached to the importance of braille marks in public works construction by the local government.

As it shown in the questionnaires, it is not common to see the barrier free facilities for people in Wuhan. The occurrence frequencies of barrier free footbridge, bus stop sound service and curb slope are all below 40%, therefore, the current status of barrier free facilities in Wuhan are still in its initial stage and need more improvement

3.2 High occupancy rate

According to our observation and study, most blind way have been occupied and put into other uses. From Xudong to Jiedaokou, the blind way is blocked by some protruding manhole covers and some trees, even occupied by some parked bicycles and cars, which affects its function to a great degree. Due to the construction work along the right side of Qunguang square, most part of the blind way are enclosed within it, only thirty centimeters long of the blind way are left outside. Also, the public have not realized the importance of blind way, they set up stalls and pile up stuffs on it and consequently make it useless for the disabled. Most barrier free toilet in shopping centers or railway stations do not work because many of them are used as storerooms. For the sake of convenience, barrier free lifts in railway stations sometimes stuffed by able-bodied passengers and spare no room for those who really

need it.

According to the poll, about 44.04% residents regard that barrier free facilities in their neighborhood have been occupied, that is, nearly half do not work and be put into other uses.

The main reason for the high occupancy rate of barrier free facilities might be the ill management of local government, lacking in management is the common failing for the construction of urban infrastructure. Many manual power, material resources and financial resources have been invested into the infrastructure development by the city construction department while lack of effective management later. Then, most facilities become ruined soon or later.

3.3 Lack of maintenance

In the survey, many barrier free facilities in Wuhan of China are damaged and have not got any repairmen.

From table 3, in the 361 resident samples, about 74.2% residents think blind ways are damaged, only 25.76% remain intact, which can be seen in the field study as well. Blind way in Guanggu national square has become bumpy and tough, even some of the bricks are missing, which not only affects its function but also trouble the passengers. From the east of Guanggu square forward, the blind way often break down and some dislocated. It is said that this blind way has been damaged for more than one year, without any repairmen, let alone daily maintenance.

Both shopping center and railway station do not use the barrier free toilets in a proper way, and some damaged facilities were not found until the recent research.

There are also some problems for the barrier free lifts, the examination and repair for barrier free lifts are irregular in most theatres and stations. Moreover, a theatre is found that have not examined its lifts for over one year, which might pose a threat to the life security.

4 Suggestion for Improving the Barrier Free Facilities in Wuhan of China

There are still a lot to be improved in the construction and management of barrier free facilities, the existing barrier free facilities are supposed to be used to their full play and then get further development in the construction of the urban barrier free facilities.

4.1 Accelerate construction

In the survey, the total number and coverage rate of barrier free facilities in Wuhan are still very low. According to this problem, much attention should be attached to constructing barrier free facilities so that provide the disable people a “barrier free” environment through increasing the facility in number and coverage rate. As for traffic, an all-round barrier free environment should be constructed and to cover all the railway stations and bus stops in Wuhan of China in terms of sloping path, blind way, curb slope, barrier free ticket office, barrier free toilet, braille marks and etc. as for urban road, except for constructing more sloping paths and blind ways, wheelchair ramps, safety ladders or electric lifts should be set in the main footbridges and underground pedestrian passages as well. As for the public buildings, the coverage rate of barrier free facilities in business buildings, hospitals and etc. should be 100%.

4.2 Consolidate administration

Owing to the weak awareness of the importance of barrier free facilities and little attention toward the vulnerable group, many barrier free facilities have been occupied and put into other uses. Therefore, we should first increase the public awareness of the barrier free facility through the widespread broadcasting of barrier free facilities by means of radios, newspapers, TVs, internet and etc. in this way, people might pay close attention to the vulnerable groups and have a better knowledge of constructing barrier free facilities. No one is supposed to violate the rights of the disabled and the elderly to using these facilities in their favor. Then, noticeable signs should be set around the barrier free facility with bright colors and clear marks, also “no occupying” should be added as well. Besides, we must consolidate the administration of barrier free facilities and make quick response to unexpected situation by inspecting these facilities from time to time.

4.3 Examine regularly

Except for malicious damage, barrier free facilities are inevitable to be damaged by normal wear and tear. It is the responsibility of the maintenance and repair department and municipal administration department together with relevant departments to maintain and repair these facilities. On the one hand, professional groups should be built to examine, repair and maintain these facilities regularly. On the other hand, sufficient financial funding should be invested, and put the construction of barrier free facilities into the local financial budget is an effect way to cover the cost of constructing and maintaining the barrier free facilities.

5 Conclusion

According to the study, many problems are founded in the construction and administration of barrier free facilities in Wuhan of China. Construction of barrier free facilities are started later than other nations and regions, thus, various measures should be used to make these facilities better.

5.1 Strengthen rules and regulations

Proper rules and regulations are the basis of government management. The legal system of constructing and administrating barrier free facilities, however, should not be single and isolated but to be multiple and manifold. Currently, China's legislation of barrier free facilities still in its initial stage, only the notice of constructing urban barrier free facilities and regulations on constructing barrier free environment come out, which shows the drawbacks on legislation of barrier free facilities management. For this reason, changing the concept of legislation, perfecting the relevant law system and fulfill the content are of the paramount importance. To clarify the current tasks of local government and relevant departments through clear rules and regulations is the safeguarding of maintaining barrier free environment. Moreover, specific legal obligation should be clarified to every administrative subject so that to make sure the enforcement potential of barrier free laws.

5.2 Refine design system

The purpose of building barrier free facilities is to make convenient for the public, thus, these barrier free facilities should be designed with high quality and arranged in a systematic way. The design of barrier free facilities in China is currently in its initial stage and as a result, lack of tightened supervision and systematic nature. In order to better constructing barrier free roads and buildings, high sense of responsibility should be considered in the process of designing barrier free facilities. Firstly, take the specific demands of different disable people into consideration on the principle of humanity (Yan rui, 2007). Then, put an emphasis on education and training of the designers. Increase the designers' awareness of barrier free facilities and consequently improve their designing ability. At last, new project should be developed elaborately and arranged in a proper way (Zhu hui, Huang zhigang, 2006). Also, old projects should be rebuilt in line with local conditions.

5.3 Widen publicity and education

To improve the public awareness of barrier free facilities and the concept of barrier free if of urgent importance currently.

On the one hand, the correct way of using these facilities should be taught to the disabled and make the barrier free facility in their favor. On the other hand, much measure can be used to raise the public awareness of barrier free environment like TVs, newspapers, and other mass media. Also, the knowledge of barrier free facilities can be imported to both compulsory education and college education.

5.4 Building barrier free city with public effort

Barrier free city is a systematic project with generalized preferences, which need the public to make joint efforts. In the process of building Barrier free city, the local government should play a leading role in each stage of planning, designing, constructing and managing. Thanks to the systematic nature of construction and management procedure, isolated government cannot finish it alone. Therefore, tighten the cooperation between government and relevant departments is of great importance. Also, with the help of social bodies, enterprises and residents is the best way to build a barrier free city (Tan shaohua, Zhao wanmin, 2007).

Construction of barrier free facilities is the centralized reflection of Chinese political civilization, material civilization and mental civilization. This is not only the problem of technology, economy or city construction, but the concern of public recognition and respect to the vulnerable people. Therefore, we should spare no efforts to deepening the development of urban barrier free facilities and build a more harmonious society.

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Discussion on Necessity of Construction of the Chinese Accounting Culture from the Perspective of a Harmonious Society

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Abstract: This article studies the necessity of building China's accounting culture from the perspective of achieving the goal of a socialist harmonious society. Researches have shown that, the realization for each specific objective of building a harmonious socialist society will facilitate the constant development and promotion of accounting culture. The process to achieve the goal of building a socialist harmonious society is also a process of accounting culture being in great development and prosperity. Only by persevering the construction of accounting culture, and guided by the advanced accounting culture, can the goal of building a harmonious society be ultimately achieved.

Key words: Harmonious society; Chinese Accounting Culture; Cultural construction

1 Introduction

The sixth plenum of the 16th CPC central committee discussed and adopted 'the decision of a number of major issues on building the harmonious socialist society of CPC central committee', which established the goal for the party and the country in the coming long historical period, that is to build a harmonious socialist society. Five years later, the sixth plenum of the 17th CPC central committee made the strategy plan 'To deepen reform of cultural system, to promote socialist cultural development and prosperity', which opened the curtain of cultural development. Needless to say, these two major decisions and arrangements of the party are by no means isolated from each other, but rather, as an organic whole, they reflect the party's ideology of nation-building in the new historical period. To study in depth the intrinsic relationship between the two is undoubtedly of great value and significance for the profound understanding and accurate implement of the Party's policies.

As an important part of Chinese profound cultural system, accounting culture is undoubtedly the key subject of socialist cultural development and prosperity, but before the development of accounting culture, the accounting field must firstly answer a basic important theoretic question, that is, why do we need to strengthen construction of China accounting culture, or what is the necessity for the construction of accounting culture. Only by studying deeply and answering fully this question, will there exist the value and significance to discuss how to carry out the China construction accounting culture. Otherwise, any effort relevant to the construction of Chinese accounting culture will face the embarrassment of lacking in confidence. In fact, only by answering fully this theoretic question, can the thoughts and actions of all the accountants be unified to the party's principles and policies, can we then boost the development and prosperity of culture with practical actions. For this problem which is of foundational significance, theorists have done many researches and put forward many constructive concepts, but have rarely discussed from the perspective of the goal of building a harmonious society. Following this passage we will combine these two major decisions together to explore the necessities of constructions of Chinese accounting culture and to present some positions under the perspective of achieving the goal of construction of socialist harmonious society.

2 To Discuss the Necessity of Building a Harmonious Society of Accounting Culture from Each of the Specific Objective

As a better vision and the overall struggling objective of the whole Party and the people of all nationalities pursues, socialist harmonious society is not an empty concept. On the contrary, it is a collection of action plans structured by a number of specific targets. In the process of the implementation of each specific goal of building a socialist harmonious society, the Chinese accounting is not only able to but must achieve great things. We can say it is an important prerequisite and foundation to realize the goal of building a harmonious society where Chinese accounting plays a constructive role. So, how does the Chinese accounting achieve great things in the process of building a harmonious society? I believe that the key is to vigorously promote the construction of China's accounting culture. This thesis will discuss respectively the specific objectives of a socialist harmonious society below.

The first goal of building a socialist harmonious society is ‘The socialist democratic and legitimate system must be further improved. The fundamental principle of administering the country according to the law must be generally implemented. People's rights and interests will enjoy concrete respect and be guaranteed’. For this goal, its degree of realization is undoubtedly closely linked to the state of construction and the level of development of accounting culture. First, democracy in social essence will depend on the arrangements of relevant powers (especially the decision-making power), it is essentially an issue of property rights, and the clear definition and the effective protection for the property rights are always the main responsibility and the unshaken goals of accountancy. Secondly, as an important element of generalized accounting culture, accounting legal system is undoubtedly an important part of the socialist legal system. Without the former's construction and development, the perfection of the latter is difficult to imagine; and further, it will be empty and groundless when it comes to the ruling by law. In addition, there is no absolute measure about “respect and protection for the interests of the people”; it depends more on the subjective feelings and value judgments of different people; and the reason of the formation of such feelings and judgments are based on all relevant information, and so accounting information is definitely the core content of them.

The second goal of building a socialist harmonious society is ‘The widening gap between urban and rural development and between different regions shall be gradually reversed. A reasonable and orderly income distribution pattern will take shape in general; household wealth shall increase universally, thus enabling people to live more affluent lives. This is a systematic target which involves micro (business, family), mesa (region) and macro (the whole society) levels. In this goal system, whether it is the development gap or income distribution, or family property, or the level of prosperity of people's life, they are all essentially a state of objective reality, and they should be reflected by some relevant socio-economic information. Where does this information come from? It is a sacred duty given to the accountancy to generate accurately and provide information truthfully since it came into being, which means, as the premise and basis of the implementation for this project, accountancy plays a role as the provider with basic information; this is the conclusion from static perspective. From the dynamic perspective, whether it is ‘reverse’, ‘formation’, or ‘increase’ or ‘live’, its essence is the results of reasonable guidance, regulation and control to target audiences from all levels of the governments and their functional departments. In this process, accounting controls will absolutely be one of the most important controlling methods. For these two historical missions, in order to provide effectively with the relevant socio-economic information, the contents that the traditional accountancy reflects must expand in the direction of ‘household’ and ‘national plan, and gradually build accounting information based on this concept. In order to carry out economic adjustment and control, the controlled object of traditional accounting must be directed towards ‘micro’ and ‘macro’ and continue to extend to both ends, on which we based to build the accounting controlling concept gradually. It is easy to understand that the formation of the large accounting information view and control of large accounting concept is also the construction and the promotion process of Chinese accounting culture.

The third goal of building a socialist harmonious society is ‘employment rates will be relatively high and a social security system covering both urban and rural residents shall be established in general. Basic public service systems will be further improved and the government will attain relatively significant improvements in administrative and service levels’. To see from the angle of accounting, the realization of this project depends on the accounting industry making progress in two ways: first, the rise of social responsibility culture and the development of social responsibility accounting. Employment, social security, public services and other issues not only need legal norms and governmental guidance, but also depend strongly on the various stakeholders' awareness of social responsibility, which is the major issues that social responsibility accounting trying to study and discuss. Second, develop and improve of government accounting. To achieve full employment, to construct and improve social security and public service system, to improve government management and service level is undoubtedly the foremost objective of governmental work; the process of meeting the goals of the government is essentially the process of devoting the societal resources and getting the output, and this is the main problem to be solved by the governmental accounting. Objectively speaking, China's social responsibility accounting and governmental accounting is still in its infancy, which still faces many major problems to be broken through or solved. In this context, to strengthen the construction of accounting culture, especially the strengthening of social responsibility accounting and governmental accounting cultural construction clearly has its necessity and urgency.

The fourth goal of building a socialist harmonious society is ‘The ideological and moral qualities, scientific and cultural qualities and health status of the whole nation will be improved markedly and

further progress will be made in fostering a sound moral atmosphere and harmonious interpersonal relationships. Creativity of society as a whole will be enhanced markedly and an innovation-based nation will be established in general'. To achieve this goal at least three ways are required to build and develop culture as a basis of accounting. First, accounting ideological and moral qualities and scientific and cultural qualities of accounting is an important part of the qualities of the whole nation. If these qualities of more than 15 million of Chinese accountants can't be effectively improved, then the improvement of the qualities of the whole nation is unthinkable, and even if the qualities of all other employees in the industry have significantly increased, it cannot be called "universal" from this perspective. Strengthening accounting culture and improving accounting ideological and moral qualities and scientific and cultural qualities of accounting practitioners is a necessary condition to achieve improvement of qualities of the whole national goals. Secondly, to create a harmonious interpersonal relationship of the people depends on the issue of judgment for fairness and social safeguarding of the legitimate interests of the people. If there is no effective mechanism which reflects the matching condition of effort and reward, input and output of various stakeholders objectively, comprehensively and accurately, or even if there does exist such information generation mechanism, but legitimate interests of the people can't be maintained, so people may have a sense of injustice and then become devious abnormality in socioeconomic life, the result would be social frictions getting increasingly severe, and the interpersonal relationships fell out of harmony. The advanced culture to lead the accounting is not only the main mechanism of the information, but also an effective tool to maintain social benefits. It can be said that to strengthen the construction of accounting culture is an indispensable means to reconcile the human's relationships. Third, as for the creation and innovation, the premise of which is that people have the enthusiasm and environment to carry out the activities, while according to the scientific measurement through the costs and benefits of the inputs and outputs for creativity and innovation by accounting, the actors can truly feel tangible benefits brought by creativity and innovation, thus stimulate their creative potential, enhance their motivation to carry out creative activities. In addition, as a main governor of social and economic relations, accounting is the important factors which can create a favorable environment for creativity and innovation. In short, only when the accounting culture and accounting work keep a continuous development and improvement, can the creativity of our society be significantly enhanced, and the goal of building an innovative country ultimately be achieved.

The fifth goal of building a socialist harmonious society is "Public administration system will be further improved and social order made sound. Resources will be used more efficiently and the ecological environment will be improved visibly". As for this goal, the necessary condition for its implementation is to focus on the guidance of advanced accounting culture, for the reasons are: First, the improvement of the social management system and the formation of a good social order is a product of effective social control, and accounting control is to socially control one of the main means of it. To perform relevant responsibilities well, Chinese accounting must establish and continue to strengthen macro-control accounting concept. At the same time, the relevant branch of science social accounting, social responsibility accounting or something related must continue to develop and improve, it is clear that the implementation procedure of these requirements itself is a construction and development process of China's accounting culture. Second, to improve resource utilization and the eco-environment is a systematic project. As for accounting, it must scientifically solve the relationships between resources and environmental accounting elements such as affirmation, measurement, recording, disclosure and some other issues, which depends not only on the thought liberation and development of Chinese accounting culture, but also on breakthroughs of accounting theory and innovation of accounting methods.

3 Conclusion

Based on the above discussions, here come the following conclusions: (1) The development and prosperity of socialist culture is not only to build a socialist harmonious society, but also to objectively reflect the inevitable result of a harmonious society. (2) The goals of building a socialist harmonious society is set by the action plan consisting of a number of specific targets, the achievement of its each will help the continued construction and upgrading of accounting culture, and help the continuous development and improvement of accounting science. (3) To achieve the goal of building a socialist harmonious society is an important reason for the need to vigorously strengthen the construction of Chinese accounting culture; the process to achieve the goal of building a socialist harmonious society is also a process of accounting culture being in great development and prosperity. Only by strengthening

the construction of Chinese accounting culture, and led by the advanced accounting culture , can we develop a good society in which everyone fulfills their responsibility and duty and live in harmony with each other.

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Research on the Mechanism of City Grid Management System

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Abstract: The common problem faced by most countries and cities in the world is the city management lags behind the rapid development of city modernization. Especially in China, the increasing population in cities has threatened the affordability of cities, a large number of city management problems emerging. City grid management came out at this time. In this paper, through in-depth analysis the author tries to find out the general rules of the organization system, management processes and operation mechanism of city grid management with the method of an interdisciplinary research, and proposes the constructive way of city grid management innovatively which provides some reference and experience for the model of city governance in the future theoretically and operationally.

Key words: City management; Grid management; Operation mechanism

1 Introduction

With accelerated urbanization process in China and information technology widely used in city management, city grid management has been used as an innovative management model in a number of city management practices successfully, exerted great impact in the society and developed lots of the related studies explosively. By going to the literature review, the author found that the study abroad focused on application of the grid technology, digitalization of the community and information management rather than such study as city grid management proposed in China. For example, the United States' High-performance Computing Grid Project, the EU's European Data Grid Project, the British's Nomad Project, the French National Grid Plan and other projects are the representatives. These projects catalyze the change of governmental organizations. The management modal of small government, big society replaces that of the big government, multi-department, which is not only beneficial to the realization of government delayering, greatly reducing the labor and financial cost of inter-organizational coordination, but also beneficial to the realization of efficiency management, agile management with the help of information technology. However, the relevant domestic applied research on cities grid management become increasing relatively, which mainly from the three levels of the municipal, district and street. To sum up, most of these studies focused on such four aspects as the innovation of the management mode, party structure, practice and technology. At the same time the author found that the current research on city grid management in China more focused on case studies, general comments or basic research, but rare on the depth analysis grid management depth analysis of internal operation. Domestic scholars' research on the grid management focused on three aspects: First, the research focus on the development status and trends of the grid management, such as Zheng Shiyuan's the Review of Grid and Grid Management, Chen Yun's Status and Prospects of Grid Management of Government. Second, the research focus on models and mechanisms of city grid management, such as Tian Yipeng's Positioning of City Grid Pattern of Social Management and its Future, Jing Xixiao's Challenge and Change: from Grid Management to Grid Management Control. Third, the focus is the application of grid management. Such as Sun Jianjun's et al., From Control to Service: The Change of Grass-roots Social Management Model - Based on Zhoushan Grid Management. From the research point of view, despite the encouraging results, but with the development of society and the requirement of the masses for the city management, the study on grid management needs to be further improved. Therefore, to explore operational and institutional mechanisms of city grid management is the premise of dealing with difficulties of the current grid management and realizing the modern city management.

2 The Connotation, the Purpose and Significance of City Grid Management

2.1 Connotation of urban grid management

The term "grid" from English, first appeared in the field of power, such as Power Grid, and later it is conceptualized and used to refer to a new technology on the Internet. In recent years, as the concept of "grid" has been used in the field of management, the grid management emerged. In China, grid

management was first used in military, security patrols and other fields, and then it is promoted and applied in business, health, market supervision, labor and social security, and all kinds of inspection work. The reason for which the grid management is used in city management is that the traditional management methods and system has not been satisfied for the needs of modern city development. So in order to further improve model of city management, the innovation of institution, mechanisms, organization way, and method become necessary. Then the city grid management as an innovative management model gradually won the attention of scholars and city managers.

City grid management as a new concept has been interpreted in many different ways, for example, someone takes city grid management as the result of the integration of resources and their collaborative use, which is based on the website of cities government and the city's basic Geographic Information System. It makes use of "3S" (RS, GIS, GPS) technology, geographic coding technology and mobile information technology. All in all, on the basis of digital city technology the city grid management tries to apply the information technology and collaborative work model to city management, so that the city, district, department and specialty supervisor can work collaboratively and realize information resource sharing.

Someone thinks city grid management is the integration of grid management and infrastructure management with the reference of many digital city technologies. It innovates the means of real-time information transmission, creating two dimensional management of supervision and command in order to achieve accurate, quick, efficient, full-time, full coverage of city management. Someone believes that city grid management model based on information takes various resources of management and services into consideration, in particular in Community Grid, to detect and solve various problems in order to better meet people's needs and realize management.

Although the viewpoints vary greatly, the basic understanding is the same. From a practical point of view, the so-called city grid management is relying on a unified city management and digital platform to realize the separation of monitoring and disposal by strengthening managing and patrolling the grids.

2.2 The purpose and significance of city grid management

City management lags behind the rapid development of city, so the city grid management is the solution to the problem. On the process of urbanization, a lot of problem come out, for example, large numbers of people move from rural to urban areas, which gives the great threat to the city's ecological environment and public resources, as a result, the carrying capacity of the city's becomes more and more fragile. On the other hand, the traditional city management concept is a little backward, which can't meet the people's growing demand of efficient city government and high-quality public resources. Under the background, the city grid management as an advanced, scientific, innovative city management is brought into use in the city management.

The grid management means that district and county governments will have to build management centers and get inspectors to patrol their own grids. The inspectors report any problems they find to management, which in turn asks government departments and utilities to deal with them. Meanwhile, on the basis of digital technology and scientific management, city grid management is a revolutionary innovation of modern city management. it will greatly improves the level of city management.

Besides, city grid management is a bridge between government and citizens, it can form a scientific and effective coordination mechanism, so that the conflict will be handled, rational interest satisfied and service improved. At last the way of government management will be truly transformed.

3 The Organization, Management and Operation Mechanism of City Grid Management System

3.1 The organization of city grid management system

Organization system construction is the basis of city grid management. City grid management integrates resources of management and social services, optimizes the model of city management, innovating both grass-roots social management and party structure. The most notable feature of city grid management is the establishment of two axes and achieving regulatory separation of the two. One axis refers to the "axis of supervision", which is to identify problems, delivery information of problems, and evaluate problem-solving process; the other axis refers to "axis of execution", which is to receive information transferred by the supervision and then solve the problem by dispatching.

Specific practices, different cities differ slightly. In Beijing, for example, the Beijing Dongcheng District, through integrating the function of various departments of the city, namely established the supervision center and comprehensive management committee, the former known as "axis of

supervision”, the latter which is known as “axis of execution”. The Center recruited more than 400 inspectors, each responsible for inspecting about 12 grid cells, 180 000 m² and 1400 city assembly. The city's comprehensive management committee is established on the basis of Municipal Administration Commission, responsible for directing, coordinating and management departments related to 27 professional and 10 Street offices. The supervision center and comprehensive management committee are separated both on space arrangement and staff distribution. Through space consolidation and functional integration, it realized a “regulatory separation between supervision and comprehensive management” while reducing conversion costs.

3.2 The processes of city grid management

City grid management uses a closed loop workflow to operate; the process is simple and practical, fast and efficient. Based on practical experience in major cities, it is generally divided into four steps: including registration (Question acquisition, discovery registration), the dispatch, tasking and close.

1) The registration

The main sources of the problem include: hotline report, video surveillance, community inspectors, and function dispatch. The information from the four sources is accepted and registered by information officer, then dispatched for investigation and prosecution.

2) Dispatch for investigation

After registration is completed, the problems will be sent to the relevant departments for investigation. Some will be for investigation and prosecution. If not, the problems will be sent back to the information officer with the explanation, if the problems can't be solved by the street office, they will be sent up to higher district for the solution.

3) Problem

Upon receiving management issues from the relevant department, the person in charge will go to the site for processing, after the processing is complete, they will fill in the details of the process, and feedback them to the grid management center for verification.

4) Verification for the settlement

Staff of the grid management center will comprehensively decide whether the issues settled or not through the comparison before and after the solution of the problems, contrast of the video, telephone interviews.

5) Return visit

After the issue of verification closed, the problem belongs to the class of complaints, it is necessary to have the satisfaction survey or return visit.

4 The Ways to Realize the Operational Mechanism

By constantly advancing city grid management, the governments will discover and dispose city management issues rapidly. However, there are still many limitations about city grid management, such as the efficiency, scope. So it is necessary to improve the management level.

4.1 The legislation through administrative procedure, the realization of democratization

The legislation through administrative procedure will guarantee democratization of the city grid management mode. In China, the democracy belongs to the people; the People can participate in the democratic management of the country. Through various forms of democracy, the people can exercise their democratic rights. So the public as a counterpart participate in the city management model development and implementation of the process. They help the legislation of the city grid management and supervise it at the same time.

4.2 The establishment of a public participation system, improving the city grid management

Public participation is a fundamental way to ensure that public policies are consistent with public opinion and realize policy legalization. The establishment of public participation system will help strengthen transparency of the city grid management, will help improve the efficiency and effectiveness of city management, and reduce the bureaucracy and administrative inefficiency phenomenon. Meanwhile, some public service enterprises and the role of communities in city grid management also need to further develop and establish long-term cooperation mechanism. City management is not only a top-down management, but with cooperation of the community and corporation.

4.3 Improve public evaluation on the city grid management

City grid management first needs to play its function of publicity with the public's understanding and promote public recognition and acceptance. Secondly, it needs to guide public opinion to a positive, favorable direction, forming a good interaction with the public. City grid management is a “project for

the people”, so it needs to establish good relations with the public and improve their interaction. while the interaction with the public, the public's satisfaction with city management should be the content of the assessment. It will improve transparency and public evaluation and timely release relevant information to form a linkage of cities management, creating a benign regulatory environment and establishing a government for the people.

4.4 Strengthen the “software” of the city grid management

City grid management relies on the digital technology, but digital technology can't solve all the problems. The core content of the management model is the management thinking. there is no exception in the city grid management model. Behind the “digital covers” and other technical concept, there is fine management system, which is the type of feedback system and contains the democratic management philosophy. Therefore, to really put a city grid management into good use, it needs to improve the managers' quality and management philosophy, which is called the “software”. This requires us to speed up the construction of hardware facilities at the same time, to pay attention to improving the quality of the manager and their management philosophy.

5 Conclusion

The development and management of a city are inextricably linked. The construction should keep pace with the management. Today many cities in China are developing rapidly. The pace of urban construction and technology upgrading become quickly, but the quality, efficiency has not improved a lot. So at the moment, the implementation of the city grid management plays an active role in improving the efficiency of urban management, as well as the establishment of long-term mechanism. We also continue to explore and study advanced concepts and advanced technology of city grid management to promote China's economic construction and social undertakings develop better and better.

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On the Role of Corporate Values in Corporate Development

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Abstract: Corporate values are formed by the constant summary of staff in the practice of production. It is the core of corporate culture and the inner drive and soft power promoting corporate development, which plays an essential role in the sustainable development of the company. Corporate values involve the values of integrity management, brand values, creativity values, market values and local culture values. The article contends that corporate values are the intangible assets and lifeline of a company and its spirit power to enhance its competitiveness, to realize self-adjustment, to make the most of its advantages, to concentrate strength, to standardize regulation, to make breakthroughs and overcome difficulties.

Key words: Corporate Values; Corporate Culture; Soft Power; Sustainable Development

1 Introduction

Corporate values are formed by the constant summary of staff in the practice of production and the belief cherished by all employees. It is the core of corporate culture and the soft power of the company. This kind of soft power is formed during the long-term production and operation of the company to seek its survival and development, under the general social, economic and cultural environment. It is based on the appetency, appeal, attraction, cohesion and competitiveness, which generate from the cultural identity of the company in the international community. From the perspective of economic development, culture is conducive to economic growth, because the inner values of culture can lead the public. Its power lies in that the employees are in full love of their company, which might be unimaginable sometimes. It will play an essential role in the construction and promotion of improvement of core competitiveness. However, the cultural soft power can only play its role when it turns to the values of employees. That is to say, a corporation without values is risky. From the perspective of values formation, it is the better criterion, conception and proposition about “how to survive” chosen by the corporation after comparing, measuring and converting with its “standard values”.^[1] This values is the radical opinion of a corporation about itself, which is “the criterion guiding the concerted efforts of the staff and individual behaviors”^[2] As a result, with the increasingly fierce competition, the corporation needs to find a value idea consistent with its development and social development to maintain its power and to sustain its growth. It should be taken as the fundamental spiritual guidance to promote its development. Generally, corporate values have the following significance to corporate development.

2 The Operation Values of Integrity Are the Intangible Assets of the Corporation

The basic connotation of integrity includes “honesty” and “trust”. Honesty means earnestness and sincerity and trust means credit and belief. Economists believe that “integrity is the intangible assets of the corporation”. It is expressed in the trust and acceptance of consumers to corporate products, which attract a certain consumer groups. If a corporation loses its integrity, it will be close to shut down and go bankrupt. In addition, the lack of integrity in a corporation will pose challenge to the principle of integrity in market economy. It will endanger the market economy to fall in the bubble of danger and traps. The reason is that the entire economy is an interrelated entity. In terms of the basis of economic activities, it concludes all the trading activities based on the mutual trust and identity of different economic units. During this process, the economic activities between the individuals and companies involved are, in essence, the identification of mutual trust and integrity. It is clear that integrity is the key to the establishment and sustenance of a corporation. The history of the economic growth of human beings proves that integrity is the guarantee for all the economic activities and the basis for maintain social and economic order. With the lack of “integrity” in economic activities, could the activities go on? Could the corporation achieve development?

3 Brand Values Based on Quality Are the Inner Demand to Promote Corporate Development

A brand is a foundation for the prosperity of a company, and the upgrading of a brand results from

the practices of corporate brand values. Without the guarantee of quality, there would be no brand. An outstanding brand entails the guarantee of quality, which is the trump card for a corporation to take part in competition, and cannot be compared by any other promotion method. As a result, as the contemporary social group has a higher demand for product quality, it is essential for a corporation to ensure quality in order to win the competition, which is the inner demand for corporate development. According to a survey conducted in world-famous companies, the senior managers of two thirds of the World's Top 500 contend that product quality determines the satisfaction of customers, which penetrates the whole process of production. For instance, the good reputation of Sony products in the industry and among the customers should be attributed to the constant production concept of the company. As has been said by the company, "1% of unqualified products mean 100% disqualification."^[3]The quality-oriented production gives rise to the world brand of Sony, which is also the reason for its constant prosperity. From the perspective of market competition of products, its essence lies in the competition of quality and brand. With its unique feature and attraction, quality-oriented brand transcends the boundary of countries, nations and ideologies, appealing to people from all over the world. Therefore, such factors as product quality, technology service and price are the preconditions to dominate the market, with the ultimate target of brand competitiveness.

4 The Progressive Values of Innovation Are the Lifeline Of Corporation

Internationally, the study on the corporate values of innovation can be traced to John Peter, the economist. He coined the concept of "innovation" in economics, which became the gem of the field. As for the corporation's application and mastery of knowledge, "the dynamic ability of a corporation lies not only in the integration of knowledge, but also in the innovation of knowledge."^[4] "Innovation" covers a wide range of new activities including efficient resources allocation, technological innovation, product innovation, process innovation and institutional innovation. Based on the studies of "innovation" by John Peter, scholars make further researches and take technological innovation and institutional innovation as the areas of priority. Technological innovation is the inevitable choice for corporation to improve its productivity, and to adapt to the need of society for new technology and innovation. Institutional innovation is the change or substitution of previous personnel system and production management system, in order to adapt to the changes of corporation and market. With social and economic development, technological innovation, as well as management innovation and institutional innovation are conducive to the sustainable development of the corporation, because the purpose of innovation is to improve productivity, operating efficiency and to reduce corporate cost, maximizing its profits.

5 Global-Oriented Market Values Are the Regulator for Companies to Realize Self-Improvement

Market values refer to the opinion and view of a corporation about the activity site and objects of production, marketing and supply. It involves the perception about corporate products, service market and competitor. As for the corporation itself, it refers to the market-oriented production and operation activities. The corporation's understanding of the market directly influences and determines the fluency and constancy of production and operation activities. Therefore, whether the corporation has a sharp insight into market will exert direct influences on its survival ability and social adaptation. A sharp insight into the market is also the foundation for a corporation to understand the market and to make a reasonable judgement in order to make corresponding adjustment to adapt to the needs of the market. With economic globalization, corporations are facing inevitably fierce competition. Under the global background, the corporations with cutting-edge products, the development of core technologies and high-quality products will remain invincible. However, a corporation without market values or understanding about market will never take the dominant take in fierce competition. As the market is altering and products are replaceable and upgrading, how to adjust production with market strategy is a question that should be addressed by the market values of a corporation. All the upgrading should be achieved under the guidance of market values. Only under its guidance could the corporation improve its comprehensive management ability and competition ability, in order to ultimately realize its value.

6 The culture Values Based on the Locality Are the Unique Advantage of the Corporation

The culture values of corporation refer to the basic value conception of the role of culture in corporate development. This conception is the value judgement made by a corporation about its culture and its cultural environment. Corporation has to exist in a certain social and cultural environment. Its regional and cultural features will be inevitably expressed in corporate values. How to understand the interaction between corporate development and cultural environment has become the major content of corporate values. The culture formed in a certain circumstance is the most distinct difference between corporations and the also the foundation for a corporation's expansion. A corporation without culture but only with the input and output of money will never succeed. According to statistics, in 1971, the British constructed only less than 1000 kilometers of railway in Argentina. Twenty years later, the length exceeded 12000 kilometers. Admittedly, it is for the interests of the British. However, the construction of the railway system will inevitably promote the domestic market. The reason is that production ideas and activity motivation of Argentineans are based on the production models of the British. What they do is to sell their cheap labors. This is why the increasing investment in Argentina doesn't dramatically improve the economic conditions. Evidently, culture can only play its role after it turns into the production concept accepted by people. This concept is corporate values. Clearly, any corporation has its unique culture. When it is fully aware of its importance to corporate development and takes cultural construction as the motivation for corporate development. As a result, it can truly create a brand of its own. The corporation can dig into the connotation of local culture and make the most of the features of local culture, in order to combine local features with the demands of contemporary people, and to form a unique, distinct and local corporate culture. Digging into corporate culture is the advantage to make the most of its strength, which can never be copied or duplicated by any other corporation.

7 Conclusion

The operation values of integrity are the intangible assets of the corporation. Brand values based on quality are the inner demand to promote corporate development. The progressive values of innovation are the lifeline of corporation. Global-oriented market values are the regulator for companies to realize self-improvement. The culture values based on the locality are the unique advantage of the corporation. The five aspects constitute corporate values, which is the inner motivation and soft power of corporate development. The studies conducted by Gary Weaver and Linda Trevino indicate that the culture based on values will bring about various benefits, including the enhanced awareness of moral questions, the commitment to the organization (the reduction of conflicts between organizational and informal organizational roles), integrity of employees, the willingness to communicate problems, the willingness to report immoral cases to managers, the improvement of decisions, the willingness to listen to guidance about moral problems and the reduction of immoral behaviors.^[5] Corporate values play the guiding role, incentive role, persuasive role, cohering role and coordinative role in construction and improving the corporation's core competitiveness to unite force, to specify regulations to make breakthroughs and to overcome difficulties. It will become the soft power for corporate development and for its sustainable growth.

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Study on Improving Capacity of the Big Data Application in Grassroots Governments*

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Abstract: The application of big data will become the key element to improve the productive and competitive power of a country and lead to global change of the whole social system in the coming future. Grassroots governments are the frontline of data collection, collation, analysis and application. Constant improvement of big data application capacity will significantly promote governments' decision-making and fine service. With literature research, investigation and data application practice of the grassroots governments, this paper makes analysis on low capacity of big data application of the grassroots governments, constructs a path framework and develops countermeasures for the improvement of this capacity within this framework.

Key words: Grassroots governments; Big data thinking; Big data capacity; Big data applications

1 Introduction

Driven by the technological change of big data, data are becoming production factors equally as important as that of material capital and man-power capital, the use of big data will become the key element to improve productivity and competitiveness in the future^[1]. Along with the change of people's life, work and mode of thinking, government functions and operation patterns, especially those in developed countries and regions, are undergoing a profound adjustment, one of which is the governments' increasing capacity of using big data, making big data application the main channel of scientific decision-making and fine service. Grassroots governments in remote poverty-stricken areas where governance relies on traditions and experiences are now challenged by data management and intelligent management. Understanding big data from the strategic level and integrating big data into thinking patterns of management are becoming a tendency in improving the application of big data and making grassroots government management more rational, digital, scientific and modern.

2 Literature review

The study about government application of big data domestic and overseas started in the 1990s and current research is mainly concentrated on the big data applications, data governance and share of government information resources, etc. In 1997, Michael Cox first proposed "big data". In 2008, Nature launched special issue Big Data. Since then, big data received extensive attention of the academia in the field. Kenneth Churchill, Mike flowers, Neelie Kroes, et al. suggested that big data should be applied in government governance and public service. Sunil Soares proposed the concept of big data management. Azande, Farah, et al. studied the development process of e-government framework. David, George Walken, WuSiLei, Paul, et al. brought forward obstacles and countermeasures of government information share.

The research on Chinese government using big data starts relatively late. CNKI shows that really significant studies on this topic began in 2012 and there are 156 papers so far around this topic, among which only 4 papers involve the government big data application. The present study focuses on the concept and characteristics of big data, its impact on governance, its importance to government management and countermeasures, etc. Liu Yeting, Wang Chunxiao, Dong Liren et al. analyzed the connotation and characteristics of big data. Tang Huangfeng, Tao Jianwu, et al. analyzed the opportunities and challenges that big data brings to the governance capacity construction. Wang Yun, Liu Yeting, Tang Sisi, et al. proposed the influence of big data on government governance mode. Hu Hongbin analyzed the insufficient capacity of national governance in the data mining, transmission, application, analysis. Chen Zhichang analyzed the demand for big data to realize governance

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modernization based on a case study of Dongcheng district, Beijing. Ni Kaomeng, Wu Jianshu, Chen Zhichang, et al. put forward the countermeasures and suggestions from the concepts of big data, decision-making, culture, platform, standard and rules, work mode, share, environment, etc., Yang Guang, Zhang Ningxi, Shi Wen and Zhang Mingkang described government big data application from the following aspects: low efficiency of big data application, emergency information system architecture, government statistics and the enlightenment of British “my data” project.

By comparing the domestic and foreign research results: At present foreign scholars focus on government big data management, technical implementation and maintenance sharing based on highly developed big data, comprehensive system mechanism and system guarantee as well as good consciousness of data resource sharing. However, domestic scholars mainly research object is at the national and provincial government level. The research on grassroots government level is very limited, especially on the issue that the capacity of grassroots governments applying big data is inadequate. As well, the countermeasure for the grassroots governments promoting the application capacity of big data and the example that research theory is used in the practical work of grassroots governments are scanty.

3 Analysis of the Low Capacity of Big Data Application by Grassroots governments

Based on the survey of six counties in Guangxi of China, such as, Guanyang, Lingchuan and Quanzhou counties of Guilin, Sanjiang, Rong’an and Rongshui counties of Liuzhou and their jurisdictional 8 townships (town) and 12 village (street), Investigation shows that grassroots government big data application is mainly manifested in the following five aspects:

3.1 The insufficient cognition of big data

At present time, big data has not yet received enough attention in the field of grassroots governance. Many governments basically know little about it, especially the cadres in the remote and poor townships and villages almost know nothing about it, much less use it. Many government departments also pay little attention to improving professional capacity of big data. Thinking of big data resource management has not yet been set up^[2]. Some grassroots governments lack strategic vision, have no “big data thinking”, are afraid of difficulties and collect data in less systematic and successional way. Data is not accumulated well from the beginning, thus it is hard to find the rules from the historical comparison. Some do not put data online and leave abundant collecting data information laid aside and neglected; some keep data confidential and private to protect their benefits. Some blindly pursuing political achievements, they conceal, falsify or refuse to submit collecting data; some keep the political data as secret resources^[3]. All these behaviors reflect weak data consciousness of grassroots governments.

3.2 Short integration of big data

The grassroots governments do not establish a unified data standard. Data source, data architecture and data system of all departments and all walks of life are different and incompatible. Big data is hardly integrated. Grassroots governments, especially remote and poor township governments, are lack of information technology and professional and technical personnel. Big data infrastructure is backward. Budget devotion is low. All of these result in less data acquisition, difficult data screening, data processing lagged behind and ill data analysis, which discount data value and make it always in a passive situation. Big data is various and mixed. With the expansion of the data scale, overall integration and operation capacity to analyze these data is not enough, so the statistical results of the truthfulness and accuracy may be compromised^[4]. That is the reason why the basic-level governments are in trouble in the big data acquisition, integration and analysis.

3.3 Short of decision-making power of big data

Big data is becoming an effective means to support the government decision-making, but quite a number of grassroots governments cannot get data in time and accurately. They dare not to make decisions based on big data and worry that they will make policy mistakes or errors depending on data. Some grassroots governments still used to use abstract analysis method based on local social reality to select sample data and to predict behavior patterns and needs of most people based on the needs of the few. Some grassroots government decision-making still strongly depends on the feeling, intuition and experience, while the awareness of big data description and big data decision is not strong. It becomes governance rituals that experience is more important than research, as the same is rough to accurate, Cause-and-effect relationship to correlativity and prevention to prediction. Decision-making errors and deviation are often happened because of insufficient decision-making ability.

3.4 The insufficient applications of big data

The current data resources still belongs to the scare resources. Though the government has

accumulated rich original data resources over these years, its usage frequency and efficiency are low and lack of unified standard, for example, e-data fragment is difficult to integrate, "data island" and "data traffic jam" coexist, thus data using is quite inefficient^[5]. As the revolution of science and technology is a "double-edged sword", big data has its pros and cons as well. On the one hand, grassroots governments dare not to apply big data hastily due to the lack of big data knowledge and technology; On the other hand, the data application at present is not widespread enough and the quality of the application is not optimal because of low application capacity and sense of responsibility of grassroots civil servants; A lot of grassroots civil servants seldom grasp skills of computer technology; Some of them lack data analysis ability and can't make the business work informationized which restricts the data value into full play, thus data application level is not high.

3.5 Short of sharing power of big data

As big data requires centralized storage, it increases risks for data leakage. At the same time, safety of basic unit government information can't be guaranteed. Data collection may leak privacy of the public, enterprises, social organizations and even the government itself at any time and cause harm to personal and national property, even physical security. Most people in rural areas know little about network and information technology, are less able to express feelings, opinions, demands and preference online, thus grassroots governments hardly can make decisions through big data or have this kind of big data thinking. As a result, the public service of grassroots governments is imbalance and uneven. Some grassroots governments often keep the data as a confidential and private resource. All above is the reason why big data is difficult to share.

4 Methodology to Promote the Big Data Application Capacity of Grassroots Governments

4.1 Erecting a big data thinking

Firstly, we should stick to big data ruling strategy. Grassroots governments should be fully aware of the importance and strategic value of big data and make an active layout from the angle of the region to guide the comprehensive development of big data. We should strengthen the education training of the government personnel at big data levels. We should continuously improve their adaptability in big data environment, thus form the cultural atmosphere of promoting government governance ability with data of. Secondly, we must set up big data values and methodology. The governance has transferred from scarce data one to broader data one which involving more big data analysis. The function of government has transferred from data collection to data analysis. We should predict the needs of society and social problems, explore diversified, multi-level and multi-angle characteristics of government governance based on big data so as to improve the capacity of big data applications^[2]. Thirdly, we need to change the governance concept. Grassroots governments must change their experience-management thinking, for example, from management to service, from information management to data management, from the traditional feeling management and experience management to data management and intelligent management transformation, in order to promote application of big data capacity.

4.2 Establishing a mechanism of big data operation

Firstly, we should build grassroots government leader group of big data. The leader group is mainly led by grassroots government leaders and is under the charge of big data management department, and other administrative departments (such as NDRC, Department of Finance, Land and Resources Bureau, Ministry of Health, Ministry of Education, Civil Affairs Bureau, Justice Bureau, Environment Protection Agency, Department of Transportation, etc.) participate in the top design of big data applications, formulate the development plans of big data, establish data standard and specification, organize supervision and inspection and improve the opening and sharing measures. Secondly, we must establish a market operating mechanism of grassroots government data resources. Grassroots government departments should strengthen the cooperation with market main bodies, be industrialization and market oriented, break monopoly data, accelerate the protection of property rights of all kinds of data as well as data acquisition, storage, processing, transmission, retrieval, license application and encourage the third party to participate in government data resources development, identify the rights and obligations of data owners, users and managers, encourage service and operation mode innovation based on big data and promote the service level of grassroots government decision-making management^[6].

4.3 building a big data system

First, we should establish and improve big data infrastructure, speed up the perfect of big data increase investment in equipment and facilities, such as computers, and absorb and cultivate the

outstanding information technology and data analysis talents. Second, we must set up big data systems in grassroots governments based on county - township (town) - village (street) three levels integrated. County government should establish a local economic and social data platform (center); Villages and towns should establish corresponding big data collection libraries; Administrative villages, streets and communities should establish big data acquisition station and organize its governed enterprises, social organizations, natural villages (groups), other units and individuals to establish a data collecting spots to integrate scattered data in different departments, trades and main bodies to make it computerized and systematic, that is, data collecting, data transformation, data release, data application and data sharing should be informationized to promote economic and social data integration, to ensure that data in all areas and all walks of life is accurate and not missed, and finally to realize the unification of the data management (see figure 1).

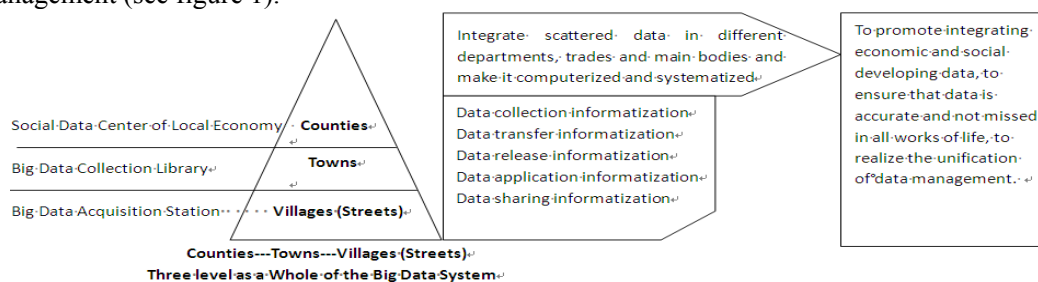


Figure 1 Model of Big Data System Construction of Grassroots Governments

4.4 Setting up big data quality management system

Firstly, we should establish a unified data standard system. According to the national and provincial standards for the construction of big data, combining the reality of grassroots governments, we should establish a unified metadata standard system as well as the standard data format of big data generation, development and distribution to facilitate data seamless integration as a whole, make originally scattered data in all departments and all walks of life integrated together, break the information island state and establish the foundation for government management. Secondly, we must set up scientific data quality assurance system. Without high quality and real data, data gathering and analysis are of no practical value, also cannot help to give a high quality of decision. To establish the measure standard of data quality, we should improve the quality management process, establish quality rescue mechanism and ensure data quality from the institutional level^[7]. Thirdly, we need to establish a standardized big data security system. We should clarify the rules of data collection and application which involves data privacy, accuracy, availability, archiving and preservation, set up information usage rights and responsibilities and ensure that the data is used in accordance with the rules and specification.

4.5 Use the big data transformation management function

Firstly, we should use big data to help us make decision scientifically. In many fields such as business and economy, decision-making will be more dependent on the data and its analysis rather than experience and intuition, thus it will be more scientific^[8]. Grassroots governments using big data technology in public decision-making can enhance the precision, prediction, equity and responsiveness of decision making and make the public decision-making more democratized and scientific^[9]. Grassroots governments should establish and improve government decision-making supporting auxiliary system, fully use the value of data to improve the ability of scientific decision-making. Secondly, we must use big data supporting service preciously. Therefore, grassroots governments should make full use of big data to predict the demands for service from individuals, enterprises and social organizations and give full play to the communication platform of the government and the public, enterprises and social organizations, such as government affairs MicroBlog, WeChat and E-Government, to provide more accurate public service and improve the public satisfaction. Thirdly, we need to make full use of big data to promote scientific management. Grassroots governments should use big data to improve management and execution ability, strengthen the political, economic, cultural, law, ecological and social construction and forge a responsible and efficient government. Fourthly, we should strengthen government its own construction by using big data. Grassroots governments should manage well public power, public funds and public officials, etc., expose itself to big data accepting the social supervision, try to build a transparent government and enhance its credibility.

5 Conclusion

The advent of big data era brings about both opportunity and hidden danger for promoting grassroots governance capacity. How to set up big data thinking and how to improve big data application capacity are the key to construct a transparent, efficient, service-oriented and responsible government. In order to realize it which not only needs grassroots government's top-level design of big data, also needs the cooperation of enterprises, social organizations, citizens and other participants in harmony to build scientific, comprehensive and effective data system together, to establish the organization, operation mechanism and quality management and other security system, to strengthen supporting system construction, such as, big data systems, infrastructure and information technology personnel, to construct benign ecological environment and optimize data acquisition, data filtering, data management, data analysis and data application comprehensively so as to form big data union and eventually condense into a resultant force to improve grass-roots government's ability of big data applications.

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Study on NGO-Donor Relations in Basic Education Sector: Case of Pakistan

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Abstract: NGOs gained the importance in last decades all over the world, same is the case with Pakistan. NGOs are participating in education sector. This paper studies the involvement of NGOs in basic education sector, being dependant on the foreign donor agencies, NGOs have to follow the agenda of donors that can create tension with the government. This paper applies qualitative research methodology to study the relationships between donors and NGOs. The findings of this study show that donors are mostly following market based approach and neo-liberal agenda that results in inequalities for people. Therefore in order to perform their duty rightfully, NGOs should look for sustainable and their own sources of finances.

Key words: NGOs; International Donors; Government; Education; Pakistan

1 Introduction

Pakistan is a country located in South Asia with a population of approximately 190 Million^[1]. The formal education structure of Pakistan is a 10-2-4-2 means that 10 Years of Secondary Education, 2 years of higher secondary education, 4 years of University professional or degree education and two years Post Graduate Education^[2]. In last decades NGOs have become stakeholder in the education sector in Pakistan, though their role is not too much clearly outlined in any policy document of government of Pakistan but under the clauses of their registration, they have continued to play heavy role in education sector and played a notable contribution. This thesis aims to explore the role of NGOs in education sector of Pakistan, educational policy crafting and implementation for Basic Education in Punjab province of Pakistan^[3].

It has been found in studies that NGOs are dependent upon foreign donors for their activities in Pakistan. The donor agencies have their own priorities and agenda and they in many cases impose their agenda on NGOs to follow. A major example is market based approach and neo-liberal agenda of International donors^[4].

As a result of this dependence on foreign donors, NGOs have to follow the agenda given by donors that result in some tensions with government as government opposes any such agenda that is being imposed by some foreign organization or is in opposition to the sovereignty of state^[5]. This tension creates a situation of rift among NGOs and government. In order to understand the nature of the relations between NGOs and their donors, researcher has conducted this study.

2 Literature Review

During past decades, there was an increased interest in education from international organizations including the World Bank and UN. Both organizations have initiated doctrines for Education, Since 1970's World Bank has been committed to a doctrine based on dominance of market forces, and education has also been seen as a form of 'human capital' that will be capable of generating high returns of economic growth^[6].

Globally, two main doctrines apparently seem to be used as guiding source for provision of education. One is Human Capital and market driven approach initiated and adopted by the World Bank and the other doctrine is Human Rights Approach of United Nations^[7]. World Bank is considered to be the largest devoter of resources for education in the world^[8]. (Ilon, 2002).

Markets have promoted inequities in education. Though the World Bank and the IMF seem to promote 'equality' in their approach the reality is that their approach has worsened inequalities in education. Markets exacerbate existing inequalities (Ball, 1993; Hill 2003; Seddon, 1997; Klees, 2010). For example, school systems in Australia and the USA, radicalized social class patterns of inequality have increased due to marketwise school systems (Hill, 2003). This is because the poor cannot afford the high tuition fees demanded by certain schools^[9-12].

As Hill, *et al* (2008:77) notes^[10]: "Increasing the role of the private sector (including for-profit) organizations at primary, secondary and tertiary levels creates unequal access to schooling based on

social class, despite compensatory measures, such as subsidies, intended to limit the stratifying effects of capitalization.”

Since the end of the 1980s, the educational systems in a number of countries around the world have been submitted to an unceasing flow of reforms^[13]. The transformation towards neo-liberalism involves both re-structuring of relations between the economic, political and social domains (including the commoditization and marketisation of fields like education - it becomes subject to the economic logic of the market), and the ‘re-scaling’ of relations between the different levels of social life-the global, the regional (e.g. the European Union), the national, and the local^[14].

Economic decline in Pakistan, as elsewhere in other parts of Asia compelled national governments to borrow heavily from international banks such as the World Bank and the IMF which resulted in many governments in Asia embracing market oriented policies due to conditionalities attached to loans. Sharp economic decline was experienced in many parts of Asia in the 1970s and 1980s^[15].

3 Research Objective and Methodology

This paper aims to investigate the NGOs-Donor relationships in Pakistan, due to the importance of donor agencies for NGOs and role of NGOs in basic education sector of Pakistan, the study will contribute significantly to the body of knowledge in the field.

For this study, researcher has applied an instrumental case study approach; it comes up with multiple data collection methods in order to have a grip on the complexity of case and looks for multiple perspectives. For this purpose, focus groups, interviews, observation and document review was applied to collect the data on roles of NGOs in education sector of Pakistan.

As per Stake (1995: ix) “A case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances”^[16]. According to Creswell (2007) a case study involves the study of an issue explored through one or more cases within a bounded system (i.e., a setting, a context)^[17]. For this study, a sample of 8 NGOs was selected using purposive sampling Table 10 below includes 8 NGOs (the first 8 NGOs in the table) that were included for this study. Names have been coded for purpose of anonymity

Table 1 The NGOs Included in the Study

	Name	Focus and Scope
1	AAA	<ul style="list-style-type: none"> • Campaigning and advocacy. Works with local and national NGOs to campaign and advocate for policy changes and increased accountability of service providers. • Supports vulnerable children in community schools. Works through a national NGO which supports community schools.
2	BBB	<ul style="list-style-type: none"> • Empowers rural communities by providing them with non-formal education. It promotes literacy in rural communities especially among women and children.
3	CCC	<ul style="list-style-type: none"> • Supports children’s rights in schools. It focuses on child protection and participation.
4	DDD	<ul style="list-style-type: none"> • Advocates for policies and programs that support the education of girls and women. Advocates for the removal of cultural practices that impinge on female education. <ul style="list-style-type: none"> • Supports the disadvantaged and vulnerable students by paying school fees for them especially girls and women. • Infrastructural development in schools, for example, building girls’ hostels. • Textbook provision in schools.
5	EEE	<ul style="list-style-type: none"> • Provides assistance to vulnerable families so that they can educate their children. • Rehabilitation of public schools to transform them into “Child Friendly Schools” (i.e., improving the school environment, making it conducive for learning for children).
6	FFF	<ul style="list-style-type: none"> • Supports child rights’ clubs in schools by working through local and national NGOs. • Monitoring and tracking the education budget expenditure by working in partnership with local and national NGOs.
7	GGG	<ul style="list-style-type: none"> • Supports vulnerable children in community schools.
8	HHH	<ul style="list-style-type: none"> • Lobbying and advocacy aimed at ensuring that the achievement of EFA and MDGs goals on education by 2015. • Monitoring and tracking the education budget expenditure

4 Findings of Study and Discussion

The interviews expressed and revealed that International NGOs work through their partner national or local NGOs in Pakistan to achieve their objectives including advocacy. The findings from the interview with NGO official are as follows:

“Being an international NGO, we raise voice through our partners in Pakistan that are the local

organizations. Otherwise we only issue general statements such as “The government should rectify the educational policy or bring some bill for such ratification” If we talk more, we may be told by the government or other stakeholders the fact that we are foreigner and maybe we are not required to be in some limits” (International NGO Official No. 8, 2014).

The representatives from Donor Agencies who were interviewed for this research study were of the view that NGOs are important partners for them in education development in Pakistan. Donors think about NGOs to be flexible and efficient organizations.

From the NGOs included in this case study, it has been observed that:

1) AAA provides necessary help and support to the children studying in community schools and is being funded by the Australian Aid, their program intends to help more children to be enrolled in schools.

2) BBB is funded by a wide range of donors as mentioned in the table and they work to protect Children’s right that also includes education as a basic human right.

3) CCC is also being funded by Australian Aid working in local communities to provide the financial help to deprived and vulnerable families to empower them enough to send their children to school

4) DDD is also working for the protection of children rights particularly in schools and is being funded by Save The Children focusing on child right and protection.

5) EEE is providing technical skills training in rural communities, programs are funded by UNESCO and focus is on improvement of literacy and technical skills.

6) FFF is also supporting vulnerable children studying in basic education schools, one of its sources is USAID who tend to fund NGOs to help vulnerable children to get education in their own communities.

7) NGOs like GGG and HHH are being funded by Irish and Netherlands aid to play advocacy roles for support of EFA goals.

It was observed earlier as well that GGG and HHH work for advocacy and lobbying to ensure attainment of EFA goals through these efforts. Here, it was also found from the documents review that Government of Pakistan depends on international support to undertake its development and other projects. In many instances, it has been observed that international donors can provide significant proportion in the education budget.

It has been observed that NGOs face different problems including lack of funds, less number of staff, duplication of efforts by NGOs. Most of the NGOs working in Pakistan are dependent on donors for funding from external donor agencies for their operations as they lack in their own resources. Most of the donors for NGOs include international NGOs and other donor agencies. The observations and findings of this study show that donors whether external or internal prefer and like to work with NGOs as in donors’ opinion, NGOs are efficient and they are less bureaucratic in nature and can help poor masses at the very basic and grass root level. Donors regard and treat NGOs as their important partners in achieving the goals and objectives of EFA in education sector. While observing the fact that due to various different reasons, government is unable to or lacks the capability to perform; they started depending on NGOs for the implementation of their programs. NGOs have the capabilities to mobilize the local communities and masses due to their reach to remote and rural areas where population is denser in Pakistan.

5 Conclusion and Recommendations

It is therefore recommended that NGOs in order to be self sufficient find out different ways to decrease the dependence on foreign aid for their programs and try to attain sustainability so that they might not have to follow the agenda of their donors that creates problems in their relationships with the government. The primary reason is that it is the government who controls all the policies and formulates rules and regulations for all the sectors in country and government can’t bear any interference by foreign agencies for imposition of their agenda. Therefore such NGOs that are dependent on foreign donors and have to follow their agenda will be having problems by government so such NGOs can only work peacefully if they can generate their own sources of funds.

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Analysis of the Current Situation of the Tourism Industry in Henan Province of China from the Perspective of “One Belt and One Road”

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Abstract: With the changes of China's economic structure and consumption structure, tourism has become one of the major industries of many cities and regions. In order to fully develop the tourism industry in Henan Province of China, the analysis of the current situation of the tourism industry in Henan province of China from the perspective of “One Belt And One Road” is very important. This paper will analyze the advantages and weaknesses, opportunities and threats of the current situation of the tourism industry in Henan Province of China deeply by using SWOT analysis method. Then, this paper will put forward some strategies according to the the guiding ideology of the “One Belt And One Road”, “the combination of theory and practice”, “the combination of the advanced experience at home and abroad and actual situation in Henan Province of China”.

Key Words: Current situation; “One Belt And One Road”; Tourism industry; SWOT analysis method; Strategy

1 Introduction

We know that the strategic concept called “One Belt And One Road” has taken both the international and domestic strategic needs into account, taken the balanced development of the interests in political, economic, security, cultural and tourism and other aspects into account. As an important part of the adjustment of the strategy of national and local economy, tourism not only is the leading industry of the “One Belt And One Road”, but also will become the sustainable tourism under the background of the protection of cultural heritage and resources environment. Henan province of China is in the important node of the tourism of the New Silk Road, in the central location of the New Silk Road Economic Belt, linking the east to the west and connecting the south to the north, so it has the impressive advantages of tourism development. At present, the relevant papers at home and abroad about the analysis of the current situation of the tourism industry in Henan province from the perspective of “One Belt And One Road” are less. Therefore, this paper has a strong research value and significance.

2 The SWOT Analysis of the Development of Tourism Industry in Henan Province of China from the Perspective of “One Belt And One Road”

2.1 Strengths

1) Rich in tourism resources, especially in the historical and cultural tourism resources.

Table 1 Basic Condition of Grade 3A above Scenic Area of Henan Province of China

Item	Number	China ranking according to the number
3A Scenic Area of China	94	—
4A Scenic Area of China	72	—
5A Scenic Area of China	9	3
World Cultural Heritage	3	

According to the Table 1, we know that there are ninety-four 3A Scenic Area of China, seventy-two 4A Scenic Area of China, nine 5A Scenic Area of China, and three World Cultural Heritage. Especially, the number of 5A Scenic Area of China of Henan Province of China was ranked first in China. In addition, Henan is the most important birthplace of the Chinese nation and the birthplace of Chinese history and civilization heritage area. A large number of cultural relics have been found in Henan Province, the both numbers of underground cultural relics and cultural relics of Henan province are ranked first in China. Henan Province also has a total number of 189 national key cultural relics

protection units.

2) The geographical position is superior, and it is in the important node of the New Silk Road tourism, with the convenient railways, aviation, highways transportation linking east and west, south and north.

Henan is an extremely important comprehensive traffic hub in our country. Aviation, railways, highways and other modern comprehensive transportation system is complete, so the traffic status is very important. The north-south railways include the Beijing-Guangzhou, Beijing-Kowloon, Jiaozuo-Liuzhou Line, and the east-west railways include the Long-Hai Line and so on. Multiple north-south and east-west highway roads and highways pass through Henan Province and the percent of high-class and the number of sub high-class roads in Henan is nearly 10% of China's. In addition, the international trains from Zhengzhou to Europe have been launched successfully, opening the leading logistics channel from the central areas of China to Europe. With the good traffic condition and advantageous geographical location, Henan Province has the natural premise to undertake the role of tourism hub of the "One Belt And One Road".

2.2 Weaknesses

- 1) Tourism products are too single.
- 2) Tourist attractions do not pay enough attention to marketing.
- 3) The awareness and level of tourism service need to be improved and innovated.
- 4) The level of tourism industry agglomeration is not high enough.
- 5) The development of exit and entry tourism is relatively backward.

Table 2 Number and Income of Civil Tourists Received of Henan Province of China

Item	Number (2013 year)
Number of Civil Tourists Received (person-times)	408980000
Income of Civil Tourists Received (10000 Yuan)	3835000

Table 3 Basic Condition of International Tourism of Henan Province of China

Item	Number (2013 year)
Total Number of Star Hotel (Unit)	575
Number of International Tourists Received (person-times)	2073305
Income of International Tourists Received (USD 10000)	65997

The Table 2 and Table 3 express that the number of civil tourists received is almost 20 times the number of international tourists received, while, the income of civil tourists received is almost 9 times the income of international tourists received. We can find that the number of international tourists in Henan province of China needs to be improved. And inbound tourism income is much higher than domestic tourism.

2.3 Opportunities

1) With the changes of economic structure and consumption structure in China, tourism is becoming increasingly important and valuable, as a leading industry to build a resource-saving and environment-friendly society.

- 2) The preferential policies and government's support brought by "One Belt And One Road".

2.4 Threats

- 1) The remaining bottleneck of international cooperation of tourism— visa clearance.
- 2) The tourism competition is increasingly fierce, both at home and abroad, regional and urban .

3 The Strategic Analysis of the Development of Tourism Industry in Henan Province of China from the Perspective of "One Belt And One Road"

3.1 SO: Strengths + Opportunities (Growth Strategies)

1) Transform the historical and cultural resources to develop the capital for the tourism industry in Henan Province of China, and make efforts to build Henan as the new heights of tourism culture in the Silk Road Economic Belt.

Continue the culture of "history", and in the eye of modern and developing, interpret and explore our historical and cultural heritage, and transform it into a valuable tourism development capital. Based on the radiating capacity, influence and competitiveness of culture, open up the "History Pulse" "People

Hub” “Gold Veins” of the city, to transform our historical and cultural resources into unique tourism development capital. With the historical and cultural tourism resources, such as the Ancient Silk Road, Shaolin Culture, the Yellow Emperor Culture, the Yellow River culture, surname culture, root ancestral culture, and ancient city culture, Henan Province of China will focus on creating “Luoyang Tourism Cluster”, “Kaifeng tourism cluster”, “tourism cluster” and “The Yellow River-The Yellow Emperor tourism clusters”. Among them, the “tourism cluster” is aimed to implement the arts training performances, sightseeing, scientific archaeology, art performances, travel goods manufacturing and a series of tourism products, with the natural landscape, Shaolin martial arts, religion as the core. The “The Yellow River-The Yellow Emperor tourism clusters” focuses on building the Yellow Emperor and the Yellow River culture.

2) Speed up the tourism information construction.

With the help of the strong momentum of the “Internet +” new economic form, Henan should promote the development of Henan tourism cooperation between enterprises, promote the continuous development of the travel agencies, tourist hotels, tourism catering, shopping and tourism cultural brand, and improve the ability against market risks of Henan tourism company.

3) Pay attention to the cooperation with the New Silk Road Economic Zone and Maritime Silk Road to strengthen the construction of the Silk Road Tourism Corridor in the air.

Seize the opportunity of the construction of Zhengzhou International Airport to strengthen the construction of the Silk Road Tourism Corridor in the air. Xinzheng International Airport in Zhengzhou is one of the eight major domestic hub airports and first-class aviation port in China; The annual passenger throughput has reached 70 million and the tons of cargo is 400 million; 90 route has been opened till 2012, 84 of which are domestic routes, and navigate to 67 cities or areas at home and abroad; The passenger volume grew by 15% and the growing rate ranked second, the cargo throughput increased by 47% and the growing rate ranked first in the country. So in recent years, XinZheng International Airport has become one of the airports having the most growth capacity both home and abroad. Zhengzhou International Airport will become the international aviation logistics center, and an important gateway with the aviation economy as leading modern industrial base and an important door to the outside world in the inland areas, which is important for the development of the tourism industry in Henan Province of China.

3.2 ST: Strengths + Threat (Businesses Strategies)

1) Making full use of the geographical position advantage, Henan Province will combine the “Go out” and “Come in”, to strengthen the exchange and cooperation of tourism industry between Henan Province and the tourism at home and abroad.

Henan Province should make use of its own advantages, further deepening the regional cooperation, sharing “One Belt And One Road” tourism cooperation strategic opportunities with surrounding cities; In addition, it needs to send a team to the countries along the Silk Road and regional to promote exchange, and to invite others to Henan Province of China for communication activities, in order to promote international accessibility of Henan tourism, and make Henan tourism products go abroad and become a truly international tourist products. The strategy concept “One Belt And One Road” has got highly recognition and accept from the countries and regions, especially has got the positive response of the various countries tourism, which is a rare opportunity in the international cooperation of Henan Province of China. Henan Province should grasp this opportunity, stay one step and spearhead to become the most active and productive, the most popular among all ethnic groups along the tourist areas of cooperation. According to the national tourism sector statistics, the countries along the Silk Road Economic Belt entertain about 210 million inbound visitors a year, creating the tourism revenues of about \$12 million.

2) Grasp the opportunity based on “One Belt And One Road” to compete for policy support for tourism international exchanges and cooperation.

3.3 WO: Weaknesses + Opportunities (Torsion Strategy)

1) Improve the development of tourism market and tourism management services

Now, the tourism products in Henan region is relatively low and the line products are too single, which can't meet the demand of tourists. And there is a big gap between market support and tourism market demand. So Henan should base on the tourism resource's potential and customers' needs and desires, to develop new tourism products, which are based on different topics, different fields, different levels and different combinations of industry configuration, to promote configuration of tourism product, the development of the transportation system, and achieve to integrate tourism, culture, finance and trade, realizing internationalization, diversification and collectivization. In addition, Henan tourism can

be built as a competitive tourism belt from these aspects: such as integration of tourism planning integration of tourism elements configuration, integration of tourism service facilities, integrating of tourism service standards and integrating of tourism market mechanism.

2) Strengthen the business training of relevant departments of the tourism industry, and improve the awareness and level of the travel service staff.

3) Focus on building Henan Tourism Cluster according to the actual situation of Henan Province of China. Especially, in the basis of the Ancient Silk Road, Shaolin culture, Huang Di culture, the Yellow River culture, surname culture; root ancestral culture, ancient city culture and other historical and cultural tourism resources.

4) Introduce some preferential policies, and make the city travel agency can establish branches and open up some one-stop convenient service, such as room booking, meal reservation, car renting and other business activities.

3.4 WT: Weaknesses + threat (Defensive Strategy)

1) Overall plan, careful plan, strengthens the image of propaganda and establishes a characteristic brand.

National Tourism Administration has officially launched the overall planning of the Silk Road tourism, Henan province should be positively prepared to make a plan, ensuring the role and opportunity of the tourism industry in Henan Silk could be all exerted vividly, making every effort to build the core competitiveness of Henan tourism culture, highlighting the city's image display, strengthening external publicity, expanding continuously the space for development, broadening the tourist market, shaping a better image of the Henan's enterprises of Silk Road tourism. The way of publicity and promotion of tourism products should be various. There are some feasible ways, such as exhibition, trade fair, the festival celebration, media advertisement (newspapers, magazines, radio, television, signage), Internet, publishing for sales, tourists oral to promote sales, and other ways. In addition, the traditional modern media modes, such as literature, painting, photography, film and TV, have an unexpected effect on the artistic representation of Regional nature, history, culture, scenery, and folk customs, especially the media arts' representation, which reflects the regional folk customs, and become the important way to attract the potential tourists.

2) Make efforts to develop the immigration tourism, accelerate the process of the internationalization of tourism in Henan.

3) Coordinate the relevant units, and set up special funds for the development of the Silk Road tourism, focusing on the support for the key projects, such as the construction of the Silk Road's major scenic spots, the research and development of tourism product, and the perform of cultural tourism, and improve the construction of the element system of Tourism along the Silk Road.

4) Prepare an intellectual reserve for the development of tourism industry.

4 Conclusion

1) Henan Province of China will become the important tour center, integrated service center, tourism and shopping center and important tourist attractions by virtue of its good location, profound culture, superior resources, vast market, from the perspective of "One Belt And One Road".

2) The current situation of the tourism industry in Henan province of China from the perspective of "One Belt And One Road" is the advantages and disadvantages, opportunities and challenges coexist.

3) The government and relevant departments of Henan province should strive to grasp the macro, judge the current actual situation of the tourism industry in Henan province of China correctly, analyze the current bottleneck constraints of the development of tourism in Henan Province of China, and put forward further countermeasures and suggestions to solve the bottleneck problem, on the basis of sufficient investigation and research.

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Analysis of the Social Negotiation Effect in the Process of Public Administration*

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Abstract: Essentially, public administration means that the citizen entrusted the right of managing the social affairs to the government. As a principal part of the public administration, the government need to take the citizens' advice to make policy and perform the public administration functions. Moreover, it's necessary for the public administration to be democratization and open. With the concept that positive conversation and equal negotiation can balance the benefit of each side, social negotiation plays an important role in participating in the public affairs for the citizens equally, realizing the nation's good governance and pushing the public administration forward. Based on the basic concept of management, this paper conducts the analysis of present Chinese public administration development status by using the method of comparative analysis and quantitative analysis. Furthermore, some shortcomings existed in the public administration are pointed out and the relationship of public administration and social negotiation is discussed. The effects and functions of social negotiation in the process of public administration are studied. Finally, such a conclusion can be drawn that social negotiation has theoretical and practical significance for realizing the scientific and democratic management.

Key words: Social negotiation; Deliberative democracy; Public administration; Social governance

1 Introduction

The research on public administration has existed for many years domestically and overseas, fruitful achievements have been got in both theoretical area and practical area. The government has focused on the society role in the public administration. Pollitt Christopher, Christensen T. per Legreid and Stephen Goldsmith, as representatives of western scholars, have rethought the public administration firstly. They hold the opinion that democratic value, such as equality, justice and civic participation, is a key factor of legitimacy of public administration. What's more, they declaimed that response type and citizen-oriented type public administration should be established with the emphasis of efficiency value of public administration. Take public administration as a key word, some relative subjects and areas can be contacted, the diagram is shown below.



Figure 1 The Relative Subjects and Areas

Presently, Chinese public administration is learning from western advanced experience positively and has realized the important role for citizen and society in the process of social negotiation gradually. At the same time, the scholars are seeking for the relationship between society and public administration. Besides, the approaches and methods for participating in the public administration are studied. The social negotiation is an special form for the Chinese government that citizen participate in the public affairs, which is based on the negotiation and democracy and play an important role in public

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administration. By searching the CNKI, the data listed as follow can be got, which indicates that the area and topic is novel and there are only a few research achievements.

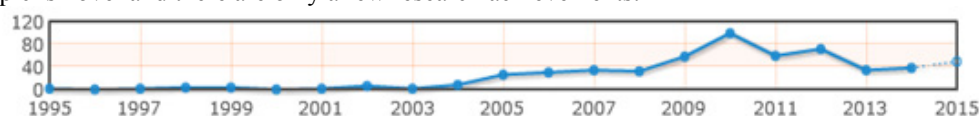


Figure 2 Trend Diagram of Related Published Papers

Based on the analysis of relationship between social negotiation and public administration, shortcomings, which are existed in the process of public administration from the view of citizen, nation and society, should be found. Last but not least, the important role social negotiation plays in the public administration is emphasized.

2 Social Negotiation and Public Administration

Since the reform and open policy, there is a trend in society that the interest group and interest demand are more diversification with the rapid development of Chinese economy. Social contradictions are becoming more outstanding and complicated. The democratic concept and participation consciousness of citizens are becoming more and more evident. Therefore, as an effective communication bridge between government and society as well as citizens, social negotiation plays a more and more important role in the process of public administration.

2.1 Social negotiation

Social negotiation means that government and citizens or social organizations have positive talk, equal negotiation and suggestion exchange to balance the benefit of each side, decrease social contradictions, strengthen social collaboration and reach an agreement, which aims at solving the social significant problems and maintaining the vital interests of ordinary people. There are three kinds of social negotiation: social force negotiation under the nation dominance, nation force negotiation under the society dominance, internal social negotiation. Subject status equality principal, subject behavior self-discipline principal, object containment principal, orderly social negotiation principal, result share principal are the basic standard and behavior guide in the process of social negotiation. Not only can social negotiation strengthen the supervision and restriction to government power, but also it can reflect the essence spirit of democratic politics. Moreover, it has great help to the citizen to participate in politics orderly, to the government to conduct policy-making democratically and strengthen the legality of policy-making, which is beneficial to promote government function change, guarantee the society operation steadily and accelerate the development of public management.

Social negotiation is a result of nation-society relationship transition and a unique exploration for social democracy. The social negotiation in present China has important theoretical and practical significance. There is a lack of smooth interest expression, democratic participation channels and social negotiation mechanism, which leads to the masses and social organizations unable to express their suggestions and opinions. Furthermore, social contradictions and conflicts appeared in abnormal state, even in mass disturbances to express their suggestions. It indicates that Chinese government need to rely on social negotiation, which is an excellent conversation mechanism, to solve the problems existed in a society whose contradictions are more and more fierce. Social negotiation can guarantee the citizens participate in the political affairs broadly and maintain the citizens' political right reasonably. By keep contact with the masses effectively, it can improve the diaphaneity of social decision-making and management. Moreover, it is a new thought, new form, new system which can strengthen the degree of opening.

2.2 The relationship between public management and social negotiation

Public management means that public organizations provide public goods as well as public services. It doesn't focus on program and instructions, but on the results and responsibility for the results. Generally speaking, the nation is the subjective in the traditional management process and the society as well as citizens is the object. But in modern society, as the manager of public affairs and provider of public services, the government isn't compellingly put the law and policy on the citizens, it also doesn't perform the function of public management only by the sovereign right of the nation. The citizens gradually realized that they are host of the nation with the democratic concept and freedom thought spreading. Government is just a management agent of citizens and society in public administration. It's just the fiduciary of citizens to realize self-management. So the citizens are vigilant to the government

power in the public management process. Moreover, they demand that their interest appeal can be expressed effectively. Therefore, social negotiation is necessary in Chinese social management.

Presently, the Chinese social structure has changed profoundly, the government function is broadening day by day, but its ability to deal with complicated social affairs are not equal to its ambition. With the social reform happened in new term, the shortcomings of traditional public administration stand out. The public administration is not a unidirectional political process existed between government and society as well as citizens, but based on the citizens' suggestions and need. So in this context social negotiation is the premise and safeguard for the public administration. Social negotiation can collect citizens' suggestions widely and meet the citizens' demand as much as possible in the process of public policy making and conducting, which will make the public policy lay massy foundation for smooth public management. Social negotiation makes the citizens and social organizations participate in the public affairs widely which are led by government. It not only can improve the citizens' activity, but also improve the whole society's vitality. What's more, it will help to creative interaction between the public power and society and can promote the good governance of the government at a certain extent.

3 The Existing Shortcomings of the Public Administration

Public administration is a new type of social management model which appears with the development of the market economy. Public administration plays a unique role in social governance. But there are many shortcomings existing in the present public administration. The shortcomings are shown on the subject and object of public administration. To state it a bit specific, it can be divided into three aspects: citizens, nation and society.

3.1 The shortcomings of the citizens

Firstly, Chinese citizens present a state with both reason and blindness in their participation in public administration. Rationally participating is an essential and key factor to maintain the public administration order. The citizens consider their own benefits and need, at the same time, they will create impact on the public administration with their rational behaviors. Blindness participation means that citizens behave unconsciously, without any independent mind and judgment. Mostly, it's a blindness follow-up behavior which is dominated by the situation. If the citizens' reason can overcome blindness in the process of public administration, then the order of it is normal and reasonable. While in fact, blindness participation of the citizens is the leading role in public administration.

Secondly, Chinese citizens present the property of mismatching of their consciousness and ability in their participation in public administration. With the development of market economy, the consciousness of participating in public administration for Chinese citizens has improved greatly. Especially in the social transition period when social benefits are restructuring, citizens participate in public administration for their basic right as well as their benefits. While many problems are still existed, which are about the aspects of Chinese citizens' ability when they take part in public administration. For example, the citizens are lack of public reason when they participate in policy-making, they only think from their standpoint. Moreover, the citizens can't keep a smooth contact with government, even they can lead to massy incidents.

Finally, the citizens' concept of rule of law and man can usually be mixed. Public administration is the inevitable result of rule of law, whose implementation process rely on the trust of law from the citizens. For China has been experienced a long-time feudal society, Chinese citizens have been influenced by Confucian culture, the concept of whom are still dominated by rule of man. The concept of rule of man has existed steadily in the custom and amenity habits, even in some areas it has been ordinary state in life. The rule of law has been around people as the economy and politics develop so rapidly. The citizens have realized the importance of the law rule, especially in the aspects of maintaining their own interests and benefits. The present context is that the concept of rule of man and rule of law mixed in the ordinary lifestyle, which constitutes the barrier of the public administration development.

3.2 The shortcomings of the government

Firstly, the administration concept of the government falls behind. In spite of the emphasis of service-style government establishment and mode of public administration transition, the concept of the government and its staff rests on rule-style and management-style. As the only management subject of the public administration, government has great political rule function and coerciveness. The citizens existed negatively and are lack of autonomy. They are negatively managed and not the subject of the public administration. The concept of service-style public management has not been formed in the

process of government management.

Secondly, the system of public administration is not perfect. The system aims at ruling that what should the public administration do. The present system has many problems to solve. For example, the government hasn't been led by the citizens' demand in the process of public administration and social responsibility fulfillment. The corresponding feedback mechanism is also not perfect, which doesn't allow people to make options and decisions. Moreover, the citizens' drive mechanism of supervision and evaluation is defectiveness. So the service level can't meet the demand of the public service.

Finally, the public administration methods of government fall behind. The management methods rest on the traditional process, which can't keep pace on the new media time. What's more, there is a lack of electronic government management. Although some modern companies have introduced in some advanced management methods and technologies in the management process, not all company management methods can match the government management system. They are not well perfected to adapt to the government management.

3.3 The shortcomings of the society

Totally, there is a lack of interaction between the government and society in the process of public administration. Firstly, there is a lack of interaction in the policy-making process. Public policy is an important part of the public administration and a primary method of social governance. There is no citizen participation in the policy-making process for public administration. Policy-making without collecting citizens' suggestions may lead to the disagreement with the citizens' factual demand. Furthermore, it will affect the factual effect of public administration.

Secondly, there is a lack of interaction in the policy implement process. Reasonable distribution of public benefits and responsibility to people are the property and connotation of public policy. For the purpose of preventing benefit conflicts and maintaining social stabilization, public management lacks interaction with citizens in public policy implement. Furthermore, neither the management we take can meet the citizens' increasing demand, nor achieve the purpose of policy implement of public management.

Finally, there is a lack of interaction between government and society in resource integration. Multielement appears for value as the social economy develops. One of the primary goals for public administration is to integrate the social resource. Despite the increasing impact for public administration on social resource integration and its effect on social resource distribution, shortcomings are still existed in government and society. Government can't motivate the enthusiasm of the whole society and can't keep reasonable relationship with social community and social organization to integrate and distribute the social resource, which make the social resource not fully used.

4 The Effect of Social Negotiation in Public Administration Implement

4.1 The effect of citizens participation

Firstly, the introduce of social negotiation in public administration can help to cultivate rational citizens and form the concept of rule by law. The citizens will concentrate on the public policy and public affairs in the public administration. The democratic and liberalism concept have been around. The citizens have gradually realized that they are the subject of public administration and participation is their right and obligation. Moreover, the rational spirit and law-rule concept can be strengthened through the participation in public administration.

Secondly, social negotiation is beneficial to the citizens' consciousness and ability of public administration participation. The citizens can participate in the public administration by the means of social negotiation, which is the best exercise opportunity for their management consciousness and ability. A government which can satisfy its citizens is a government whose citizens have ability to participate in public administration. Citizens can supervise all kinds of social affairs and government right by participating in public administration, which not only can strengthen the host consciousness, but also improve their ability of political participation.

Finally, social negotiation is beneficial to furthest satisfy citizens' rights and interests. Essentially, social administration is the allocation of public power and social interests. The effect of social negotiation in the public administration process is to ensure the citizens' participation, which can satisfy the citizens' benefits greatly.

4.2 The effect of government administration

Firstly, it's beneficial for public administration to transfer from ruling mode and managed mode to ministrant mode. The transition of management mode has always been the important goal of public

administration. The establishment of ministrant government has great importance in this social circumstance, which is not only the need to improve the attitude and methods of the government and civil servant, but also the great measurement to realize the basic concept of public administration. At the same time, social negotiation collects social suggestions broadly and satisfies the benefits claim of citizens and social community. All these measurements are key factors to establish ministrant public administration.

Secondly, social negotiation in public administration can help government obtain trust and support of the citizens. Government wins the trust of people and gets the support from people, which are the premise and goals of carrying out public administration. Based on the talk and participation of citizens, social negotiation can get the correct results. It can have positive effect for government to acquire the citizens' support and trust.

Finally, social negotiation can realize the goals of good governance. Social negotiation means that nation and society have communications and talks on some key social issues to realize the social common understanding and correct decisions. It matches well with the concept and goals of good governance. So social negotiation is beneficial to realize good governance, which is the national goal.

4.3 The effect of social cooperation

Firstly, social negotiation can strengthen the interaction between society and government. If public administration wants to realize its basic concept and final goals, the positive interaction between government and society is needed. The interaction is civilized and ordered. The essence and concept of social negotiation are put forward. We can see that social negotiation in public administration can avoid the occurrence of sudden groupment incidents. It can improve the interaction between society and government, which is positive, civilized and ordered.

Secondly, social negotiation can help to integrate the social resources. Public management mode is a kind of management mode that can integrate regnant social resources. But there is a premise that social members and social organizations must be respected. Thus, social negotiation seems so necessary when it bears such an important mission.

Finally, social negotiation is beneficial to public policy making and implement. As an important part of public administration, public policy plays a vital role in maintaining social stabilization. Whether public policy can carry out smoothly relies on the factual conditions of citizens. It should satisfy the citizens' factual need. Therefore, social negotiation has an important intermediary effect on public policy, which helps to make and fulfill public policy.

5 Conclusion

Social negotiation has theoretical and practical significance for realizing the scientific and democratic management. Public administration is a fundamental duty of the government, and it is also an important means of governance to promote harmonious development of society. It plays an extremely important role in the development of the political, economic and cultural of the society. With the economic development rapidly, the trend of social pluralism become an indisputable fact. In order to integrate various social forces, to respect the reasonable pluralism, to respond to the demands of different groups, the public management innovation has become an inevitable trend of social development. Public Management Innovation is the foundation of citizens to participate in the Social Management, and it is the pursuit of modern political civilization. Therefore, analyze the social negotiation effect in the process of public administration can help china to build a reasonable program of public administration, and to promote the modernization of political civilization. Social negotiation has important effect on public administration, which is premise and safeguard for public administration to go smoothly. To realize win-win for government and society in public administration of modern society, the important role of social negotiation in public administration must be insisted. It can guarantee the citizens to participate in public policy making and public affairs management. Moreover, it can also help government and society form positive interactions to integrate the social resources at best.

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Sarbanes Oxley Act - Implementation Process in a Financial Institution in Brazil

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Abstract: In July 2002 the United States enacted the Sarbanes Oxley-SOX for foreign organizations on the New York Stock Exchange. Thus, all Brazilian companies that kept ADR (American Depositary Receipts) traded NYSE (New York Stock Exchange) have adapted to the demands of the new law. From specific working group focusing on SOX strategy, hiring consultants who assisted in defining the standard documentation, the model maps spreadsheets, controls design, testing, teams trained in the certification process, which would help in the dissemination process. The Sarbanes Oxley worked for a structured corporate governance environment, minimizing and curbing actions in bad faith. This paper describes how the XYZ Bank, ranked among the largest private banks in Brazil adjusted its processes to sections of American law.

Key words: Sarbanes oxley law; Corporate governance; Financial institution

1 Introduction

To restore the confidence of the American capital market and in response to the accounting scandals involving large US companies in 2001, for example, Enron and World.com, which brought many losses to investors, the United States enacted in July 2002 Sarbanes Oxley Act SOX. The law takes the surname senator and congressman who created (Paul Sarbanes and Michael Oxley) and brought tougher rules to improve the accounting and financial controls of the companies, as well as audit and security mechanisms to make companies with securities traded New York Stock Exchange (NYSE - New York Stock Exchange) more reliable.

The law took effect including foreign organizations operating in the New York Stock Exchange and therefore registered with the SEC (Securities Exchange Commission), the body that oversees the US capital market. Thus, all Brazilian companies that kept ADR (American Depositary Receipts) traded on the NYSE (New York Stock Exchange) had to implement actions to suit the requirements of the new US law.

Among the Brazilian companies at this time there was a Bank, that we are calling XYZ, and was among the largest private banks in the country coming in full national expansion through acquisitions of public banks mostly and already showed strong interest in also expand its international market share. Ranked Brazilian multinational company with leading positions in Brazil, more than 80 thousand employees, agencies scattered throughout most of the country and abroad, has a technology driven 15,000 ATMs, great influence of credit for Brazilian companies and High international presence as the largest private bank.

With a quick and bold strategic plan, the Bank XYZ sought not only adaptation to sections of American law, but was intended to be the first Brazilian company to achieve international certification, even before the deadline required by the American market. Unlike other segments, banks have better adaptation to some sort of regulation, adaptation is easier since it is routine demand from regulatory agencies such as: Central Bank, CVM and its regulations, circular, among other instruments, according to Santos, I. D. A. A., & Lemes, s. (2007)

Important aspects related to certification are important to mention the issue of costs related to the implementation of SOX ends up being a high impediment since the results at first seem intangible despite the importance and does not appear to demonstrate its cost benefit. According Langevoort (2006), the costs that are visible from the start of implementation are associated with audit firms with their fees, generation of man cost / time of all levels involved. However, the opportunity costs become intangible to Ribstein (2005), the opportunity costs are associated with preventive issues such as: accountability of executives, CEOs and others involved in the process as a whole will likely penalties before the public information available from the company. The control environment in this process is very large even with the centralization of a team "full time" in the project, it was necessary to raise

awareness across the bank of the importance of certification as a whole for this training were conducted, business games, departmental meetings so that at the end of the process everyone was aware of the importance of certification and their need, but this process although essential also generated high costs for the organization and that it was necessary to be managed.

Considering the importance of the institution entire process carried out for the SOX certification, this report aims to describe through practical experience the major corporate actions that have been implemented for this financial institution and the mobilization of the whole group seeking certification.

2 Context Investigated

The financial market is very sensitive and at all times speculation wander behind the scenes, in the specialized news media gains and failures are used as puppets to manipulate the biased market. Andrezo, AF, & Lima, IS (2007) "conceptualizes the financial market as a set of institutions and instruments to offer application of alternative and fundraising, for the flow of funds between savers and borrowers" (p.01) .

However, with the ups and downs, ups and downs of the financial market is important to guard and see which are the best alternatives to protect themselves from speculation seeking to protect and safeguard the shareholder who invests in the company. Seeking to understand the implementation and the importance of SOX, is questioned. Why the Bank XYZ sought SOX certification in advance to the market?

With the information that companies that have shares listed on the New York Stock Exchange should be appropriate to the requirements of the Sarbanes Oxley Act better known as SOX, the XYZ Bank began a race against time seeking to be the first financial institution to be certified by SOX before his mandatory.

Certification SOX aims to generate gains for the management of processes, and assist in the control of risks that may be inherent in the process. Candide (2007), cites the risks have aspects prevention though can be viewed negatively. Several factors may be limiting for businesses since considerable investment of degree one is required generating the high cost certification.

Second, Carioca, KJF et al., (2010), "one of the main criticisms that are made to SOX relates to the costs of its implementation. There are however, researchers favorable to the thesis that the costs of implementation should not be compared with the short-term benefits, but with a new level of quality management and resulting public information of long-term benefits."

Considering a requirement for setting the Bank XYZ, we found the need to advance the law suit aimed at management in its controls and began the process of implementation of SOX Section 404 based on, for it was necessary to analyze, test and documentation of controls.

The Sarbanes Oxley Act aims to increase the responsibility of executives of public companies listed on the American market. R. Allen Stanford executives and sentenced to 110 years in prison for 700 million scheme in Ponzi scheme convicted of a crime and was arrested. John Bernard "Bernie" founder company "WorldCom", arrested for manipulating the company's accounting, fraud, conspiracy and issuing false documents

Second (Silva, 2005). The negative development on the financial market is not restricted to financial market. Paramalat company, was asked the financial issues of the company and its owner was arrested on suspicion undue appropriation, make up the balance.

The Sarbanes Oxley Act is divided into 11 chapters with 69 sections which are:

Chapter1- Creation of the Independent Monitoring Body Work Chapter

Chapter 2 - Auditor Independence

Chapter 3 - Corporate Responsibility

Chapter 4 - Increase in Financial Reporting Level

Chapter 5 - Analyst's Conflict of interests

Chapter 6 - Commission Resources and Authority

Chapter 7 - Studies and Reports

Chapter 8 - Accountability Enterprise and Criminal Fraud

Chapter 9 - Increased Penalties for White Collar Crimes

Chapter 10 - Repayment of Corporate Tax

Chapter 11 - Corporate Fraud and Accountability

Some of the SOX sections are: Section 101, 102, 103, 104, 109 is the PCAOB, auditor independence section 201, 202.203, 204, the company's responsibility to section 301.302, 304.305 and

307, improvement of financial statements with emphasis for section 404: 401, 402, 404, 406, 409, or corporate criminal liability for fraud in section 806, 807 and increase penalties for white-collar crime section 906.

Follow description of the sections of the Sarbanes Oxley Act, this report will be focusing on Section 404, which aims at evaluating the controls on an annual basis so as to guarantee monitoring of controls, Act, SO (2002).

Table 1 Main Articles Of Sarbanes-Oxley Act (S0x)

Category	Section	Attributions
PCAOB	101	Comes from the PCAOB - Public Company Accounting Oversight Board
	102	Organizes the PCAOB and its duties
	103	Establishes rules relating to audit standards, and control the quality and independence.
	104	Create program of inspection permanence of registered auditing firms in SEC.
	109	This deals with funding issues and operating rates of PCAOB.
INDEPENDENCE OF THE AUDITOR	201	Defines services that are prohibited for auditors within companies they audit..
	202	Determines the need for prior approval of the audit committee for any other service provided by the company's independent auditors.
	203	Determines the rotation every 5 years the partner responsible for each customer, accounting firm.
	204	Creates rules for communication between the contracted auditors and the company's audit committee.
COMPANY RESPONSIBILITY	301	Definition of the tasks assigned and the level of independence of the audit committee in relation to the company's board.
	302	Define the responsibility of the directors who sign the reports with statements and other financial information of a certain period included in order to ensure that the report all information is reliable. And that any adverse information should be communicated to the Audit Committee.
	303	Determines the prohibition regarding misconduct auditor by bad influence of coercion, manipulation, regardless of whether intentionally or negligently, and prohibit any influence with the auditors.
	305	Responsibility and penalizes the responsibility of company directors.
	307	Determines rules blaming lawyers must report evidence of any serious breach of the company to work reporting to the audit committee or board.
IMPROVEMENT OF FINANCIAL DISCLOSURES	401	Requires disclosure of quarterly and annual information regarding the material that are not related to the balance sheet, asset such as: transactions, agreements and other obligations.
	402	Requires disclosure of major transactions involving directors and major shareholders. No director or senior officer of a public company may receive, directly or indirectly, loans held company.
	404	Evaluation of application on an annual basis of internal controls and procedures for financial reporting. At the same time, the auditor will issue report attesting apart and assertiveness of the administration of the effectiveness of internal controls and procedures for issuance of financial reports
	406	Structures the Code of ethics for directors, senior management and management.
	409	Has the obligation of timely and current information disclosure further considered and on important changes to financial aspects.
RESPONSIBILITY FOR CORPORATE OR CRIMINAL FRAUD	802	Establishes criminal penalties for altering, destroying, falsification of documents used in survey SEC.
	806	Creation of the protective clothing for employees of companies with publicly traded denounces conduct relating to fraud in the organization working.
	807	Definition of the main criminal penalties that may harm the minority shareholders of companies with publicly traded for false information
INCREASE PENALTIES FOR WHITE COLLAR CRIMES	906	Directors and responsibility will be held responsible for financial statements and defines the penalties for infractions

Note. Source: Adapted by the author. Source: <http://www.gpo.gov/fdsys/pkg/PLAW-107publ204/pdf/PLAW-107publ204.pdf>

The main premise of this SOX grounded in good corporate governance, second, da Silveira, ADM (2015) “corporate governance concerns the way in which society are directed and controlled, including its explicit and unspoken rules, especially the relationship between its main characters:.. board, board of directors and shareholders” (1.1 What is Corporate Governance Main Principles.para.2?)

3 Situation-Problem Diagnostics

The first step of the organization was to highlight some executives began to focus on the strategic plan of SOX, given the complexity of actions and the need for prioritization to achieve the goal. However, as the XYZ Bank was servicing a part of American law according to their level adherence to the rules of CVM (Brazilian Securities Commission), the body that oversees the stock exchange in Brazil, the executive priority was to meet the demands Section 404 of US law, which established among other things that the CEO and the CFO took responsibility for establishing and maintaining a system of internal controls to guarantee the effectiveness of controls.

The Section 404 of SOX requires a process is quite complex adaptation as organizations must invest time and money to make it happen effectively. According LIVEIRA, MC, & LINHARES, JS (2007), for the law implementation program happen perfectly according to your requirement we recommend compliance with all the sessions and their proper applicability.

Moreover, it began to demand that the independent audit to issue two opinions defined by PCAOB (Public Company Accounting Oversight Board), one on the assessment made by the Company's management and the other on the effectiveness of controls. Thus, the working group created to manage the shares was officially called "GT 404" and, besides having executive officers in its composition, shares of GT 404 were periodically supervised by Vice President of the Controller and the Audit Committee. The GT 404 also had the support of the areas of Internal Control, Compliance and Audit, each of which had an important role in the design, validation and implementation of actions and controls that allow the bank's certification. Second, Peters (2004), "Internal control is a process carried out and executed by a corporate structured set by the Board, the Board of Directors or others in the company that drive business success in three categories" (p. 35)

One of the points required by Section 404 were periodic testing of controls in the processes that generated accounting effects. However, in an organization with nearly one hundred thousand employees, thousands of cases spread between central administration and agencies, it was vital to establish a working methodology covering all control points and did not allow weaknesses were identified in the independent audit opinions.

To assist in the definition and conduct of the methodology were you hire two consulting firms: McKinsey and PwC, each focused on a scope. The first advice helped in defining the standard documentation, the model maps and spreadsheets that could easily be consolidated at the end of the process. The second helped with the design of the controls and tests, as had an audit arm with teams already trained to audit the processes in certification case, which would help in the process of dissemination of knowledge and previous tests. After the first meeting discussing "what" processes should be in scope and "how" the mapping would be done, the GT 404 has determined that the work would be carried out from the last published balance sheet, with a percentage increase of growth to ensure that no relevant account would be without the coverage of the SOX process.

Selected relevant accounts for the mapping work, documentation, development and / or validation of controls and tests, the GT 404 has delegated to teams of internal controls perform field work. 980 cases were identified that have become grouped macro processes 28. The work was carried out "backwards", ie after highlighted the most relevant accounting accounts the next step was to identify all the processes and systems that could interfere with the account balance. The mapping should consider the entire value chain from product marketing to accounting values on the balance sheet, however, the starting point was always the ledger account. Teams of internal controls were the "walkthrough" in each selected process, documenting the steps in flowchart, identified all risks and controls involved and prepared a test plan that would run from the second stage. According to Dias (2006), "Risk assessment is the identification and analysis of risks associated with not meeting the targets and operational objectives, information and compliance. This group forms the basis for defining how those risks are managed" (p. 50).

At the end of the process the team of internal controls produced the Risk Matrix, which shall contain the following information in detail: Sox Risk Control to mitigate the risk Sox and the description of the test to be performed in control.

The control test step required another strategic maneuver. In 980 cases identified by the institution were thousands of controls. For the controls tested were relevant fact, the institution determined that the test should be conducted in the "key controls", ie those in which the slightest flaw could already generate impact on carrying amounts. For controls where the failure occurred it could still be captured in another step of the process, the institution called "operational control", which had not testing

recommendation for the purposes of Sox.

For each test run was necessary to document the results in specific tools to historic guard, as well as custody of evidence (system screens, calculations in spreadsheets, documents signed etc.) which required more storage of information. Therefore, in addition to specific tools for the Sox, spaces have been expanded on servers for the storage of information that made the test. The institution knew the importance of being adherent to the requirements of US law and spared no effort and investment to achieve certification. In line with this premise, the GT 404 set a testing rule in manual controls that mostly was more conservative than the recommendations issued by the independent audit firms:

Table 2 Frequency Test

Frequency Control	Quantity testing (year)			
	Standard KPMG	Standard PWC	XYZ	
Annual	1	1	1	
Quarterly	2-3	2	3	March, September, December.
Monthly	2-4	2-5	6	January, March, May...
Weekly	5-10	5-15	18	01 for each month from January to June
Daily	15-30	20-40	48	01 for each week
Several times daily	30-6-	25-60	48	01 for each week

Source: Folheto Banco XYZ. "SOX – Sarbanes Oxley Act XYZ"

Nevertheless, in some control tests in processes and / or systems of internal control teams identified exceptions validation. For these cases they were immediately reported to the GT 404 which set deadlines for corrective actions and weekly followed the evolution of the action. As there were two lines of reporting, teams of internal controls had the status of schedule and actions in progress monthly to the GT 404 and reported the progress of this work quarterly to the Vice President of Accounting and Audit Committee. However, any relevant subject was anticipated to flow to not impact the timing of actions.

After the design of the methodology to be adopted, the delegation of actions for mapping and testing by the team of internal controls and the reporting of actions between the command lines, the next step was to involve all employees and establish classroom training between most impacted teams (Compliance, Audit and Internal Control). The Bank XYZ produced a booklet called "SOX - Sarbanes Oxley Act XYZ", in line with the company slogan used at the time and distributed to all employees, in order to generate each employee's commitment to the theme and the understanding of the extra effort to implement the necessary actions as well as the impact of smaller individual actions in the certification. Several trainings were given to the teams that would go out into the field to get up and map the information and they would spread the control culture related to SOX.

The Bank XYZ fulfilled in 2006, Section 404 of the Sarbanes-Oxley Act (SOX) related to internal control over financial reporting, and included in its Annual Report 20-F filed with the SEC, the Management Report on internal control over financial reporting, which attested that these controls were subjected to an evaluation process according to the rules of the US regulators.

4 Situation-Problem Analysis

Globalization has brought great changes to the world society any action taken in one country directly impacts other country, and to be more specific impact may be depending on the industry segment, whether this organization has capital open and linked to the Stock Exchange, this impact is greater. Second, da Silva, KL, Oliveira, MC, De, MMM, & Araújo, OC (2009), the question of ownership of public companies, conflict of interest, lack of transparency with minority shareholders are seen as negative aspect for organizations that have these characteristics.

It is mandatory the disclosure and provision of information by easily accessible channels stakeholders suit the information so that everyone can use the information for decision making. Demonstrate transparency in the organization of the information demonstrates a reliable process with related parties is internally or externally. According to the Code of Best Corporate Governance Practices of the IBGC (2004), the principle of transparency (disclosure) indicates that the communication should not be limited to the economic and financial performance, but also consider other factors (including intangible) that guide corporate action and leading to value creation.

Valuing the company in the financial market is of paramount importance for shareholders and

interested parties to contribute their values and receive dividends as market demand.

Corporate governance helps the organization on strategic issues and better corporate image to the market structure oversight bodies such as auditing generates reliability of the results generated by the organization. Financial institutions should pay attention to regulatory issues and bodies that drive the rules to be applied. The Sarbanes Oxley SOX has become a driver for audit firms with requirement to all companies with powers to appoint and establish the compensation and oversee the independent auditors as well as reviewing internal controls, audit and accounting, Act, SO (2002). Its implementation despite laborious aggregate enterprise value in bringing benefit and increasing the level of confidence in the market, shareholders and stakeholders. The Sarbanes Oxley SOX helps control process of the processes with particular frequency as the working methodology stipulated, spontaneous anticipation of Bank XYZ for certification of SOX, was frowned upon by its shareholders bringing a comfortable atmosphere before the market as a whole. The process has mobilized a considerable layer of bank employees, it was a laborious process, because it was necessary to go thoroughly the processes which brought security in the analysis of the risks and find out where there was failure, define roles and responsibilities and create an entire cycle prevention.

This research has qualitative, descriptive nature. According to Neves, J. (1996) qualitative methods are similar to the interpretation of everyday phenomena procedures. In addition, the research included bibliographic support, sites with public information in addition to participating managers to SOX implementation project.

Seek certification in advance demonstrated maturity of the institution, the Bank XYZ believes is key to its investors have an efficient internal control, seek transparency for shareholders and stakeholders as well as generating good attraction and value for investments, return increase for both company and to its investor.

5 Social-Technologic Contribution

The financial market is dynamic and fluctuates all the time in every opening and closing of the stock exchanges around the world values. Similarly, publicly held companies that hold shares on the New York Stock Exchange has a greater exposure to the labor market and automatically charging to maintain structured processes generates regulatory agency requirements such as circulars, regulations as well as international laws that adjustments impacts both the local market and the international market arising from globalization.

The implementation of the certification Sarbanes Oxley better known as SOX was not much different, trying to adapt to the international market the financial market was informed that the implementation of this certification would be necessary. As such process would generate high demand for employees, change processes, transaction cost for the entire project the Bank XYZ understand your positive anticipation of this process before the financial market. To do so, it started a fast and proactive process for the implementation of this certification.

The report aims to describe the main actions taken to implement Sarbanes Oxley certification, and demonstrate the importance of anticipating this certification for the financial market, shareholders and stakeholders. The Sarbanes Oxley brought a structured environment and corporate governance while minimizing and even curbing actions in bad faith, responsible executives who are managing the process as a whole.

It was found that was of great value to the Bank XYZ entire structure prior to the time of certification, structuring all teams draw what should be the best methodology for implementation, brought greater security. From there, all steps were detailed, employees were aware of the importance of certification for the Bank as the whole at the end of the process the certification was the result of a work of dedication and commitment of all involved and the financial market was frowned upon credibility and generating new business opportunities. Striving for excellence in the quality of its controls to comply with the laws as a commitment to their own history, in June 2006 made sure as the first bank that owns shares on the New York Stock Exchange, in advance of one year the date that the North regulator -American stipulated at the time.

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A Penny for Your Thoughts: A Preference Modelling Case Study in R

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Abstract: The study of stated preferences often requires the use of specialised software or proprietary programs, which can be difficult and/or expensive to use. This study proposes to re-purpose the "support.CEs" package, a program written in the R programming language, from its agronomic roots to measure home buyer preferences for sustainable housing. These are demonstrated through a stated preference discrete choice experiment of choosing model houses with differing levels of energy savings, renewable energy generation, landscaping, soundproofing, ventilation, and price differences. A pilot study was performed using an online survey, constructed using the LMA.design tool provided in the "support.CEs" package. The survey was also separated into six blocks of six questions each to reduce the cognitive burden on respondents. The survey was distributed through social media channels. Preliminary results with a limited sample of 20 respondents with mixed income, age, and occupational demographics, analysed using the package's clogit function, that performs conditional logit estimations, have shown that the results have a statistically reliable adjusted rho-squared value and that all coefficients show the expected signs. From this study, it can be concluded that the support.CEs package can be used to model home buyer preferences and that adequate blocking allows for the measurement of a higher number of variables despite having smaller sample sizes.

Key words: Home buyer preferences; Discrete choice experiments; Sustainable housing

1 Stated Preference Modeling: A Background

Modeling stated preferences is an almost mystical science, turning something as anomalous as buyer choices into hard numbers, drawing from disciplines as disparate as marketing, psychology, economics, and statistics^[1] to conclude on the meaning behind buyers' choices. This multi-disciplinary combination of techniques equally allow preference modeling to go beyond the bounds of any one particular field, seeing applications in studies as diverse as marketing^[2, 3, 4, 5, 6], real estate^[7, 8, 9], healthcare^[10, 11, 12], environmental^[13, 14, 15], agronomic^[16, 17, 18], transport^[19, 20], and manufacturing^[21] studies.

Many techniques exist for collecting and studying buyer preferences including the analytical hierarchy process^[22], conjoint analysis^[23], discrete choice experiments (hereinafter DCE)^[1], and contingent valuation^[24]. Each technique is only situationally superior, with its own sets of strengths and weaknesses. However, the main objective all of these techniques is to elicit the monetary value of a particular good or sets of goods.

While any of these techniques could technically be used to model homebuyer preferences, the unique nature of housing as a multi-dimensionally heterogeneous good^[25] makes preference elicitation through contingent valuation tedious and analytically problematic, as this technique relies on respondents choices in response single attribute changes rather than multi-attribute choice situations^[26], which is the typical trade-off situation when choosing homes.

The analytical hierarchy process, originating in operations research, has found use in many fields^[27], as its primary objective of figuring out the importance of criteria and attributes, thus finding a home in fields as far apart as healthcare to architecture to finance^[22]. With respect to the home buying process, it has proven less useful except to paint broader strokes on home buyer preferences^[28] and is not naturally capable in providing hard numbers on the willingness to pay (WTP) for these preferences [cf. 29].

2 Discrete Choice Experiments in R

Based on the arguments that DCEs and analytical hierarchy process methods having similar predictive ability^[30, 31] and the objective of this study; to distil hard numbers on the WTP for sustainable

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¹ While conjoint analysis and DCEs are often used interchangeably, this is a misnomer as the two are dissimilar choice modeling techniques that are only superficially the same [1].

homes, it would be more suitable to use DCEs to study home buyers preferences. To this end, the authors propose the use of support.CEs^[32], a program written in R to formulate surveys eliciting buyer preferences and analyse the resultant responses. Other programs exist in the open source ecosystem that could be used to carry out DCEs or conjoint analyses^[33,34], but methodological refinements have shown the support. CE program to be the best fit for this study.

Like other stated preference modelling techniques, DCEs rely on the assumptions of the random utility theory^[26] that buyers are both rational and choose alternatives that maximise their utility. However, it is different by offering a comprehensive set of characteristics with each alternatives, which more closely resembles a realworld decision^[10] than anything that could be feasibly conceived using either contingent valuation or analytical hierarchy process techniques.

This program was specifically chosen to model home buyer preferences due to both the advantages of the program itself and that of the DCE technique. The choice of an open-source program against other commercial software such as Sawtooth^[35] or proprietary codes is advantageous in allowing the primary research to be carried out at minimal cost and transparently allowing any subsequent replication and validation by other researchers. The program itself is inherently flexible and allows for minute specifications to suit many methodologies and experimental designs.²

The origins of the support. CE programs lies in agronomics, initially used to model consumer preferences for different attributes of milk^[17]. This study only tested a small number of attributes: the presence of HACCP and Good Agricultural Practice labels against prices amongst Tokyo residents. In recent literature, the support. CE program has also been used in environmental economics to measure stakeholder preferences for multiple use offshore platforms designs^[15] and in transport studies to model changes in mode of travel with differing parking options^[36].

The flexibility of the program is shown in its use to estimate respondents choice of funding two medical programmes using the constant-sum paired comparison method^[37], where respondent trade-off between two choices with a given budget constraint. It has also been combined with eye tracking technology to yield Uruguayan consumers preferences for yoghurt labels^[38].

3 Research Methodology

3.1 Experimental Design

As with all attribute-based methods for eliciting stated preferences, the one first steps in eliciting home buyer preferences for sustainable features in homes is to identify and describe the attributes that define the choices given to respondents^[39]. For this purpose, the authors have resorted to the definitions for sustainable housing used in sustainable building standards, namely the Green Building Index (GBI)^[40] to suit the Malaysian home buying public. The authors reasoned that using established standards provides a ready baseline to define sustainability in real estate and enhance the applicability of this study's results.

The award of certification and sustainability levels in the GBI is through the tally of points given for incorporating certain features in a building that enhance sustainability^[40]. These features are discretely separated into levels, which can then be directly translated into attribute levels demarcating sustainability. The choices of sustainable features were made based on its significance on residents' quality of life and could be practically addressed through building design^[41].

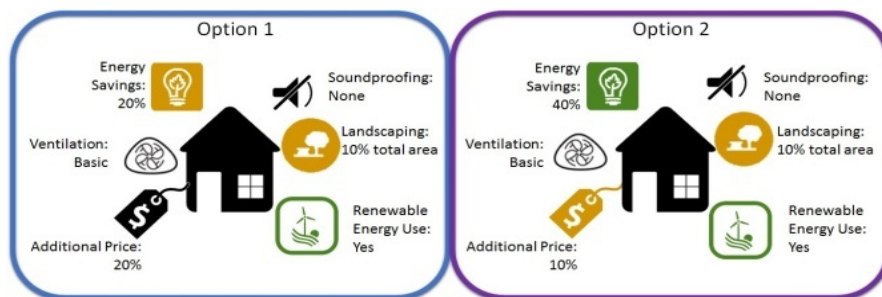


Figure 1 Question 1, Block 1

² The authors have tested this and found incompatibilities with certain unworkable combinations, such as excessive blocking or attribute levels not found within normal DCE experimental design.

The issue of choice, or lack thereof, is a major field of study amongst stated preference practitioners. The excessive choice effect has been shown to decrease the probability of choosing an option as the number of options increases^[42] due to the increased search costs from having more options^[43]. The Irons and Hepburn model for optimal searching behaviour stipulates that searching stops when the cost of searching one more option is greater than the expected value of the payoff from greater searching plus the reduction in regret that greater searching delivers^[44], which is consistent with a satisficing model of buyer behaviour^[45]. However, because of the need to value attributes relative to every other attribute, it is necessary to have at least two options with differing attribute levels within each choice set^[39].

Other factors that influence complexity of DCEs include the number of attributes, levels of attributes, and the number of choice sets (questions), all of which either increase or decrease the calculated WTP but almost invariably increase error variance^[46].

The experimental design of the overall survey is based on the L^{MA} design³ generated internally from the *support.CEs* program^[32], where the experimental design is directly from the orthogonal main effects plan^[48]. This experimental design is generally larger than most orthogonal main effects plan for DCEs^[49], which the authors mitigate through effective separation of the choice sets into multiple blocks; subsets of choice sets. It has also been argued that the L^{MA} design, while orthogonal is not the most statistically efficient^[49] and possibly suffers from balance, overlap, and dominated pairs^[50]. Additionally, the L^{MA} design cannot be used to determine higher order interaction effects^[48]. The latter is ignored because the authors believe further interaction effects are unnecessary for this study while the former will be offset by better internal and cross-validity indicators compared to other experimental designs^[47]. The experimental design for the choice sets used in this survey is presented in the appendix.

Based on previous evidence, the authors have decided to construct the survey based on six choice sets of two options each containing six attributes of three or two levels, separated into six blocks. The following is a sample of a question in the survey, where respondents choose options 1, 2, or neither options to indicate their preference in sustainable housing:

The authors have decided to incorporate pictorials and colour coding to allow the surveys attribute and attribute levels to be more easily understood. This follows the effects of traffic light system which enhances the visibility of pertinent information^[38]. Also, having a more game-like survey technique, which include more visual rather than textual information, leads to a more enjoyable experience for respondents^[4].

3.2 Theoretical Background

The basis of many attribute-based methods such as DCEs is the assumption that agents would choose alternatives yielding the highest utility, also known as the Random Utility Theory^{4[52]}. Assuming respondent *i* selects alternative *j* to maximise his/her utility. The utility from making the choice, *U_{ij}* can be decomposed into:

$$U_{ij} = V_{ij} + e_{ij} \tag{1}$$

where *V_{ij}* is the systematic component of the utility of respondent *i* from selecting alternative *j*, and *e_{ij}* is the stochastic component of the utility^[18]. The systematic component of the utility is assumed to be as follows:

$$V_{ij} = ASC + b_1 EN_{ij} + b_2 S D_{ij} + b_3 VN_{ij} + b_4 LD_{ij} + b_5 R_{ij} + b_6 PR_{ij} + e \tag{2}$$

where, *ASC* denotes an alternative specific constant for housing choices relative to the neither option, where the systematic component of the utility for the option is normalised to zero. The definitions for other variables are tabulated in Table 1:

Table 1 Variable Definition

Coef.	IV	Type	Definition
<i>b₁</i>	<i>EN_{ij}</i>	Continuous	Percentage of energy saved from the respondent's energy consumption
<i>b₂</i>	<i>SD_{ij}</i>	Dummy	Enhancement of interior soundproofing
<i>b₃</i>	<i>VN_{ij}</i>	Dummy	Enhancement of indoor ventilation
<i>b₄</i>	<i>LD_{ij}</i>	Continuous	Percentage of development area set aside for landscaping and recreational uses
<i>b₅</i>	<i>R_{ij}</i>	Dummy	Production of renewable energy within the development area and usage of renewable energy in common areas
<i>b₆</i>	<i>PR_{ij}</i>	Continuous	Increase in price as a function of the respondent's perception of house price

³ L^{MA} design is an experimental design, where L is the number of levels, M is the number of alternatives in each choice set, and A is the number of attributes for each alternative^[47].

⁴ A further exposition of this theory and its applications to DCEs can be found in Alberini et al.^[51]

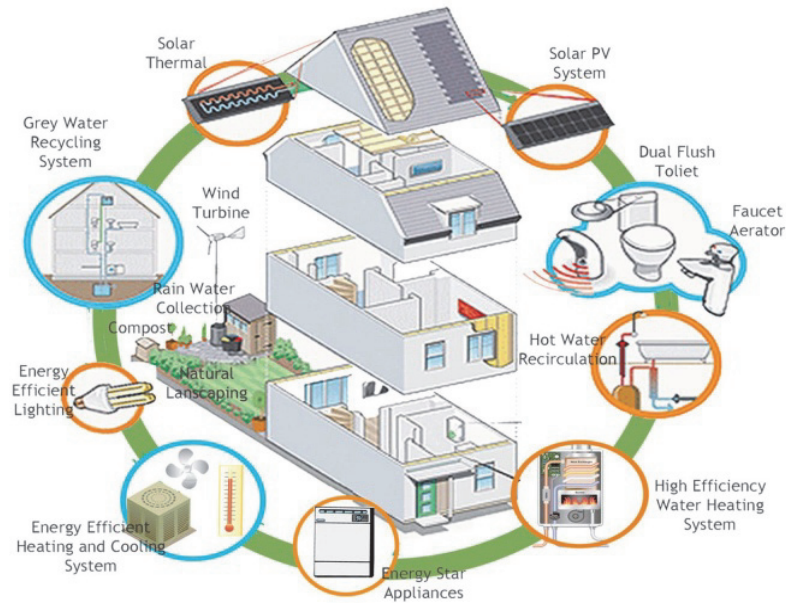


Figure 2 Illustrated List of Sustainable Features in Homes

3.3 Survey Methodology

This survey was carried out online using Google Forms as its basis, which allowed for branching questionnaires that enabled effective separation of the choice sets into blocks that reduce the number of choice sets faced by respondents, which significantly reduce complexity ^[53] and lessens respondents' cognitive burden ^[54].

The preliminary sections of the survey include basic demographic information; age, income, education, and employment which allows the authors to separate the WTP for sustainable features against different demographic groups. Previous studies have shown that demographics affect WTP for sustainable housing features ^[55, 8], which the authors believe is also the case amongst Malaysian homebuyers.

Table 2 Summary of Respondents' Demographics (n=20)

Category	n	%
Age		
18-25	1	5%
26-35	11	55%
36-45	6	30%
46-55	2	10%
Education		
Postgraduate Degree or higher	16	80%
Undergraduate Degree	4	20%
Annual Income		
less than RM 10,000	4	20%
RM 10,000 - RM 35,000	2	10%
RM 35,000 - RM 70,000	7	35%
more than RM 70,000	6	30%
Prefer not to say	1	5%
Employment		
Student	3	15%
White collar	17	85%

The following section looks at the respondents current housing situation, including home ownership, current type of house, and future housing purchase decisions. The most pertinent of these questions is whether future house purchases is for investment or own use, which has been shown to affect WTP for sustainable housing^[56].

This survey also includes a set of primer questions that is meant to shift respondents thoughts towards sustainability and sustainable behaviour. The survey provides respondents with a list of sustainable features and sustainable behaviours^[57] for them to acknowledge either knowing or performing.

While this section of the survey is not analysed further, the authors believe it is useful to get respondents who would not have otherwise thought of sustainability and sustainable features in homes to consider thebreadth of possibilities in sustainable housing.

Following these questions, respondents are given a preamble on the main part of the survey and a choice of selecting one of six blocks prepared for this DCE. Each block consists of six questions each with two options and a null option.

Table 3 Summary of Respondents' Home Ownership

Home Ownership	n	%
Do not own current home	8	40%
Yes, for less than 2 years	4	20%
Yes, for 2 - 5 years	2	10%
Yes, for more than 5 years	6	30%

4 Results

A test run of the DCE was distributed through social media channels and received 20 responses. The table 2 shows a summary of respondents' demographics:

From the survey preliminaries, we can see that this sample consists of a good mix of first-time, long-term, and non-homeowners, summarised in Table 2. It is known that first-time homeowners, whether they have taken the property plunge or otherwise, have different priorities in their home buying decisions^[58, 59].

Table 4 represents the estimations of respondents' WTP for sustainable features in homes. The results are outputted as the results of conditional logit estimations^[60], where columns coef, exp(coef), se(coef), z, and p respectively showing the estimated coefficient, exponential function of the estimated coefficient, standard error of the estimated coefficient, z-value, and p-value under the null hypothesis that the estimated coefficient is equal to zero^[48]. Because the dependent variable; price was presented to respondents in percentages, all the coefficients here should be interpreted as a percentage increase or decrease in prices.

Table 4 WTP Estimation Results

	coef	exp (coef)	se (coef)	z	p
ASC	0.44	1.55	0.62	0.70	4.80e-1
No Renewable	-0.85	0.43	0.34	-2.5	1.20e-2
Soundproofing	0.64	1.89	0.35	1.81	7.10e-2
Ventilation	0.44	1.55	0.32	1.36	1.70e-1
EnergySavings %	0.06	1.06	0.01	4.47	7.70e-6
Landscaping%	0.04	1.04	0.02	1.76	7.80e-2
Price %	-0.03	0.97	0.02	-1.58	1.10e-1

Likelihood ratio test=93.9 on 7 df, p=0 n= 360, number of events= 120

Using the gofm() function in *support.CEs*^[32] produced the following output, which indicates the goodness of fit of the estimations above:

Rho-squared = 0.3560286
 Adjusted rho-squared = 0.3029313
 Akaike information criterion (AIC) = 183.794
 Bayesian information criterion (BIC) = 203.3064
 Number of coefficients = 7

Log likelihood at start = -131.8335

The estimated model above is shown to be a good fit as its rho-squared and adjusted rho-squared value falls within the values of 0.2 and 0.4 [61]. The Akaike and Bayesian Information Criteria are criteria used to measure the statistical quality of a model that penalises a model for both deviance and complexity [62], where lower values are preferred over larger ones [63]. However, without competing models, it is not possible to perform any comparative analysis between models. However, the functionality of such statistical information would be greatly appreciated for researchers comparing between different groups of respondents [64].

Using the `mwtp()` function in the *support.CEs* package [32], it is possible to calculate the marginal willingness to pay (MWTP) for each sustainable feature. MWTP is defined as the economic value of a small change in a non-monetary variable [48]. The MWTP of non-monetary goods in "support.CEs" calculated by first defining the monetary good and using it as a baseline to calculate the economic value of all other goods defined in the DCE, using equation 3 [48].

The results from the MWTP estimations are presented in table 5. These results show the correct signs; the absence of renewable energy generation efforts are likely to reduce house prices by 27.8%, the enhancement of soundproofing increasing prices by 20.9%, ventilation enhancements increasing prices by 14.3%, and every percentage increase of energy savings above a baseline and landscaped area within a development increasing prices by 1.83% and 1.15% respectively.

Table 5 WTP Estimation Results

	MWTP	2.50%	97.50%
No Renewable	-27.802	-234.293	155.671
Soundproofing	20.909	-94.779	166.089
Ventilation	14.352	-93.299	154.339
Energy Saving %	1.829	-9.82	14.629
Landscaping %	1.152	-6.594	11.176

method = Krinsky and Robb

An earlier review of determinants of sustainable housing demand [65] has shown that previous studies indicate positive WTP for ventilation [55, 66, 67, 68], soundproofing [67, 68], energy savings [55, 67, 68], and landscaping [69, 70, 71, 72]. However, because the current study is centred on the Malaysian home buyer, it is not possible to compare the results from this study with previous literature due to differences in sustainable development policy, purchasing power, and environmental awareness, amongst other factors.

A house's renewable energy generation capacity is positively valued in Japan [73], Australia [74], and the UK [75]. The positive valuation shown in this study could be attributed to Malaysia's newly introduced renewable energy policy that includes feed-in tariffs for household renewable energy generation [76, 77], incentivising households to install solar PV panels to generate positive cash flow. It could be possible that this positive MWTP is a manifestation of the present value of expected cash flows from this feed-in tariff [see 78]. However, it is still not possible to benchmark Malaysian home buyers' WTP for renewable energy generation with those from other countries due to policy and demographic differences highlighted earlier.

5 Conclusion

This study has proven that the "support.CEs" program [32] can be re-purposed to measure the WTP of home buyers for housing features, especially those related to sustainable development. Programming in R [79] is a useful tool for quantitative researchers, as evidenced by this and other freely available programming packages.

This study has shown that, with sufficient separation of questions into blocks, it is possible to conduct this DCE with a small sample yet still achieve statistically reliable estimates. The results from this study show the expected signs but cannot currently be compared to those from previous studies.

The results here will be used as the stepping stone towards a larger study of Malaysian home buyer preferences, now that the research tool have been proven to be suitable and effective in quantifying home buyer preferences.

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Research With Secondary Data: Different Matching Methods and is There a Difference?*

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Abstract: Multiple secondary databases are frequently used. However, papers rarely discuss the method of combining these databases. We report on four methods of matching data across secondary databases and show that the number of observations differ significantly based on the method used. Therefore research results might be dependent on these methods.

Key words: Secondary databases; Matching data; Research method

1 Introduction

Our review of all the studies published in one of the top journals in the field of management (i.e., the *Strategic Management Journal*) in the last six years reveals that 358 of the total 469 studies make use of secondary data, and 297 studies use data derived from multiple secondary databases, which are combined into one dataset for the analyses. Hence, 63 percent of all *SMJ* studies published in the last six years (i.e., 297 of the total 469) use multiple secondary databases. Although these studies have enriched our understanding of many managerial phenomena, only 26 of the 297 studies (11 %) that used multiple secondary databases report on the method that was used to match the data across these different secondary databases (e.g., Csaszar, 2012; Zhou, 2011; Zhu, 2013).

This large-scale absence of reporting regarding the matching methods in quantitative studies that use multiple secondary data sources results in a lack of common methods for matching data across frequently used secondary databases and many researchers are re-inventing the wheel, due to the limited possibilities for learning from prior studies. With regard to different matching methods some studies used a name-matching method (e.g., Arora and Nandkumar, 2012; Heeley and Jacobson, 2008), while others used a common identifier (e.g., Kim *et al.*, 2013; Lim and Mccann, 2013) and still others (software-aided) used name standardization and additional validations (e.g., Zhou, 2011; Zhu, 2013).

An even more important issue concerns whether research findings might be dependent on the method used for matching data across multiple secondary databases. Specifically, possible mismatches (e.g., matching data from firm “Alpha Inc.” in database I with data from firm “Alfa Corp.” in database II) can negatively influence the internal validity of studies that use secondary data. Additionally, a significant amount of information might be overlooked when the matching method is too narrow and firms that are, in reality, the same are not matched (e.g., not matching data from firm “Alpha Inc.” in database I with data from firm “Alpha” in database II). Moreover, due to a lack of attention to how multiple secondary databases can be matched, reviewers and editors might not always know what to look for and ask about during the review process, which leaves a possibly vital part of the research methodology underexposed.

This study fills this void by specifying and investigating four different matching methods for making connections between two frequently used secondary databases. The four consecutive methods for matching data across four different secondary databases are: (1) Full name matching (e.g., individual or firm “Alpha” does not equal firm “Alfa,” and firm “Beta Inc.” does not equal firm “Beta Corp.”); (2) Common identifier matching (e.g., when two firms have the same CUSIP code); (3) Full name and common identifier matching, including additional checks, such as comparing matching results for both matching procedures; and (4) Full name and common identifier matching, including additional checks and an additional fuzzy name match with additional identification variables such as corporate address. These four matching methods are successive, because each higher hierarchical step will include more positive matches and exclude potential mismatches.

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2 The Oretical Elaboration of Matching Methods

Two types of errors can emanate from potential mismatches between multiple databases. For example, (financial) information for firm Alpha is obtained from database I and other information (e.g., about Inter-Organizational Relations (IORs)) from database II. An initial mismatch could happen if no or not all “true” observations (e.g., IORs) in database II were matched to firm Alpha, because, say, it was registered differently in the two databases. This would mean that firm Alpha was assumed to have fewer observations (e.g., IORs) than it actually did, which we label a so-called false negative. A second mismatch might happen if more than all of the “true” observations (e.g., IORs) in database II were matched to firm Alpha. This could happen if multiple, but different, firms “Alpha” were to appear in the other database, thereby creating an assumption that firm Alpha had more observations (e.g., IORs) than it actually did, which we label a so-called false positive. In either case, a mismatch would mean that the firms were not aligned with the number of observations (e.g., IORs) they actually had or were wrongly assigned to observations (e.g., IORs) they did not possess.

2.1 Methods of matching secondary data

There are multiple methods of combining databases of which four are described. The first method uses the full name of the unit of analysis (e.g., name of the individual or firm). With this method, the observations from multiple databases can be combined if the full name in one database corresponds to that in another database. Although this seems a relatively easy method for matching data across multiple databases, individuals or firms can have slightly different names in those various databases, so that mismatches are very likely to occur when this method is used exclusively.

A second method uses a common identifier for the unit of analysis, which then must be available in multiple databases, such as firm identifiers like CUSIP or GVKEY (e.g., Kim *et al.*, 2013; Lim and Mccann, 2013). An important issue is that not all databases have the kinds of alphanumeric identifiers that seem to be common in other databases, and sometimes these common identifiers are designated with a different number of alphanumeric characters in different databases. However, when there are common identifiers, these can be rather easily used to combine observations and match data from multiple databases.

A third method of combining databases represents a combination of the first two, with additional validations. That is, researchers firstly search for observations that can be found in multiple databases based on a full name match. Then, independently of the full name match, they search for observations in multiple databases based on a common identifier match. In a third step, they combine the observations from the two matches, which can result in three categories of observations across the databases: (A) observations that are matched based on both the full name match and the common identifier match (i.e., double matched); (B) observations that are only matched based on the full name and not on the common identifier; and (C) matched observations based on the common identifier and not on the full name.

The researchers subsequently have a variety of ways for dealing with these observations. Observations that match in terms of both the full name and the common identifier are “double matched” observations, which are very likely to be the same individual or firm and therefore a true match. The two categories of observations that are matched only in terms of either the full name (B) or the common identifier (C) might either be excluded as a mismatch (Matching Method 3, sub-option I) or manually evaluated based on additional information on the individuals or firms within each database, such as zip codes or websites or as obtained through web searches (Matching Method 3, sub-option II).

A fourth method of combining multiple databases deals with so-called fuzzy name matching, which can be done in addition to the prior matching methods. With matching methods four, sub-option I: The fuzzy name matching procedure starts with the standardization of firm names. Specifically, the names of firms can be standardized by, for example, removing additions at the end of the name, such as “Inc.” or “Corp.” (e.g., Albany Molecular Research Inc. becomes Albany Molecular Research). This standardization can be achieved relatively quickly, but it does not capture the different ways in which a name might be written (e.g., Albany Molecular Research Inc. might also be registered in a database as AMRI).

Alternatively (Matching Method 4, sub-option II), specific identifying keywords can be derived from a firm name so that the different forms in which it is written can be incorporated into the matching procedure, with multiple keywords derived for every firm name. As an example, the three keywords (including search wildcards, such as the %) for Albany Molecular Research Inc. might be: ALBANY%MOLECULAR%; AMRI%; ALBANY%. A balance needs to be found when generating these keywords between words that are too generic (e.g., “research”) and will result in a high number of

potential mismatches and words that are too specific and could potentially leave out true matches for a firm that is registered differently across multiple databases.

A way to deal with this is to generate the keywords sequentially in such a way that the first words are more specifically defined and the later words more generic. Combining this ordering of keywords with matching based on the full name and the common identifier decreases the number of observations that need to be manually verified. This is because all the observations that are matched both on full name and common identifier can then be subtracted from the matches based on the first keyword. The matches that remain need to be verified based on other criteria, such as zip codes, websites, or background information found on the internet. Pending verification, these observations can be added to the full name and common identifier matches. Matching the names between multiple databases in this way is practical, provides a lot of insight into the units of analysis, and incorporates the researcher's judgment, but it is also time-consuming.

3 Different Matching Methods: Does it Matter?

In order to investigate whether different methods of matching data across multiple secondary databases can have an impact on the number of observations, two frequently used databases (i.e., Compustat and SDC) were connected by means of the four matching methods. Compustat contains financial and descriptive information on firms, while SDC contains information on the IORs of firms (i.e., non-equity alliances, joint ventures, minority investments, and mergers and acquisitions). The largest (based on number of employees) 282 US public biopharmaceutical firms in Compustat are selected and connected to the SDC database. With regard to the third Matching Method (M.M. 1) and on a common identifier (M.M. 2)) was used (i.e., sub-option II). For the fourth matching method the development of key words was used (sub-option II).

Table 1 Number of IORs per Matching Method (M.M.)

	M.M. 1.	Compared to M.M.4	M.M. 2.	M.M. 3.	M.M. 4.
Non-equity alliances	1,482	68.93 %	1,782	1,921	2,150
Joint ventures	370	61.67 %	453	484	600
Minority investments	286	70.79 %	388	358	404
M&A	1,606	67.96 %	1,856	2,014	2,363
Total # of IOR	3,744	43.83 %	5,991	6,410	8,543
# of focal firms with 1 or more IOR	185	75.82 %	215	234	244

As can be observed from Table 1, the fourth matching method (M.M. 4) results in the highest numbers of matched IORs, while the full name match (M.M. 1) captures 43.83 percent of the IORs compared to the fourth method. This table clearly shows that the number of matched records and information obtained on IORs increases consecutively from the first to the fourth method, although the amount of work also significantly increases.

Based on these differences it is interesting to investigate if these differences in the number of matched IORs are distributed equally among the firms. For this we took the top 15 (with regard to the number of IORs) for each of the four matching methods and compared them. The results are presented in Table 2. This comparison was done per year and Table 2 is based on the year 2000 (randomly selected, the year 2000 shows similar results compared to the other years). The firms are sorted based on the number of IORs based on the fuzzy name match (M.M 4).

The results show for instance that Safeguard Scientifics inc has 67 IORs based on the fuzzy name match (M.M. 4) and is positioned as the firm with the third most IORs, while there are 22 IORs found based on the other three matching methods, resulting in positions 15 (M.M. 3), 13 (M.M. 2), and 12 (M.M. 1). Glaxosmithkline plc for instance has 47 IORs based on matching methods 4, 3 and 2, while the full name match (M.M. 1) finds no IORs, resulting in a large difference with regard to the position in the top 25 (i.e., position 107 for the full name match (M.M. 1) and position 5 based on the fuzzy name match (M.M. 4)).

Table 2 Top 15 Firms with the Most IORs per Matching Method(M.M.)

Firm name	Position	#	Position	#	Position	#	Position	#
	M.M. 1	IORs 1	M.M. 2	IORs 2	M.M. 3	IORs 3	M.M. 4	IORs 4
JOHNSON & JOHNSON	5	40	6	40	6	40	1	100
AVENTIS SA	1	76	1	76	1	76	2	76
SAFEGUARD SCIENTIFICS INC	12	22	13	22	15	22	3	67
NOVARTIS AG	2	48	2	49	2	48	4	64
GLAXOSMITHKLINE PLC	107	0	3	47	3	47	5	47
ELAN CORP PLC	4	41	5	41	5	41	6	46
ABBOTT LABORATORIES	3	42	4	42	4	42	7	43
WYETH	6	36	7	36	7	36	8	36
ROCHE HOLDING AG	7	34	140	0	8	34	9	36
PFIZER INC	8	29	8	33	9	33	10	33
BAXTER INTERNATIONAL INC	9	28	11	28	12	28	11	32
LILLY (ELI) & CO	108	0	9	31	10	30	12	31
BRISTOL-MYERS SQUIBB CO	10	28	10	31	11	30	13	31
ASTRAZENECA PLC	13	21	12	27	13	27	14	27
BAYER SCHERING PHARMA AG	119	0	52	5	55	5	15	25

4 Discussion and Conclusion

The aim of this study was to investigate whether the different matching methods that are used to combine multiple secondary databases for developing datasets can have an impact on research findings. We focused on four particular matching methods for combining secondary databases, as well as a number of frequently used databases containing information on IORs, as described above. The results of this study show that empirical findings might differ depending on the method that was used to match (i.e., combine) multiple databases.

We started this paper with our observation that secondary databases are frequently combined for research purposes (i.e., 63 percent of all SMJ studies published in the last six years), but that only a small amount of these studies (i.e., 11 %) report on the method that was used to match the data across these different secondary databases. Based on the found differences between the different matching methods we would recommend scholars to precisely and consciously describe the matching procedure as part of the methods section of a paper. Additionally, we would recommend reviewers and editors to explicitly ask for this. This does not only allow for an accumulation of knowledge on the different matching methods used, but also increase the clarity of the matching method conducted and enables others to replicate research findings.

Additionally, based on the results, we would recommend scholars to use a rather thorough and extensive matching method, in future studies, such as the above-described matching methods which combines the full name match with the common identifier match including the additional validation (M.M. 3) or even the additional fuzzy name match (M.M. 4). If the additional fuzzy name matching is used we can recommend the development of the hierarchical key words (i.e., fuzzy names, sub-option II), by multiple researchers independently. Based on the results we would advise scholars to refrain from using only a full name matching method.

This study is not without its limitations. First, the different matching methods were investigated based on firm data, whereas future research on the individual level (e.g. managers or inventors) could also consider the impact of different matching methods. Second, we do not claim that the proposed matching methods are superior and invite other scholars to share other creative methods to combine data across multiple secondary databases. Third, in line with other studies (e.g., Ahuja, 2000; Beckman, Haunschild, and Phillips, 2004; Hitt *et al.*, 1996; Keil *et al.*, 2008), we have only focused on large firms, whereas the differences in the number of observations might be different for privately owned or smaller firms.

Altogether, this study shows that there are large differences between difference matching methods

and that research findings can differ based on the method that is used to match data across multiple (secondary) databases and therefore calls for more attention to at least the description of the matching method used in a study.

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Exploring Commercial Bank of Ethiopia Clients' Satisfaction with the CRM System

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Abstract: For bank systems, Customer Relationship Management (CRM) helps organizations to use information technology and human resources to gain insight into the behavior of customers and the value of those customers. In banking sectors it incorporates people, process and technology to archive understanding on company's customer and manage the relationship between the enterprise and clients properly. Having a good CRM system in banking sector allows the bank to increase customer satisfaction, reduce operational cost and improve sales force efficiency and effectiveness. And hence, evaluating the Commercial Bank of Ethiopia clients' satisfaction with CRM system becomes the main agenda in this paper. The paper basically used seven key variables namely CRM Satisfaction, CRM Progress, CRM Improvement, Customer Expectation, CRM Application, CRM Service as well as CRM Efficiency and Effectiveness as a measuring tool to evaluate the clients' satisfaction with CRM system. After critically analyzing the raw data as well as the strategy of CRM implication of CBE using the above seven key variables, this paper suggest that there is a positive improvement in the overall performance of Commercial Bank of Ethiopia.

Key Words: Customer relationship management; Commercial bank of ethiopia; Clients' satisfaction

1 Introduction

In today's world, banks and other corporate services providers realize the importance of the Customer Relationship Management (CRM) and its potential to help retain existing customers, acquire new ones and maximize the life time value. However, having a close relationship with customer will definitely require the strong coordination of Information Technology (IT) and the marketing units to provide a long term relationship with selected customers. CRM in banking sectors integrates people, process and technology to archive understanding on company's customer and manage the relationship between the enterpprise and clients properly. In addition to this, by integrating these cross functional values CRM provides appropriate ways to use data and information to understand customers and create value.

Commercial Bank of Ethiopia is a leading bank In Ethiopia established in 1942, with the introduction of modern banking services such as ATM and Western Union Money Transfer to the country. Furtherance to this it provides various banking products and services locally and internationally. The CBE has opened various branches to broaden its customer base and carry out its social responsibility to handle the day-to-day complaints of the customers and improve its service quality.

The Ethiopian banking system is still underdeveloped compared to the rest of the world. Cash is still the most dominant medium of exchange. The operational techniques that most banks used to offer service for their customer are almost the same as before and therefore it needs to give attention to Proceed on preparation of capacity building and modernize the banking system by involving the art technology that has been used anywhere in the world. Ethiopian banks face several challenges to fully adopt and practice technologically developed applications. The key challenges for this are Low level of internet penetration and Lack of developed infrastructure for telecommunications. The current banking system is not enough to provide efficient and dependable services with the satisfaction of customers and differentiate them in a market where product features are easily cloned. The bank customers have missed to enjoy with the technological advancement in banking sectors which has been considered elsewhere in the rest of the world. Because of this the Commercial Bank of Ethiopia should recognize the need for introducing better technology advancements and try to expand its services by using CRM system to satisfy its customer and meet the need of expanding domestic and international trade, and increase international banking services.

One company must create and promote healthy environment to enhance efficient and effective services by implementing new formulation of policy or redesigned the existing one. Commercial Bank of Ethiopia started to focus on developing a customer relationship management (CRM) system to systematically arrange the economic change conditions and, in particular, to a decrease inflation rate

circumstances. CRM of the bank build a business process having the customer as a marketing, customer management, sale management, customer service and maintain, is to make the business process more automatic and more efficient and controls the communication between bank and customers. Customer is the first asset of the bank so management has to give priority to CRM. CBE can redesign or reengineer the business process of customer marketing, customer management, sale management, customer service and maintenance.

The paper will clearly show the role of Customer Relationship Management on both the Commercial Bank of Ethiopia and its most important customers. From the Commercial Bank of Ethiopia side since the bank is trying to modernize its core banking system and expand its services, the CRM can strengthen the performance of the business and can increase customer value by using some analytical methods in CRM applications. For the customer it will create closer relationships and interactions between a business and its users.

2 Literature Review

Many scholars have defined CRM as a process where financial service industry is a cyclical process which starts with definition of customer actions. However, Couldwell (1998) defines CRM from marketing phase as a combination of business process and technology that seeks to understand a company's customers from the perspective of who they are, what they do, and what they are like. In other word it is seen as a key element that allows a bank to develop its customer base and sales capacity which is the essential function of customer oriented marketing to gather and accumulate related information about customers in order to provide effective service. Moreover, Mylonakis (2009), described CRM as an innovative process to create a long term relationship and gaining trust by involving the attainment analysis of customer's knowledge in order to sell goods and services. Kumar & Rajesh (2009) state that any bank that wishes to either grow in size of its banking operation or improve its profitability must consider the challenges affecting its customer relationship. Therefore, the reasons for CRM coming to existence are the changes and developments in marketing environment and technology. However, the best definition of CRM is developed by Payne and Frow (2005) by emphasizing that it is a strategic approach that is concerned with creating improved shareholder value through the development of appropriate relationships with key customers and customer segments. Hence, CRM is a business strategy to identify the bank's most profitable customers and prospects, and devotes time and attention to expanding account relationship with those customers through individualized marketing, reprising, discretionary decision making, and customized service through the various sales channels that the bank uses. Any financial institution seeking to adopt a customer relationship model should consider six key business requirements (Chary & Ramesh, 2012), which are: (a) Create a customer-focused organization and infrastructure, (b) Gaining accurate picture of customer categories, (c) Assess the lifetime value of customers, (d) Maximize the profitability of each customer relationship, (e) Understand how to attract and keep the best customers, and lastly (f) Maximize rate of return on marketing campaigns.

Furthermore, CRM provides better opportunities to use data and information to both understand customers and create value. This requires a cross-functional combination of processes, people, operations, and marketing capabilities that is enabled through information, technology, and applications (Boulding et al 2005). Businesses use technology and human resources to gain insight into the behavior of customers and the value of those customers. Using the internet CRM can integrate and simplify customer related business processes, reducing cost of customer facing operation and increase the customer experience. CRM systems are innovation in which their requirements have often not been built-in to the existing organizational structure. Because of this to use CRM in an organization some adjustments need to be implemented, like BPR. BPR is a customer focus, top-down management effort to establish breakthroughs in the performance of inter-functional processes' (Davis, 1993). To enhance the performance of the organization as a whole CRM system incorporates set of functions and business processes. Hammer & Champy (1993) define BPR as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed. With CRM system bank sectors was able to focus on profitable clients through efficient segmentation according to individual behavior. Information about 'who buys what and how much' enabled the bank to have a commercial approach based on the client and not solely on the product. Thus, the bank was able to better satisfy and retain its customers (Lindgreen Antioco).

The aim of CRM is to maximize customer value in the long term, by focusing business processes, marketing and customer service on client relationship maintenance, through the use of an information technology system. Implementation of such a system is not an answer, and is not, of itself, sufficient to transform a production oriented organization into a customer-oriented one (Kanji, 2002; Chang, 2005), which will require a wide-ranging overhaul of organizational structures, employee training and reward system, as well as appropriate IT support (Chen & Popovich, 2003). This fundamental redesign of business processes is described as Business Process Reengineering (BPR). Earl et al. (1995) state that, 'BPR has meant redesigning existing business processes and implementing new ones.

3 Research Methodology

This section outlines methods and procedures employed to perform the research task. Both primary and secondary data will have a logical contribution to the research. We collected Primary data specifically from direct customers of the Commercial Bank of Ethiopia in different branches of the capital city. I used questionnaires to collect important information on situation of relationships and interaction between the bank and its customers. Interview already conducted with different officials in Ethiopia regarding how the bank offers services for the customers. And also the personal observation of the researcher will be reflected as a primary data. To complement the primary data in the research, I used secondary data. The secondary source of information includes study reports, statistical compilations, evaluation reports, etc. I collected the secondary Data which were documented, written, archived, by other bodies from various libraries and sites. Moreover, the data published in different research journals (both national and international), books and documents from research projects were also important to accomplish the research task.

The research involves asking 120 respondents to give a response for the research questionnaires about Commercial Bank of Ethiopia CRM system. Only 90 were able to analysis. Male respondents dominated the sample which is 74 percent. These people are selected based on their age, academic, occupation, income amount per year and marital status. From the whole respondents 83% are in the age between 18 to30 years old, 8% in the age between 31 to 40 and only 10% of the respondents are age 41 and above. Majority of the respondents (50 %) are with collage graduate degree qualification. In the other hand most of the respondents are professional employees that accounts to 73%. Whereas 6 % are students, the same 1% of the respondents participates in private businesses and other. More than half (67%) of the respondents income amount per year is around \$1411 and above. Each key variable measured through the parameter starts from 'highly satisfied to highly dissatisfy which have the value ranging from five (5) to one (1). Therefore, the accumulated data was analyzed using SPSS.

4 Results

The table below indicates the level of customer satisfaction with CRM system in Commercial Bank of Ethiopia. According to the table, the majority moderately satisfied with the CRM system of the bank indexed with 51 out of 90. 20 % of the respondents were neutral in this regard and only 13 % of the respondents moderately dissatisfied with the CRM system of the bank.

Table 1 Respondents' CRM System Satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Highly Dissatisfied	3	3.3	3.3	3.3
	Moderately Dissatisfied	12	13.3	13.3	16.7
	Neutral	18	20.0	20.0	36.7
	Moderately Satisfied	51	56.7	56.7	93.3
	Highly Satisfied	6	6.7	6.7	100.0
	Total	90	100.0	100.0	

Figure 1 elaborates the respondents' response for the Progress of CRM improvement in Commercial Bank of Ethiopia. From the respondents only 30% of them are highly satisfied with the improvement of CRM that the bank gradually shows. Meanwhile 40 % of the respondents were moderately satisfied, 3 % moderately dissatisfied and the rest are neutral.

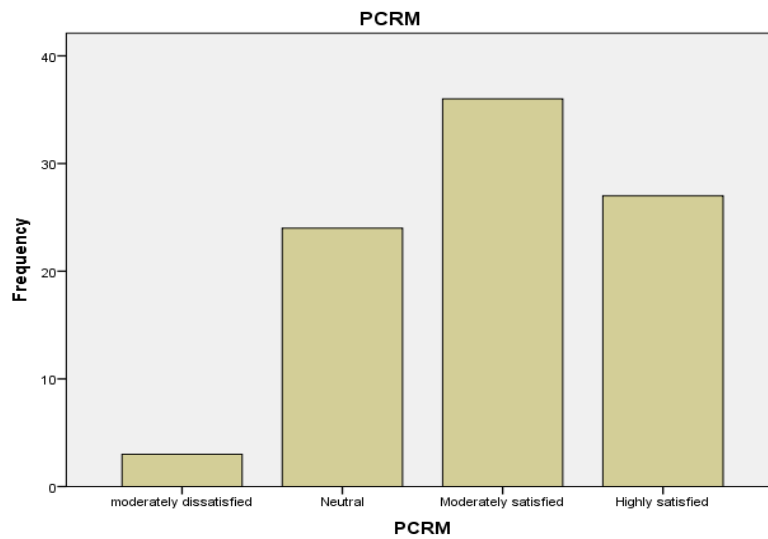


Figure 1 Respondents' Expectation on Progress of CRM Improvement

According to table 2 below, out of 90 respondents, the majority which is 67 % are highly satisfied with CRM work improvement. Meaning that, they strongly agree that, if CRM is made better, better and attractive work will be done. It also improves productivity by either reducing the number of people required to perform the process or by increasing the volume of activities with the same number of people. Only 23 % moderately satisfied on the point, where as 10% are neutral.

Table 2 Respondents' Response on CRM Work Improvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	9	10.0	10.0	10.0
	Moderately Satisfied	21	23.3	23.3	33.3
	Highly Satisfied	60	66.7	66.7	100.0
	Total	90	100.0	100.0	

Today many businesses specially banks, and other service providers understand the importance of customer relationship management (CRM) and its possibilities to help them acquire new customers hold existing ones and develop their lifetime value. Table 3 explains the awareness of the clients on the use of the CRM application in banking sectors whether it's the time to use it or not. From the entire respondents 40 % of them think that it is time to make use of CMR application in Commercial Bank of Ethiopia and only 7 % of them don't agree with this idea. 37 % of the respondents moderately satisfied if CBE starts to use CRM application but 17 % of them they don't have any idea about the use of CRM application in banking sector.

Table 3 Respondents' Response on Use of CRM Application in Bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Moderately Dissatisfied	6	6.7	6.7	6.7
	Neutral	15	16.7	16.7	23.3
	Moderately Satisfied	33	36.7	36.7	60.0
	Highly Satisfied	36	40.0	40.0	100.0
	Total	90	100.0	100.0	

The figure below indicates that, the respondents' response for the improvement of business performance in Commercial Bank of Ethiopia by using CRM system. Running a big business is a bit challenging, more so if the business is customer oriented. Call centers which operate 24 hours a day require huge manpower to keep each transaction running smoothly and efficiently. One of the many benefits to using CRM system is the better management of customer efficiencies during peak hours of demand, which can save time and money for the company. Having a good system in the bank can also

improve satisfaction which in turn is reflected in better customer service. Having this idea in mind, around 57 % of the respondents are highly agreed that, if Commercial Bank of Ethiopia starts using a well developed CRM application, the business performance also will be improved. 30 % of them are also moderately satisfied with the idea. Whereas 13% of the respondents neutral.

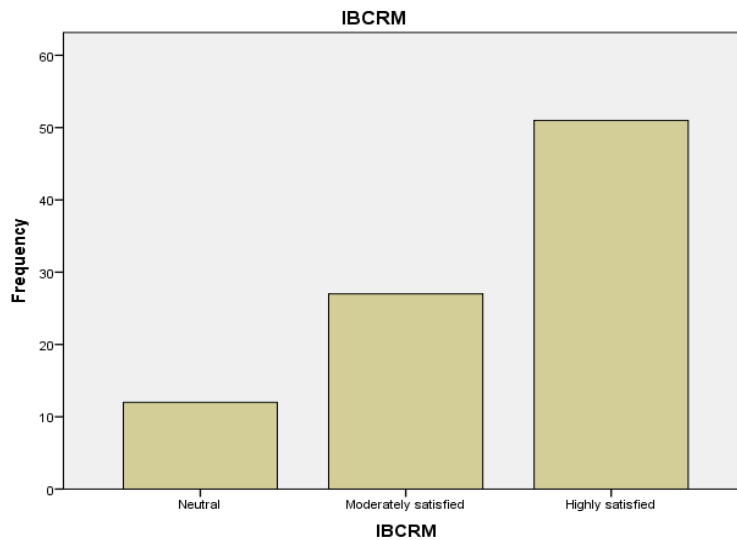


Figure 2 Respondents' Response on CRM Business Improvement

One of the most important goals of CRM is to increase in banking sector efficiency and effectiveness. This is almost always adopted by every organization. It is necessitate by the fact that increase in efficiency is required to boost success. CRM achieves this through cost reduction and customer retention. By providing sufficient CRM training for the employees, the bank can easily achieves its goal. Table 4 elaborates the respondents' response on the CRM important goal. From the respondents 63 % of them highly satisfied with the idea that CRM system is going to Increase the efficiency and effectiveness of the banking services, 23 % moderately satisfied and the other 13 % they don't have anything to say about this idea.

Table 4 Respondents' Response on Efficiency and Effectiveness of Work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	12	13.3	13.3	13.3
	Moderately Satisfied	21	23.3	23.3	36.7
	Highly Satisfied	57	63.3	63.3	100.0
	Total	90	100.0	100.0	

The summarized result indicates that the customers are satisfied in most of the services provided by the bank, even though, the bank does not satisfy its customers in all the indicators used in this study. From the study's analytical result, the modernization of the bank and its position to adopt new technology is encouraging, though the bank has many problems in relation to information technology and communication. As per the respondent suggestion the Commercial Bank of Ethiopia should improve its CRM system in order to improve its service. Most Banks viewed themselves as exceedingly customer centric offering what they believe to be highly personalized services to the high net worth customers. The wealthier the customers, the more demanding they are and the clients expect more and more from their banks, to understand what their wants and needs are, so that the bank can be built around serving those needs. The structured approach to CRM provides various benefits to the bank. As per the demand of the customers, more than 60% of the respondents need to get new service from the bank other than the existing services with the improved CRM system (See Figure 3 below).

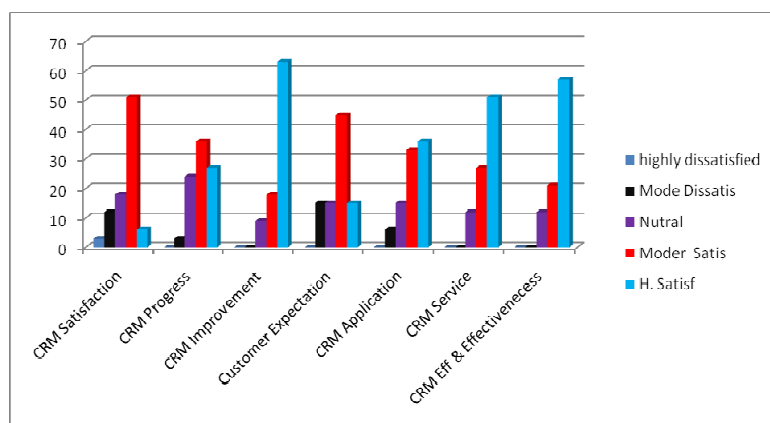


Figure 3 Respondents' Idea on CRM Application

5 Discussion

The issue of CRM and customer service is vital in the bank environment as customer expectations increase. The behavior of customer relationship management (CRM) is to seek and create closer relationships and interactions between a business and its most important customers. Close relationship with customers will require a strong coordination between IT and marketing departments to provide a long-term retention of selected customers. This study clearly show the role of Customer Relationship Management in banking sector and the need for Customer Relationship Management to increase customer value by using some analytical methods in CRM applications. This requires organization in developing environments to pay attention to the issues of customer needs and differentiation in order to build long term customer relationships.

Also it is so important to evaluate the key success factors in the managerial implications of these findings include a commitment to the implementation of CRM within the organization as well as a commitment to the provision of excellent customer service in order to affect the relationship building and the implementation of CRM. CRM helps companies understand and improve the customer service of personnel in order to ensure that the objectives of the CRM strategy are attained.

Specific measures that can be considered as significant business benefits which accrue from an effective, integrated Customer Relationship Management approach. These include:

1) Customer service levels are critical in establishing and developing relationships. Management need to examine existing processes and methods in which service is offered, and where necessary make changes which can improve the service for customers.

2) Continuous interaction with the customers are necessary in order continue with relationship building activities over the long term. This may require new methods and techniques in communication such as the use of email, SMS and other technological communication devises.

3) Training with respect to customer service and improvement in the service levels offered by staff. This is a key area in the development of long term customer relationships.

4) In any implementation, it is necessary to identify, differentiate and then interact with customers in order to provide customized service. This requires that management have the ability to identify customers who are important to the organization and then be able to ensure that their needs are different. This will enable them to communicate more appropriately with the customer.

Generally speaking, when we summarize the general data we can find that the majority CBE customers are satisfied with the service. And hence the basic ideas of the following figure 4 take as a finding of the research (See Figure 4 below)

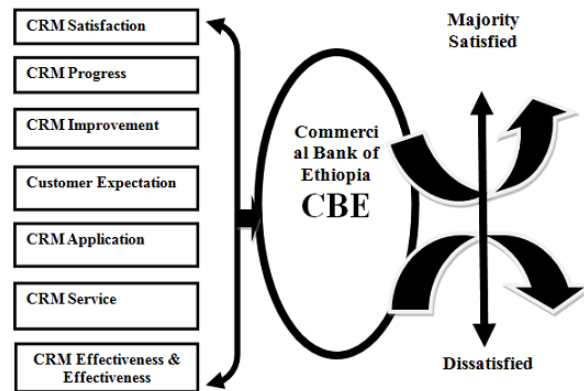


Figure 4 Findings of the Research

6 Conclusion

This paper was undertaken to explore the Commercial Bank of Ethiopia clients' satisfaction with the CRM system. It imposes the specific objectives of applying the behavior of customer relationship management (CRM), which seeks to create closer relationships and interactions between a business and its most important customers.

The study result shows the role of Customer Relationship Management on both the Commercial Bank of Ethiopia and its most important customers. From the Commercial Bank of Ethiopia side since the bank is trying to modernize its core banking system and expand its services, the CRM can strengthen the performance of the business and can increase customer value by using some analytical methods in CRM applications. For the customer it will create closer relationships and interactions between a business and its users. In the ever growing development of information technology today, CRM is widely applied in different fields, such as finance, correspondence, and transportation, etc.

Finally from the above facts we can conclude that Commercial Bank of Ethiopia needs to realize and understand the importance of CRM. It has a value and broader in term. There is no doubt that customer's interaction and satisfaction, convenience, speed of processing transactions and trust are the vital aspects that needs to be given attention. There might be different and various dimensions of CRM, but the bank need to concentrate on the CRM which is important and helpful. By using CRM system and the different benefits provided by it, CBE can enhance its relationships with customers.

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Research on the Evaluation System of Enterprise Management Factors Mobility Based on Foreign Direct Investment*

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Abstract: Foreign Direct Investment is regarded as the main channel of transferring technology and capital and other enterprise management factors as well as the primary way of allocating the multinational resources. However, the characteristic and environment of factors demine the strength of mobility of the enterprise management factors mobility. On the basis of the definition of enterprise management factors, this paper analyzes the factors of influencing on enterprise management factors mobility from internal characteristic and external environment, constructs the evaluation index systems of technology, labor force and capital of three kinds of enterprise management factors. Finally, this paper proposes the counter-measures for multinational firms to cultivate competitive advantages to invest outside.

Key words: Enterprise management factors mobility; Foreign direct investment; Evaluation system

1 Introduction

With the development of globalization and international division, the internal and external surroundings that enterprises faced are changing. However, Foreign Direct Investment changed traditional flow mode of factors. With the improvement of economic globalization, the mode of international division gradually transfer from inter-industrial division to factor division, including capital, technology, labor force, management and information with increasing expanding scale. As the micro subject of taking part in the international division of enterprises, enterprise management factors contain resources such as capital, labor force and technology, that the enterprises could use and is the spring of competitive advantage and core competitiveness. There are three methods to participate in international management. First, export as the final commodity is the main way of enterprise management factors mobility. Second, transfer is the other way of enterprise management factors mobility, such as the intellectual property transfer. Third, FDI is one way of enterprise management factors mobility. Blonigen(2005) considered that the enterprises could choose FDI but not export and license trade to join in the foreign market because of realizing the biggest utility with technology and management experience by FDI. At present, owing to the reemergence of trade protect, FDI gradually become the primary method of multinational management to avoid trade confliction, so enterprise management factors mobility based on FDI is becoming the main way of multinational allocation of enterprise management factors. The enterprises realize international division and optimize allocation of production factors and resources by multinational investment management and gradually reach equilibrium state with factor endowments. Therefore, enterprise management factors mobility is the important trend for the economic development all over the world, and FDI is the main channel of enterprise management factors mobility.

2 The Theoretical Knowledge of Enterprise Management Factors

Production factor is the micro research object in the traditional theory of trade division and also the central factors of enterprise management factors. With the economic development, the scope of production factor becomes extensive, including land, capital, labor force, technology, management experience, information, institution and other natural resources (e.g. mineral resources and forest). The difference of the mobility capability of land is unmovable which depend on the congenital conditions. The mobility capability of capital is affected by the economic, political, cultural factors. The difference of the mobility capability of labor force is measured by the number of labor and labor quality. The factors of technology, management experience and information is the necessary condition for realizing improvement in many developing countries.

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Therefore, the factor of land is regarded as unmovable and fixed factors because of mobility difficulty all over the world, while the factor of capital is mobile with multinational risks. The traditional theory of trade division is on the basis that all factors are unmovable, so enterprise management factors mobility is replaced by suboptimal product flow to realize the relative equality of factor prices in different countries with different factor endowment.

At the early stage of capitalism, enterprise management factors mainly contain labor force, capital, and other things. The enterprises could operate if they own the required talents, operation capital, equipment, plant and raw materials and so on. According to the view of Smith (1776), labor force, capital and land constitute the factors. With the scale expansion of the enterprises, management experience is increasingly important for enterprises and becomes the fourth factor. Following, information is regarded as the fifth factor with the development of information economy. With the integration of world economy and development of globalization, the activity of participating in international economy division for enterprises becomes increasingly frequent. As the subject of multinational operation, enterprises have to face international environment and factors of impacting allocating enterprise management factors. With the increasingly apparent role of knowledge economy and information technology, the impacts of knowledge economy factors become very important (Zhang, 2002). So the impact of materialized capital on economy regularly decrease and the impact of human capital on economy rise (Niu, 2006).

According to the Figure 1, the composition of enterprise management factors mainly base on three main lines which are materialized capital, human capital and capital as follows. (1) Natural resources often are based on land, such as forests, mineral resources, energy, etc. With the development of production, the demining impact of natural resources decline compared with the factors of labor force and capital. (2) Human capital mainly contains labor force. Taking labor force as carrier, the factors of skill, management experience, and information and so on realize multinational mobility. (3) When the mobility of labor force face obstacles, the factor of capital mobility would replace the labor force and allocate the money all over the world.

Above all, enterprise management factors are the constituent parts of constituting an organic whole of enterprise which the managers use the production factors obtain economic benefit with adynamic process. Therefore, enterprise management factors are the necessary things to guarantee production of goods and exchange activities which contain labor force, capital, equipment, plant, information, skill, management experience, knowledge, property, etc.

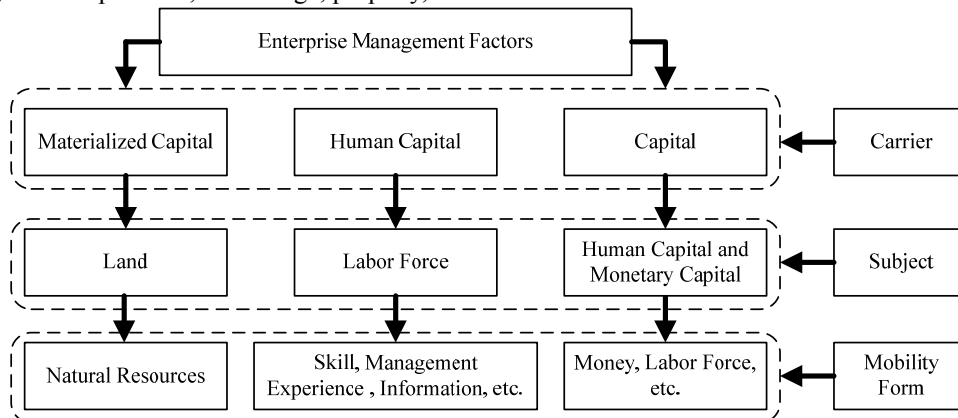


Figure 1 The Structure Chart of Enterprise Management Factors

3 Evaluation Index Systems of Enterprise Management Factors Mobility

The enterprise management factors mobility include mobility of capital, exchange of skill, the introduction of labor force, share of management experience and communication of information, etc.. To evaluate enterprise management factors mobility, this paper analyzes this problem from the nature of the factors and the macroenvironment of factors allocation. Specifically, the nature of factors determines the enterprise management factors mobility, while the macro environment of factors allocation creates the conditions for enterprise management factors mobility.

3.1 Nature of the factors

Considering the characteristic of factors, the enterprise management factors mobility is connected with factor endowment, nature of factors and the mobility cost.

Table 1 The Influence Aspects of Enterprise Management Factors Mobility

Influence aspects of Factors Mobility		Motivation of Factors Mobility	Characteristics of Factors Mobility
Factor Endowment	Degree of Abundance / Scarcity	Profit-driven Multinational Enterprise Manager	The direct of factors mobility is from countries with abundant factors to countries with scarce factor
Nature of Factors	Homogeny/Neterogeny		The flow level of factors with homogeneity is higher
	General / Special		The flow level of factors with universality is higher.
Cost of Factors Mobility	Costof Transportation/ Migration		The transportation cost is proportional to mobility of factors

According to the Table 1, the factor endowment means the factor quantity owned by a region or country which affects the price of factors, while the price of factors demines the FDI of enterprises. Enterprise management factors mobility follows the relative rule that the factors transfer from the abundant regions to the regions with relatively scarce factors. In the international investment activities, the developed countries have the monopoly advantages in technology, capital, management experiences and other factors. Owing to this, the factors of technology, capital transfer management experiences and other factors are transferred by FDI from the developed countries to the developing country. The home countries realize the improvements on technology transfer and technology diffusion by technology spillover effect (Blomstrom, 2001).

3.2 Macro environment of factors allocation

The enterprise management factors mobility is determined by two aspects of factor owners (multinational company) and the factor receivers as well as affected by the allocation environment. To evaluate accurately the relationship between allocation environment and enterprise management factors, we construct the evaluation index system of the impact of allocation environment on the enterprise management factors mobility and introduce the transfer of factors of capital, labor force and technology by the model of FDI.

3.2.1 Discussing about technology factors mobility

According to the Table 2, under the international investment environment, the level of technology factors mobility is mainly connected with technology transfer capacity and technology absorption capacity which are measured by the sum of FDI technology spillover of GDP.

Table 2 The Evaluation Index System of the Influence of Environment on Technology Factors Mobility

The First Grade Index	Measuring Method	The Second Grade Index	The Third Grade Index
Mobility Level of Technology Factor(Including Knowledge/Management Experience/Information)	Sum of Technology Spillover /GDP(Gross Domestic Product)	Capability of Technology Transfer	Sum of Inward FDI
			Turnover of Technology Market
			Average Technology Transfer Funds for Enterprises
		Capability of Technology Absorption	People of R&D Organization
			Spend of R&D Organization
			People of Technology Developers in Large and Medium Enterprises Expenditureof Technology Development in Large and Medium Enterprises

3.2.2 Discussing about labor force factors mobility

Seen from the Table 3, the labor force factors mobility is connected with the macro and micro environment of host countries, which is measured by the sum of foreign labor cooperation and foreign contract projects of GDP.

Table 3 The Evaluation Index System of the Influence of Environment on Labor Force Factors Mobility

The First Grade Index	Measuring Method	The Second Grade Index	The Third Grade Index
Mobility Level of Labor Force Factor	(Foreign Labor Cooperation+ Foreign Contract Projects) / GDP(Gross Domestic Product)	Macro Environment	Engel Coefficient
			Proportion of Higher Education
			Employment Population
			GDP

		Micro Environment	Average Income
			Living Space Per Capita
			Medical Institutions Per Capita
			Bus Number Per Capita
			Public Green Area Per Capita

3.2.2 Discussing about capital factors mobility

As it is seen from the Table 4, the mobility level of capital factor is connected with the economic condition, infrastructure condition and institutional condition, which is measured by the ratio of actual utilized FDI in GDP.

Table 4 The Evaluation Index System of the Influence of Environment on the Capital Factors Mobility

The First Grade Index	Measuring Method	The Second Grade Index	The Third Grade Index
Mobility Level of Capital Factor	Actual Utilized FDI / GDP	Economic Condition	Foreign Capital Flow / GDP
			Consumer Price Index
			Volume of Transport
		Infrastructure Condition	Road Area Per Capita
			Electricity Consumption Per Capita
			Forest Coverage Rate
		Institutional Condition	Economic Freedom Index
			Investment Safety Index
			Governance Index

4 Conclusions

It is an important part for international management to fasten the speed of FDI and optimize the multinational allocation of enterprise management factors in order to realize the equal of FDI for China. Based on the research before, this paper constructs the evaluation index system from the factors of technology, labor force and capital to benefit evaluate the mobility level of factors and cultivate advantageous factors for multinational enterprises.

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Research on Relationship Between Corporate Governance and Financial Performance of Port Listed Companies

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Abstract: This paper takes 17 port listed corporations in China as sample, and adopts typical correlation analysis theory to carry out canonical correlation analysis of corporate governance and financial performance of port listed corporation. It reflects corporate governance from three aspects by eight variables including shareholding structure, board structure and executive incentive. It reflects corporate performance from four aspects by eight variables including the profitability, solvency, operation ability and growth ability. The conclusions indicate that ownership concentration, proportion of independent directors and the number of board meeting have significant effects on corporate performance.

Key words: Corporate Governance; Financial Performance; Port Listed Corporation

1 Introduction

The port is a transportation hub and international logistics node, which is an important pillar of comprehensive economic and social services industries. It creates national income, and leads to development of construction industry, raw material industry and heavy machinery. What's more, it spurs development of communications, telecommunications, finance, catering and other third industries. The port plays a joint role in the development of the whole national economy. Nowadays, the state-owned port operation companies of our country manage main ports, which start very early. They have gradually begun to enter the capital market and start corporate reform, which gradually implement standardized corporate operation mode. Most ports have publicly listed company, whose development of business is rapid and achievements are remarkable. However, although the modern enterprise system has gradually promoted and run in port listed corporations in our country, it lacks enough awareness to the particularity of corporate governance. Many contradictions gradually appear in the corporate governance mechanism, but the specialty of their corporate governance has not attracted enough focus. Lots of problems begin to appear in corporate governance mechanism and the performance problem that is closely related has caused increasing attention by people.

As huge nation in the world's maritime, there is a distance from maritime powerful nation for China. To achieve this goal, development of port enterprises is needed. In the global port industry that is increasingly fierce competition, how to combine the internal system reform and statistical methodology to analyze relationship between corporate governance and financial performance has the practical research significance.

2 Literature Review

There are many researches on relationship between corporate governance and performance, some scholars combine all aspects of the internal governance structure integrated into a single variable, trying to exam the comprehensive influence corporate governance on corporate performance. (Wang Geyang, Zhang Zhongyi, Song Zengji, 2013)^[1]. Newell & Wilson^[2] (2002) found that compared to the worst, the best level of corporate governance led the enterprise value's increase in 10% to 12%. Corporate Governance Research Center of Nankai University^[3] (2006) created China Corporate Governance Evaluation Index (CCGI^{NK}) and so on. Most scholars focused on a specific aspect of corporate governance (Xia Heping, Zhao Xiliang and Yuan Guanghua, 2006)^[4], such as the relationship between ownership structure and performance (Demstetz & Lehn, 1985; Klaus, 2004; Lin Lefang, 2005); the relationship between structure and performance of the board of directors (which can be divided into board size and performance (Raheja, 2001; Kusnadi, 2003); the relationship between independent directors and performance relationship (Brickley, 1994; Allen & Ernie, 2005); the relationship between the independent directors proportion relationship with performance (William, 1999; Wu Shukun, 1998); relationship between executive compensation and performance (Crystal, 1991; Richard, 2002; Xu Xiangyi, 2007) and relationship between Shareholding proportion layer manager relationship and performance (Jensen & Murphy, 1990). In recent years, more and more scholars integrated governance

and performance research firms such as Li Jiabing and Jiang Wei^[5](2011) set manufacturing companies as an example, choose the concentration of ownership of state-owned shares and legal person shares stake equity ratio to reflect the ownership structure, and discuss relationship between ownership structure and firm performance. Yang Zipeng^[6](2014) has studied on the effect of equity institutions of enterprise performance through combined foreign literature and summed up financial analysis with share price movements. He sets the financial performance, debt paying ability and development capacity as the dependent variables and the paper sets the ownership concentration and equity balance degree as independent variables.

Research on port corporations related to corporate governance is rare. Zhang Xueping^[7](2010) has set ownership concentration and equity balance degree as independent variables, return on equity and Z-score as dependent variable, in order to study the relationship between ownership structure and performance of listed port industry companies. Li Guangqin^[8](2014) uses principal component analysis to measure the performance of port listed companies, it comes out with five indexes that is profitability, debt paying ability, operating income growth ability, operation ability and asset growth ability. Li also set the five indexes as the dependent variable, ownership structure, the board of directors, manager's incentive as independent variable to study the relationship between governance structure and performance.

It can be seen that corporate governance took the wide attention of scholars both at home and abroad. Its research is also wide and the study on its theory and related empirical has been relatively mature. However, research on corporate governance and financial performance of port listed companies is not much.

3 Research Method and Variable Selection

3.1 Canonical correlation analysis theory

Canonical correlation analysis is put forward by the Hotelling in 1936. Based on the characteristics of multiple correlation coefficients, linear combination of the two sets of the original variables can be shown as following:

$$\begin{cases} \mu = a_1x_1 + a_2x_2 + \dots + a_mx_m \\ \nu = b_1y_1 + b_2y_2 + \dots + b_ny_n \end{cases} \quad (1)$$

And then it studies the correlation coefficient $p(\mu, \nu)$ of the new variables. Because there are several ways of linear combination, so it's needed to find a set of linear combination that makes the correlation coefficient maximum. So the correlation coefficient of the maximum that is also called two sets of variable canonical correlation coefficient reflects the correlation between variables. Such a set of new variable linear combination is called a pair of canonical variables. If the number of the two groups' original variables is too much, it's needed to calculate some of the canonical variables completely to express the correlation of two groups of variables, which reflects all the information between the original variables. Then, it's needed to look for a pair of linear combination of the correlation coefficient that is the maximum linear combination in two groups that variables are not related with μ_1, ν_1 . It is the second pairs of canonical variables that satisfy the condition: $p(\mu_1, \mu_2)=0$, $p(\nu_1, \nu_2)=0$. And $p(\nu_1, \nu_2)=0$ is the second canonical correlation coefficient. And so on, it's needed to calculate some of the typical variables and correlation coefficient so as to achieve the purpose of analysis of correlation between two sets of variables under complete information. The essence of difference between canonical correlation analysis and simple correlation analysis is that the former selects some representative indexes in the two groups of random variables and uses the correlation coefficient for these new indicators to reflect the correlation between the original variables. The advantage of this approach has two parts. On the one hand, it can simplify the variables reasonably. On the other hand, if the correlation coefficient is large enough, it can use a set of values to calculate the other set variables linear combination to achieve the purpose of prediction.

3.2 Variable selection

Based on research results of scholars, this paper selects eight variables of the ownership structure, board structure and executive incentive to reflect corporate governance. Specific variables are proportion of state-owned shares (X_1), proportion of the first shareholder(X_2), ownership concentration (ratio of top five shareholders' holding shares of the total number of shares, X_3) and equity balance degree (X_4) that reflects the ownership structure. Specific variables include total number of directors(X_5),

proportion of independent directors (ratio of independent directors' total number of the board of directors, X_6), and number of board meeting (X_7) that reflect the board structure. And it also includes executive compensation (average value of the top three executive salaries, X_8) that reflects executive incentive. It selects corporate performance from four aspects and eight variables including the profitability, solvency, operation ability and growth ability. Specific variables select ROA (Y_1) and ROE (Y_2) that reflect the profitability, liquidity ratio (Y_3) and cash ratio (Y_4) that reflect solvency. It also selects turnover of total capital (Y_5) and turnover of fixed assets (Y_6) that reflect operation ability, total assets growth rate (relative growth rate of total assets at the beginning of the year, Y_7), and growth rate of net assets per share (relative growth rate of annual net assets per share, Y_8) that reflects growth ability.

4 Empirical Analysis

4.1 Sample selection

The paper selects samples are listed company from Wind database statistics seaport and services sector. It eliminates the Bohai Sea Ferry, Henderson Daxin, Bonded Technology and Deep Base B that are not port logistics trade as the main business. Because Chiwan Port and Jinzhou Port are divided into two listed Corporation in A and B stock market, A share of them are chose as samples. Finally, it selects 17 port listed companies. The statistical data of 16 variables are from Wind database statistics and company annual reports in 2013. And some date is calculated for statistics.

4.2 Canonical correlation coefficient and test

Based on statistical analysis date, it uses SPSS19.0 software to study canonical correlation analysis. When statistical date is negative, it draws typical correlation coefficient with 0 instead in the analysis process. According to the statistical results, it's known that if internal correlation coefficient of the corporate governance variables is small, there is no correlation between variables. However, correlation coefficient of X_3 and X_7 is equal to -0.7326. The internal variables' correlation coefficient of performance of the company is generally small, but the correlation coefficient of Y_3 and Y_4 is large and is equal to 0.9773. From the direct relationship between corporate governance and performance view, correlation coefficient of X_3 and Y_7 is equal to 0.4494, correlation coefficient of X_3 and Y_1 is equal to 0.4059.

From canonical correlation coefficient, it's known that the first canonical correlation coefficient is 0.989, the second canonical correlation coefficient is 0.982, and the third canonical correlation coefficient is 0.958. This suggests that there is a strong typical correlation between the port governance and corporate performance of listed corporation. Compared with the simple correlation analysis, its effect is better. According to the principle of multivariate analysis of variance, this paper adopts the test method of Wilk's test the canonical correlation coefficient. The table 1 shows p value of the first canonical correlation coefficient in Wilk's test is 0.047, which suggests that it passes the test under 0.05 significant level. And several other typical correlation coefficients don't pass the test under 0.05 significant level. According to the canonical correlation coefficient and test results, it can extract a typical variable μ_1 and ν_1 to reasonably explain the correlation between two sets of variables between corporation governance and performance variables of port listed companies.

Table 1 Canonical Correlation Coefficient and Test

No.	Canonical Correlation Coefficient	Wilk's	Chi-SQ	DF	Sig.
1	0.989	0.000	84.078	64	0.047
2	0.982	0.001	55.715	49	0.237
3	0.958	0.017	30.713	36	0.718
4	0.784	0.202	12.011	25	0.986
5	0.514	0.524	4.847	16	0.996
6	0.501	0.712	2.551	9	0.979
7	0.212	0.950	0.384	4	0.984
8	0.072	0.995	0.039	1	0.844

4.3 Canonical Structure analysis

Canonical structure analysis refers to measure relativity of each original and canonical variables by calculating canonical loading. And if absolute value of loading is greater, it suggests the importance of original variables for canonical explanation will be stronger. And cross loading is the correlation coefficient between the canonical variable and another original variable. Canonical structure analysis of μ_1 and ν_1 is as shown in table 2.

Table 2 Canonical Structure Analysis of μ_1 and ν_1

Corporate Governance Variables	Canonical Loadings μ_1	Cross Loadings ν_1	Corporate Performance Variables	Canonical Loadings ν_1	Cross Loadings μ_1
X ₁	0.267	0.264	Y ₁	0.337	0.333
X ₂	0.234	0.231	Y ₂	0.353	0.349
X ₃	0.804	0.795	Y ₃	-0.194	-0.192
X ₄	0.102	0.101	Y ₄	-0.095	-0.094
X ₅	-0.123	-0.122	Y ₅	0.039	0.039
X ₆	-0.566	-0.559	Y ₆	0.063	0.063
X ₇	-0.573	-0.567	Y ₇	-0.566	-0.559
X ₈	0.114	0.113	Y ₈	0.252	0.249

As it can be seen from table 2, incanonical variables μ_1 , corporate governance variables X₃ (equity concentration), X₆ (proportion of independent directors) and X₇ (number of board meeting) have a large loadings compared to other variables, which shows that in the influence of corporate governance variables, equity concentration, proportion of independent directors and number of board meeting are very important. The increase of equity concentration not only has no bad effects on corporate governance efficiency, but also raises its efficiency, which is different from the research object of the industry. Bank industry belongs to the capital-intensive industries, low ownership concentration helps to reduce risk, and port industry belongs to the combination of capital and labor type, the appropriate promotion equity concentration helps to strengthen the company's management and operation. At the same time, the average number of independent directors in listed companies in the port industry is 4, and number of board meeting is about 7 times. It can get in the way of decision-making efficiency and effectiveness, but the proportion of independent directors is more than one third, which has a certain influence in the company decision-making. X₈ has the loading of 0.114, which may be associated with executive compensation statistics. Because the data provided by the port listed companies is not comprehensive, the paper takes the average statistics for the first three executive salaries, and part of the listed companies. With the mixed ownership reforming, port industry introduces private capital, equity absorption flow, reduces state-owned shares and state-owned legal person share proportion, and promotes equity concentration, which is helpful for improving corporate governance efficiency.

In canonical variables ν_1 , Y₇, Y₁ and Y₂ have larger loading compared with other variables. This shows the X₃, X₆ and X₇ have a close relationship with Y₇, Y₁ and Y₂. Equity concentration, proportion of independent directors and number of director meeting on behalf of corporate governance of port listed companies have effect on the financial performance, which is mainly manifested in total asset growth rate, return on total assets and return on equity. At the same time, loadings of current ratio, cash ratio, total asset turnover and fixed asset turnover are not large, that reflects financial performance of company debt paying ability, operation ability. Relationship between corporate governance is not tight, and it reflects the company's assets operation and management efficiency.

It can be seen from cross loading of X₃, X₆ and X₇ for canonical variable has a strong ability of explaining ν_1 , the loading is 0.795, -0.559 and -0.567. It illustrates that the three indicators have great influence on financial performance of port listed companies. Therefore, in order to promote port listed companies' performance, ownership concentration should be adjusted, and proportion of independent directors should be changed. What's more, companies should take appropriate measures to reduce number of board meetings, etc.

5 Conclusion

(1) In the corporate governance of port listed companies, the relationship among ownership concentration, independent director proportion, the convening times of director conference and financial performance is comparatively close. Therefore, in the daily supervision and management process, it needs to strengthen the management of these three indicators. In addition, it needs to adjust the size of the board and the proportion of state-held shares and state-owned corporate shares and to improve the

corporate governance structure and to strengthen the executive incentive constraint mechanism as well. Besides, promoting the reform of the corporate executive pay in comply with the national implementation of the reform of state-owned enterprises executive pay situation is useful. Meanwhile, corporate governance of port listed companies' impacts on financial performance mainly reflects total assets growth rate, rate of return on total assets and return on equity. These three aspects of management should be strengthened and attached more importance.

(2)The effect of ownership concentration on financial performance is more obvious. The effect of state-owned legal person share proportion and first big shareholder ownership on financial performance from is not significant. However, the vast majority of the first major shareholders of port listed companies will be state-owned shares and state-owned legal person share. Higher equity balance degree can promote financial performance. This suggests that the port listed companies can reduce the gap between large shareholders and other shareholders' share, so as to promote company risk control ability through promote equity balance degree. They can increase the ownership concentration through the introduction of large-scale private capital. This method can avoid the adverse effects that the dispersed ownership, state-owned shares and state-owned legal person.

(3)The impact of board governance on the company is mainly embodied in the two indicators that are proportion of independent directors and number of board meeting. The two indicators will bring some negative impact on financial performance. The negative impact may be embodied in that the number of board is too much, the structure of independent directors is unreasonable and decision-making is inefficient caused by that the board of directors held frequently and so on. It needs to strengthen the professional knowledge and to restructure proportion of the independent members of the board. Meanwhile, it needs to reduce the number of meetings and to promote business decision efficiency and implementation capacity.

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Financing Constraint, Financial Development and the Growth of Eco-Industry

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Abstract: This paper selects quarterly data from 2012 to 2014 of listed companies in eco-industry and utilizes industrial financing constraint index to measure the current level of financing constraints for eco-industry. Then we make an empirical analysis of financial development and the mitigation effect of financing constraints that eco-industry is facing panel quantile regression. Empirical results show that most eco-industries are facing financing constraints. The banking system and the development of new financial dominated by venture capital can effectively alleviate the financial constraints of eco-industries, and the larger scope of development, the stronger this effect. Financial market has limited function to alleviate the financing constraint of eco-industry.

Key words: Financing constraint; Financial development; Eco-industry; Quantile regression

1 Introduction

The development of eco-industry needs much investment to R&D. Since the high-tech middle-small size enterprises dominate the eco-industry, they cannot provide enough investment to R&D, so the important status of financial supporting development of eco-industry is beyond all doubt.

Currently China has formed the indirect financing system dominated by the banking system and direct financing system dominated by security market, the financial system of supporting eco-industry is almost consummated. However, this system is forming in the transacting from the planned economy to market economy leading by government, and the government has achieved the great revenue of financial surplus and financial control in this transaction, which restricts the financial development due to lack of institutional elasticity. Which makes when the financial system distributes the resource, they discriminate the enterprises by the ownership and size. Therefore, eco-industry dominated by private-owned inventive enterprises still face serve constraint of financing.

Modern finance theory proposes that financial development is benefit for mitigating the constraint of industrial development. Now, Chinese government gradually assumes some measure to mitigate the constraint in the finance department, facilitate the financial supporting development of the real economy. Therefore, this paper focuses on the topic of eco-industry, researches the mitigating effect and its path of financing constraint of eco-industry from Chinese financial development, and provides some benefit reference for rational distribution of financial resource to support the eco-industry.

2 The Measure of Financing Constraint of Eco-Industry

2.1 Measure financing constraint

Traditional measure of financing constraint mainly includes KZ index and WW index. These indexes are all base on data of enterprise level, if we want to measure financing constraint of eco-industry, we would need the indicator to measure level of industries. Using the two-steps method by Hovakimian, (2009), firstly, we estimate the function as below:

$$(I / K)_{it} = f(\text{control} - \text{variables}) + \tau_i + \tau_t + e_{it} \quad (1)$$

I denotes investment; K denotes net value of fixed capital in function (1). The second step is to select control and after estimation of function (1), using estimating residual computes the function below:

$$cfs = \sum_{t=1}^n \left[\frac{(CF / K)_{it}}{\sum_{t=1}^n (CF / K)_{it}} \bullet e_{it} \right] - \frac{1}{n} \sum_{t=1}^n e_{it} \quad (2)$$

The function (2) is the two dimension index based on enterprise and period. Selected enterprises belong to the same industries and the same period, the cfs denotes the financing constraint of this industry.

2.2 Sampling of eco-industry

This paper selects the listed companies as the sample as well as the most papers done. Referring to the practice by Zhao Yulin and Shi Zhangming(2014), this paper selects out 480 companies from Shanghai and Shenzheng security market, strikes out the ST companies and the uncompleted data companies, left 403 listed companies totally.

2.3 The selection of variables and data source

When we select the control variables in function (1), variables such as leverage rate, tangible asset percentage and finance degrees of freedom which are included in KW index and WW index should be chosen. Eventually, considering China’s capital market’s imperfection, this paper selects five variables: finance leverage, enterprise size (natural logarithm of total assets), and tangible asset rate (the percentage of fixed asset to total asset), finance degree of freedom (cash and cash equivalent in statement of cash flows), estimation function (1) about increasing rate of operation income. Investment I selects from “purchasing fixed asset, intangible asset and other cash of purchasing long-run asset in the statement of cash flows”. All the data are collected from CSMAR database and WIND database.

2.4 Analysis of financing constraint of eco-industry

We select quarterly data about listed companies from 2011q3 to 2014q3 to estimate. The result is pooled in the table 1 as below. We can see these sub-industries in eco-industry face the high financing constraint, especially industry of energy saving and environment protection and new energy, the index of financing constraint is around 0.35 averagely. The new energy automobile is facing a medium financing constraint; the index of financing constraint is around 0.17 averagely. And the bio-medicine industry and new materials industry have a lower financing constraint; the index of financing constraint is around 0.05 averagely. Furthermore, the trend of fluctuation has a significant improvement except the industries of new energy. That is to say, the sub-industries in eco-industry are still facing a serve financing constraint.

Table 1 Pool of Financing Constraint of Sub-Industries in Eco-Industry

industry period	Bio-medicine	New material	energy saving and environment protection	new energy	new energy automobile
2011Q4	0.047913	-0.02758	2.114176	0.389539	0.396003
2012Q1	0.034417	-0.00356	0.76871	-0.01826	0.12946
2012Q2	0.052441	-0.01303	0.748161	0.08469	0.406509
2012Q3	0.081397	-0.03721	0.063302	0.049432	0.521336
2012Q4	0.044812	-0.06372	0.026263	0.087572	0.423111
2013Q1	0.014633	-0.01125	0.010424	-0.00464	0.072431
2013Q2	0.025856	-0.01505	0.045114	0.05241	-0.03746
2013Q3	0.036683	0.019541	0.043851	0.125147	-0.03203
2013Q4	0.07569	0.008717	0.010277	0.311382	-0.02763
2014Q1	0.019716	0.044188	-0.00536	1.06064	-0.06591
2014Q2	0.075361	0.096297	0.347109	1.467111	0.067973
2014Q3	0.096084	0.306821	0.441092	0.535069	0.162965
average	0.050417	0.025347	0.384427	0.345008	0.168063

3 The Empirical Analysis

3.1 Modeling

Referring the common practice, this paper establishes the empirical model of mitigation effect of finance development facilitating the eco-industry:

$$Asset_{it} = \alpha_0 + \alpha_1 cfs_{it} + \alpha_2 cfs_{it} * FD_t + u_{it} \tag{3}$$

$Asset_{it}$ denotes the size of total asset of i industry at t time, cfs_{it} denotes constraint index of financing of i industry at t time, FD_t denotes the level of finance development at t time. If the sign of expected mutual term is positive, the finance development can facilitate the development of eco-industry via mitigation of constraint of financing.

3.2 Variables selecting and data source

Function (3) needs three variables including total asset, financing constraint of industry and financial development. The total asset of eco-industry is demonstrated by the total asset of classified listed companies. The financing constraint is illustrated by the cfs showing in the table 2, the crucial point is how to select the indicator of finance development, FD.

Current China has formed the system of indirect financing dominated by banks and direct financing dominated by security market. And venture capital has become an important path which can offset the disadvantages of traditional financial system in the latest years. Therefore, this paper measures the China's financial development from three aspects: size of system of finance market and size of venture capital. The data of bank system and finance market system is collected from CCER database, and new finance dominated by venture capital is collected from monthly report by Qingke data.

3.3 The empirical analysis based on panel quantile regression

This paper selects panel quantile regression to estimate function (3). Since the OSL estimation can only measure the conditional expected of explained variable by explaining variables, whereas the panel quantile regression can carve the marginal effect of explained variable from explaining variables. The financial system in China is at the period of rapidly adjusting. Measuring the marginal effect of financial fluctuation makes more sense than average effect for the policy direction. We select five representative quantile points including 10th, 25th, 50th, 75th and 90th percentile and then use the R language to make regression. The variable of financial development, FD, in the function (3) successively use scope development of bank system, FD1, scope development of finance market, FD2, development of new finance dominated by venture capital, FD3. The results are reported in the table 2-4.

First in table 2, the estimator of cfs is significant under 1% significant level, which demonstrates that the development of eco-industry has serve constraint of financing. And the sign of mutual term, cfs * FD1, is positive under 10% significant level, which demonstrates that the scope development of bank has mitigation effect of financing constraint of eco-industry. Further investigating the parameter of mutual term, cfs * FD1, at different quantile point, as the increasing the quantile point, the parameters illustrate an asymmetry shape like "U", which demonstrates that there are less and less financing constraint coming from the financing institutes like bank as the development of eco-industry and the expanding of size of total asset.

Next in table 3, the parameter of cfs is significant under 10% significant level at every quantile point, which demonstrates that financing constraint limits the development of eco-industry as well. And the mutual term, cfs * FD2, is significant under 10% significant level at the 25th percentile and 90th percentile, whereas the other three quantile point is not significant, which demonstrates that current development of scope of finance market can mitigate the financing constraint of eco-industry at some degree.

Thirdly the cfs in table 4 is significant under 1% significant level, which illustrates the constraint effect of eco-industry furthermore. And the parameter of mutual term, cfs * FD3, is significant under 10% significant level except the 50th percentile, the regression parameters of every quantile points have the characteristic that the parameters are improving with the quantile point increasing. And these evidence illustrates venture capital has the mitigation effect though, the effect's condition is the industries' size.

Table 2 The Result of Regression of Panel Quantile about the Mitigation Effect of Financing Constraint of Eco-Industry from Scope Development of Bank

	10%	25%	50%	75%	90%
cfs	-0.112*** (0.025)	-0.095*** (0.031)	-0.160*** (0.036)	-0.168*** (0.029)	-0.195*** (0.063)
cfs * FD1	0.350*** (0.089)	0.301** (0.114)	0.223*** (0.071)	0.558* (0.252)	0.568*** (0.133)
cons	0.051 (0.037)	0.033 (0.094)	0.028 (0.071)	0.034 (0.063)	0.046 (0.082)
Residual	-0.050	-0.269	-0.008	-0.042	0.017
R2	0.621	0.606	0.786	0.639	0.923

Hint: ***, **, * denote the significant level of 1%, 5%, 10% respectively, the standard derivation of parameter estimation in the bracket is by the Bootstrap 1000 times. The following tables are as well as this meaning.

Table 3 The Result of Regression of Panel Quantile about the Mitigation Effect of Financing Constraint of Eco-Industry from Scope Development of Finance Market

	10%	25%	50%	75%	90%
cfs	-0.143*	-0.219***	-0.182***	-0.218***	-0.190***
	(0.074)	(0.050)	(0.042)	(0.039)	(0.047)
cfs * FD2	0.051	0.121*	0.135	0.141	0.263***
	(0.065)	(0.057)	(0.291)	(0.123)	(0.069)
cons	0.039*	0.021	0.056	0.012	0.023
	(0.017)	(0.013)	(0.042)	(0.033)	(0.061)
Residual	0.070	-0.018	-0.066	0.051	0.134
R2	0.671	0.519	0.682	0.713	0.895

Table 4 The Result of Regression of Panel Quantile about the Mitigation Effect of Financing Constraint of Eco-Industry from Scope Development of New Finance

	10%	25%	50%	75%	90%
cfs	-0.183***	-0.189***	-0.221***	-0.237***	-0.294***
	(0.015)	(0.012)	(0.012)	(0.013)	(0.018)
cfs * FD3	0.086*	0.095***	0.124	0.185***	0.197***
	(0.044)	(0.018)	(0.077)	(0.023)	(0.059)
cons	0.010	0.024	0.053***	0.019*	0.103
	(0.012)	(0.015)	(0.015)	(0.010)	(0.043)
Residual	-0.033	-0.402	-0.094	2.359	0.269
R2	0.704	0.651	0.764	0.952	0.864

4 Conclusion

This paper measures the financing constraint currently faced by the eco-industry. Then we utilize the panel quantile regression, empirical analyze the mitigation effect of eco-industry from the financial development. The result demonstrates that the eco-industry still faces a serve constraint of financing; bank system and development of venture capital have the mitigation effect of eco-industry, and the scope development is bigger, the mitigation is more effective; and the development of finance market has limited effect to mitigate the constraint of financing of eco-industry.

Firstly, under the condition of financial structure dominated by the bank system, bank credit is still the main channel of financing of eco-industry. Bank system stiffing to put out the capital for the traditional industries, big-size enterprises will loss the long-run benefit of transaction of structure of economy, and is harmful for the distribution of reasonable allocation of asset, lower their system risk. Therefore, the bank should be encouraged to slant the credit to the eco-industry dominated by the inventive middle-small size enterprises.

Next, the marginal effect of mitigation of financing constraint of eco-industry from the scope development of financial market is less than bank system, which demonstrates that the facilitating effect of finance market to eco-industry is not significant in current China. Corporation Finance theory proposes that the inventive middle-small size enterprises lean to seek debt when they seek external capital considering the control right. But China's company debt and enterprise debt still have the defect of high threshold in first market and the low fluidity in second market; these defects limit the financing of eco-industry. And the share market established the middle-small board and startup board, which are benefit for expanding the channels of financing of eco-industry though, these channels not only have an extremely high threshold, but also exist the problems of whether or not unblocked at some time. Thus, it is crucial for eco-industry to qualify and develop the finance market.

Finally, the experience in the developed countries has demonstrated that, venture capital is the main channels of financing of eco-industry. Comparing with the developed countries, China's venture capital's effect is limited. One of the reasons is the imperfect of institution of quit of capital and protection of investors. After the success of venture capital, they usually use two solutions to quit, appearing on the board and transacting the share, but since the slow perform of institution of capital market, appearing on the board is the only solution, which cannot satisfy the demand of rapid

development. And there is a harsh deflect in the transition of share due to the measure of investment protection, and this deflect makes the venture investors face some asymmetry risk, and eventually, these investors fear the risk. Thus, the mechanism of quit and institution of investor protection is another significant measure to develop finance.

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Correlation Study of Independent Director's Compensation and Corporate Performance

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Abstract: With the steady progress of the independent director system in China, scholars and market participants are more and more interested in the topic of independent director's compensation. For independent director, the most important factor is independence. In other words, if one intends to take charge of the independent director of a company, he must ensure that he doesn't have any close interests relevance or conflicts with the company. Based on this premise, the compensation and allowance of the independent director can't be too high. Because when the independent director overly depends on the compensation, the independence cannot be guaranteed. But salary incentive is one of the most suitable mechanisms for the situation in China. With the focus of the correlation between independent director's compensation and corporate performance, this essay concludes the independent director system and the independent director's compensation system. The relevance between the independent director's compensation and corporate performance is found by establishing the regression model to conduct the empirical analysis, indicating that there is a significantly positive correlation between the corporate performance and independent director's compensation and some beneficial conclusions are proposed so as to provide relevant department with practical reference for policymaking. Finally we draw the conclusion that there is a significantly positive correlation between the corporate performance and independent director's compensation. Obviously, independent director's compensation incentive in our country still plays a vital role.

Key words: Independent director's compensation; Corporate performance; Incentive mechanism

1 Introduction

With the development of the independent director system in China, scholars and market participants begin to pay close attention to the construction of independent director system. The topic of independent director's compensation has attracted widespread attention. Predecessors' researches mainly focus on the structure of the independent director's compensation mechanism^[1]. However, fewer studies connect the independent director's compensation and corporate performance, thus the correlation between them remains to be explored.

2 The Situation of Independent Director's Compensation System

In foreign countries, independent director's compensation generally consists of two parts- including the allowance and transportation costs. Namely, the independent non-executive director in the board of directors is paid mainly by annual salary and conference fees in the form of payment^[2]. If the board of directors set a committee, the committee members' compensation will be concluded in the independent director's compensation. Besides, in recent years, stock option is also an alternative brought in the independent director's compensation payment, and the frequency of stock option appears in independent directors' salary is gradually increasing^[3].

In general, the independent director collect fixed allowance which counts from 3000 dollars to 5000 dollars from the board of director every year in America. Besides, every time the independent director joins the board of director or specialized committee meeting, the independent director can get extra allowance counts from 1000 dollars to 5000 dollars. Therefore, the independent director can get about 30 thousand dollars every year. In England, the independent director's compensation is decided by the law which stipulates that the independent director's compensation counts 5% to 10% of the director's salary. And in terms of research, different companies pay the independent director general low basic payment which counts about ten thousand pounds to fifteen thousand pounds, and only a few companies offers meeting allowance.

In China, independent director's compensation has five characteristics. Firstly, the overall level of compensation performs 'small at both ends and big in the middle'. Secondly, independent director's compensation is related to the corporate performance and industry status. Thirdly, some factors affect the level of independent director's compensation, such as social background and academic degree of

independent directors. Fourthly, independent directors are given a fixed compensation which is generally lower than internal director members'. Fifthly, the level of independent director's compensation is under the influence of the complexity and the risk of corporate governance^[4].

3 Model Building

3.1 Variable selection

In order to avoid one-sidedness, this paper uses Tobin's Q value as the dependent variable. The calculation formula is as follows:

$$\text{Tobin Q} = (\text{N} * \text{P} + \text{LIABILITY}) / \text{ASSET} \quad (1)$$

Of which, N refers to the company's total number of shares; P refers to the company's stock closing price at the end of one year; LIABILITY refers to the company's debt level; ASSET refers to the total assets of the company at the end of one year.

In this paper, the explanatory variable is independent director's compensation, denoted by FEE. The final results are expressed as million RMB.

The other controlled variables' selections are based on previous studies combined with the background of this paper, as shown in table 1.

Table 1 Controlled Variables' Definition

Variable	Symbol	Measuring method
Company Size	SIZE	Take the natural logarithm of total assets
Financial Leverage	LEV	The ratio of liabilities to assets, the ratio of liabilities to assets=Total Liabilities / Total Assets
Whether State-owned	TYPE	Dummy variables. If the controlling shareholder is state-owned it take 1, otherwise take 0
Concentration of Ownership	CO	Square of the top ten shareholders' proportion
Size of the Board	DI	The number of directors in companies' board

3.2 Establish the regression model

According to the research and variable definitions above, this paper establishes the regression model by using the following equation.

$$\text{Tobin Q}_t = \beta_0 + \beta_1 \text{FEE}_t + \beta_2 \text{SIZE}_t + \beta_3 \text{LEV}_t + \beta_4 \text{TYPE}_t + \beta_5 \text{CO}_t + \beta_6 \text{DI}_t + \varepsilon \quad (2)$$

$$\text{ROE} = \beta_0 + \beta_1 \text{FEE}_t + \beta_2 \text{SIZE}_t + \beta_3 \text{LEV}_t + \beta_4 \text{TYPE}_t + \beta_5 \text{CO}_t + \beta_6 \text{DI}_t + \varepsilon \quad (3)$$

3.3 The empirical test

3.3.1 Descriptive statistics

In table 2, there are the descriptive statistics results of major variables in the regression model. The preliminary understanding of the sample data can be possessed through the introduction..

Table 2 Descriptive Statistics of Some Major Variables in Regression Models

Variable		Sample number	Mean value	Standard deviation	Median	Minimum	Maximum
Dependent variable	ROE	3568	0.054	0.762	0.007	-0.837	1.616
	Tobin Q	3568	1.629	1.392	1.439	0.732	20.921
Independent variable	FEE	3568	4.732	16.718	5.102	0.000	29.104
Controlled variable	SIZE	3568	21.380	0.971	21.242	18.272	23.758
	LEV	3568	0.528	0.183	0.552	0.021	1.059
	TYPE	3568	0.512	0.324	1	0	1
	CO	3568	0.327	0.407	0.278	0.212	0.810
	DI	3568	9.472	2.849	10	21	5

As can be seen from table 2, Tobin's Q value's value is 1.629. with the maximum of 20.921 and the minimum of 0.732. The wide range of ROE indicates that there is a difference in the market value among the listed corporations. The independent variable is 47320 per capita and the largest salary per capita is about three hundred thousand while some independent directors are not paid by the listed companies, resulting the minimum value of FEE is 0. Compared with the average income of American

listed corporations' independent director, we can see that China's independent director's compensation level is still relatively low. When it comes to the control variables, the average scale of companies has reached 21.380 and there is no abnormal value. The average debt asset ratio is 52.8% and the level of debt is not particularly high. The possible reason is that the capital market in China still has some flaws, most companies prefer equity financing rather than bond financing. However, the overall asset liability ratio is still at reasonable level. The ownership concentration of China's listed corporation is high. CO average is 0.327, which means the shareholding ratio of the top ten shareholders is up to 32.7% on average. The maximum reaches 0.810, which is a very high proportion as well. The first major shareholder holds more than 50% which is state-owned shares and this is also consistent with our country's unique institutional background.

3.3.2 Correlation test

Table 3 is the correlation test among the major variables. In order to eliminate the effects of the correlation between variables on regression model, this paper carries out the Pearson correlation test of the main variables in the model. In the Pearson test, the absolute value of the correlation coefficient is higher, indicating that the correlation between two variables is stronger. In table 3, the absolute value of Pearson coefficient which is ranged from 0.001 to 0.407, all below 0.6, thus we can come to the conclusion that there are no serious multicollinearity problems among these variables conclusion.

Table 3 Correlation Test between Variables

	ROE	Tobin Q	FEE	SIZE	LEV	TYPE	CO	DI
ROE	1							
Tobin Q	0.127* (0.132)	1						
FEE	0.142* (0.009)	0.212* (0.011)	1					
SIZE	-0.076 (0.371)	-0.032* (0.704)	-0.049 (0.563)	1				
LEV	-0.28* (0.001)	0.092 (0.278)	0.076 (0.367)	0.098 (0.245)	1			
TYPE	0.169* (0.045)	0.214* (0.011)	-0.001 (0.987)	0.032 (0.705)	0.018 (0.833)	1		
CO	-0.037 (0.665)	-0.005 (0.956)	0.131 (0.119)	-0.056 (0.504)	0.304* (0.011)	-0.407* (0.026)	1	
DI	-0.071 (0.402)	0.172* (0.041)	0.082 (0.335)	-0.169* (0.045)	0.065 (0.443)	-0.037 (0.663)	0.173* (0.040)	1

Notes: ** refers to 1% level (two tailed) significantly correlated, * refers to the 5% level (two tailed) significantly correlated

From table 3, we can clearly see that the rate of return on net assets (ROE) has a significantly positive correlation with Tobin Q, so the two level measured variables of corporate performance is basically similar and the results are basically credible. ROE and FEE are significant positive correlated. Tobin Q and the independent variable are significantly positive correlated. Therefore, a surely conclusion can be drawn that there is a positive relationship between independent director's compensation and corporate performance.

3.3.3 Regression analysis

Table 4 Multiple Regression Conclusion

	ROE		Tobin Q	
	Estimated coefficients	T value	Estimated coefficients	T value
Intercept	0.315	4.819***	0.263	4.102***
FEE	0.106	1.008**	0.381	1.207**
SIZE	-0.016	-5.159***	-0.013	-4.120***
LEV	0.061	2.119**	0.017	2.934***
TYPE	0.005	9.215***	0.002	2.660***
CO	0.049	3.361***	0.005	1.478*
DI	-0.005	-1.258	-0.004	-1.035
N	3568		3568	
Adj R ²	0.266		0.485	
F value	4.526***		6.232***	

Notes: ** refers to 1% level (two tailed) significantly correlated, * refers to the 5% level (two tailed) significantly correlated

After descriptive statistics and correlation test, this paper uses the SPSS20.0 to conduct regression test. As shown the listed results of multiple regressions in table 4, no matter which dependent variable is use, the estimated coefficients of the independent variable FEE is positive and the proportion is larger in the group variable coefficient. We can draw the conclusion that FEE has a larger influence on explained variables. The adjusted R square of these two models are 0.266 and 0.485, showing that the portion of dependent variables can be explained as 26.6% and 48.6% respectively. The coefficient of independent variable FEE is positive. The level of significant $P < 0.05$ manifests that a correlation exists between our country's independent director's compensation and company performance which is positive.

4 Conclusion

In this paper, according to the study of the independent directors' system and the independent director's compensation system, the regression model for empirical analysis on the relationship between independent director's compensation and corporate performance is established. Based on the panel data of the listed corporation from 2010 to 2013, a clear conclusion can be seen: there is a significantly positive relationship between independent director's compensation and corporate performance. In other words, when the independent director's salary increases, they are likely to make more efforts in the supervision and provide more professional opinions, so that the company's performance level can be improved. It's evident that incentive effects of the independent director's compensation occupy a main status in China. Compared with the situation abroad, the independent director's compensation level in China is not very high and it has much room for improvement.

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An Analysis of China's Electric Power Enterprise Financing Decision in Inflation Environment

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Abstract: Using the financing cash flow and capital structure to measure enterprise's financing decision, via SPSS analysis software, this paper discusses the factors affecting the financing decisions of electric power industry through multivariate linear regression. The results indicate that both net financing inflows and asset-liability ratio are negatively correlated with inflation rate, that is, the inflation will have adverse impact on the enterprise's financing decision. To effectively avoid the negative impact of the inflation on the enterprise financing decision, this paper finally suggests that enterprises should timely adjust enterprise financing channels and financing way, focus on inflation within two years and regard net financing inflows as sensitive variable to adjust and control financing decision, so as to make effective financing decisions and improve the enterprise value by financing activities.

Key words: Inflation; Financing decision; Net financing inflows; The power industry

1 Introduction

Since the beginning of this century, China has had several severe inflation, such as the inflation occurred in 2004, 2007, 2008 and 2010, all of them had a significant impact on China economy. In response to the 2008's international financial crisis, the government has taken a package of economic stimulus measures which began to emerge negative effect in 2010 and the potential inflationary pressures gradually transformed into reality. After 2011, the rapid rise in the consumer price index made the inflationary pressures continue to increase. Until 2014, it gradually calmed down. In an inflationary environment, rising prices cause the rising costs of materials for enterprise production and operation. Meanwhile, the government will take a series of tight monetary policy to curb inflation, making the market a sharply reduction in the money supply. Therefore, inflation makes enterprises face the dual problem of increased financing demand and rising financing costs, making corporate finance become extremely difficult.

About the impact of inflation on corporate financing decisions, different scholars have studied from different angle, focusing mainly on the influence of inflation on capital structure which is an important factor that affects financing net inflows. Dimitris Hatziniko (2002) studied the relationship between inflation uncertainty and capital structure, finding that inflation significantly affect the company's capital structure and reduce the company's debt equity ratio. Dong Hyeon K. and Shu - Chin, L. (2010) studied the impact of inflation risks on corporate financing structure, suggesting that the company financial leverage will reduce and the company's debt maturity structure is shifting from long-term to short-term in an environment of financial repression^[1]. Zhang Ming (2014) studied the impact of monetary policy on the enterprise financing in inflation environment, indicating that in inflation environment, government will develop a tighten monetary policy, trying to affect investment and financing and the total output negatively through the conduction of bank lending^[2]. In addition, the company's financing decision also will be affected by enterprise internal factors, such as firm size, growth, profitability, operation ability and so on. Guerrero F (2005) respectively researched 10 developing countries, the results showed that growth is negatively related to the debt levels, firm size is positively related to capital structure significantly and profitability is negatively related to the corporate debt levels^[3]. Booth etal (2005) found that the larger the company size, the higher the debt ratio. Chen Weiyun, Zhang Zongyi (2008) demonstrated that debt ratio is positively correlated with the firm size through the study^[4]. Lin Xue, Jia Xianwei (2009) analyzed 37 agricultural listed companies with multivariate regression analysis method, implying that the profitability and the asset-liability ratio are in significant negative correlation relationship^[5]. Wang Wei (2011) also found that growth is positively related to asset-liability ratio through the research on the capital structure of private listed companies in Zhejiang province^[6].

Throughout most of the existing literature, there are very few relevant researches which are about

the impact of inflation in macroeconomic on the micro enterprise financing decision, and the researches about the effects of inflation on specific industry financing decisions are especially lacked. The electric power industry, as the basis and the lifeblood of the whole national economy, plays an important role in the industrial and agricultural production. In recent years, with the rapid development of national economy, the asset scale of electric power industry rapidly expands, which makes the electric power industry requires a lot of financial support, financing has become one of the problems need to be solved badly. Meanwhile, due to the state restrictions on electricity price, during the period of inflation, the power industry is facing rising raw material costs and remained revenues. The negative impact of inflation on the power industry is significant. Therefore, this article selects the listed companies of China's electric power industry as the research object, studying the impact of inflation on its financing decision. According to the research findings, this article will put forward the corresponding policy recommendations to optimize the financing decision of listed companies in electric power industry, which is of great practical significance to promote the long-term development of China's listed companies in the electric power industry, and also has reference significance to the related research of other industries.

2 Empirical Analysis and Results

2.1 Research design

According to the said existing research results of domestic and foreign about financing decision theory as well as empirical study, combining with the actual situation of China's listed companies and securities markets, thinking about possible factors that may affect financing decisions of China's electric power industry listed companies, this paper proposes following six theoretical assumptions:

Hypothesis one: When inflation occurs, to curb increasing inflation, the government will adopt a series of tightening monetary policy, making the market's money supply drop sharply and interest rates rise, therefore, the financing cost increases and corporate finance becomes extremely difficult. Thus this paper assumes that net financing inflows of corporate and asset-liability ratio are negatively related to the macroeconomic inflation rate.

Hypothesis two: The higher the asset-liability ratio, the more money the company obtains through debt financing and the net financing inflows are also more. So the hypothesis is that the company's net financing amount and asset-liability ratio are positively correlated.

Hypothesis three: According to the life cycle theory, enterprises in the expansion stage demand for larger capital funds. To grow constantly, enterprises usually tend to get large-scale debt from outward, resulting in both of net financing inflows and asset-liability ratio rise. So it is assumed that the company's net financing amount and asset-liability ratio are positively related to the enterprise growth.

Hypothesis four: When the enterprise profit ability is strong, the enterprise may retain more surpluses, and thus can use less external financing. So assuming that company's net financing inflows and asset-liability ratio is negatively related to the corporate profitability.

Hypothesis five: Operating capacity indicator is used to distinguish whether the company belongs to the capital-intensive businesses. Capital-intensive enterprises need a large number of technical equipment and funds, so the company's financing behavior is relatively sequent and asset-liability ratio is higher. Thus the assumption is that the company's net financing inflows and asset-liability ratio are positively related to the enterprise operation capability.

Hypothesis six: The company's financing has close relationship with enterprise scale. Generally large company has stronger ability of credit than small company. It is easier for them to get a loan, so large company has more liabilities than ordinary small businesses. Thus it is assumed that the company's net financing inflows and asset-liability ratio are positively related to the firm size.

In order to verify the said theoretical hypothesis, applying the data of China's electric power industry listed companies, this section conducts empirical test. From the perspective of inflation process, the author analyzes the factors affecting the company financing decision, the variables as follows:

1) The explained variables

To reflect the company financing activities in a period of time, the best indicator is "net cash flow from financing activities" in the cash flow statement. In order to facilitate the empirical analysis, this study will receive "net financing inflows" to represent the company's financing activities, and net financing inflows (Y_1) = (net cash flows from financing activities) / (total assets). Capital structure is another important factor and it is reflected by asset-liability ratio (Y_2) = (total liabilities) / (total assets).

2) The explanatory variables

According to the assumption, this paper designs the following six explanatory variables:

Inflation: This study employs the national consumer price index (CPI) to measure the degree of inflation. Inflation is a time-series data and the company investment decision is a long-term process. Since the company will form the future inflation expectations based on changes in the trend of inflation, this paper chooses the inflation rate of current as well as the previous periods as an explanatory variable. They are respectively as follows: The current inflation (CPI0); Inflation six months ago (CPI1); Inflation a year ago inflation (CPI2); Inflation two years ago (CPI3); Inflation three years ago (CPI4).

Capital Structure: Asset-liability ratio is often used to represent the capital structure. This independent variable appears only in the case of “net financing inflows” as the dependent variable. Asset-liability ratio (Y_2) = (total liabilities) / (total assets)

Growth: This paper employs revenue growth rate to reflect company growth. Revenue growth rate (X_1) = (current operating income - previous period operating income) / (previous period operating income)

Profitability: Return on assets is applied to reflect the company profitability. Return on assets (X_2) = (total profit) / (total assets)

Operation Ability: The capital intensity is used to measure operation ability in this paper. Capital intensity (X_3) = (total assets) / (operating income)

Enterprise Scale: The scale of the enterprise is measured by natural logarithm of total assets. Firm size (X_4) = natural logarithm of total assets

2.2 Analysis of empirical results

In this paper, the data is derived from CSMAR database and Sina Finance Network. The selection of inflation sample data is subject to China's consumer price index, of which the time is from January 1st, 2011 to December 31, 2014. Corporate finance data comes from A-share listed companies of the electric power industry at Shanghai and Shenzhen Stock Exchange. Excluding * ST, ST and incomplete data company, this paper finally receives a total of 48 enterprises, and the time of data is the end of 2014. The descriptive statistics of the variables are shown in table 1 and table 2 below.

Table 1 Each Variable Descriptive Statistics

	Means	Median	Standard deviation	Minimum	Maximum
Net financing inflows	0.00018	0.00000	0.00121	-0.00001	0.00841
Asset-liability ratio	0.59350	0.61822	0.18461	0.17780	0.90272
Operating income growth rate	0.03504	0.03674	0.25325	-0.54763	0.92954
Asset returns	0.13298	0.00003	0.23199	-0.01798	1.19597
Capital intensity	7.91371	5.97760	6.85029	1.32679	34.60208
Firm size	23.10950	23.18288	1.81348	15.10749	26.29788

Table 2 The Inflation Rate

Variable	CPI4	CPI3	CPI2	CPI1	CPI0
Numerical	105.4	103.3	102.4	102.6	102.3

The multivariate linear regression equation of net financing inflows:

$$Y_1 = a + \alpha_1 CPI0 + \alpha_2 CPI1 + \alpha_3 CPI2 + \alpha_4 CPI3 + \alpha_5 CPI4 + \alpha_6 Y_2 + \alpha_7 X_1 + \alpha_8 X_2 + \alpha_9 X_3 + \alpha_{10} X_4 \quad (1)$$

Table 3 Regression Analysis Table of Net Financing Inflows Coefficient

	Unstandardized Coefficient		Standardized Coefficient	t	Sig.
	B	Std. Error			
Constant	-0.00894	0.22175		-0.04033	0.96809
CPI4	0.00008	0.00011	-0.05164	-0.75782	0.45428
CPI3	-0.00039	0.00040	-0.14200	-0.97259	0.33828
CPI2	-0.00034	0.00021	-0.23269	-1.60562	0.11850
CPI1	-0.00004	0.00021	-0.24584	-0.17930	0.85887
CPI0	0.00027	0.00017	0.21260	1.56736	0.12718
Asset-liability ratio	0.00000	0.00000	0.30652	1.82862	0.07709
Operating income growth rate	0.00011	0.00064	0.02280	0.17019	0.86597
Asset returns	-0.00055	0.00124	-0.10540	-0.44468	0.65964
Capital intensity	0.00001	0.00002	0.08176	0.63151	0.53234
Firm size	-0.00053	0.00009	-0.78873	-5.74807	0.00000

The table 3 shows that net financing inflows are negatively related with inflation CPI1, CPI2, CPI3 and CPI4 and positively related with CPI0. Overall, inflation has a negative influence on net financing inflows, thus the net cash flows of finance will decrease as inflation increasing, which conforms to the original assumption. Among other factors, the asset-liability ratio is positively related with net financing inflows, which indicates that the more debt a company has the more external financing it needs to maintain its operation, proving the original hypothesis. Operating income growth rate and net financing inflows are positively correlated with each other, indicating that enterprise growth ability will promote its financing behavior, consistent with the null hypothesis. Asset returns and net financing inflows are negatively correlated with each other. As the stronger the profit ability, the higher profitability of the company's products, the company are more good at making use of existing assets to get more return, which will accordingly reduce external financing and the net financing inflows, in line with the original hypothesis. Net financing inflows are positively related with capital intensity. The capital-intensive industry needs a large number of technical equipment and funds, so this kind of company's financing behavior is relatively frequent, in corresponding, net financing inflows will be more, in line with the original hypothesis. Enterprise scale and the net financing inflows are negatively correlated with each other, which are not consistent with the original hypothesis. The reason may be that the Chinese government will give certain allowance to electric power industry enterprise and the more the enterprise scale, the greater the subsidies.

The multivariate linear regression equation of asset-liability ratio:

$$Y_2 = b + \beta_1 CPI0 + \beta_2 CPI1 + \beta_3 CPI2 + \beta_4 CPI3 + \beta_5 CPI4 + \beta_6 X_1 + \beta_7 X_2 + \beta_8 X_3 + \beta_9 X_4 \quad (2)$$

Table 4 Regression Analysis Table of Asset-Liability Ratio Coefficient

	Unstandardized Coefficient		Standardize Coefficient	t	Sig.
	B	Std. Error			
Constant	-5657950.73338	13776569.70095		-0.41069	0.68403
CPI4	-2864.57965	6681.67708	-0.01047	-0.42872	0.67100
CPI3	-11401.45001	25052.69178	-0.06985	-0.45510	0.65211
CPI2	-3834.13367	13090.21166	-0.04471	-0.29290	0.77149
CPI1	-1626.20819	13077.55934	-0.04889	-0.12435	0.90182
CPI0	525.90511	10875.85566	0.05692	0.04836	0.96173
Operating income growth rate	59189.52010	38586.12836	0.20916	1.53396	0.13487
Asset returns	-77001.26888	76013.60416	-0.24926	-1.01299	0.31866
Capital intensity	51.76120	1428.43208	0.00495	0.03624	0.97132
Firm size	-1060.10721	5715.70414	-0.02683	-0.18547	0.85403

From table 4 we can see that the enterprise asset-liability ratio are negatively related with inflation factor of CPI1, CPI2, CPI3 and CPI4, only CPI0 are positively related with asset-liability ratio. In general, with the increase of inflation, the asset-liability ratio of the company will reduce. The increase of inflation will cause the increase of the risk-free rate of return, making debt financing costs increase, thus the enterprise will reduce debt financing. The empirical results prove the hypothesis. Among other factors, asset-liability ratio are positively related with operating income growth, for revenue growth will promote enterprise financing from outside, and then the asset-liability ratio will increase, consistent with the original hypothesis. Asset returns are negatively related to the asset-liability ratio. If the profit ability of the company is strong, the owner's equity will increase faster, in corresponding, the asset-liability ratio is smaller, attesting the null hypothesis. Asset-liability ratio and capital intensity are positively related to each other. Capital-intensive enterprises need a large number of technical equipment and funds, of which external financing behavior is relatively common, and asset-liability ratio is higher, consistent with the null hypothesis. The enterprise scale and the asset-liability ratio are correlated negatively with each other, which is incompatible with the original hypothesis. This may be due to the electric power industry belongs to the basic industries, the greater the firm size, the greater the contribution to the society, the more tend to get government support, thus obtain more financial allocation, reducing the external financing.

3 Conclusion

The research results show that the enterprise net financing inflow and asset-liability ratio are negatively related with the level of inflation, that is inflation will make an adverse effect on enterprise's financing activities through macro policy, rising prices and other transmission mechanism. Nowadays, inflation has gradually subsided, and the economy starts to return to normal, in spite of this, in the future development, inflation will certainly break out again along with the economic cycle. Based on the above analysis, in order to eliminate the negative impact of inflation on corporate finance activities, the electric power industry enterprises should take the following measures:

1) Timely Adjust Enterprise Financing Channels and Financing Way

The enterprises should increase financing channels and enrich financing ways. At present, China has emerged a large number of private loan guarantee companies and other non-governmental organizations, of which enterprise should make full use. Besides, the enterprises should actively utilize the government's multi-level financing service system, increasing the enterprise financing channels and enrich enterprise financing ways, thus to cope with inadequate capital supply caused by inflation.

2) Focusing on Inflation Occurs within Two Years

The impact of inflation occurring at different times on the enterprise financing decision must be different, according to the empirical data in table 3 and table 4, this paper finds that the negative correlation of inflation rate within two years with enterprises net financing inflows and asset-liability ratio is greater. The correlation of inflation beyond three years with enterprises net financing inflows and asset-liability ratio, although negative, but is less significant. Therefore, in the background of inflation, enterprise should focus on inflation within two years when making financing decisions.

3) Taking "net financing inflows" as Sensitive Variable Regulation

Enterprise financing decisions mainly include two key elements – "net financing inflows" and "asset-liability ratio". Through the comparative analysis of table 3 and table 4, it is found that the negative correlation between inflation and net financing inflows is more significant, while the relevance between inflation and asset-liability is less significant. Therefore, in the background of inflation, the enterprise should take "net financing inflows" as a sensitive variable regulation when making financing decision. It is also necessary to further subdivide the impact variables of net financing inflows, and then adjust and optimize the enterprise financing decision through deep analysis.

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“The Belt and Road”: The New Opportunity of RMB Internationalization Development

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Abstract: In this paper, on the basis of a large amount of data and information, using the method of qualitative analysis, it analyzes the core connotation of “the Belt and Road” strategy and presents situation of RMB internalization and proposes a new thought of win-win development of the two strategies. Moreover, it draws to a conclusion that “the Belt and Road” as a splendid strategic conception has been officially enacted which arouses extensive attention from international society. As the strategy is gradually promoted, it will create more extensive cross-border use demands of RMB and promotes the internalization of RMB. Otherwise, RMB internalization will also provide energy and create new opportunity for win-win cooperation of “the Belt and Road”.

Key words: “the Belt and road”; RMB internationalization; New opportunity; Win-win development

1 Introduction

As related measures of smooth trade in “the Belt and Road” strategy are gradually implemented, with the deepening of the economic and trade cooperation between China and countries along the road and huge financing demands of infrastructure fields, it will create more extensive cross-border use demands of RMB and promote the internalization of RMB in terms of trade, investment, settlement and cross-border financing valuation. Meanwhile, RMB internalization will also create a new opportunity for win-win cooperation of the Belt and Road and build a Financial Net with the formation of a series of regional financial cooperation mechanism which will push the internationalization of RMB to a new stage and provide energy for the sustainable development for the internationalization of RMB.

The early definition on monetary internationalization refers to a “currencies other than the private sector and official agencies use the currency” (Cohen, 1971); Li Taokui (2008) put forward the general indicators measuring standards of RMB internationalization include three aspects: degree of circulating outside, become the international circulation tool and proportion in international trade settlement. Joseph (2012) is pointed out that the advance of currency internationalization path choice ultimately depends on the market, the government’s policy to influence the direction and process; Shi Chenyu (2010) argues that to promote the RMB internationalization should follow the path of trade and finance in hand, Gao Haihong (2011) argues that RMB internationalization should take the region into a starting point. Hu Xiaolian (2014) argues that the fundamental driving force of the development of the RMB internationalization is the market demand, “the Belt and Road” strategy will inject new sustainable development for the RMB internationalization, Zhang Rui (2014) considered that speeds up the RMB internationalization will escort for the “the Belt and Road” strategy.

This paper intends to study the new problems and new thoughts of win-win development under the new normal economy through interpretation of the Belt and Road strategy and analysis and outlook of present situation of RMB internalization.

2 Core Concept of “the Belt and Road” Strategy and RMB Internalization

2.1 The core concept of “the Belt and Road” strategy

“The Belt and Road” strategy as China’s first national strategy intends to develop globe infrastructure and trade through new Silk Road. According to preliminary estimate, there is a total population along the road of 4.4 billion and economic aggregate is about \$21 trillion which account for about 63% and 29% of the world respectively. Based on this, the core concept of “the Belt and Road” strategy includes the following aspects:

2.1.1 Opening to the outside world is core of the strategy.

After 30 years of reform of opening-up, China’s opening policy has made remarkable achievements, but influenced by geographical location, resource endowment and development foundation, the opening policy generally presents the space imbalance, namely the eastern district and costal areas develop fast and western district and plateau develop slowly. “The Belt and Road” strategy covers most of the areas in the hinterland and border areas which is bound to develop potential cooperation between China and

countries along the road. Moreover, it improves the status of emerging economies and developing countries in the structure of China's opening policy and accelerates opening-up of central and western regions in China. It also constructs a new round of opening up of one body and two wings and forms a new pattern of open economy including land and sea coordination, west and east aiding each other and globe orientation.⁵

2.1.2 Mutual benefit and common development are cardinal principles.

Countries along the road are mostly emerging economies and developing countries which are generally in the rise of economic development. Therefore, there are broad prospects of mutual beneficial cooperation. On the one hand, China's development will promote the exploitation on preponderant resources of the countries along the Silk Road and meet their demands for Chinese industrial products and production technology. On the other hand, Chinese government fully considers the realistic difficulties of relatively backward countries so it costs a huge sum of money to establish the Asian Infrastructure Investment Bank (AIIB) and Silk Road Fund. Meanwhile, it encourages outward investment of Chinese enterprises which will bring tangible benefits and interests to the countries and districts along the road with the regional cooperation between China and these countries

2.1.3 Finance is an important support.

China will rely on abundant foreign exchange reserves to lead to solve the financial problems. There are current four capital pools closely related to "the Belt and Road": Silk Road Fund, AIIB, BRICs Organization Development Bank and SCO Development Bank. It is estimated that early infrastructure investment and resource development are mainly from two international financial institutions: Silk Road Fund and AIIB. Later Domestic Policy Bank and Commercial Banks may have a deep involvement in "going out" strategy of Chinese enterprises. Domestic financial institutions are expected to be mainly composed of five big state-owned commercial Banks. All these mark the finance is an important support of the strategy.

2.1.4. Infrastructure is the main propulsion.

"The Belt and Road" strategy focuses its cooperation on five smooths (Policy communication, path connectedness, trade flowing, currency circulation and heart interlinked). The future expansion of bilateral trade between various countries will be the most direct manifestation of results of the strategy. Trade and logistics flowing is the core to expand trade volume. To expand trade, infrastructure will be carried out first and connectivity of logistics and infrastructure are forerunner of the construction. Future infrastructure construction will focus on transport infrastructure, energy infrastructure and communications network construction which will also be the main propulsion of the strategy.

2.2 Present RMB internalization

RMB internationalization began with cross-border RMB settlement of 2009. After more than five years of development, present RMB internationalization process presents the following characteristics:

2.2.1 The scale of cross-border RMB settlement expands rapidly.

Cross-border RMB settlement amount is only 3.58 billion yuan in 2009 while it has surpassed 4.8 trillion yuan in the first three quarters of 2014. The percentage of cross-border RMB payments is close to 25% of all local and cross-border payments and RMB settlement of trade import and export has accounted for more than 15% of the total. The numbers of countries involved in this event have been up to 174 and RMB has become China's second largest cross-border payment currency. SWIFT's latest surveillance data shows that from January to April of 2015, in mainland China, Hong Kong and other parts of Asia-pacific, the proportion of use of RMB is up to 31% while that of dollar in April is only 12.3% and the use of Japanese yen and HK dollar also fell. In recent three years, there is a 327% increase in the amount of payment for transactions in mainland China and Hong Kong of Asia-pacific and RMB jumps from the fifth-largest currency to the first.

2.2.2 RMB deepens its international cooperation with multinational currencies.

According to latest statistics, since 2009, People's Bank of China has successively signed bilateral currency swap agreements with 28 countries or regions and total amount is up to 3.1 trillion yuan. After consultation with the multinational monetary authorities, it successively sets up RMB clearing arrangement in Hong Kong, Macao and Taiwan regions, Luxembourg, Singapore, London, Frankfurt, Paris, Seoul and other place. In addition to the dollar, euro, yen and pound, RMB has implemented direct dealing with rouble, ringgit, Australia and New Zealand dollars. Some of the central banks or monetary authorities have already or prepared to bring RMB into its foreign exchange reserves and

⁵ Hu Xiaolian. Deepen the reform, expand the opening-up and raise sail for RMB internationalization[N], The Fifth Forum of Cross-border RMB Business, 21, October, 2014.

RMB has become the seventh largest reserve currency. According to HSBC survey, the proportion of the RMB in foreign exchange reserves is gradually increased which is expected to up to 2.9% at the end of 2015, 6.9% by 2020 and 12.5% by 2030.

2.2.3 Offshore RMB market begins to take shape.

In recent years, in addition to Hong Kong, Taiwan and Singapore as the primary offshore RMB deposits and lending markets, some of the major European countries have spared no effort to accelerate development of offshore RMB market. Since 2014 the People's Bank of China established RMB clearing bank in London, Frankfurt, Paris and Luxembourg respectively, almost every European financial centre developed RMB business actively and Europe has become the most important offshore RMB market outside Asia. At the end of 2014, offshore RMB deposits of Hong Kong, Taiwan and Singapore was up to 1.6 trillion yuan and the offshore dim sum bonds balance is close to 350 billion yuan. London is expected to become future's RMB foreign exchange trading center while Luxembourg will become active RMB fund investment center of European region.

2.2.4 The categories of offshore RMB financial products constantly increase.

As RMB has been expanding its scale of "going out", the international financial markets and financial centers develop a growing interest on RMB and start to regard RMB business and products as new opportunities for their market development and consolidating their own financial centre. At present international financial markets, there are RMB deposit and lending, RMB-FX Transaction and RMB interbank lending, in addition, the issuance of RMB bonds increases steadily and the categories include national debt, financial bond, corporate bonds, enterprise bonds and etc. Moreover, issuers cover domestic institutions, foreign governments and overseas Banks. The geography and industry distribution of enterprises and investors gradually diversified. Furthermore, RMB pricing and trade finance products, depository receipts, funds, futures and RMB derivatives also gradually increase.

3 "The Belt and Road" Strategy will Accelerate RMB Internalization

During the gradual promotion process of "the Belt and Road" strategy, infrastructure construction, service, energy resources and manufacturing are driven to participate in the process. China further deepens its cooperation with neighboring countries in trade, credit and investment. More and more countries will use RMB as the transaction currency, even as the country's reserve currency. Countries along the road are likely to form a RMB monetary area or RMB circle thus achieving larger-scale circulation of RMB and speeding up RMB internationalization. In particular, it can be analyzed from the following aspects.

3.1 Push free exchange of RMB capital project

With the impetus of "the Belt and Road", reform on capital account convertibility will be rapidly completed within the year. According to latest statistics of the State Administration of Foreign Exchange, 34 capital account transactions out of 40 items in China at present reach at partial convertibility and above level which account for 85%. This is the last year of "the 12th five-year plan" and during this period, basic convertibility of capital account will be realized. Central Bank governor Zhou Xiaochuan also puts forward that the achievement of reform on capital account convertibility needs three preparations. Firstly, inside and overseas private investment will be more convenient; Secondly, the capital market will be more open; Thirdly, according to RMB convertible framework, Regulations on the Administration of Foreign Exchange will be revised. Therefore, in 2015 China will make capital accounts convertible and RMB close to a freely usable currency which will eliminate the last institutional constraints and make a big leap to RMB internationalization.

3.2 Further expand RMB settlement in trade and investment

From the strategic planning of "the Belt and Road", more than 60 countries involve in the plan with a population of 4 billion. Only central Asia, Middle East and Eastern Europe and other countries on Silk Road Economic Belt account for 10% of all exports in China. China and these countries are complementary in industrial structure. Besides, Due to low capital stock of countries along the road, China can increase direct investment to further provide overseas financing with settlement of RMB. By the end of 2013, China's direct investment in the region was about \$31.3 billion, although compared with that of 2008 the compound growth rate was up to 34%, it only accounted for 4.8% of total ODI (overseas direct investment). Along with the advancement of the Belt and Road strategy, RMB stock market will continue to expand.

3.3 Accelerate construction of domestic financial market and deepen the process of RMB internationalization

The advancement of “the Belt and Road” strategy will accelerate construction of domestic foreign exchange, bonds, stocks and other financial markets and deepen the process of RMB internationalization. First, monetary internationalization at least requires the marketization of exchange rate formation mechanism to change the pattern of single overseas assets held by the central bank under the unilateral appreciation. The floating exchange rate of RMB Since 2013 shows the effect of system reform. Second, monetary internationalization needs to speed up opening up domestic financial market to foreign investors and widening channels of domestic residents investing in overseas markets so as to realize the bidirectional cross-border flow of capital. Therefore, China has advanced the QFII, RQFII, QDII and Shanghai-Hong Kong Stock Connect and other institutional arrangements. Statistics shows that the deposits, bonds and stocks and other domestic assets held by foreign investors increased from 2.87 trillion in 2013 to 4.49 trillion in 2014. Meanwhile, in February 2015, overseas investment on QDII increased to \$87.5 billion.

4 RMB Internalization will Also Provide Energy for Long-term Development of “the Belt and Road”

There are current more than 170 countries using RMB. Future RMB internalization will also provide energy and create new opportunity for long-term development of “the Belt and Road”. First, the formation of four capital pools and a series of regional financial cooperation mechanism will build all-around financial service network for development of “the Belt and Road”. At present under the proposal of Chinese government, a \$40 billion capital under the sponsorship of the Silk Road Fund and a \$100 billion of the Asian Infrastructure Investment Bank (AIIB) are set up. Furthermore, existing BRICs Development Banks, SCO Development Bank, four large capital pools of financial service network and a series of regional financial cooperation mechanism have been formed. Countries along the road will get financial support from them and promote the connectivity. (See Table 1)

Table 1 General Information of Four Large Capital Pools

	nature	investment	orientation	Initial investment	timetable
Silk Road Fund	sovereign investment funds	Countries and districts along the road	Infrastructure, resource development, industry cooperation and financial cooperation, etc.	Total: \$40 billion. First period: \$10 billion. Foreign Exchange Reserve accounts for 65%.	undetermined
AIIB (The Asian infrastructure investment bank)	Regional Multilateral Financial Development Institutions	24 member states that signed the Memorandum on the Preparation of AIIB	infrastructure construction	Statutory capital is \$100 billion and China's initial subscribed capital is about \$50 billion, accounting for 50%. Capital of first period of trial operation of next year is \$5 billion in which China pays \$2.5 billion.	It is expected to complete the negotiations of regulations and signing work by the end of June, 2015 and put into operation by the end of 2015
BRICs Development Bank	Regional Multilateral Financial Development Institutions	5 BRIC countries: Brazil, Russia, India, China and South Africa	infrastructure construction	The initial capital is \$100 billion with average contribution of five founding members.	Set up in 2016
SCO Development Bank	Regional Multilateral Financial Development Institutions	Six SCO member states: China, the Russian federation, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan	demonstration projects of energy, transportation and modern information technology between SCO organization	undetermined	undetermined

Source: China's Financial Information Network

Second, the increasing number of bilateral currency swap agreements and expansion of offshore markets will provide more security for International investment and regional cooperation under the Belt and Road planning. As previously mentioned, in recent years, RMB deepened its international

cooperation with multinational currencies and successively signed bilateral currency swap agreements with 28 countries or regions with a total amount of 3.1 trillion yuan. Meanwhile, the layout of globalization in offshore RMB centre spread from Asia to Europe, North America, South America and other regions. It is not only beneficial to attract international investors to invest in RMB-denominated financial instruments but also helps to strengthen the cooperation between offshore markets, monetary authorities, supervision departments and financial institutions. Besides, it reduced transaction and management costs of market participants and effectively promote RMB's international appeal and market confidence.⁶

Third, RMB Cross-border trade and investment and settlement expanded rapid which escorts Chinese enterprises' going-out process. As our country is becoming more and more integrated into the process of economic globalization, more and more enterprises cross border and the urgent need to avoid risk and reduce the cost stimulates the strong demand for cross-border trade and investment and settlement. The Chinese government will further build cross-border trade, cross-border investment and credit payment and settlement system based on the current situation to improve its level of financial services and international operation. Meanwhile, it will promote Chinese-funded financial institutions' layout in China's trading partners and offshore RMB centre and enhance the competitiveness of overseas branches. In addition, it will also gradually develop trade financing and asset management, improve the export credit insurance market, develop overseas investment risk, improve enterprise risk prevention capacity and escort Chinese enterprises' "going out" process.

5 Conclusion

"The Belt and Road" is a grand strategic thinking in the process of China's economic development. The core content includes opening-up, mutual benefit, infrastructure and financial system construction. Initial conditions of RMB internationalization combined with this has been relatively mature, but they are still in early stages. With the advancement of this strategy, a wider range of RMB cross-border use requirements will be produced and RMB internationalization will be promoted. Meanwhile, RMB internalization will also provide energy and create new opportunity for win-win cooperation of "the Belt and Road". However, the win-win development is an important and sensitive project. During the operation process, it will promote the opening up of capital account, accelerate the pace of reform on financial system and stabilize the exchange rate; meanwhile, it focuses on geopolitical risk, credit risk and security risk to maximum guarantee the smooth achievement of goals.

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Multiple Bank Relationship and Their Impact on Firm's Performance: Evidence from Pakistan

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Abstract: Firms always face a pressure for better performance. A lot of indicators are being studied with respect to their effect on firm's performance. Banking sector plays a vital role in terms of financing firms for their different projects and future investments. This paper is quite significant as it is targeting the low addressed area of Pakistan. A vital contribution is made by this research in order to understand the relationship of banks and firms and how the firm's performance is affected by number of banks in relation with firm. It further opens the new horizons of research to investigate this relationship in depth. The bank relationship is remained a topic of interest in developed countries but meagre research was done in developing and emerging markets. This paper attempts to explain the firm-bank relationship and its impact on firm's performance with the help of OLS regression analysis with robust errors. The data for 180 listed firms is collected from Karachi Stock Exchange (KSE). We use two proxies for bank relationship. A dummy variable is used for bank relations (1 if number of bank relations is more than 5 otherwise 0) and the second variable is actual number of relations a firm is maintaining with banks. Return on asset (ROA) and return on equity (ROE) are used as dependent variables as an indicator of firm performance. It concludes that the number of bank relations do affect firm's performance significantly but negatively. As far as the bank relation dummy is concern it shows significant relation with ROA but no such relationship with ROE. After investigating the initial relationship, it can be said that bank relations are important for firms but there must be optimal number of banking relations.

Key words: Multi-Bank relationship (MBR); Firm performance; Return on Asset; Return on Equity

1 Introduction

Banking sector is the back bone and main source of capital for firms, so a lot of studies have been carried out on their relationship with firms (Berger et al. 2008). It is even more important to investigate the role of banking sector in emerging markets as the market characteristics are quite different than developed markets so their role can be quite different in emerging markets (Barth et al., 2006). Therefore, it became necessary to study this firm bank relationship in developing and emerging markets.

Bank relationship is associated with firm performance as it increases access to capital. In a study of German firms, Agarwal and Elston (2001) proposed that the firms in relation with banks must have high profitability and growth. However, they found no evidence for such hypothesis for Germany. The exclusive bank relation benefits firms in order to access capital, better project choice and increase profitability (Petersen and Rajan, 1995).

Although as a research interest bank relationship is not a new topic yet a very few attempt is made regarding developing markets (A.N. Berger et al., 2008) like China, India and Pakistan but as per authors knowledge it is the first attempt to investigate this relationship in context of Pakistan.

This paper investigates this less addressed developing market in order to formulate an opinion about the impact of multiple bank relation with a firm performance. Literature suggests mixed effects of bank relationship with firms and their performance. One stream of research is in favor of more than one bank relationship while the other stream suggests one strong bank relationship. Bank can help by providing valuable capital and monitoring (Gorton and Schmid, 2000). In contrast, bank relationship may affect the firm's performance negatively (Mahrt-Smith, 2006).

As evident from previous literature, the phenomena of banking relation with respect to firm performance remains an interest to researchers. Though there is a lot of research in this regard but very few are in context to developing nation and emerging markets. This paper tries to explore the relation between firm performance and banking relation in Pakistan as a case. The study particularly focusses on the impact of multiple bank relations on firm performance. As no previous study has focused on this issue therefore this is very eminent study in order to explore the impact of multiple bank relations.

In the next session we will discuss the literature on banking relationship, multiple relationship and determinants of firm performance. Remainder part will discuss the banking sector of Pakistan then the data and methodology will be presented. In the end we will discuss the results and conclude with some

suggestion for future research in Pakistan context in this regard.

2.1 Literature review

The firm's close relationship with the banks is always remain beneficial for them as documented in the previous literature. The close relationship allows firm to raise additional capital (Hoshi, Kashyap and Scharfstein, 1991). Another benefit of close banking relation is reported that it will reduce the bankruptcy cost and improve capital investments during financial distress (Hoshi, Kashyap and Scharfstein, 1990; Nakatani, 1984). In spite of above mentioned benefits, Prowse (1990) posits that close banking relationship like equity ownership sometimes alleviates problems like agency cost of debt.

However, it is also evident from literature that there are some costs associated with close banking relation as well. Explaining his theoretical model Rajan (1992) posits that trusting on single bank relation may undermines the performance and owner's determinations. Weinstein and Yafeh (1998), during their study on Japanese banks find that they charge relatively high interest rates from the closely related firms.

The empirical evidences from literature are quite diversified as some of the researchers supports the close relationship between firms and banks while some don't. Johnson (2003) posits that using short-term bank debt can reduce negative effects of underinvestment problems on leverage but it will result in the rise of liquidity risk. For market to book value of equity, Gorton and Schmid (2000) found some evidence of positive effect with respect to close banking relations. If a firm maintain a close and single banking relation for a longer time it will help the firm to earn better credits from that bank. As per result, the firm can reduce financing costs and collaterals.

As close banking relationships have mixed evidence in literature same is the case for multiple bank relationship. Some researchers argue their benefits and some argue their negative impact. Degryse and Ongena (2001) are of the view that the negative impact may be the high transaction cost while maintaining multiple bank relations. Lower hold-up costs or larger overall credit lines are the benefits of the multiple relations with bank as advocated by Von Thadden (1994). There are also some studies that attempt to explain the factors that determine the number of banking relationships and whether the number of banking relationship has as impact on value. While doing the study on domestic bank and foreign bank relationship Fok, Chang and Lee (2004) report that domestic bank relationships are negatively related with firm performance but the same relations with foreign banks have positive impact on firm performance.

It is quite evident that banking relations have impact on firm performance and profitability. Most of the researches are attempted to explain this relationship in the developed markets and only few examples are there for developing nations and markets. There are certainly many other factors involved in firm performance and their effect is being tested and argued by many researchers.

Another attribute of better performance and profitability is Liquidity of the firm. Liquidity is the ratio of firm's current assets to current liabilities. Liquidity helps in capturing firm specific attribute as it reflect the ability to manage working capital and acquire a greater quantity of cash balance relative to current liabilities which reflects better performance and profitability of the said firm.

2.2 Hypothesis

As the researches in the developed countries, the impact of bank relations have some impact on the performance because of their controlling effect on the firm decision making specially in Japan. But some other researchers reported mixed effect. For our research we expect positive effect of multiple bank relations on firm performance so we have built our hypothesis as follow:

H1: There is a significant relation between number of bank relation and firm's Return on Asset (ROA).

H2: There is a significant relation between number of bank relation and firm's Return on Equity (ROE).

H3: There is a significant relation between multiple bank relationship and firm's Return on Asset (ROA).

H4: There is a significant relation between multiple bank relationship and firm's Return on Equity (ROE).

2 Methodology and Data Analysis

As most of the researches focuses on developed markets, for this research we have taken Pakistan as our area of interest being the emerging market and developing country. Total number of listed firms on Karachi stock exchange (KSE) are 581. 75 firms are from financial and equity investment sector.

This reduced the number of firms to 506 in which 24 listed firms are commercial banks. 32 firms are from insurance sector which reduced our sample of interest to 450 listed companies. We have taken data of 180 non-financial firms (for which data is available) listed on Karachi stock exchange (KSE) from 2008 to 2013 and total number of observations is 1056. The data was collected from published annual reports of the companies, their respected websites and stock exchange. Different variables are taken into consideration like ROA, ROE, Size, liquidity and leverage. Bank relations is the variable of main consideration in this piece of research. In order to remove the bias from our model we have controlled the effect with the other determinants of the firm performance.

We use return on asset (ROA) and return on equity (ROE) as an indicator of firm performance. The multiple bank relationship (MBR) is taken as dummy variable in order to explain its effect on the performance of the firm. The dummy is valued as 1 if there are banking relations more than 5. In order to further explain the bank relationship we use number of bank relationship as second parameter. To explain the other variation in firm performance, we include some frequently used variables i.e. firm size, leverage and liquidity as control variables for our research. Onaolapo and Kajola (2010) posits significant relationship for debt to asset ratio (leverage) with firm performance so we use it as an explaining variable of performance. Large size firms, with an effective implementation of operations, can generate better performance than smaller firms (Penrose, 1959). So it can be said that the size and performance relationship is of mixed nature and both sort of evidence can be found.

Data analysis is done with the help of descriptive statistics and OLS regression. The OLS regression is done separately for ROA and ROE. In first model we have checked the effect on ROA and in second regression on ROE as performance indicators.

1st Model

$$ROA = I + \beta_4 NBR + \beta_5 MBR(Dummy) + \beta_1 SIZE + \beta_2 LIQUIDITY + \beta_3 LEVERAGE + \varepsilon \quad (1)$$

2ND Model

$$ROE = I + \beta_4 NBR + \beta_5 MBR(Dummy) + \beta_1 SIZE + \beta_2 LIQUIDITY + \beta_3 LEVERAGE + \varepsilon \quad (2)$$

Return on asset ranges from negative (-1.21) to positive value i.e. 3.12. The firms have ROA is 0.0431 as an average. The mean value for ROE is quite low as 0.1011 but it vary from minimum -17.74369 to maximum 11.57286. These statistics depict that many firms reported negative equity due to heavy losses over time. Mostly the firms are maintaining more than 1 bank relations as the average is 9.3131 with a range from 29 to 1. MBR is a dummy variable for number of bank relationship which is valued as 1 if relations are more than 5. MBR mean value is also high (0.7228) that also verifies that firms have more than 5 bank relations on most of the occasions. SIZE has a maximum value of 27.72644 and minimum value 14.60215. The mean value is 21.936 with a standard deviation of 1.8189 because the firms in data set are the largest firms in Pakistan. The result shows that the firms are not highly leveraged and on average, leverage is 13% of total assets.

The figures and values for correlation matrix shows that there is no value higher than 0.8 so the problem of multicollinearity does not exist in our variables.

Table 1 Regression Results for ROA

Regression Table for ROA					
Variable	Expected Sign	Coefficient	t-Statistic s	Robust std. Err.	P>t
NBR	+	-0.0013	-1.10	0.0012	0.003
MBR	+	-0.0263	-1.53	0.0172	0.060
SIZE	+	0.0261	3.47	0.0075	0.011
LEVERAGE	-	-0.0963	-1.64	0.0589	0.212
LIQUIDITY	+	0.0187	2.53	0.0074	0.004

ROA is return on asset. ROE return on equity. NBR is number of bank relationship. MBR is dummy variable for multiple bank relations is 1 (if number of bank relationship is >5). SIZE is natural log of sales. LEVERAGE is the ratio of debt to assets. LIQUIDITY is ratio of current assets to current liabilities

The regression results of our 1st model is shown in Table 1. The regression analysis for return on assets is done using OLS method with robust standard errors. Return on asset ROA is used as dependent variable for the above regression analysis. The results show that number of bank relations (NBR) has a significant impact on firm performance at 1% which is as expected but the sign is opposite so hypothesis H1 is accepted. The dummy variable for the presence of bank relationships more than five has also

shown significant and negative impact on firm performance (ROA) at 10% level. SIZE and LIQUIDITY are positively related to ROA and significant results are depicted at 1% level. However, the results for LEVERAGE are not significant for the study.

Table 2 Regression Results for ROE

Regression Table for ROE					
Variable	Expected Sign	Coefficient	t-Statistics	Robust std. Err.	P>t
NBR	+	-0.0008	-0.13	0.0061	0.0128
MBR	+	-0.0201	-0.26	0.0786	0.1753
SIZE	+	0.0460	2.80	0.0164	0.0136
LEVERAGE	-	-0.0133	-0.08	0.1733	0.3554
LIQUIDITY	+	0.0176	1.89	0.0093	0.0008

ROA is return on asset. ROE return on equity. NBR is number of bank relationship. MBR is dummy variable for multiple bank relations is 1 (if number of bank relationship is >5). SIZE is natural log of sales. LEVERAGE is the ratio of debt to assets. LIQUIDITY is ratio of current assets to current liabilities

Table 2 shows the results for 2nd regression with same method as earlier for return on equity (ROE). In this model the ratio of ROE is used as dependent variable. The above model is also passed by F-statistics i.e. 2.36. Results for number of bank relations, NBR is almost same as it has negative and significant effect on ROE of the firm at 5%. But our dummy variable for bank relationship has not shown any significant relationship with ROE. LEVERAGE is also insignificant for ROE which is due to firm's negative equity in our data set. Whereas, the results for SIZE and LIQUIDITY remain significant at 5% and 1% respectively.

3 Discussion and Conclusion

The main purpose of this paper is to investigate the nature of relationship between banks and listed firms in Pakistan. We focus on the number of banking relations a listed firm is maintaining and how this relationship is affecting their performance. The results show that the number of bank relations have a negative effect on firm performance which is consistent with Degryse and Ongena (2001). Our research suggests that the firm must maintain a few banking relations in order to achieve high performance.

Banks are the biggest source of funding for financing in Pakistan. But it is a question of interest that how many banking relations must be maintained or what is the optimal number of bank relations. The firms are approaching banks in order to get financing for future investments and meeting current requirements of the business. On average the listed firms in Pakistan are maintaining 8 bank relations which is quite high. In contrast, the firms in developed countries are loyal in their relationship with banks and maintaining a single main bank relationship which is beneficial for the firms and their performance. This can be concluded for Pakistani firms that the number of banking relations should be reduced in order to reduce its negative impact on firm performance. Another reason for these different results is the high interest rate prevailing in Pakistan than the developed countries.

This paper has contributed in order to understand the initial understanding of bank relations and firm's performance as no such research has been done before in this respect, to the best of author's knowledge. This research can be further enriched by adding different avenues. Future research can be done including bank ownership type, firm's ownership type and bank relationship type.

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Correlation Analysis of Money Supply and Economic Growth in China

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Abstract: This article mainly uses the method of quantitative analysis, selects data from 1991 to 2014, through building single-element regression model of the money supply and economic growth to analyze the correlation of the two factors, but the empirical results show that there is no direct correlation between them. By introducing the inflation rate to build multivariate regression model of the three, we use co-integration test and Granger Causality test to analyze the relationship among the rate of money supply, inflation rate and economic growth. The results show that economic growth and money supply have a positive relationship, economic growth and inflation rate have a negative correlation. This proved that Currency non-neutrality theory put forward by Keynes is suitable for China and provided a theoretical basis for the establishment of China's monetary policy.

Key words: Money Supply; Inflation Rate; Economic Growth; Granger Causality Test

1 Introduction

The money supply and economic growth are two important factors in the process of macroeconomic policy formulation and implementation. In 1936 Keynes put forward the theory of Currency non-neutrality theory, and he thought that in long-term the money supply can eventually change the economy. But monetarists represented by Friedman refuted Keynes's monetary non-neutral theory, they thought money is neutral, changing the money supply would not influence the economic growth. About this issue, Kormendi and Meguire (1984)^[1] pointed out through the research that in the short term the monetary impact on output was effective, but in the long term there was no impact. Boschen and Mills (1995)^[2] by using empirical analysis method, through the VAR model and impulse reaction analysis, found that the currency impact is neutral. In the domestic, Xie ping and Liu bin (2004)^[3] deduced that currency is neutral in China, but has an impact on price. Shen Weiwei and Lan tian (2008)^[4] to Analysis of money supply and economic growth from 1991 to 2014, found that they had a significant positive correlation, that is to say, China's monetary policy can result in a significant macroeconomic management operating results.

In conclusion, regarding the issue whether the money is neutral or non-neutral, scholars do not have a unified point of view now. This paper will discuss the applicability of the theory of Keynes's Currency non-neutrality in China, namely economic growth can be stimulated by changing the money supply, providing the formulation base and implementation for monetary policy.

2 The Money Supply and Economic Growth Relations Empirical Analysis

Based on the above, the author will test the money supply in Chinese impact on economic growth. In order to test the relationship between them, this article selects annual data from 1991 to 2014 as sample for empirical testing.

2.1 Index selection and model selection

This article uses Gross Domestic Product to measure economic growth, namely GDP. Using the money supply released by People's Bank of China's broad money supply M2 representatives. Data from the national bureau of statistics website(<http://www.stats.gov.cn/>) and the people's bank of China website(<http://www.pbc.gov.cn/>). Due to the nature of the process of building the model sample data have certain requirements and restrictions, the author repeatedly verified, and ultimately selected the year-on-year growth rate of GDP and year-on-year growth rate of M2 to test, for RGDP, RM2. Accordingly, the first order difference respectively represents the change of economic growth, the change of money supply growth rate. See model below:

$$RGDP_t = \alpha + \beta RM_{2t} + \varepsilon_t \quad t=1991, \dots, 2014 \quad (1)$$

2.2 Stationary test

In the time we obtained time series data, in order to prevent spurious regression phenomenon, we need to determine stability data. General using ADF unit root test method test whether smooth. The test results are shown in Table 1.

Table 1 RGDP,d(RGDP), RM₂, d(RM₂)Stationary Test

variable	Type test(C,T,N)	ADFstatistics	Prob	conclusion
<i>RGDP</i>	(C,T,1)	-2.2492	0.4426	Non-stationary
<i>d(RGDP)</i>	(C,T,1)	-5.2313	0.0019	stationary
<i>RM₂</i>	(C,T,1)	-1.8686	0.6377	Non-stationary
<i>d(RM₂)</i>	(C,T,1)	-4.3011	0.0133	stationary

Note: The test form (C, T, N) represents a constant term, C on behalf of the intercede, T on behalf of the trend term, N on behalf of the lag order; d represents the differential.

ADF test shows under the 10% significant level, the original time series RGDP, RM₂ is not passed ADF unit root test, that it accepts the existence of the unit root null hypothesis, namely the original time series are non-stationary. The first difference RGDP, RM₂ respectful ADF test again, the results show that under the significance level of 5% rejects the null hypothesis, RGDP and RM₂ for the first-order single whole sequence.

2.3 Cointegration test

In the study of relationship between RGDP and RM₂, the author uses two variables Granger causality test whether the two factors are cointegration, and if they are cointegration, that means there is a long-term and stable relationship between RM₂ and RGDP.

2.3.1 Least square method

Firstly, respectively RGDP, RM₂ as the dependent variable and the explanatory variables, using least square method to test RM₂ and RGDP, the equation is obtained:

$$RGDP_t = 6.1985 + 0.1964 \times RM_{2t} + \varepsilon_t \tag{2}$$

(t = 5.8258) (t = 3.8603)

(Note:t in parentheses represents the corresponding estimate of test statistic).

2.3.2 Residuals stationary test

Based on least square method, extracting the residual sequence, the sequence defined as e, e smoothness test sequence, select ADF test, the test results shown in Table 2.

Table 2 Residuals ADF Unit Root Test

variable	Type test (C,T,N)	ADF statistics	Prob.	conclusion
e	(C,0,1)	-3.0467	0.0453	stationary

Note: The test form (C, T, N) represents a constant term, C on behalf of the intercede, T on behalf of the trend term, N on behalf of the lag order.

As it can be seen from Table 2, at the 5% significance level sequence e rejects the null hypothesis, as a stationary time series. The presence of co-integration relationship exists between RM₂ and RGDP, namely long-term stable relationship, which means the existence of long-term stable relationship between money supply and economic growth.

2.4 Granger causality test

From the analysis above that there is a long-term equilibrium relationship between RGDP and RM₂. Nonetheless only from the co-integration relationship between the two has not determined statistically significant causal relationship. Based on this, the author uses the method of Granger causality to test whether there is a causal relationship between RGDP and RM₂, results as shown in Table 3.

Table 3 Granger Causality Test

Null Hypothesis:	F-Statistic	Prob.	Lags	Conclusion
<i>RM₂ dose not Granger Cause RGDP</i>	1.7151	0.2052	1	accept
	2.1031	0.1527	2	accept
	1.6931	0.2141	3	accept
	0.6519	0.6374	4	accept
	0.7003	0.6387	5	accept

In according with the results in Table 3, when lag of 1-5 and a significant level of 5%, RM₂ does not Granger Cause RGDP, the longer lag order RM₂, the impact of RM₂ for the more deviation RGDP.

Through the above analysis shows, RM₂ has a little impact on RGDP, RM₂ does not Granger cause RGDP, but both of them have cointegration, so it can be deduced that RM₂ does not directly affect

RGDP, but it may indirectly affect RGDP by other indicators, which means is the money supply cannot directly affect economic growth, but indirectly through other variables affect economic growth.

3 The Money Supply, Inflation and Economic Growth Relations Empirical Analysis

3.1 Data sources

By the theory reviewed above, some scholars use the price level as an intermediate conductive medium, and also include the influence factors of the price level in GDP statistics, so the author selected the rate of inflation as the money supply intermediary index in the process of analyzing impact on economic growth. In order to be consistent in data processing, the author used the consumer price index year-on-year growth rate on behalf of the inflation rate, for RCPI. Data selected from 1991 to 2014.

3.2 Stationary test

To investigate whether RCPI sequence is smooth, we can use the unit root test. General using ADF unit root test method to test whether it is smooth, test results as shown in Table 4.

Table 4 RCPI Stationary Test

variable	Type test(C,T,N)	ADF statistics	Prob.	conclusion
<i>RCPI</i>	(C,T,1)	-3.1799	0.1139	Non-stationary
<i>d(RCPI)</i>	(C,T,1)	-4.1401	0.0193	stationary

From table 1 and table 4 we can know that RGDP, RM2, RCPI original series are non-stationary series, and the first order difference sequence for stationary time series can be co-integration test.

3.3 Cointegration test

Cointegration test of three time series should use E-G test, so this part we chose to use the Johansen cointegration to test cointegration. Three time series of Johansen cointegration test should first establish the var model, but the Var model required sequence for stationary time series, therefore, choose *d* (RGDP), *d* (RM2), *d* (RCPI) build Var model, determine the marvelous lag order number for order 4, lag order inspection results as shown in table 5. Finally, according to the laws of the AIC and SC to determine the Johansen cointegration test, the optimal lag order to 1 order.

Table 5 Var Model Lag Order Inspection Results

lag	LogL	LR	FPE	AIC	SC	HQ
0	-136.5288	NA	480.0559	14.6872	14.8364	14.7125
1	-114.5813	34.6540*	125.1971*	13.3243	13.9208*	13.4253
2	-105.4592	11.5226	135.2212	13.3115	14.3553	13.4882
3	-96.1568	8.8129	167.0594	13.2797	14.7709	13.5320
4	-82.4646	8.6477	179.2498	12.7858*	14.7243	13.1138*

So building the Var model is as follows:

$$d(RGDP_t) = \alpha + \beta d(RGDP_{t-1}) + \eta d(RM_{2,t-1}) + \mu d(RCPI_{t-1}) + \varepsilon_t \quad t=1991 \dots 2014 \quad (3)$$

On the basis of building the Var model, test cointegration using Johansen cointegration test, the results as shown in Table 6.

Table 6 d(RGDP),d(RM₂) and d(RCPI) Cointegration Test Results

Hypothesized No. of CE (s)	Eigenvalue	Trace Statistic(Prob.**)	Max-Eigen Statistic (Prob.**)
None*	0.7425	55.8938(0)	28.4914(0.0038)
At most 1*	0.6120	27.4024(0.0005)	19.8830(0.0058)
At most 2*	0.3010	7.5194(0.0061)	7.5194(0.0061)

As can be seen from table 6 inspection results, under 1% significance level, the *d* (RGDP), not only there is cointegration relationship between *d* (RM2) and *d* (RCPI), but also has two collaborators whole vector, namely *d*(RGDP), *d*(RM2) and *d*(RCPI) between the long-term stable relationship. Cointegration equation is:

$$d(RGDP_t) = -0.2420 + 0.0553 \times d(RGDP_{t-1}) + 0.6219 \times d(RM_{2,t-1}) - 0.3072 \times d(RCPI_{t-1}) \quad (4)$$

By the formula (4) it can be seen that the money supply affects economic growth significantly superior to formula (2).

3.4 Granger causality test

Through the method of granger causality test to verify *d*(RM2) and *d*(RCPI) is the granger

causality of $d(RGDP)$, the results are shown in Table 7.

Table 7 Granger Causality Test

Null Hypothesis:	χ^2 -statistic	Prob.	Lags	Conclusion
$d(RM_2)$ dose not Granger Cause $d(RGDP)$	3.0858	0.0290	1	reject
	3.2550	0.0464	2	reject
	4.2372	0.2370	3	accept
	2.7032	0.6087	4	accept
	1.3541	0.9293	5	accept
$d(RCPI)$ dose not Granger Cause $d(RGDP)$	3.6182	0.0356	1	reject
	3.2027	0.0425	2	reject
	1.1371	0.7681	3	accept
	1.5877	0.8110	4	accept
	2.1458	0.8286	5	accept

Combining with the above said we could deduce, in the long run, you can adjust the supply of M2 to influence prices, and influence GDP through the mechanism of price **transmission**.

3.5 Impulse response and variance decomposition

3.5.1 Impulse response analysis

Based on $d(RGDP)$, $d(RM_2)$ and $d(RCPI)$ Var model impulse response analysis, impulse response diagram is shown in figure 1, figure 2.

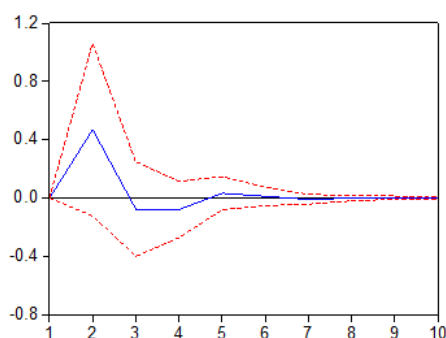


Figure 1 Response of D(RGDP) to D(RM₂)

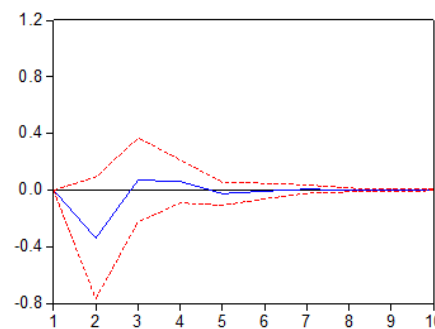


Figure 2 Response of D(RGDP) to D(RCPI)

As can be seen from figure 1 and figure 2, when $d(RGDP)$ is given a positive impact of $d(RM_2)$ and $d(RCPI)$ respectively, $d(RGDP)$ response to the fast rising and falling fast in the first two period respectively, and in the second period reached highs and lows, starting from the 3 period leveled off gradually, which suggests that $d(RM_2)$ by an external shock, after the market transfer $d(RGDP)$, to $d(RGDP)$ synthetic impact, and $d(RCPI)$ after a certain impact by external conditions, to $d(RGDP)$ reverse impact. Giving the money supply is a positive impact, it has obvious positive impact on economic growth significantly, and giving the price level is a positive impact, it has obvious negative effect on economic growth, at the same time, the absolute value of the maximum value is greater than the absolute value of the minimum value. That is to say, adding the inflation rate as an intermediate transmission medium, the influence of money supply on economic growth significantly becomes greater than its original effect directly.

3.5.2 Variance decomposition.

Impulse response is to measure the response of variable degree when impacted by other variable, but variance decomposition is to study the contribution of each of the endogenous variables. By the former co-integration analysis, the $d(RGDP)$, $d(RCPI)$ and $d(RM_2)$ have a co-integration relationship among them. In order to see $d(RGDP)$, $d(RCPI)$ and $d(RM_2)$ mutual effect, this paper uses variance decomposition to study $d(RM_2)$ and $d(RCPI)$ impact on $d(RGDP)$. The results see at table 8.

Table 8 Variance Decomposition of $d(RGDP)$

Period	S.E.	$d(RGDP)$	$d(RM_2)$	$d(RCPI)$
1	1.3388	100.000	0.0000	0.0000
2	1.4616	84.3146	10.3249	5.3606
3	1.4941	84.5014	10.1401	5.3586
4	1.4979	84.1384	10.3641	5.4975
5	1.4995	84.0943	10.3920	5.5137
6	1.4997	84.0897	10.3954	5.5149
7	1.4998	84.0855	10.3979	5.5166
8	1.4998	84.0857	10.3978	5.5166
9	1.4998	84.0854	10.3979	5.5166
10	1.4998	84.0854	10.3979	5.5166

From table 8 we can know that the contribution rate of $d(M_2)$ on $d(RGDP)$ in the second period is 10.32%. The fluctuation contribution of $D(RCPI)$ on $d(RGDP)$ is small, the contribution rate in the second period is 5.36%, basically stable at 5.51%. So the impact on economic growth resulted from the money supply is bigger than that from the price level

4 Conclusions and Recommendations

We can draw the following conclusion: in China, there is a long-term co-integration relationship between money supply and economic growth, but the influence of M_2 on GDP alone is not strong. M_2 , the inflation rate and GDP establish equilibrium relationship in the long run. Money supply and inflation rate together have greater influence on economic growth than money supply. Therefore, in the long run, money is neutral. Analyzing the results of granger causality test, we know that M_2 and inflation rate are the granger reason of GDP, the strongest granger causality in the lag phase 2. Through the conclusion of the impulse response and variance decomposition can be seen, economic growth mainly comes from the money supply. From formula (4) we can see a positive relationship between GDP and M_2 , with a negative relationship with inflation rate, and the interaction between the three can make the economy in the short term artificially high, but in the long term restricts each other and promotes each other, which means economic development can be done by regulating the money supply.

The author thinks that Chinese monetary policy should improve the monetary policy transmission mechanism, standardize the interbank borrowing market and bond market, and improve the strength of the people's bank of China open market operations. We should also analyze the magnitude of the intensity of monetary policy and the effect and time lag and so on. We should also take the money supply and inflation into consideration when we evaluate the economic growth. Economic growth should be attained with the goal of monetary policy "low inflation, high growth". We should also strengthen the coordination between monetary policy and other macroeconomic policies, and effectively enhance the expected effect of monetary policy.

Through the study of this article, the author verified the applicability of Keynes's Currency non-neutrality in China, which means that the money supply has a positive correlation with economic growth, and therefore, we can stimulate economic growth by expanding the money supply. There is no direct impact on the two factors, but the two factors indirectly achieve some impact through inflation. Due to the fact that the rate of inflation and economic growth have a negative correlation, monetary authorities should set reasonable monetary policy to deal with the relationship between inflation rate and economic growth, so that China can realize the ultimate goal of monetary policy—"to maintain price stability on the basis of high growth".

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Impact of Corporate Social Responsibility on Firm's Financial Performance: The Tanzanian Perspective

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Abstract: There has been a significant growth of interest in the field of corporate social responsibility and the debate is still hot. There are however very few studies done in the least developed countries on the subject matter. The main objective of the study was to investigate the impact of CSR on Firm Financial Performance in the least developed countries, Tanzania being the country in question. The aim of this paper is to find out if there is a significant difference in financial performance of firms that engage in CSR relative to those that do not practice CSR. Independent sample t-test was used to test hypotheses. The data set included randomly selected 101 firms operating in Tanzania using accounting based measures of financial performance namely Return on Asset, Return on Equity. The findings presented revealed that there is a significance difference in financial performance favoring those firms that do Corporate Social Responsibility, implying that CSR has a positive influence on firm financial performance. Firms should then engage in corporate social responsibility so as to improve their financial performance and managers should not underestimate the contribution they make by committing their time and resources to make sure their CSR programs are effective in order to achieve the competitive advantage.

Key words: Corporate Social Responsibility (CSR); ROA; ROE; Tanzania

1 Introduction

As stakeholders become more aware of what is going on with regards to their favorite businesses' operations and the contribution the firms can make to the development of the communities around them. Pressures have increased on businesses to act more socially responsible. This has forced firms to evolve from their primary goal of profit maximization to the new goal of shareholder's wealth maximization which requires firm to take into consideration the demands of the different stakeholders as they go about their daily operations and inclusion of social and environmental factors in their decision making (Karaibrahimoglu, 2010).

CSR is seen as a duty the firm has to minimize unethical behavior such as waste reduction and emission, to maximize efficiency and protect the environment for future generations (Mushi, 2007). In Africa businesses have a major role to play to speed up the transformation process and the best way to contribute is through CSR though there is still a need for improved corporate governance, poverty eradication programs, fairer trade practices and capacity building (Visser, 2005).

When firm's engage in CSR they demonstrate the change in behavior that benefits both the firm and the society resulting in a multiple effect, a firm is said to be socially responsible when it becomes a leader in improving the well being of the community and environment around it. The firm accepts the role to balance the expectations of different stakeholders as they are crucial for its survival (Tsoutsoura, 2004).

CSR evolved after the problems that rose when firms turned their backs on the society and ignored their moral/ethical responsibilities.

Many companies were caught off guard by social responsibility controversies such as food companies when they denied obesity as not their problem, Nike and Gap sweatshops issues said the workers were not hired by them directly, the giant de beers denied causing unrest over diamonds in Liberia and Angola (Zadek, et al. 2009). After their brand reputation and licenses were at stake they learnt their lessons and slowly started to acknowledge their responsibility to the community and environment around them. These experiences have opened their eyes to know that CSR goes beyond the law and concerns responding to the environment, social and economical issues that affect the long term performance of the firm.

In the mining sector when environmental pollution occurs and the surrounding communities get affected when they drink polluted water from the toxics that come from the industry waste and the vegetation and the law suits that are expensive arise when people demand to be compensated (Heal, 2008). The reputation of the firm is tarnished as the news spread and people around become aware of the irresponsibility of the firm. This may render the firm to lose its important stakeholders, be sanctioned

from operating in some countries, confiscation of the plants and products and lose a reputation that it has built through hard work and commitment for so many years.

Jody, et al (2012) reported that Anglo Gold Ashanti allegedly took some plot of the school near by the mining premises still the school had no water, toilets and the areas where the water pipe passes people were prohibited to use water for irrigation nor livestock drinking. Furthermore compensation was never paid for the surroundings villagers whose live stocks died from drinking polluted water near the mines. Collapsing of 52 houses nearby from the blasts in Nyakabale mine in 2000 and increasing miscarriages of the women in nearby villages because they use water from the springs which were contaminated from the spills of nearby mines.

In November 1995 Ken Sarowiwa and 8 Ogoni people were brutally murdered by hanging in Nigeria in the protest of their right to clean air, water and land from the environmental degradation which was caused by Dutch British Shell's oil drilling in the Niger Delta (Green Peace International, 1995).

Conservatives have the notion that CSR comes at an extra cost that will wear down the firms' profitability and eventually its overall competitive advantage, but there is new evidence from developed markets showing that the two are not necessarily mutually exclusive (Berns, et al 2009).

A few studies have been conducted by researchers (Tsousoura (2004), Fauzi (2007), Ntoi (2010), Bolanle (2012) to understand the relationship between CSR and FFP in African countries but the results are still inconclusive, with researchers getting mixed results and fewer studies which have been done here in Tanzania with regards to the subject matter which were purely qualitative. Corporate Social Responsibility can play a great role in economic, social and environmental development of the country. This has motivated the researcher to carry out a similar study in Tanzania. The research seeks to assess the impact of Social Responsibility on Financial Performance by showing whether or not there is a significant difference in financial performance of firms practicing corporate social responsibility relative to those that do not practice CSR.

2 Literature Review

Corporate Social Responsibility (CSR) is the action in which the firm takes into account their involvement in the social activities as well as mitigating the effects of their business on the community and natural environment. Initially CSR was only limited to what the company does to its workers and their families but now it extends further to reach out to many people who are called stakeholders (Fauzi, 2007).

Firm's Financial Performance is a subjective evaluation of how well a firm can use assets from its primary mode of business and generate revenues. The term is also used as a general measure of a firm's general financial health over a given period of time, and can be used to compare similar firms within the same industry or to compare industries or sectors in aggregate (Fauzi, 2007).

The study results on the CSR and FFP link have never been in accord, as some studies determined negative correlation, some determined positive correlation, while others determined no correlation at all.

The perspective for positive correlation between CSR and FFP suggests a company's explicit costs are opposite of the concealed costs of stakeholders, therefore, this viewpoint is anticipated from the perspectives of avoiding cost to major stakeholders and bearing in mind their satisfaction. The proponents of positive relationship like Sweeney, (2009) found that there is a positive relationship between CSR and financial performance and it's because it affects the company's reputation, employee attraction and loyalty. It is also said that the stakeholders are indispensable since the very existence of the company depends on them. These are the people without their support the firm would definitely collapse. The researcher viewed CSR as those responsibilities extending beyond the law, a pursuit of policies that add value to the firm.

2.1 Overview of CSR in Tanzania

In Tanzania social responsibility came about with increasing competition as many companies flooded the country from various countries it gained momentum because now consumers have many options to choose from (Mushi, 2007). Now days CSR is used as a marketing tool for creating competitive advantage, ever since the number of firms doing CSR in the country has been on the rise. Recently a CSR award has been introduced which seeks to reward firms that make a greater contribution in the community through their CSR practices and also encourage other firms that are yet to incorporate CSR in their strategies to do so. Recently Tigo has partnered with a Swedish NGO on a pro child reach for change initiative that is aimed at improving the welfare of children (Daily News, 2012). This is a

very interesting move because some of the challenges seen on CSR implementation were proper identification of the community needs and pooling of resources which will be correctly addressed by entering into joint partnerships like this.

Mushi further stated that the Tanzanian community is characterized by problems of unemployment, diseases, poor infrastructure and the businesses depend on these people to support their operations by buying their products and services. This means the prosperity of the firm solely depends on the community, then what ever can be done to alleviate the community problems will be rewarded by the loyalty and reciprocity of the community.

2.2 Studies in other countries

Markets in developing countries face different challenges as to those in the first world. Firms find themselves in countries run by post war governments with significant budget deficit, heavy burdens of diseases and major skills shortage Ntoi, (2010). While there is so much evidence in support of positive impact of CSR on FFP, very little is published on its execution and impact on emerging markets. Ntoi, (2010) examined the difference in financial performance between SRI and Non SRI of companies listed on the Johannesburg stock exchange market. Using market based measures to assess the impact of investor behavior on social responsibility and its importance on financial performance. The findings revealed there is a difference in performance and further supports the positive link of CSR and FFP. The results show that Corporate Social Responsibility is rewarded by the stock market as their shares fetch higher price. Sustainability is a fairly new concept in Africa viewed most commonly in the context of charity which supports the bottom line (People, planet and profit).

Bolanle et al; (2012) carried out a study in Nigerian banks using Regression Model and found that there is a significant positive relationship between CSR and Firms Profitability because CSR reduces tax paid thus improving the overall firm's profitability. The researcher recommended that CSR commitment should not be underestimated despite some bad managers misusing the funds and claiming they have done CSR which can mislead the findings and eliminate the benefits that can be seen if you carry out the study under such a situation.

Uadiale and Fagbemi,(2011) using a Pearson correlation analysis carried out the study on a sample of Nigerian listed Company's and found that there is a significant relationship between CSR and Financial Performance and recommended that firms should commit their resources on CSR activities to enhance their image/reputation thereby increasing their returns. The researcher originates the driving force of CSR to the entry of multinational companies in the country.

Zadek et al, (2009) found that there is a need to view CSR more strategically by producing high quality products, environmental protection and minimizing its negative impact of the firms' activities on the environment and community. Corruption remains to be the biggest impediment in Africa as far as CSR implementation is concerned. Public services are unequally distributed and people are poorly paid making it hard to control corruption although the media is playing a major role in exposing the malpractices and corrupted businesses. Corruption hinders the social and economical development that is needed for sustainable development. Social investment also needs to be emphasized especially on areas like construction of schools and hospitals.

Tsoutsoura, (2004) pointed out that some shareholders regard CSR as a symbolic management skill, CSR is a symbol of status and the company reputation is improved by actions to sustain the community, resulting in positive influence on sales. Thus, when a company increases its costs by improving CSR in order to increase competitive advantages, such CSR activities can enhance company status and in the long run FFP can be enhanced, by sacrificing the short term FFP. The study stresses the importance of integrating CSR into the business culture and strategy for successful implementation, goes further to show that reputation and brand image as benefits of doing CSR it helps attract capital and trading partners, reduce costs from low employee turnover, recruitment and training costs.

Wanderly, et.al (2008) critically showed that the lack of academic literature on the impact of CSR on FFP in developing countries could be a reason why there is little disclosure and engagement of local firms. Practicing CSR may increase the company's avenues for capital access and entry into markets that take CSR as of paramount importance. The identified drivers of CSR in his paper include pressures from stakeholders, government and dependency on foreign business partners.

The proponents for negative correlation between CSR and FFP such as (Rapti and Medda, 2009) suggested that the fulfillment of CSR will bring competitive disadvantages to the company as need to bear other costs arise when firms are carrying out CSR activities. The increased costs will result in little gain if considered in economic interests. While when neglecting some stakeholders, such as employees or the environment, this results in a lower CSR for the enterprise, then FFP may be enhanced.

3 Data and Methodologies

Audited financial statements were used to obtain data of variables used in the study of financial year 2010 to 2012. 101 Companies were picked at random, some listed and others not listed in the stock market from different industries. Content analysis of annual reports was done to separate companies into two groups, those doing CSR and those that do not as used by Karaibrahimoglu, (2010) and Ntoi, (2010). Independent sample t test was used to check the significant of mean differences between CSR and non CSR companies. The test was under the following null hypothesis

Ho1: There is no significant difference of ROA between CSR and Non CSR firms

Ho2: There is no significant difference of ROE between CSR and Non CSR firms

4 Results and discussion

According to the criteria we applied 50 companies were practicing CSR and 51 companies were not, we called them non CSR. As it can be seen from table 1a the group statistics mean of CSR Return on Asset 0.093 is greater than that of Non CSR -0.0022.

Table 1 Group Statistics of ROA

	Group	N	Mean	Std. Deviation	Std. Error Mean
ROA	CSR	50	.092980	.0835012	.0118089
	Non CSR	51	-.002215	.0683699	.0095737

From table 2 levene's test for equality of variances has a significance of 0.076 which is greater than 0.05 level of significance this means the null hypothesis holds that the variances are the same, but the mean difference in profitability performance between the two groups is different since the significance of 0.000 of the t-test is less than 0.05 level of significance. Hence the null hypothesis is rejected and alternative accepted. This means there is a statistically significant difference on ROA between CSR and Non CSR firms.

Table 2 Independent Samples Test of Return on Asset

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
ROA	Equal variances assumed	3.216	.076	6.274	99	.000	.0951952	.0151722	.0650904	.1253001
	Equal variances not assumed			6.262	94.551	.000	.0951952	.0152021	.0650133	.1253771

As it can be seen from table 2a the group statistics mean of CSR Return on Equity 0.226 is greater than that of Non CSR 0.017. This means that CSR firm's perform better than Non CSR firms.

Table 3 Group Statistics of ROE

	group	N	Mean	Std. Deviation	Std. Error Mean
ROE	CSR	50	.22614	.142037	.020087
	Non CSR	51	.01706	.160626	.022492

From table 2 levene's test for equality of variances has a significance of 0.252 which is greater than 0.05 level of significance this means the null hypothesis holds that the variances are the same, but the mean difference in profitability performance between the two groups is different since the significance of 0.000 of the t-test is less than 0.05 level of significance. Hence the null hypothesis is rejected and alternative accepted. This means there is a statistically significant difference on ROE between CSR and Non CSR firms.

Table 4 Independent Samples Test of Return on Equity

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ROE	Equal variances assumed	1.327	.252	6.925	99	.000	.209079	.030193	.149170	.268989
	Equal variances not assumed			6.933	9.797E1	.000	.209079	.030156	.149235	.268923

Hypothesis 1: *The findings revealed that there is a significant difference between ROA of firms that do CSR in comparison to those that do not practice CSR which lead to the rejection of the null hypothesis.*

The findings conforms with Poddi and Vergalli, (2008) also found that there is a positive relationship between social responsibility and financial performance stressing on the importance of reputation and risk reduction as factors that lead to a better financial performance of firms that are socially responsible. Ching, et al, (2009) also found a positive impact on the Return on Assets for the next period. Arguing that when a company is in good terms with its stakeholders, it will promote its own image and build brand awareness. Consumers will believe that the company has a better reputation, which improves the competitive edge of the company, as customers would become loyal and willing to purchase company's products. It also promotes the morale of its employees in turn reducing costs associated with labor turnovers and improving productivity.

Hassan et al, (2012) also found similar results. Through globalization companies pursue growth, and active involvement in community beneficial programs which provide competitive advantage to the company as they pursue such goals. Companies operating in several nations are often required to play a substantial role in community issues of the particular nations, otherwise government regulations, environmental restrictions, labor exploitation issues and can cost companies millions of cash. Under such circumstances, Corporate Social Responsibility will increase both long term profitability and sustainability of the company while enhancing the reputation of the organization.

Hypothesis 2: *The findings revealed that there is a significant difference between ROE of firms that do CSR in comparison to those that do not practice CSR which lead to the rejection of the null hypothesis.*

Chen and Wang, (2011) found that there is a positive relationship between social responsibility and financial performance because shareholders feel guaranteed that their interests are being protected and their funds are also used to improve the well being of their societies by donations made on different CSR projects and environmental protection. This in turn reduces the transaction costs of obtaining external funding since the shareholders have no fear of adding more assets to the company.

Uadiale and Fagbemi, (2011) also found similar results, CSR have the potential to make positive developments in the society and businesses. Organizations are beginning to see the paybacks from setting up strategic CSR programs. The increasing attention to CSR is based on its proficiency to influence firms' performance.

All findings are in favor of companies that practice social responsibility confirming that indeed CSR has an impact on financial performance and it is a positive one since companies practicing CSR perform better than that do not practice CSR.

5 Conclusion

The aim of the study was to test if there is a significant difference in financial performance of companies that engage in CSR relative to those that do not. The results showed that there is a significant difference in performance supporting the existing body of knowledge for the positive impact of CSR on financial performance.

Corporate social responsibility increases the firm's brand awareness, leads to tax relief because of the deductibility of CSR expenditures before taxes are charged. Corporate social responsibility builds a good relationship with the stakeholders through full optimization of the supply chain that leads to efficient use of resources and increased operational efficiency. Social Responsibility improves customer loyalty, leads to reduced risks that normally stem from expensive lawsuits and compensations and also

lowers the firms cost of capital. Corporations have become more powerful since the largest global economies are dominated by them; therefore it's only sensible for them to have an increased role in addressing social problems. If you look at the issues of environmental degradation, employees' welfare and poverty state of the communities around them, they are best positioned to address and alleviate these challenges faced by the communities.

Policy implications also arise from practicing CSR; it is recommended that companies should be ranked in terms of Social Responsible performance and publishes even a list of those not qualifying as socially responsible to make consumers aware of the firms they deal with. The practice will revolutionize and the efforts will transform the community that is guaranteed.

Underdeveloped countries have been offering less stringent regulations, investment incentives, subsidies to increase FDI and growth of MNCs but this has added adverse effects on the states' ability to enforce laws and regulations which protect employees, environment and communities as a result developing countries have failed to encourage responsible business practices. Furthermore the government lacks the financial, legal and administrative resources to enforce strong regulations and their actions are further diluted by the lobbying and sponsorship of prominent politicians and trade associations by the corporations.

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On Business Finance Flexibility and Its Influence on Financial Risks: A Case Study of Listed Companies on GEM

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Abstract: With 402 sets of data from 134 listed companies on GEM from 2001-2013 as samples, this paper uses multi factor linear regression model to reveal the relation between financial flexibility and financial risk and comes to a conclusion that they are negatively correlated, specifically, financial flexibility can remarkably reduce risk through model testing and analysis of Empirical results.

Key words: Financial flexibility; Financial risk; Listed companies on GEM

1 Introduction

With rapid technological reform, global competition and rapidly changing market environment, enterprises find it is difficult to predict and master market trends, thus to quickly respond to the changes of the market. Enterprises' rigid financial management has been unable to cope with the uncertainty of the market. So scholars explore the flexible financial management model in response to increasingly diversified market. Deng Mingran (2002) defines the financial flexibility as enterprise's ability to take measures quickly and efficiently when faced with environmental changes and the resulting uncertainty. At the same time he classifies financial flexibility as financing flexibility, investing flexibility, operational flexibility, and the flexibility of benefit distribution.^[1]

Gem-listed companies are always fast-growing innovative companies which, especially high-tech companies, are faced with more financial risks compared to the traditional enterprises. At present, gem enterprises of China are lack of financial flexibility. To explore the relationship between financial flexibility and financial risks can help gem-listed companies to use financial flexibility to maintain a reasonable level and reduce risks.

2 Literature Review

Christian (2004) argues that flexibility can increase various capabilities for enterprises and it is also an effective strategy for risk reduction. Dreyer and Gornhaug (2004) think that financial flexibility can cope with the uncertainties facing the company. Financial flexibility is critical for enterprises to avoid financial risks and build competitive advantages. In 2005, Lie Eric in *Financial Flexibility, Performance, and the Corporate Payout Choice* discussed the impact of financial flexibility on the corporate spending choices. The company's decision of changing spending levels conveys the information about revenue and business risk change.^[1]

Ge Jiashu and Zhan Meisong (2008) hold that financial flexibility does not only affect the profitability of enterprises and assessment of future cash flow, but also have an impact on enterprises' risk assessment. High or very high financial flexibility could reduce the risk of business failure^[3]. Zhao Hua and Zhang Dingzu think that financial flexibility directly aims to financial risk management. Financial flexibility is an integrated ability which consists of buffering capacity, adaptability, coordination skills, and creativity.

To sum up, research on financial risks is relatively comprehensive at home and abroad, but research on the relationship between financial risk and financial flexibility is not much. Based on GEM-listed companies, the paper is going to study the correlation between financial flexibility and financial risks through financing flexibility, investment flexibility and operating flexibility.

3 Theoretical Analysis

3.1 Financing flexibility and financial risk

3.1.1 Internal financing flexibility and financial risk

Compared with the main board listed company, gem-listed companies are of small scale, and sits in relatively unstable start-up and growth stage in the industry life cycle, so the development is not mature enough. This kind of enterprise has higher risks than main board-listed companies, so the funds mainly come from internal financing of enterprises. Higher internal financing flexibility means lower financing risks, thus, the financial risk is decreased accordingly. Therefore companies can improve internal

financing flexibility to achieve the goal of reducing financial risk.

Assumption 1: the more flexible the internal financing, the lower the financial risk will be.

3.1.2 External financing flexibility and financial risk

Single financing can only provide limited amount of money and inadequate funding will have limit on enterprise development. Sufficient external financing can help listed companies on the gem make reasonable and flexible options for low-cost and reasonable bailout package in response to environmental changes as well as to ease funding pressures. Therefore it can achieve the goal of reducing or mitigating financial risk.

Assumption 2: the more flexible the external financing, the lower the financial risk will be.

3.2 Investment flexibility and financial risk

3.2.1 Flexibility in choosing investment projects and financial risk

It is necessary for enterprises that want to be successful to have enough projects to choose. Enterprises can adjust investment according to the changes in the external environment and flexibly respond to various problems. The more options companies have in investment projects, the more easily they can respond to market changes, and the more successful they can have a foothold and stable development in the market.

Assumption 3: the more flexible in choosing investment projects, the lower the financial risk will be.

3.2.2 Flexibility in investment innovation and financial risk

Innovation not only brings competitive advantages to enterprises, but also poses a huge risk to enterprises. Flexible investment innovation is the enterprises' innovation ability to succeed in a changing environment. The more flexible in innovative investment, the greater possibility there will be to succeed in innovation. Many studies have shown that successful innovation can bring enterprises core competitiveness, increase enterprises' efficiency, and reduce financial risks.

Assumption 4: the more flexible in investment innovation, the lower the financial risk will be.

3.3 Operative flexibility and financial risk

Gem-listed companies compared with the main board-listed company face even greater environmental change and uncertainty. In complex and changing environment, if a company wants to survive, not to be out of the market, it must adjust the production and operation according to market changes, maintaining the operational flexibility to adapt to market changes.

Assumption 5: the more flexible in operation, the lower the financial risk will be.

4 Research Design and Configuration of Samples

4.1 Variable selection

4.1.1 Financial risk measure

Many empirical studies have shown that Z-score model can be used to measure the financial risk of listed companies in China. It has a strong applicability used by all kinds of stakeholders of listed companies as well as academic research as effective tools for analysis of listed companies' financial risk. In the paper, the measurement method used by other scholars will be applied, as well as the Z-score model to measure financial risk of sampling data of selected listed companies. Models are as follows:
 $Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.999X_5$

In which: $X_1 = \text{working capital} / \text{total assets} = (\text{final current assets} - \text{final current liabilities}) / \text{final total assets}$;

$X_2 = \text{retained earnings} / \text{total assets} = (\text{final surplus reserves} + \text{final unappropriated profit}) / \text{final total assets}$;

$X_3 = \text{EBIT} / \text{total assets} = (\text{pre-tax profit} + \text{interest expense}) / \text{final total assets}$

$X_4 = \text{total market value of common and preferred shares} / \text{book value of total liabilities}$;

$X_5 = \text{sales revenue} / \text{total assets}$

In order to get easy access to data, in X_4 the market value of the final shareholders' equity total is replaced by gross book value of the final shareholders' equity as an alternative.

4.1.2 Financial flexibility measure

This paper puts profit distribution into financing flexibility, and classifies financial flexibility measures as financing flexibility measure, investment flexibility measure and operational flexibility measure. The specific measurement methods are shown in the following table:

Table 1 Financial Flexibility Measure of Gem-listed Companies

Flexibility		Metric	Measure
Financing flexibility	Internal financing flexibility	Internal funding adequacy (FCR)	The ratio of retained earnings and accumulated depreciation & amortization at the beginning of the year and the total assets at the end of the year
	External financing flexibility	External financing flexibility (FCN)	The total financing amount of capital that enterprise has used from external parties
Investment flexibility	Flexibility in choosing investment projects	Number of investment projects	The number of development items disclosed in the annual report of the research
	Flexibility in investment innovation	R&D strength (RDI)	R & D investment ratio
Operational flexibility	Operational flexibility	Operating cash flow adequacy (CF)	Ratio of net operating cash flow and total assets at the end of the year

4.2 Pattern design

According to the above, following model is presented:

$$\text{Risk} = \beta_0 + \beta_1 \text{FCR}_{i,t} + \beta_2 \text{FCN}_{i,t} + \beta_3 \text{RDI}_{i,t} + \beta_4 \text{N}_{i,t} + \beta_5 \text{CF}_{i,t} + \beta_6 \text{size}_{i,t} + \beta_7 \text{LEV}_{i,t} + \beta_8 \text{LRV}_{i,t} + \beta_9 \text{NPR}_{i,t} + \varepsilon$$

ε signifies residuals, symbolizes I company; t signifies the t year, β_0 is constant term. According to assumption 1 to 5, β_1 - β_5 is positive, according to the influence of control quantity on financial risk, β_6 , β_8 , β_9 is positive, β_7 is negative.

4.3 Configuration of sample

The paper selected totally 402 sets of data from 134 gem-listed companies (2011-2013) for study.

5 Empirical Analysis

5.1 Described analysis

Table 2 Described Analysis of Variables

	Sample No.	Min.	Max.	Mean	Standard Deviation
Rise	402	-2.2365	189.88	16.6678	21.744293
RDI	402	0.16%	98.39%	7.4693%	9.64771%
N	402	1	68	11.21	8.512
FCR	402	.0105	.3337	.112271	.0490240
CF	402	-.2423	.3635	.026187	.0688335
FCN	402	1	6	2.00	.984
Size	402	18.7602	22.5661	20.787611	.5819370
LEC	402	1.78%	52.15%	18.4078%	13.53888%
LRV	402	.5789	64.8006	8.799369	9.2464310
NPR	402	-99.23%	104.49%	16.4568%	21.17871%
Valid No.	402				

In Table 2, it indicates that a certain part of enterprises are faced with financial risk, but the majority of the enterprise's financial risk is relatively small. Gem-listed companies' ability to obtain cash is poor, thus they are faced high financial risk; minimum amount of external financing is 1 and the maximum value is 6, and most businesses have few sources from external funding.

5.2 Relevant analysis and model testing

In table 3, while $\alpha=0.05$, among the independent variables, internal financing adequacy is positively related to research and development intensity; the number of projects is positively correlated with the number of external financing channels. When $\alpha=0.01$, among control variables, asset-liability ratio is negatively correlated with investment intensity in research and development, and is positively related to external financing amount; and the size of enterprise is positively related to internal financing abundance and the number of external financing channels; net profit is positively related to investment intensity in research and development, the adequacy of internal financing, operating cash flow abundance; current ratio is positively related to internal financing abundance and negatively correlated

with the number of external financing channels. It can be seen that there exists multicollinearity between independent variables and controlled variables. We can conduct multilinear test through tolerance, Vif, and condition index. The test results are shown in table 4 and table 5.

Table 3 Related Pearson Coefficient

	RDI	N	FCR	CF	FCN	size	LEV	LRV	NPR
RDI pearson Correlation	1								
Significance (Two-side)									
N pearson Correlation	.070	1							
Significance (Two-side)	.161								
FCR pearson Correlation	.126*	.700	1						
Significance (Two-side)	.011	.161							
CF pearson Correlation	-.001	.050	-.80	1					
Significance (Two-side)	.980	.313	.109						
FCN pearson Correlation	.210**	.121*	-.019	-.100*	1				
Significance (Two-side)	.000	.015	.701	.046					
Size pearson Correlation	-.001	.043	.123*	-.147**	.205**	1			
Significance (Two-side)	.980	.388	.014	.003	.000				
LEV pearson Correlation	-.153**	-.117*	-.055	-.004	.362**	-.008	1		
Significance (Two-side)	.002	.019	.275	.939	.000	.868			
LRV pearson Correlation	.126*	.055	.174**	.040	-.286**	-.011	-.601**	1	
Significance (Two-side)	.011	.273	.000	.419	.000	.827	.000		
NPR pearson Correlation	0.281**	.071	.231**	.295**	-.090	.000	-.282**	.299**	1
Significance (Two-side)	0.002	.157	.000	.000	.071	.994	.000	.0000	

**_significant related on two sides at 0.01
*_significant related on two sides at 0.05

Table 4 Tolerance and VIF Test

	RDI	N	FCR	CF	FCN	size	LEV	LRV	NPR
Tolerance	.886	.919	.743	.798	.745	.841	.541	.555	.757
VIF	1.129	1.089	1.346	1.253	1.342	1.190	1.847	1.802	1.321

Table 5 Condition Index Test

	RDI	N	FCR	CF	FCN	size	LEV	LRV	NPR
Condition Index	2.452	2.834	3.035	3.371	4.502	4.726	5.021	6.433	7.929

Variable tolerance is close to 1.VIF is between 1 to 2, and less than 10. All of condition indices are less than 10. There is multi-collinearity among variables, but of low level of colinearity within an acceptable range. So we can judge multi-collinearity among variables in this paper will not have a substantial impact on results.

5.3 Regression analysis

Based on the financial risk as the dependent variables, adequacy of internal financing and external financing amount and intensity in research and development, the number of investment projects in research and development, the adequacy of operating cash flow as independent variables, and firm size, assets and liabilities and net profit margin ratio, current ratio as control variables, the paper uses access methods to have a regression analysis of multivariate linear model. The regression results are shown in table 6.

Table 6 Regression Results

Model		Non-Standardized Coefficient		Standardized Coefficient	t	Sig
		B	Standard(Error)	Trial Version		
1	Constant	-5.408	1.741		-3.107	.002
	FCR	5.612	1.029	.158	5.454	.000
	FCV	.118	.051	-.067	2.310	.021
	RDI	.001	.005	.004	.144	.885
	N	.012	.005	.059	2.269	.024
	CF	4.980	.707	.197	7.042	.000
	Size	.283	.820	.094	3.474	.001
	LEV	-.025	.004	-.196	-5.771	.000
	LRV	.101	.006	.535	16.000	.000
NPR	.017	.002	.211	7.367	.000	

1) When $a=0.01$, the adequacy of internal financing is positively related to the risk. As the higher the risk is, the smaller the financial risk will be, that is the adequacy of internal financing is negatively related to financial risk when $a=0.01$: the more ample internal financing is, the smaller the financial risk will be, supporting assumption 1.

2) When $a=0.05$, the amount of external financing channel is positively related to the risk. As the higher the risk is, the smaller the financial risk will be, so the amount of external financing channel is negatively related to financial risk when $a=0.05$: the more the external financing channels there are, the smaller the financial risk will be, supporting assumption 2.

3) During reporting periods, when $a=0.05$, the amount of R&D projects is positively related to the risk. As the higher the risk is, the smaller the financial risk will be, so the amount of R&D projects is negatively related to financial risk when $a=0.05$: the more the R&D projects there are, the smaller the financial risk will be, supporting assumption 3.

4) There is no significant relationship between research and development intensity and risk, not supporting assumption 4. With ever-accelerating pace of today's market, research and development projects have to be put into operation and be listed as soon as possible so as to be likely to achieve market leadership, bringing healthy profits to reduce the financial risk. But always the effects of investment in research and development cannot be seen immediately in the period. So there is no significant correlation between the intensity of research and development and the financial risk.

5) When $a=0.01$, the adequacy of operating cash flows is positively correlated with the risk. As the higher the risk is, the smaller the financial risk will be, so the adequacy of operating cash flow is negatively correlated with financial risk when $a=0.01$: the ampler the company's cash flow for operating activities, the smaller the financial risk will be, supporting assumption 5.

6 Conclusion

Study has shown that financial flexibility could significantly reduce financial risk. In the volatile and uncertain market environment, flexible financial management is very important for enterprises. They should use the traditional rigid financial management while adding a flexible management style.

6.1 Enhancing financial flexibility

With the increasing uncertainties of the market environment, companies face growing financial risk. So traditional purely rigid management is no longer suitable for enterprises, and enterprises should pay attention to flexible management and the combination of rigid and flexible financial management financial to further reduce the financial risk of enterprises.

6.2 Appropriate financial flexibility

The greater the financial flexibility is, the higher the cost will be. When cost reaches a certain level, financial flexibility is going to cost more than the benefits it brings to the enterprise. On the contrary, it will increase the burden of companies. Enterprises' financial flexibility should have a certain boundary. Too high or too low is not scientific. The enterprise should adjust the financial flexibility according to their ability and the degree of environmental, keeping it within a reasonable range.

6.3 Reducing financial risks by various ways

Empirical studies find that financial flexibility could reduce the financial risks, but enterprises cannot rely solely on financial flexibility to manage financial risks. Financial flexibility has hysteresis nature and of high cost, so enterprise should not rely too much on financial flexibility to minimize financial risks while ignoring other means. Enterprises should combine financial management flexibility with many other instruments to reduce the financial risks within a scope that the enterprise can bear.

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The Role of Individuals' Characteristics in Marketing Information Systems (MIS) Decision Making

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Abstract: In this we examine a role of marketing information system in decision-making. The link between certain individuals' characteristics and their decision-making process is conceptualized. Consequently, the thesis is formed that marketing information system based decision-making is also impacted by individuals' characteristics. We suggest that there is a connection between decision-making styles of individuals and the decisions they make based on the marketing information systems. In our study this notion is substantiated through examination of prior literature, and a foundation is built for future exploration. We recommend that future studies should aim at explaining how individual traits directly influence decision-making. Additionally identifying different decision-making types and in what measure they influence the decision-making process is required. Finally, explaining the influence of the marketing information system and the way reach favorable decision-making outcomes is a key aspiration of future research.

Key words: Marketing information system; MIS; Decision-making; Marketing performance

1 Introduction

As the consumption and market demand of consumers become more sophisticated, marketing operations of companies are getting more focus within firms. Marketing processes such as marketing research, new product development, and customer relationship management are vital part of any company (Armstrong and Kotler, 2010). Increasing pressure from the competition additionally drives companies to make wise and well-informed business decisions, while gathering information continuously from sources inside and outside an organization. Informed decision will enable the decision maker to consider the alternatives and make an optimal decision (Obrenovic and Obrenovic, 2012). The marketing information systems role in companies' decision-making is increasingly growing. According to Armstrong and Kotler (2010), timely marketing information provides the basis for decision-making and can have a formidable result on the decision-making process itself. Nevertheless, a solely marketing information system that generates systematized information is not the only factor upon which decisions are made. Decision-making is a conscious human process and is guided by human emotions, abilities, and other characteristics. Furthermore, there are different types of decisions. Different benchmarks exist in determining on how decisions are made. The nature of decision and the level of authority are divided into four different criteria, according to Drucker, and they include: qualitative factors, the future times involved, the repetition, rareness or routine of a decision and whether the impact of a decision is on other function, areas or on the businessman as a whole. Therefore, given the inherent characteristic in people and considering a complexity of the business situation it is fit to regard marketing information system more as a tool that facilitates the decision-making process than as a determinant of high quality and effective decisions.

User characteristics and their decision-making styles are therefore important features that may impact the way a decision is made and how marketing information is processed. Therefore, in the conceptual study we aim to explore the link between decision-making characteristics of marketing information system users and decisions made based on the marketing information system. This study will also determine in which ways these managerial characteristics may or may not overlap with one another and in consequence influence the decision-making process and organizational outcomes. First, we introduce and elaborate on the concepts of marketing information systems, and decision-making. Next, we illustrate the role of individuals' characteristics and their decision-making styles in marketing information system based decision-making. The conceptualized model is visually represented in the third section. Finally, the suggestions for future studies are given, followed by the conclusion.

2 Marketing Information Systems and Decision-Making

According to Kotler "A marketing information system is a continuing and interacting structure of people, equipment and procedures to gather, sort, analyze, evaluate, and distribute pertinent, timely and

accurate information for use by marketing decision makers to improve their marketing planning, implementation, and control". Decisions are still predominately made, not based on calculated data, but on so called "gut feeling" of the managers, which reflect their recognition of general market trends and their experience. For the most part, the decision-making process mainly relies on intuition and "gut feeling", according to McDonald, because the information system does not make the actual decisions, although information reduces uncertainty and helps marketing managers to see the likely effects of various decisions. The marketing information system within companies is mainly universal, which means that the system is not specifically tailored to meet the requirements of different user levels in terms of experience, knowledge and other user characteristics. Not all workers create the same output, they are not capable to do so based on the level of experience, intuition or because of a knowledge factor. This is limiting because not all managers are the same, they do not have the same performance and cannot be equally efficient (Kotler, 2003). This means not all decisions are made in the same manner because the marketing information system does not have the same effect on everyone, specifically not in the desired measure.

According to McDonald, the marketing information system has to be precise and efficient to properly influence all managerial levels in making the right and appropriate decision. This type of a marketing information system transforms the decision-making process into concrete actions, along with its plans, policies and scopes. Planning leads to sound decision-making and that implies the selection from alternatives course of actions (Jobber et al., 2006). Making the right choice or decision is often very difficult to achieve as the individuals, or in this case company managers making the decisions have to include other factors in the decision-making process, such as experience and judgment, which may or may not overlap but definitely influence the decisions being made. Depending on the decision types, different decisions require different application of the marketing information system, simple decisions may not require much thinking and contemplating over so the marketing information system in that case may not have much influence on the decision-making process itself. As the decisions get tougher and more complex, the marketing information system and its role increases, and with that there is more room for error and for the decisions not to reach the desired outcome (Kotler, 2003). As the decision-making process gets more difficult, different factors come into the equation and become relevant, for example, was there any prior knowledge or experience regarding the decision or was intuition applied in the process (McDonald, 1996).

3 Decision-making Styles

Before actually proceeding to decision-making, one has to realize that it is a conscious human process. To decide implies to choose a particular course of action from among a set of possible alternatives, and reach a resolution. Decision-making is defined as the "conscious and human process, involving both individual and social phenomenon based upon factual and value premises, which concludes with a choice of one behavioural activity from among one or more alternatives with the intention of moving toward some desired state of affairs" (Fremount, et, al., 1970),. Despite minor variations in terminology it is clear that many of the critics of the narrow view of the role of marketing research are advocating a common concept—"the concept of careful search to generate a flow of ideas and information which will help executives make better decisions. According to (Fremount, et, al., 1970)" The notion of a sustained flow of decision-information leads to the term, "marketing information system".

A marketing information system is a structured, interacting complex of persons, machines, and procedures, requiring the coordinated efforts of many departments and individuals, including: Top management, marketing management, brand management, sales management, new product groups, market research personnel, control and finance departments, systems analysts and designers, operations researchers, statisticians, and model builders, programmers and computer equipment experts and suppliers (Harmon Robert R. (2003). Given that these individuals possess distinctive characteristics which guide their decision making process, it is advised that an information system they utilize fits not only the task, but their individual style of information-processing and making decisions.

Decision-making styles are significant strategies for approaching information system use decision dilemmas. Therefore, decision-making is a fundamental aspect of managerial and employees' behavior not only in information system use but other areas and the notion of decision making style is commensurate with individual difference paradigms in which there has been a resurgence of interest (e.g. Allinson and Hayes, 1996; Riding and Rayner, 1998; Sadler-Smith, 1998). Certain decision-making

style that is inherent in the individual himself may have an impact on the decisions made. When it comes to more complex decisions marketing information system is used to facilitate the decision making process. Regardless of the existence of MIS, and the organizational standards of MIS proposed use, an individual will rely on his personal “software of the mind” when processing information coming from MIS, or from other external sources. Consequently, a personal decision-making style may influence a decision made based on MIS. Finally, we propose that the quality of the reached decisions has an impact on marketing performance, and other organizational outcomes.

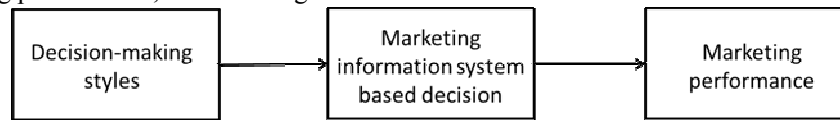


Figure 1 Research Model
(source: Ghazi, Hu)

4 Recommendations for Future Studies

Future research should focus on different managerial and employee characteristics and the decision making process based on the characteristics of marketing information system. Additionally, an effect on the organizational outcomes, such as marketing performance, financial, market performance should be examined. The studies will be an extension of the existing studies that have started to explore the causes of people’s decision-making, in particular managerial decision-making based on information systems. A sample of decision makers from various companies that have implemented the marketing information system should be studied in an effort to further explore business operations concerning marketing information systems. The problem exists that the marketing information system awareness in many companies has not yet reached sufficient levels for it to have a greater impact on the decision-making process itself. The degree of IT penetration and information use in business processes is not yet at the point where e-commerce and market data collection has become a routine practice.

In future studies we suggest creating a research model in which specific relationships between variables from the domain of marketing information systems and decision-making will be tested. Such study would explore and explain whether manager and employee characteristics influence marketing information system based decision-making. Moreover, we would find out which human characteristics lead to favorable marketing decisions and what kind of characteristics guide decision-making to produce favorable marketing outcomes. Consequently, we would suggest organizations on how to effectively foster marketing information system decision-making. By examining individual traits of different managerial levels and how they directly influence decision-making a contribution toward identifying different decision-making types and in what measure they influence the decision-making process will have been achieved. Explaining the influence of the marketing information system and how to reach favorable decision-making outcomes would provide a clear identification on which marketing information processes contribute most to successful decision-making outcomes.

5 Conclusion

The main objective of the paper was to substantiate the thesis that human characteristics affect decision-making based on marketing information systems. We have accepted the definition of decision-making as the “conscious and human process, involving both individual and social phenomenon based upon factual and value premises, which concludes with a choice of one behavioural activity from among one or more alternatives with the intention of moving toward some desired state of affairs”. As these individuals possess distinctive characteristics that guide their decision-making process, we posit that an information system suits their individual decision-making style. Through a review of key studies, we were able to conceptualize a link between the concept of decision-making styles that are inherent in human characteristics and decision that are based on marketing information systems. Additionally, we suggested future studies to evaluate the current state of decision making, marketing information system use and marketing outcomes and to explore if and to which extent managers in companies are applying marketing information systems to make relevant marketing decisions and if the decision making is driven more by their individual characteristics and decision-making styles. Future studies should provide empirical evidence upon which effective management initiatives can be implemented. Decision-making is a domain worth further exploring given that it is a fundamental aspect of managerial and employees’ behavior. Therefore, recognizing different managerial types and discerning the manner in which they reach favorable outcomes in the decision-making process is

required.

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The Multilateral Relationship: Chinese Yuan and Other ASEAN Currencies

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Abstract: Scholars and researchers in the international finance have long puzzled over the lack of an empirical relationship between exchange rates and fundamentals and theoretical exchange rate models are difficult to verify using actual data related to fundamentals. This may be related to the length of the sample period or the choice of bilateral/multilateral exchange rates. Chinese yuan is going to play a vital role in terms of regional, sub regional and bilateral trade between china and its counterparts. The co-integration relationships between multilateral exchange rates and fundamentals were found, and short-run fluctuations in multilateral exchange rates contribute to forecast changes in fundamentals. We surmise that the reason for this is that multilateral exchange rates provide more comprehensive empirical information, which can enhance the explanatory power of conventional exchange rate models in empirical applications.

Key words: Multilateral Exchange Rates; Asian currencies; Currency co-integration; Multilateral relationship

1 Introduction

China's emerging economy is a big issue for several decades. As well as its own currency (RMB) exchange rate has got lots of supporting and criticisms. Alike with other national china has also its own currency policy. Despite of international criticism china is trying to maintain its own strategies. PRC has experienced rapid growth over the past two decades, and has taken steps towards internationalization of the yuan. However, the yuan continues to be tightly managed and has a long way to go before it can become fully convertible. Hence, as pointed out in several studies such as Kawai and Takagi (2005), Ogawa and Shimizu (2007) and Girardin and Steinherr (2008), it would be appropriate to create a basket of appropriately weighted regional currencies.

1.1 Objectives and scope of the research

The main objectives of the research are to resolve:

- 1) To find a relationship between RMB and other Asian currencies.
- 2) Impacts on Asian economies of RMB depreciation and appreciation
- 3) Importance of Chinese Yuan on Asian economy.

1.2 Methodology

Secondary information sources are main sources of data for this report. Wide range of related topics from several books, journal, articles, and publications were covered while accomplishing the paper. Trusted governmental websites are also another major source of our data. Some data we have used for some calculations. We have tried to explore some newspapers that deals with related topics.

1.3 Literature review

According to (Akhtar and Spence, 1984), Exchange rate volatility is a source of concern as currency values partially determine the price paid or received for output/goods and, consequently, this affects the profits and welfare of producers and consumers. so the exchange rate volatility has a good relation with the volume of goods traded internationally by making prices and profits indeterminate. By using a popular model of exchange rates-ex- tended by Frankel (1979) on the basis of an earlier version proposed by Dornbusch (1976)-we also hope to lay the ground for more satisfactory tests of its theoretical foundations. Secru and Uppal (2000) showed the theoretical possibility of both positive and negative relationships, and Bacchetta and Wincoop (2000) illustrated a theoretical model exhibiting no relationship between these variables. Numerous studies showing the high degree of volatility of exchange rate movements have led policy makers and researchers to investigate the nature and extent of the impact of such movements on volume of trade, both exports and imports.

2 RMB or US Dollar? Medium of transactions between ASEAN and China

Major currencies in ASEAN region have had a long history of following the US dollar. After the Asian financial crisis, some countries adopted more flexible exchange rate regimes, but empirical works have shown that US dollar was still the de facto anchor currency for many of them (Benassy-Quere, Coeure and Mignon, 2006). McKinnon and Schnabl (2004) used "dollar standard" to describe the return

of US dollar peg in the regional exchange rate regime from 1999 to 2003. More recent works also verified the importance of the US dollar (Frankel and Wei, 2008, Frankel and Xie, 2010). In fact, according to the latest exchange rate arrangement classification reported by the International Monetary Fund, among all economies in the ASEAN region, Cambodia officially use US dollar as exchange rate anchor while two others adopt a de facto exchange rate anchor of US dollar (Lao PDR and Vietnam). And for other countries, although US dollar is not the nominal anchor, it remains an important currency in their de facto currency baskets (Frankel and Wei, 2008, Frankel and Xie, 2010). Recently studies of the region's exchange rate regimes have started to assess RMB's influence on the currency baskets, in addition to the traditional anchors such as US dollar. Evidence seems to show that since China adopted a more flexible exchange rate in July 2005, RMB has become a more independent and increasingly important force in determining the region's exchange rates (Chen, Peng and Shu 2009, Henning 2012). Some authors even claim that RMB has become a reference currency and a RMB bloc is already formed in East Asia (Subramanian and Kessler, 2012). Nominal exchange rate movements of the major ASEAN currencies vis-à-vis the US dollar since July 2005 seem to suggest that a number of them do follow to some extent the fluctuations of the RMB, especially during the two periods when the RMB exchange rate exhibited higher volatility and gained the most appreciation against the US dollar (July 2005 to June 2008 and July 2010 to end of the sample at March 2013). Correlations between RMB and other major ASEAN currencies in the different sub periods also indicate that the co-movements of exchange rates tend to be higher when the RMB was floating more freely.

Furthermore, empirical results also show that the expedition of the cross border use of RMB in 2009 might have further increased the weight of RMB in some currency baskets. Similar results are obtained when the currencies are denominated in the Swiss franc, other than in the SDR. Due to potential collinearity between USD and RMB, we also explore whether the RMB weight will change substantially if the effect of the USD on the movement of the RMB is excluded to get the pure RMB effect on regional currencies, and the results are consistent. The underlying causes for the increasing importance of RMB in the region's currency baskets can be several. Increasing trade integration between China and these economies during the past decade or so is perhaps the most important factor (Subramanian and Kessler 2012). Annualized growth of exports and imports with China exceeded 20 percent for ASEAN economies, and more than 10 percent for Japan and Korea. Our analysis shows that closer trade and financial linkages as measured by bilateral trade and investment activities are indeed the major reason why the RMB is becoming more important. The business cycle factor is found to be insignificant. In addition to the economic factors, we notice that the deeper trade and financial integration is perhaps also a result of the more active policies pursued by the Chinese government, such as the push for the RMB to "go out" during the financial crisis and further liberalization of the capital account. We thus formally include a policy factor in our analysis and find that it has also contributed to the rise in the weight. Despite the rapid rising of RMB and the broad attention it gets as the latest new candidate for the international monetary system, the internationalization of the RMB is still at an early stage. The international use of RMB is still limited by certain aspects, such as its weight in global trade and financial transactions, foreign exchange reserves and other measures. This contrasts with China's share in global economy and trade. Wider cross border use of RMB will depend on further development of the capital markets and higher convertibility of the currency, and when that takes place RMB would presumably become a more important anchor currency in the ASEAN region.

3 RMB as an offshore in ASEAN

We believe China will play an increasing role as an exporter of capital into ASEAN due to its high level of savings, the saturation of domestic sectors, rising costs of production, and domestic de-regulation of investment. The creation of the ASEAN Economic Community (AEC) in 2015 will have an additional positive impact on this investment. With the uncertain direction of the US dollar and the euro being weighed down by continuing debt concerns, ASEAN business and banking communities have been increasingly using the RMB as an alternative trade and investment currency. The flow of RMB into ASEAN countries typically goes through Singapore. The RMB-denominated deposits in Singapore grew from 195 billion yuan at the end of 2013 to 220 billion yuan in the first quarter of 2014. RMB-denominated loans in Singapore, mainly trade financing, grew by almost 25 percent to reach over RMB 300 billion. Singapore accounted for about 60 percent of RMB trade finance outside mainland China and Hong Kong, based on SWIFT data. ASEAN economies will lead the global pack in adopting RMB as an international currency, expanding from trade settlement to infrastructure financing and

broader investment opportunities as the region's dependence on and loyalty to the US dollar declines. But for the currency to become a truly international reserve currency, China would need to open its capital account and achieve full convertibility. (Noel Quinn, HSBC)

Malaysia and Singapore's governments, competing for a share of bond issuance in a globalizing Chinese yuan, are finding big-cat branding alone isn't enough to challenge the dominance of Hong Kong. Cagamas Bhd. raised 1.5 billion yuan (\$244 million) earlier this month in Malaysia's inaugural offer of Tiger Emas bonds, the first issue in the Chinese currency to be cleared locally. The new securities join Lion City debentures in Singapore and Formosa bonds in Taiwan, which started last year and together comprise about 5 percent of a market that's dominated by Hong Kong's Dim Sum notes, Bloomberg data show. Singapore's position as a regional private banking hub, and Malaysia's stronghold as an Islamic center will bring new investors into the offshore yuan bond market. Hong Kong's advantage lies in its head start in opening up trade and investment in the currency. Yuan deposits in the city are approaching the 1 trillion yuan mark, versus some 254 billion yuan in Singapore as of June. Singapore is emerging as ASEAN's hub for offshore RMB, receiving more than half of China's foreign direct investment into the region up until 2010, an HSBC Holdings Plc report said last month. China shares a border with several ASEAN economies including Vietnam. "Since we started promoting offshore yuan bonds out of Singapore, we've seen additional interest and queries from Singapore-based investors and issuers," said Clifford Lee, the head of fixed income at DBS Group Holdings Ltd., the top-ranked arranger of Singapore dollar bonds since 2009. "Singapore is the first offshore clearing center truly outside of China. It's a welcome step in the development of the RMB." Yet it's still unclear what exactly denotes a Lion City bond. Unlike Swiber and notes sold by Hainan Airlines Co., which were cleared and listed in Singapore, the 3 billion yuan of securities sold by Bank of China Ltd.'s Singapore unit are listed on the Singapore Exchange, but not cleared in the city. "The RMB market will be an important one for Malaysia's Islamic finance industry," Steve Wang, the head of fixed-income research in Hong Kong at BOCI Securities Ltd., a unit of China's fourth-largest bank, said in a Sept. 22 phone interview. It will "sharpen their lead in Islamic finance if they can capture the opportunities in the offshore yuan market." So far only Khazanah Nasional Bhd., Malaysia's sovereign wealth fund, has sold a Dim Sum bond that complies with Islamic law. Those 500 million yuan of 2.9 percent three-year notes due next month are yielding 4.06 percent, Royal Bank of Scotland Group Plc prices show, compared with 3.24 percent at the start of the year.

4 ASEAN policies regarding international trade

Like all other nations or region ASEAN also has some its own trade policies. These policies may vary country to country, country to regions and other bilateral trades depending on trade terms and conditions. Also may differ as they have some special or common agreements. Here are some trade policies that related to international trade and transactions.

4.1 ASEAN exchange rate policy

In tandem with the active negotiation and completion of regional trade agreements with their East Asian neighbors, perhaps another contributing factor to the rapid growth in East Asia's trade is that before the 1997–98 East Asian crisis, most Asian countries maintained de facto dollar pegs, which worked to stabilize exchange rates within the region. With the adoption of more flexible exchange rates following the 1997–98 East Asian crises, intraregional exchange rate volatility has risen significantly. East Asian exchange rate arrangements cover a wide spectrum of regimes of varying degrees of flexibility ranging from the crawling peg of the PRC to independent floating regimes in the Republic of Korea, Japan, and the Philippines. The only exceptions are Brunei Darussalam; and Vietnam, all three of which operate a fixed exchange rate arrangement anchored on a single currency. One contributing factor for the move toward more flexible exchange rate arrangement in these East Asian countries is that after the Asian financial crisis, almost all of the crisis-affected countries, i.e., Indonesia, Philippines, and Thailand, chose to abandon a conventional pegged exchange rate regime in favor of flexible exchange rates, while Malaysia implemented a conventional pegged arrangement until 2005 but has since shifted to a managed floating exchange rate regime (ADB 2010). In other words, most East Asian monetary authorities have not willingly assumed the responsibilities that come with operating a rigid peg let alone the alternative of a clean float. To be more specific, by and large, the middle has not really become hollow for the exchange rate policies of these East Asian economies, and more of them have the desired preference of managing exchange rates that are edged toward flexible exchange rates albeit not free floating. The implication of the above analysis is that moving forward with deeper integration in the

region requires solving the exchange rate problem. This task is made more complex by a current understated nuance of East Asian middle-ground exchange rate management of less willingness to tolerate exchange rate appreciations. Part of the reason for the unwillingness has to do with the potential of losing competitiveness against other East Asian neighboring economies that compete with each other in markets within and outside of the region. As a consequence, the scenario of a beggarthy-neighbor competitive depreciation strategy, which can be costly to the region in terms of a large and unnecessary reallocation of resources across the region, always looms large on the horizon (Kawai and Takagi 2012). Richard Pomfret and Victor Pontines adb work paper explains the increasing impact of the RMB on the region's exchange rate determination also has policy implications for the ASEAN members. While higher trade and financial integration is the major force behind the RMB's rising importance, the deeper integration also means that the region might be increasingly subject to the spillover effects of China's domestic macroeconomic policies and structural reforms. The exchange rate risk might be mitigated through more use of RMB in cross border trade settlement, but other risks could also arise with economic integration with China and closer policy coordination between countries are needed regarding risk management and control. (Chuling Chen, Reza Y. Siregarand Matthew S. Yiu 2013)

4.2 ASEAN bilateral trade policies

Trade relation between china is a crucial factor that ASEAN countries have to consider when formulating their trade policy. According to Professor Ba Shusong from the Department of Finance of the State Council of the People's Republic of China, the Chinese Government decides on the exchange rate adjustment according to the trade imbalances among its major trade partners. Obviously Chinese government will try to get the favor of the exchange rate by imposing or restructuring its trade policies. In this case ASEAN countries also have to take some measures on this regard or the take some actions in reply. In case of ASEAN For those industries that may be exposed to negative impacts from the adjustments, the respective government can treat it in one of two different ways: if the industry falls into the category the government intends not to develop in the future, it will allow the industry to fade away through market processes; if the opposite is the case, the government will subsidize the industry in various ways to maintain and help it grow in the future. Before the adjustment is implemented, the government can organize a nationwide conference to explain to the firms that will be affected most directly, the reasons, consequences and responses to such an adjustment. In most cases the domestic firms will follow the advice from the government, even though a small number of joint ventures and wholly foreign-owned firms may not fully follow the recommended measures. The latter situation leads to a policy adjustment that is less than fully implemented or effective. Thus, whether and how the exporters actually respond to changes in the RMB exchange rate is an interesting and important question to explore.

One prime example is Singapore's soft-peg exchange rate system. The Singapore dollar exchange rate is managed and set against a trade-weighted basket of currencies of its major trading partners. The trade-weighted Singapore dollar is allowed to float within a target band as the economic environment changes. The Monetary Authority of Singapore keeps the trade-weighted dollar within the band through foreign exchange interventions (Kapur 2005). The policy is in part also designed to help Singapore maintain the 'soft peg' that has been crucial for its export-led strategy of economic development. Singapore's successful maintenance of its soft peg defies the conventional wisdom that soft-pegs are not viable. (xiao bing feng, Pacific economic papers,2006)

5 Conclusion

The composition of ASEAN-China trade has evolved considerably. Resource-based commodities especially hydrocarbon, wood, and fat and oil products accounted for two-thirds of the total export value of ASEAN to China in the early 1990s, but only 22 per cent in 1999. The relative share of manufacture goods electrical machinery and computer equipment especially – went up from 12 to 38 per cent in the same periods. Meanwhile, ASEAN imports from China have been comparatively more diversified. The top five imports (namely electrical machinery, computer equipment, hydrocarbon products, cotton and tobacco) accounted for almost two-fifths of the total import value in the early 1990s, and 57 per cent in 1999 (with cereals plus ships and boats replacing cotton and tobacco in relative importance).

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The Relationship Between Intellectual Capital and Financial Performance of Banks in Tanzania

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Abstract: This study examines intellectual capital (IC) performance of banks operating in Tanzania, and investigates the relationship of IC on financial performance. It identifies the IC components that may be the drivers of the traditional indicators of bank success. The study uses the Value Added of Intellectual Coefficient VAIC™ methodology, to measure the Intellectual Capital efficiency of the Banks using a four years period data set from 2010 to 2013. The results of a survey, show that intellectual capital performance of Tanzania is low and it is positively associated with bank financial performance indicators. However, when VAIC is split into its components, the relationships between these components and bank financial performance indicators vary. Three value efficiency indicators, Human Capital Efficiency (HCE), Capital Employed Efficiency (CEE) and Structural Capital Efficiency (SCE) which are the components of VAIC™ ratio, were used in the analysis.

Key words: Intellectual Capital (IC); VAIC™; ROE; ROA; Banks; Tanzania

1 Introduction

In this 21st century which is widely recognized as the era of knowledge economy with the advent of knowledge based economy, the traditional bases sources of competitive advantage that depend on tangible assets such as labor and capital in creating firm value and sustaining competitive advantage begun to fade (Pablos, 2002). Intellectual capital (IC) is a relatively recent line of research that has received increasing scholarly interest with the continuing growth and development of the global knowledge economy, the study of Intellectual capital has attracted many researchers from all over the world and accordingly some studies have been conducted on different aspects of intellectual capital.

In emerging economy such as Tanzania the banking system is the most active sector and plays a significant role for growth of economy. Banks play significant role to facilitate the financial transactions. Tanzania has more than 50 years history of banking sector. By the end of 2012 the banking sector continues to expand and remain profitable, highly liquid and adequately capitalized. The volume of deposits increased by 17.9 percent to TZS 14,175.57 billion during the year ending March 2013 from the level recorded in the corresponding period in 2012. The number of banking institutions increased from 49 in March 2012 to 51 in March 2013 (Financial Stability Report, 2013)

At the end of 2013, the licensed banking system in Tanzania consists of 53 banking institutions consisting of 34 commercial banks, 12 community banks, 5 financial institutions and 2 deposit taking Microfinance Company. The ownership structure of the banking institutions for the period ending 2013 comprised of five (5) state-owned and forty eight (48) privately owned banking institutions. On the other hand, twenty seven (27) banking institutions were majority locally owned while twenty six (26) were majority foreign owned. (Directorate of Bank Supervision, 2013)

A study conducted by (Pedrini, 2007; Green, 2007) shows that Intellectual capital can be used for multiple needs simultaneously; intellectual capital eliminates the scarcity that typically limits the use of physical resources. Since intellectual capital can improve the financial performance of organizations, create value, and provide sustainable environment for competitive advantage globally, the use of intellectual capital should become one of the priorities of all organizations (Cohen and Kaimenakis, 2007). Ahuja and Ahuja (2012), recognizes that an efficient utilization of IC is essential for success for bank to have competitive advantages than other industries, in order to deliver high quality services by a bank depends on its investment in items related to IC such as its human resources, brand building, systems and processes

This study adopts the value added intellectual coefficient (VAIC) developed by Pulic (1998) to measure intellectual capital performance of banks in Tanzania. This study further investigates whether intellectual capital (IC) and its components influence banks' financial performance measures, namely return on assets (ROA) and return on equity (ROE). The famous model which is very popular in many countries and has been used to measure intellectual capital is Value Added Intellectual Coefficient (VAIC™) developed by Pulic (1998). VAIC™ does not measure IC itself, but it measures the impact of IC management (Ulum, 2009b; Ulum, et.al 2008). The assumption is, if a company has a good

intellectual capital, and also managed well, there will be a good impact for the company.

Therefore, the main objective of this study is to examine the intellectual capital and bank financial performance of Tanzania banking sector. It will also determine the components of the intellectual capital (Human capital efficiency, Structure capital efficiency and Capital efficiency) and their influence on bank performance.

This study contributes significantly in that it provides Tanzania's banks with a simple method in understanding and evaluating performance, as well as enhancing the management of intellectual capital. The intellectual literature will also help in deciding the potential role of IC efficiency in the financial performance of banks in Tanzania, an emerging country which lacks such research. This paper is organized as follows. The second section presents the literature related to the study and hypotheses development. Next, in the third section, we discuss the research methodology and data employed in the study.

The fourth section presents the results of the study. Finally, we conclude the paper in the fifth section.

2 Literature Review

2.1 Definition of intellectual capital

Intellectual Capital is being evolved rapidly over the last decade. There are many and varied definitions of intellectual capital. Many author(s) has defined intellectual capital in context of knowledge base economy and how intellectual capital works in generating value creation.

Yang et.al (2009) argued that traditional financial reporting cannot be used to calculate the real value of the firm because it measures only short-term financial and tangible assets. But in the recent years companies are interested in measurement of intellectual capital for reporting to stakeholders and they seek to find a method for evaluating internal intangible assets. According to Edvinson & Malon (1997) intellectual capital can be defined as the gap between book value and market value. Increasing gap between market value and book value of companies has attracted the attention of many researches to find the missing value of the financial statements.

Sharma et al. (2007) definition refers to the knowledge, skills and technologies applied to create a competitive edge for an organization. Stewart (1997) contended it encompasses intellectual resources such as knowledge, information and experience, that could be used as tools of wealth creation and defines intellectual capital as the new wealth of organizations. In addition, Stewart (1997) went further in trying to give a more accurate definition as "packaged useful knowledge." He explains that this includes an organization's processes, technologies, patents, employee skills, and information about customers, suppliers, and stakeholders.

Table 1 Definition of Intellectual Capital

Author	Definition of IC
Roos et al., 1997	The sum of knowledge of company's members and practical translation of this knowledge like trademark, patents and brands
Brooking and Motta, 1996	IC is the term given to combined intangible assets which enable the company to function
Sullivan, 2000	Defines IC as knowledge that can be converted into profit
Union Fenosa, 1999	IC represents a set of intangible values that can enhance corporate capability for future value creation.
Skaikh, 2004	IC as knowledge that can be converted into value, or intellectual material (knowledge, information, intellectual property and experience) that can be used to create wealth.
Bontis, 2001	The collection of intangible resources and their flows
Bradely, 1997	IC as ability to transform knowledge and intangible assets into wealth creating resources.
Caroll and Tansey, 2000	Knowledge and creativity available to the firm to implement a business strategy that maximize stakeholder value

Source: Author compilation

2.2 Intellectual capital and performance

Ahangar (2011) conducted the study by using the VAIC™ to measure the intellectual capital performance and its impact on financial returns of Iranian companies. The results showed that Human Capital Efficiency (HCE) has significant and positive impact on financial returns of companies whereas the relationship of structural and physical capital was not significant with financial performance of companies. Furthermore, Joshi et.al (2010) conducted the study to measure the IC performance through VAIC™ model. In the study it was found Human Capital Efficiency (HCE) has positive and significant

relation to increase the efficiency of Australian Owned banks rather than Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) which means more investment on human capital will increase the more efficiency of banks.

In a study Mohiuddin et al., (2006) showed the performance of these banks during 2002-2004 through Value Added Intellectual Coefficient (VAIC) method based on the data drawn from 17 banks operating in Bangladesh. In other study Chu et al. (2011) examine the impact of intellectual capital on business performance in Hong Kong. They find that there was no relationship between intellectual capital (Value added intellectual capital) and the components of business performance (Market to book value, Return on asset and Asset turnover). Hussain et al. (2010) in Bangladesh found marginal evidence regarding the significance of intellectual capital in influencing market value and financial performance of firms. Zéghal and Maaloul (2010) reported the positive association between VAICs and stock prices. Clarke et al. (2011) sustained that there is a positive relationship between performances and the components of VAIC. Chan (2009a) conducted a similar study using the VAIC model in Hong Kong, while Rahman (2012) finds no strong evidence supporting the association between VAICs and firms' market values. Deol (2009) conducted a case study on Indian banks to validate and support another study by Kamath (2007) who used the VAIC method as the measurement method.

Abdullah and Coskun (2007) conducted a research on quoted banks on Istanbul stock exchange market to measure their intellectual capital performance, and also the effect of intellectual capital efficiency on financial performance. Data were taken for the period 1995-2004, and VAICTM is used for measurement of intellectual capital and data envelopment analysis is used for testing the impact of intellectual capital on profitability. Tan, Plowman, and Hancock (2007) investigated the influence of intellectual capital in Singaporean companies and the financial achievements. The researchers used data from the financial reports of 150 companies in Singapore between the years 2000 and 2002. The findings indicated that intellectual capital had a positive influence on company performance.

As the banking sector is a sector that utilizes intensive IC components, it was foreseeable that studying the role of IC on banks' performance would advance (Goh, 2005; Najibullah, 2005; Belkaoui, 2002; Saengchan, 2008). To measure performance by way of IC, it will allow a details understanding how capital coefficient, human capital as well as structural capital contribute to the banking's financial performance.

3 Data and Methodology

3.1 Research questions and hypothesis

The foremost purpose of this study is to address the intellectual capital performance of banking sector of Tanzania and its relation with financial performance indicators of banks. The most important objective of this is: Does intellectual capital performance has significant impact on financial performance indicators of banks? For that purpose we extract the following proposed hypothesis with the help of extensive literature review.

H1a: There is a positive relationship between components of VAICTM (HCE, SCE and CEE) and financial performance indicator of banks (ROE).

H1b: There is a positive relationship between components of VAICTM (HCE, SCE and CEE) and financial performance indicator of banks (ROA).

H2a: There is a positive relationship between VAICTM and financial performance indicator of banks (ROE).

H2b: There is a positive relationship between VAICTM and financial performance indicator of banks (ROA).

3.2 Methodology

Ante Pulic (1998) developed VAIC to help managers enhance their firms' performance. The greater the value of VAIC, the more efficiently a company manages its resources. Unique measurements provided by VAIC can be used for comparative analyses across various companies, time periods, and industries, both internationally and locally, to develop business strategies (Appuhami, 2007). Over the years, VAIC has been used in many academic research publications (e.g. Firer and Williams, 2003) and business sectors (e.g. Public, 1998, 2000a, b). Williams (2001) discovered that companies with higher levels of VAIC try to reduce their disclosure in respect to intellectual capital, since it might reduce competitive advantages.

The Value Added Intellectual Coefficient (VAICTM) is very important and latest methodology for measuring the IC performance of banking sector. This approach is developed by Ante Pulic (1997, 1998,

2001 and 2002) in Austrian IC Research Centre. It is also known as Austrian Approach. Pulic has applied this approach into many studies like (2000, 2001, 2004 and 2005). Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) are the components of VAIC™.

The purpose of using this approach is to evaluate the IC performance and its impact on financial performance of banking sector of Tanzania whereas the financial performance is measured by ROE, ROA. The data is collected from audited annual reports six banks for the year of 2010 to 2013. Many authors have considered VAIC™ approach for IC performance like (Mavridis 2005; Kujansivu and Lonnqvist 2005; Tan, Plowman and Hancock 2007; Ahangar 2011; Zeghal and Maaloul 2010; Joshi, Cahill and Sidhu 2010; Basuki and Kusumawardhani 2012; Pew et al. 2007; Mohiuddin, Najibullah and Shahid 2006; Maditinos et al. 2011; Widarjo 2011; Yalama and Coskun 2007; Makki, Lodhi and Rahman 2008; Kamath 2007 and 2008; Clarke et al., 2010; Kamukama, et al., 2010; Kamukama, et al., 2011; Goo and Tseng 2005; Laing, Dunn and Lucas 2010; Tovstiga and Tulugurova 2007; Ulum 2009a; Firer and Williams 2003; Iswati and Anshoria 2007; Ji-jian, et al. 2006, Santoso 2011 etc) formula is as follow;

. Output = Gross income.

. Input = Operating expenses (excluding personal costs).

. Value added = Output-Input.

. HC = personal cost, which is considered as an investment.

. CE = Capital employed (both physical and financial capital).

. SC = VA – HC (an appropriate proxy for structural capital), a result of human capital's past performance.

. HCE = VA/HC (shows of human capital efficiency).

SCE = SC/VA (shows structural capital efficiency).

. CEE = VA/CA (shows capital employed efficiency).

. VAIC = HCE + CEE + SCE (Value added intellectual coefficient).

We propose the following model in order to rest the relationship of IC and financial performance of banks operating in Tanzania.

The sample for the above study is taken from banks operating in Tanzania, DSE (Dares Salaam Stock Exchange) on the basis of net sales. Based on the availability of data 6 banks have been selected for the above study. The time period for the study is four years i.e. 2010-2013. The span of more than four years would be helpful to establish the consistency and predictability for research conclusions.

4 Analysis and Results

The following table 2, shows the performance of the banks in terms of VAIC™ values. The following table shows that 'Bank 6' has the highest VAIC™ values. This bank has been up and showing a down trend in recent years in terms of VAIC™ in the value but averagely this bank has the highest VAIC™ value. Averagely the 'Bank 2' is second and 'Bank 3', is in the third place while 'Bank 2', 'Bank 4' and 'Bank 5' stands 4th place while 'Bank 2', 'Bank 4' are on the 5th and 6th place respectively.

Table 2 VAIC=HCE+SCE + CEE

Bank	2010	2011	2012	2013	AVERAGE
Bank 1	2.967336	2.368738	3.054421	2.957415	2.386989
Bank 2	3.37678	3.309268	3.67515	3.621327	3.488447
Bank 3	4.101786	2.763893	2.397641	2.350826	2.903537
Bank 4	0.532124	1.167801	0.579599	1.214594	0.873529
Bank 5	2.467661	3.083894	2.780639	2.96075	2.823817
Bank 6	5.040497	4.038505	3.158768	2.990382	3.807037

The correlation coefficient related to the whole data between 2010 and 2013 of the six banks Operating in Tanzania is described in the following table.

The above table 3, shows that VAIC and ROA have strong positive relation. So the ROA and VAIC have correlation of 0.842 and are significant to each other. Human Capital Efficiency and Return on Assets also keep competitive correlation of 0.797 and are significant for both of them. The correlation between Structural Capital Efficiency and ROA is 0.88 which is strong and positive. These two variables are also significant in relation to them which is 0.886. The correlation between Capital Employed Efficiency and ROA is also positive 0.65. This is lower compared to Human capital efficiency and Structural capital efficiency. Capital Employed Efficiency and Return on Assets also has positive

correlation of 0.695 but it has less correlation of SCE and VAIC with Return on Assets. Capital Employed Efficiency (CEE) and VAIC also bear correlation of 0.392. The correlation between CEE and VAIC is less than SCE, HCE and VAIC, thus SCE, HCE and VAIC are significant to one and other. The correlation between the Capital Employed Efficiency and Human capital efficiency and Structural capital efficiency is 0.362 and 0.402 respectively.

Table 3 Correlations between ROA, HCE, CEE, SCE and VAIC

		ROA	HCE	CEE	SCE	VAIC
ROA	Pearson Correlation	1	.797**	.695**	.880**	.842**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	24	24	24	24	24
HCE	Pearson Correlation	.797**	1	.362	.886**	.992**
	Sig. (2-tailed)	.000		.082	.000	.000
	N	24	24	24	24	24
CEE	Pearson Correlation	.695**	.362	1	.402	.392
	Sig. (2-tailed)	.000	.082		.051	.058
	N	24	24	24	24	24
SCE	Pearson Correlation	.880**	.886**	.402	1	.936**
	Sig. (2-tailed)	.000	.000	.051		.000
	N	24	24	24	24	24
VAIC	Pearson Correlation	.842**	.992**	.392	.936**	1
	Sig. (2-tailed)	.000	.000	.058	.000	
	N	24	24	24	24	24

** . Correlation is significant at the 0.01 level (2-tailed).

The result describes that the SCE and HCE values are more significant to VAICTM and ROA than Capital Employed Efficiency (CEE) value of Banks in operating in Tanzania.

Table 4 Correlations Between ROE, HCE, CEE, SCE and VAIC

		ROE	HCE	CEE	SCE	VAIC
ROE	Pearson Correlation	1	.758**	.652**	.894**	.816**
	Sig. (2-tailed)		.000	.001	.000	.000
	N	24	24	24	24	24
HCE	Pearson Correlation	.758**	1	.362	.886**	.992**
	Sig. (2-tailed)	.000		.082	.000	.000
	N	24	24	24	24	24
CEE	Pearson Correlation	.652**	.362	1	.402	.392
	Sig. (2-tailed)	.001	.082		.051	.058
	N	24	24	24	24	24
SCE	Pearson Correlation	.894**	.886**	.402	1	.936**
	Sig. (2-tailed)	.000	.000	.051		.000
	N	24	24	24	24	24
VAIC	Pearson Correlation	.816**	.992**	.392	.936**	1
	Sig. (2-tailed)	.000	.000	.058	.000	
	N	24	24	24	24	24

** . Correlation is significant at the 0.01 level (2-tailed).

The above table 4, shows that VAIC and ROE have strong positive relation .So the ROE and VAIC have correlation of 0.816 and are significant to each other. Human Capital Efficiency and Return on

Equity also keep competitive correlation of 0.758 and are significant for both of them. The correlation between Structural Capital Efficiency and Return on Equity is 0.894 which is also strong. These two variables are also significant in relation to them. Capital Employed Efficiency and Return on Equity also has positive correlation of 0.652 but it has less correlation of Human Capital Efficiency, Structural Capital efficiency and VAIC with Return on equity. Capital Employed Efficiency (CEE) and VAIC also bear correlation of 0.392. The correlation between CEE and VAIC is less than that of Human Capital Efficiency, Structural Capital efficiency and VAIC, thus are significant to one and other. The correlation between the Capital Employed Efficiency and Human capital efficiency and Structural capital efficiency is 0.362 and 0.402 respectively. The result describes that the SCE and HCE values are more significant to VAIC TM and ROE than Capital Employed Efficiency (CEE) value of Banks in operating in Tanzania

5 Conclusion

The paper empirically examines the extent to which intellectual capital contributes to the performance of banks operating in Tanzania. Data on components of intellectual capital and business performance variables were obtained from the financial statements of selected banks in Tanzania. The components and variables include Human Capital, Structural Capital, Capital Employed, Return on Assets and Return on Equity. Using six banks and their audited financial statements for four years, this paper examines the impact of intellectual capital on business performance measured with Return on Assets (ROA) and Return on Equity (ROE). The results show that intellectual capital has a positive and significant relationship with the performance of banks in Tanzania. These results reinforce the accumulating body of empirical support for the positive impact of Intellectual capital on firm performance. Based on the findings, the study recommends that corporate entities in Tanzania.

To conclude this study is very helpful to the researchers and the managers of the Banks because in Tanzania research conducted on this topic is still scarce in term of developing the strategy relating to Intellectual Capital. Intellectual Capital is very important factor in the organizational performance in knowledge economy. From the above literature review and result, it is obvious that the efficiency of the Intellectual Capital increases the financial performance of the banks. The banks should focus and pay more attention to the Intellectual Capital.

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Countermeasures of Problem Platforms in P2P Net Loan Industry of Hubei Province

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Abstract: Hubei P2P net loan industry has been developed rapidly in recent years, but the problem platforms are also emerging continually, those problem platforms have bring great harm to investors, and ultimately close down, leave or even have be sealed up by the police. Based on the analysis of problem platforms in Hubei P2P net loan industry, the article sums up the characteristics of those problem platforms and deeply studies the cause of the problem platforms. Finally through summarizing the Commonness of those failed platforms, the paper respectively puts forward proposals from the perspective of P2P industry and government for the healthy development of P2P net loan platforms in Hubei Province.

Key words: P2P; Hubei Province; Peer to peer landing; Problem platforms

1 Introduction

P2P lending is the individual crediting behavior which is based on Internet ideology and independent of the formal financial system, and exceeds the limitations of traditional acquaintance society^[1]. P2P lending appears to meet the financial needs of the public and develops so fast that it has arouse concern of the industry and the regulators .

P2P industry on abroad started early, platform building is quite ideal and the financial system and credit system developed maturely, so the foreign studies of P2P lending are much deeper and comprehensive, especially for analysis of the borrower, the borrower information protection and network joint guarantee (Freedman and Jin, 2008; Jentzsch , 2007; Rainer and Stefanie, 2010; Siegel and Duarte, 2010), this is also the important manifestation of emphasis on financial consumer protection in foreign researches^{[2][3]}.

Researches on P2P landing in china start later and mainly focus on three aspects: First, the studies of platform mode (You Ruizhang , Zhang Xiaoxia, 2010; Xie Ping, Bu chuanwei, 2012)^{[4][5]}. Second, the researches on the problems and risks of P2P net loan platforms. Xiaoyu Miao (2012), Feng Niu(2013) discusseed the main risks in the industry, revealed the issues such as regulatory vacuum, lacking of credit rating standards and others, finally put forward the recommendations^{[6][7]}. Third, P2P network lending regulatory issues. Zhang Hongbo (2013), Song Xiuqian (2013) discussed the impact of the Internet on traditional banking and financial regulation, and described supervision ideas for net loan in china and issues which need to be considered in regulation^[8].

Those related researches put forward a number of worthy learning views on the analysis of issues and policy recommendations, but the majority of studies are regard to the normal platforms. For P2P industry, learning lessons from the problem platforms is equally important.

2 The Overview of P2P Industry in Hubei Province

After P2P lending model spread to China , it started explosive growth since 2011, net loan operations platform has reached 1575 by the end of 2014. However, with the rapid expansion of market scale, P2P lending industry is becoming more competitive, the industry risk continued to gather and intensify, platform issues are increasing.

At present, the development of the net loan industry has gradually formed four echelon among all provinces in China, Hubei Province ranked second echelon, with the increasing number of platforms, its net loan volume grows steadily. By the end of 2014, the number of Hubei P2P net loan platforms reach 35, ranked tenth in China, increased 169% compared with 2013. Wuhan platforms occupy the vast majority, accounting for 76%. Compared to other cities although Wu Han Net loan started later, the business scale of Wuhan platforms is large, small and micro enterprises are active, the history of private finance is long , financial formats are rich, these conditions provides fertile to carry net loan business and obtain rapid development. The outbreak of problem platforms also presents geographic distribution , more in Guangdong, Zhejiang and Shandong Provinces. Although it seems that Hubei net loan industry is running well generally, but the problem platforms incidence of Hubei Province is as high as 20% or

more. According to incomplete statistics, by the end of June 2015, the problems platforms in Hubei Province accumulated to 23, many of them are new on-line this year. Those problems platforms mainly include three types: withdrawing difficultly, running, closing down. Running generally divided into two kinds: capital chain break running and fraud running, and the majority is fraud running, the ratio reached 39%, and even “quadruplets” platforms appeared. Hubei problem platforms’ types are shown in Figure 1.

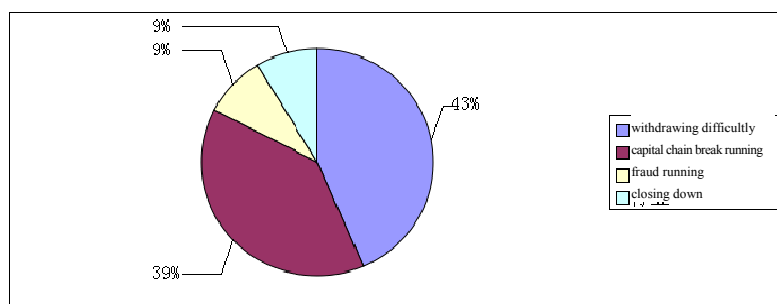


Figure 1 Types of Hubei Province Problem Platforms between 2013.07 and 2015.06

“hot as ice” is the portrayal of the current P2P industry, one side the new platform is increasing, the other side the problem platforms broke frequently, the collapse of P2P platforms has very broad impact, and it related to the interests of most investors, it is also different to safeguard legal rights after its collapse, so the inclement of P2P industry is far more than the general industry. Therefore, discussing countermeasures for platform is urgent and has realistic meaning.

3 The Characteristics and Causes of Problem Platforms in Hubei Province

3.1 The characteristics of problem platforms in Hubei Province

Through analyzing the problem platforms between 2013.07 and 2015.06, we found that these platforms have three basic features: first, the operating cycle is short, the average survival time is only 5.2 months, some platforms (such as Wan Jun CaiFu) survived only two days, the longest platform lasted only 16 months. Second, the comprehensive interest rates are high, for current steady operating credit P2P platforms, the annual rate of return is usually less than 15%. For problem platforms, most of the websites provide an annualized yield of more than 30%, and this way of borrowing costs is applicable to high-risk groups, so it is prone to breaks the capital chain. Third, the term of investment is short, sometimes even dismantling the object, P2P credit investment period is usually from two month to two years, however, for most of problem platforms, the investment term is only one month or not to one week, and sometimes there will be “second object” (the loan is repaid within one day).

Table 1 Problem Platforms between 2013.07 and 2015.06 in Hubei Province

name	Problems appear	Register date	Registered fund	Problem event type
Wuhan loan	2015.06	2014.06	5 million	Withdraw difficulty
Wang jun wealth	2015.05	2015.05	50 million	Run
Shengying capital	2015.05	2014.12	10 million	Withdraw difficulty
Zhongli venture	2015.04	2015.01	10 million	Withdraw difficulty
Xinconglicai	2015.02	2014.07	0.50 million	Run
Eshang loan	2014.12	2014.07	5 million	Withdraw difficulty
Shenghe finance	2014.11	2013.05	110 million	Run
Nanhui wealth	2014.10	-	5 million	Run
Dingfeng investment	2014.10	2014.07	15 million	Run
Xiangren investment	2014.10	2014.07	11 million	Run
Gaoli investment	2014.10	2014.07	12 million	Run
Yiyi investment	2014.10	2014.07	15 million	Run
Chuying loan	2014.09	2014.06	1 million	Run
Jingyi loan	2014.04	-	-	Run

Dadi loan	2014.02	2013.09	3 million	Close down
XiaoyaP2P	2014.01	2013.12	-	Close down
Fuhao investment	2014.01	2013.10	30 million	Withdraw difficulty
Yinxin loan	2013.10	2013.09	-	Withdraw difficulty
Yutai investment	2013.10	2013.08	-	Withdraw difficulty
Yingtong investment	2013.10	2013.01	-	Withdraw difficulty
Tianliloan	2013.09	2013.04		Run
Zhongcaizaixian	2013.07	2012	-	Withdraw difficulty
Minglian loan	2013.07	2013.03	-	Withdraw difficulty

3.2 the causes of Problem platforms in Hubei Province

Successful platforms have its own characteristics, while problem platforms often have similar mistakes, by detailed case observation, we find the root cause of the problem platforms can be attributed to the following two categories.

3.2.1 Congenital deficiency and malicious fraud

Congenital problem platforms' cause is sole, mostly due to that criminals aim at the entry threshold gap, they make use of internet banking and lure investors with the promise of high yield, and attract funds with "second kill", "cluster", "lucky Draw", "grab object and give gifts" and other activities, finally the platforms collapse or run at the end.

Manifestations of congenital issue platforms are relatively simple, technical strength is poor, art designing is rough, operating practices and staffing are single. Usual means of liar platforms are as follows: (1) leaning on "big trees" to build background; (2) promising high returns; (3) shell company, business license, business address and telephone are fake; (4) making use third-party certification to increase the credibility; (5) soft advertisements are around, promoting in the mainstream media and the Internet; (6) using luxurious office, real estate license, vehicle license and others as proof of strong assets.

In summary, fraud platform is relatively easy to identify, the reason why part of the fraud platforms could be effective is strongly correlated to investors' strong speculation, poor awareness of risk and hasty investment behavior. Therefore, to enhance investment education and cultivate mature rational investment principles can effectively prevent the occurrence of such incidents.

3.2.2 Poor management lead to postnatal deficiency

Through detailed analysis of Hubei Province problems platform, operational issues show mainly in the following three aspects: First, credit checking methods lag behind, Many entrepreneurs of P2P platforms simply put the private lending on the Internet, there are many non-standard issues on corporate governance, credit checks are subjective and arbitrary, it is prone to the problem that the funds can not repay. Second, building cash pooling and operation period mismatches, investors and borrowers have different needs in the loan term, such a contradiction forms the natural power for platforms to involved in telling apart object in the period of, thus leading many platforms to be disoriented, and finally fall into the column of problem platforms. such as Wuhan Z platform, after suffering hacker attacks, a large number of investors apply for withdrawing, in the case of a maturity mismatch and funds could not return, soon capital chain breaks and the platform can not operate. Third, risk identification capacity is low, ignoring the risk. P2P industry has a high-risk property and face multiple risks such as technology risk, market risk, liquidity risk and so on, if the Company operations teams lack of operational experience, technical strength, risk control ability, the company can easily lead to problems, in the example above, the Wuhan Z platform did not identify technical risks and fall into a crisis.

After operator problems appeared, the crisis spread rapidly, the company can not be able to handle in the least. This also reflected the short life cycle of P2P problem platforms. For deep analysis on the causes of the rapid development of crisis and why enterprises can not quickly and effectively deal with the crisis, the paper summarizes the evolution of P2P platform crisis mode, which is shown in Figure 2.

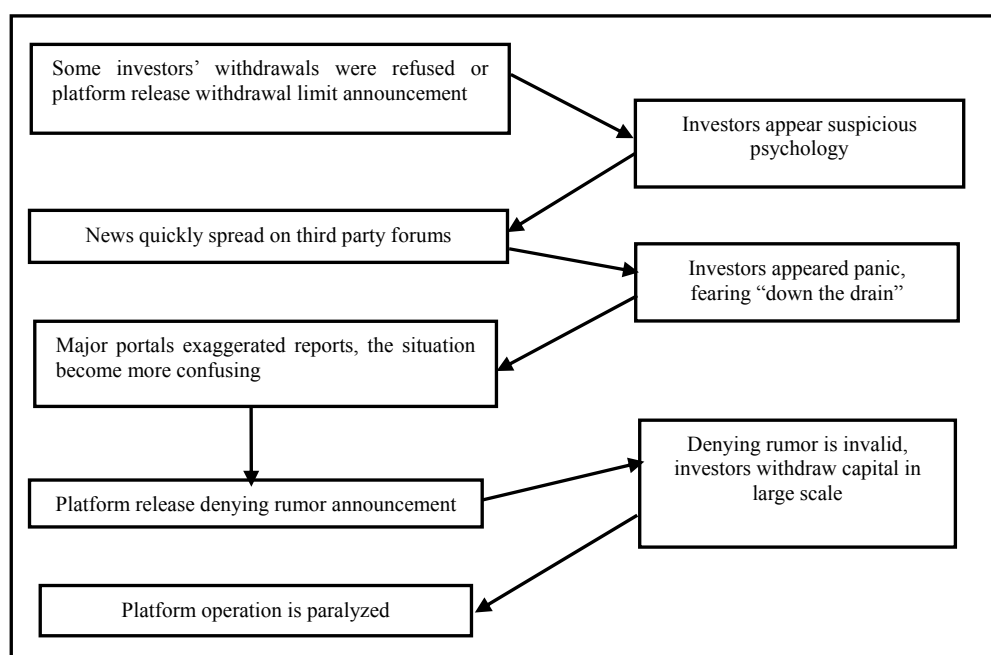


Figure 2 The Evolution of P2P Platform Crisis Mode

By analyzing the evolution of the crisis we can find that for a P2P net loan investor, no matter how seemingly he trusts a P2P platform, he still lacks a psychological support. P2P net loan industry is characterized by low investment threshold so that the industry is filled with a lot of investors whose abilities to resist risks are weaker, they are attracted high interest but can not afford big losses. So when problems appear, investors would make divestment decision immediately, while for fears of squeezing, the platform will refuse to cash application, so more investors believe the rumors are true, and lead to a vicious circle, and finally platforms are dragged into the abyss. In fact, the lack of psychology support is our country, P2P industry has been separated from the system, it does not have the guidance of the corresponding laws and supervision of the relevant departments and regulations, it is tantamount to a lack of endorsement and protection by the state.

In summary, in order to avoid problems caused by postnatal deficiency, not only platforms themselves need to make great efforts, but also the government need to accelerate the pace of supervision and management.

4 Countermeasures for Healthy Development of P2P Industry in Hubei province

The problem platforms' emergence is the aftermath in P2P industry's rough style development, in some ways it seems that those problem platforms can be considered to the pain of self-correction for investor and the soreness of growth path for industry to go through .

4.1 The perspective of P2P industry

With the emergence of P2P problem platforms, P2P industry will continue to be survival of the fittest. Learning lessons from the failure of platforms, improving deficiencies and making proper preparation for risk management can help the industry remain invincible in such confused environment.

1) To strengthen the construction of the platforms themselves

The platform should develop a reasonable risk control guidelines according to their actual development. Providing good guidance for new staff who are lack of technical abilities and working experience in risk management. Formulating risk assessment criteria and accountability system for violations of employees, so net loan companies can call to account according to the actual losses caused..

2) To strengthen industry self-discipline

Establishing an information sharing platform in the industry, especially in credit information sharing and blacklist publicity mechanisms, and best reaching a normal sharing mechanism for record with industry platforms. Establishing a necessary self-regulatory organization, to undertake moral monitoring and warning responsibility.

3) Team building

Net loan industry is at the end of the chain of financial industry, lacking of specialized excellent personnel is a common problem which permanently plagued the industry. Building an efficient, high-quality and professional team can moderately lower part of the moral and operational risk.

4.2 The perspective of government

we can clearly see the negative impacts that supervision has been in the discussion but not be substantially implemented in Chinese society stage caused. In Chinese tradition, the “state” is not just a political geography concepts, it is the most valuable credit entities, platform spent millions on advertising are often not as good as an official license on reassuring the people. Therefore, the state should clear regulatory principles, establish a supervising subject and supervision system as soon as possible, in order to effectively ensuring the effective functioning of P2P platforms.

1)Legislating first to provide legal protection for the platform development

Accelerating the introduction of industry-related laws and regulations to implement, giving the legal status of P2P net loan platform, truly realizing “sunshine operation.” Establishing market access threshold to prevent violations platform “free rider” phenomenon, ensuring the legitimate rights and interests of regular platform. Clearing exit mechanism, integrating acquisitions, restructuring, bankruptcy and other ways to strengthen risk diversification and to issue platform to exit steady.

2) Classification regulation, transparency of information, improving regulatory efficiency

Making a comprehensive risk rating according to platform governance, executive management and internal risk control abilities. By strengthening information disclosure to improve the effectiveness of market surveillance and reduce regulatory costs. To intensify illegal punishment to improve illegal costs and lower social costs of non-compliance.

3)Broadening investment channels for residents to diversify investment risks

P2P illegal fund-raising reflects the narrow investment channels to some extent, broadening investment channels, so that investors have more investment options, thus investors can diversify the risk by investing in a combination.

5 Conclusion

P2P lending industry is developing rapidly in china, however it has been in a legal gray zone of regulation since the birth, there is no clear regulatory supervision development so its development lack of standardization. Its hidden risks increasingly exposed and various collapse incidents continue to occur which may endanger the stability of the financial order. But P2P industry has played an indispensable role in promoting economic development, so the government should strengthen its supervision and reasonable persuasion, embarking P2P industry on the standardized and transparent way, and creating greater value for society.

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The Identification and Management of Accounting Fraud

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Abstract: This paper uses the methods of combination of practice and theory, social investigation, statistics and financial analysis and then proposes the strategy to manage accounting fraud. False accounting information disturbs the order of market economy in China, damages the interests of country, society and public, and causes investors to make wrong judgment and decision. According to construct the prevention measures of accounting fraud, the conclusions can be reached that improving the quality of accounting information, maintaining the capital market and promoting the harmonious development of market economy.

Key words: Accounting; Accounting fraud; Fraud means; Governance

1 Introduction

Accounting fraud means the illegal behavior of the perpetrator in accounting treatment. It is the behavior that the actor takes the benefit of the economy or other aspects as the purpose, and causes the losses of accounting on purpose. The false accounting information will bring great harm. At present, the phenomenon of accounting fraud is growing rapidly, and accounting information reveals illegal events endless, which has aroused the concern of the whole society for the accounting integrity. It is the urgent matter to analyze the reason of accounting fraud and seek the countermeasure and measure to manage the accounting fraud.

2 Domestic and Foreign Research Survey

2.1 Foreign research survey

2.1.1 GONE theory of accounting fraud (four factors theory)

The “GONE” theory was proposed by Bologua et al. In 1993. The theory argues that the fraud is made up of four factors, G (Greed), O (Opportunity), N(Need), E (exposure). They interact with each other, and they jointly decide the degree of fraud risk. The GONE theory essentially expresses four conditions of accounting fraud. Firstly, the fraud has greedy heart. Secondly, they need money. Thirdly, they have the chances. Fourthly, they think it will not be found afterwards. Once four conditions form, they must be corrupt. According to GONE, greed and need are related to the individual, opportunity and exposure are more related to the organization environment, the fraud motivation is explained as necessary, the moral value orientation is interpreted as greed, and it adds an “exposure” factors, thinks the possibility of fraud detection and disclosure, and the penalty after being discovered and exposed, will affect whether the fraud is implemented or not.

2.1.2 The theory of accounting fraud risk factors

This theory which bases on the GONE theory is the most perfect fraud motivation theory developed by Bologua et al. Fraud risk factors are divided into individual risk factors and general risk factors. Individual risk factors differ from man and man and exceed the scope of organization control, including moral quality and motivation. General risk factors are the element that controlled by the organization or entity, including the chance of fraud, the probability of fraud being discovered and the nature and extent of punishments after the fraud was discovered. When the general risk factors and the individual risk factors are combined, and are considered advantageous by frauds, the fraud will happen.

Table 1 The Relationship Between the Fraud Risk Factor Theory and the Four Factors Theory

Fraud risk factor theory		The four factors theory
Individual risk factors	moral quality.	G(Greed) factor
	motivation	O (Opportunity) factor
General risk factors	the chance of fraud	N (Need) factor
	the probability of fraud being discovered	E (Exposure) factor
	The nature and extent of punishments	

2.2 Domestic research survey

China's research on accounting fraud started late, but in many ways also achieves fruitful results. Jiang Yihong presided key issues of the Ministry of Finance--The research on the actuality, cause and Countermeasure of accounting information distortion in 2002. Studied respectively from accounting report gloss problem and empirical study of profit manipulation of listing corporation, he has made a deep analysis and discussion on false accounting information. The study of Liu Feng showed that the existing institutional arrangements themselves exclude high-quality accounting information and induce the illegal distortion of accounting information in 2003. The research of Chen Hanwen showed the relationship between corporate governance structure and accounting information quality. The researches of Jiang Shuncai, Liu Xuehui and Liu Yingxin showed the optimal level of accounting information disclosure is that the marginal cost of accounting information disclosure is equal to the marginal revenue in 2004.

3 Identification of Accounting Fraud

3.1 Using accounting statements to analyze and identify accounting fraud

According to account balance and accrual, fiscal statement fills in the column directly, reflects the financial situation of a specific date and the operating results of a certain period of the enterprise. Through the analysis of the overall rationality to the accounting statements and check to accounting report item of some logical relationships, we can preliminarily judge the fraud of the audited units.

3.1.1 Analysis of the overall logic of accounting statements

Because of the relationship between economic business and the account of the double entry bookkeeping, fiscal statement shows special corresponding relationship between various projects. Mainly include: balance sheet, account of business, articulation relationship of profit distribution table, the main business income and the main business tax, total profit and income tax, financial costs, short-term loan, cost charged depreciation and depreciation expenses and original value of fixed assets in cost and so on. Through the analysis of the above correspondence, the abnormal phenomenon is found, and the behavior of accounting fraud is detected through the detailed audit.

For an example, a company's balance sheet reflects that undistributed profit increase 26.23 million Yuan yuan, account of business reflects the current net profit of only 680 thousand yuan. Under normal circumstances, the additions of undistributed profit should be less than or equal to the net profit, obviously, the company's profit distribution is contradictory. According to a detailed audit of undistributed profits subject, the company put the profit of 25.55 million Yuan that subordinate subsidiary turn over into undistributed profit subject, but the company haven't pass the check computation for investment income subject. As a subordinate subsidiary of high-tech enterprises, implement corporate income tax discount tax rate of 15%, but income tax rate of the corporate is 25%, resulting in evade taxation of 2.555 million yuan (2555x (25% to 15%)]

3.1.2 The analysis of gross profit margin

Gross profit margin is gross profit as a percentage of sales revenue and gross margin is the difference between sales and cost of sales. The formula is as follows:

$$Gross\ profit\ margin = \frac{Main\ business\ income - Main\ business\ cost}{Main\ business\ income} \times 100\% \quad (1)$$

This indicator reflects the profitability of a company's main business, which is the most important financial analysis indicator for the auditor to make a statement analysis. Individual companies in order to gloss over the report or complete the economic indicators, the main means of fraud are inflated gross profit. As the sales income is inflated, there is no corresponding cost expense, so the sales gross margin tends to be high, through the analysis for the index, significant and obvious fraud can be found. We can analyze the index in three levels. Firstly, compare total sales gross margin with historical data comparison. Secondly, according to the main types of business, we can calculate the gross profit margin and compare it with historical data, industry level, or the experience value. Finally, we calculate a single main business sales gross margin month by month, analyze its rationality, find abnormal from it and determine the audit priorities.

For example: a listing Corporation's main products including: rice starch sugar, rice protein powder (feed grade, edible grade), rice bran oil and edible rice and other products.

Table 2 A Company's Analysis Table of False Gross Margin and Actual Gross Profit Margin

	Glucose powder	Maltose syrup	Albumen powder
False gross margin	22.08%	21.84%	25.99%
Actual gross profit margin	5.75%	10.88%	14.07%

Firstly, the total sales gross margin is 12.55%, increase than last year over the same period 3.52%. Through analysis audit staffs think that the company processes agricultural products for my main point, compare it with last year without big changes, but gross margin increase rapidly that is rational. We should keep caution and focus on attention, so that do the further analysis. The results are: corrected data from a company's financial statements show that actual gross profit margin of glucose powder, maltose syrup and albumen powder respectively is 5.75%, 10.88% and 14.07%. But the gross margin that previously reported up to 22.08%, 21.84%, 25.99%. Commodity sales revenue, expenses are the key point of the audit and carry out a detailed audit. The results of the audit show that the company false increases the main business income for accomplishing the business target.

Table 3 A Company's List of Inflated Income Unit: million

	Glucose powder	Maltose syrup	Albumen powder
statement income	1400	12200	2754
Real income	43	2000	352

From the data issue by the company's newspaper can also see, prior to the report shows the fraud income in first half yea which is 163.54 million yuan, after the correction of this data is only 82.17 million yuan, the total revenue false increase 81.37 million yuan. Even more surprising is that company successfully listed on the approaching 4.25 billion of funds from the stock market circles, just over nine months performance on "face" -- loss 11.17 million yuan.

3.1.3 The analysis of average collection period

Average collection period is the ratio of the main business net income and the average receivable balance in a certain period of time. The formula is as follows:

$$\text{Average collection period} = \frac{\text{Core business net income}}{\text{Average accounts receivable balances}} \times 100\% \quad (2)$$

Due to fierce market competition, enterprises in order to expand the market share, keep credit sales for increasing sales is very normal, but the index is too high or too low, should cause the attention of the auditors. Too low, this shows that average receivable balance is relatively large amount relative to the main business income. There may be false sales income generated by the associated transactions, produce the corresponding false accounts receivable. Too high, this shows that average receivable balance is relatively small amount relative to the main business income. There may be malicious fictitious sales income, this part of the sales income doesn't produce normal accounts receivable.

3.2 Identify accounting fraud by understanding the financial situation of an enterprise

The study of the symptoms of accounting fraud indicates that the management of the company trapped in financial distress is more likely to corrupt for disguising the financial difficulties. The main contents of the financial analysis including: short term solvency analysis, long-term solvency analysis, asset operating efficiency analysis, profitability analysis, investment returns analysis, and cash flow analysis. The financial situation of the enterprise can be analyzed from the aspects of asset quality, debt paying ability and operation ability etc.

Table 4 The Standard of Common Financial Ratio Analysis

financial ratio	standard
Current ratio	2: 1
Quick ratio	1: 1
The ratio of total indebtedness and net tangible assets	1: 1
Net working capital	<80%
Debt Asset ratio	<70%

The financial ratio analysis system was established by Alexander in 1919. The financial ratio is widely used in the analysis of the debt paying ability of the enterprise, the operating capacity and the profitability. When the investors analyze the financial statements, the enterprise financial ratio can be

compared with the vertical and horizontal, so as to find significant or abnormal fluctuations and determine whether accounting information is reliable. Such as comparing the financial ratios of the present period with the prior, planned or budgeted, and the comparison with other enterprises, industry averages, etc. The standard of the evaluation of the financial ratio is usually experienced, historical, industry standards. etc.

4 Management Methods of Accounting Fraud

4.1 To strengthen the construction of legal system and strengthen the legal responsibility

To strengthen the construction of laws and regulations, and exert the legal effect norms of accounting behavior, taking "Accountancy law" as the leading factor, and taking "Accounting Standards for Business Enterprises" as the core. A clear distinction between accounting fraud and legal accounting behavior and the boundaries of the accounting fraud and accounting errors, To avoid fraud drilling legal loopholes or be still unpunished for unclear responsibilities. For different subject of responsibility, as soon as possible to improve the relevant accounting fraud legal provisions and put into practice, to strengthen the sense of responsibility for the personnel and enforce financial discipline. Firstly, the civil liability should be emphasized and the civil compensation mechanism should be established. Secondly, to improve the accountability system of the administrative law enforcement, enforce the law strictly, prevent the rent-seeking behavior of the administrative regulators.

4.2 To improve the accounting management system, strengthen internal audit and supervision

The one of key measures for solving the distortion of accounting information is how to change the accounting personnel's working conditions and environment, actively explore accountant appointment system or the accounting concentrated calculation system, implement the oversight of accounting personnel, protect the legitimate rights and interests of accounting personnel. At the same time, by strengthening internal audit and supervision, so that the accounting fraud disappear in the source. Internal audit is the important part of enterprise internal control, and it is the re control of internal control.

4.3 To strengthen the role of social audit and government supervision

To strengthen the accounting supervision and effectively exert the function of accounting is a powerful challenge to the phenomenon of fraud in the current economic field. In the accounting supervision, it is not enough to emphasize the internal supervision, and it is necessary to strengthen the external supervision of the accounting work, that is, the social audit and government supervision. The social auditing supervision means the certified public accountant accept the entrust, objective, fair and comprehensive evaluation for economic activities of the audited units in the independent third party status, It is legally responsible for the authenticity of the accounting report which is disclosed publicly by law. Government supervision mainly refers to departments of finance, auditing, taxation, people's Bank and securities supervision, in accordance with relevant laws and administrative regulations to carry out the accounting supervision and inspection of the accounting material of the relevant units and carries out Macro-economic Control.

5 Conclusion

The causes of accounting fraud is complex, not only existing the problems of corporate governance structure, the internal control system is not sound, and also having the problems that managers don't abide by the law drive by interest etc. In view of the illegal phenomenon of company fraud and its new developments, the following conclusions are drawn:

- 1) To strengthen the construction of legal system, strengthen the legal responsibility.
- 2) To improve the system of accounting management, strengthen internal audit and supervision
- 3) To strengthen the role of social audit and government supervision.

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The New Direction of Talents Cultivation in the Context of Accounting Informationization

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Abstract: Accounting informationization is the necessity of information age. Accounting, as the basic economic management work, makes full use of new information technology and functions as an effective way in which accountants serve the enterprise. For the reform of accounting information processing in China now in the context of accounting informationization and its impact on accountants, this paper brings forward the necessity of talents team construction and also makes specific analysis of the new direction of accounting talents cultivation in the information age in the hope of promoting talents team construction.

Key words: Accounting; Informationization; Talents cultivation; The new direction

1 Introduction

With unceasingly accelerating process of information construction, the informationization of accounting becomes an inevitable trend and there will be more urgent demand for talents in accounting informationization, the “talents” problem will be the major difficulty hindering the enterprise’s accounting informationization development. The outline of the 12th Five-Year Plan for accounting reform and development makes the following statement: making full implementation of accounting talents planning and strengthening talents team construction is related to national talents development strategies implementation and innovative country construction and it exerts great and profound influence on promoting economic and social development, on adopting the “going out” international strategy and also on advancing reform and development of accounting in China. In the context of accounting informationization, the outline provides new guidance for accounting talents cultivation and also poses new opportunities and challenges for enterprises. Therefore, how to ensure the new direction in accounting talents cultivation and making feasible talents cultivation plan becomes a valuable research topic. The current research mainly focused on the domestic accounting informationization construction, including the analysis regarding its necessity and existing problems, as well as relative solutions. With a view to the direction of talents cultivation, this paper discusses the new direction of vocational existence and development, which are closely related to accounting practitioners.

2 Meaning and Characteristics of Accounting Informationization

2.1 The meaning of accounting informationization

Accounting informationization means treating accounting information as management information resource and then making comprehensive use of computer and network communication to obtain, process, transmit, apply information and so on to provide adequate, real-time, omni-directional information for the enterprise’s management. Accounting informationization is the product of information age and also the developing direction of accounting in the future. Accounting informationization is not only about introducing advanced information technology such as computer, network, communications and so on to the accounting field to integrate it with traditional accounting work to serve business calculation, financial transaction etc, it also contains deeper contents itself, like basic accounting theory informationization, accounting practice informationization, accounting education informationization, accounting management informationization and so on. As a means by which to design according to enterprise managers’ needs and to serve the enterprise managers in the network environment, it is the necessary measure that enterprise accountants take to adapt to the information age.

2.2 Basic characteristics of accounting informationization

As the combination of accounting and information technology, accounting informationization is a new requirement that information society brings up for financial information management in enterprises and it is also a necessary measure that enterprises take to adapt to informationization trend. Its basic characteristic is the application of computer, network and modern information technology to accounting field to render the collection, providing, processing of accounting information convenient and efficient

so as to achieve the purpose of making information resource diversified and highly shared and so on. As a main medium for enterprise leaders to obtain information in the network environment, accounting informationization also helps to enhance the enterprise competitive ability and decision-making ability.

3 The Reform of Accounting Information Processing

Traditional accounting work regards calculation and supervision of accounting as its basic function. Hence, traditional accountants focus on the basic work of bookkeeping, checking, reporting, filing etc of accounting document. The concept of accounting information usefulness in decision-making is widely accepted in the academic world and practice circles. The aim of financial report is to offer accounting information that is useful for decision-making to its users(including investors, creditors, government, related departments, the public and so on) and reflect the fulfilling results of an entrusted responsibility in enterprise management stratum and it also helps the users to make economic decisions. In information age, due to myriad sources, numerous dissemination channels and numerous related people of data, its degree of openness continues to increase. In spite of time and space, data can be obtained timely through various information technology such as cloud computing, Internet of Things, internet, sensor and intelligent terminal and so on. Thus, enterprises are able to provide more timely and abundant data than they were before and they also become more complicated in structure. Information that is useful for decision-making will be further expanded. Not only accounting information but also other relevant decision-making information is becoming increasingly conspicuous. Thus, what information should accounting information system provide and in what form should the information be provided?

Different from traditional accounting information, non-accounting information have complicated sources and various forms, including both structured data and unstructured data. The abundant structured and unstructured data inside or outside the enterprise needs to be filtered and then be based on historical data to effectively to break data segmentation between departments and between business lines by means of big data software processing to achieve the updating of current information.

There exists a problem with non-accounting information, namely quantification difficulty. How to solve this? Victor Mayer Schnberger in his *Age of Big Data* points out that one of three changes in nature and concept of data processing in the age of big data is that effect is more important than absolute spirit. Because of the large amount of data, people don't need to worry about the bad influence that error in a certain data point brings to the whole system analysis. In small data age, information accuracy must be emphasized, for the data that can be collected is sparse and a single mistake might bring about huge decision-making errors and even affect the final qualitative results. This kind of high accuracy requirement makes it difficult for people to grasp big data. The gains brought by big data techniques to the information users will outweigh the loss caused by accuracy error. From the cost and benefit principle, decision makers can accept the existence of inaccurate data.

4 The Impact of Accounting Informationization on Accountants

A survey of American institutional investors carried out by the international accounting firm Price Water House Coopers in 2012 shows that 65% of the interviewees hold that accountants can't only count on accounting record, preparation of financial report, cost control and so on. Economic globalization, intensified stock market fluctuation as well as the pressure of company growth brings the following changes to the work of company accountants: workload of decision support will rise from 25% now to 45%; internal control will decrease from 45% to 10%; workload of external report will remain at 15% or so; risk control will rise from 15% or so now to 30% or so. The rise of decision support and risk control suggests that the role of accountants might change greatly and even might be defined again in the future and the financial department is very likely to change from service department to the core position in strategic decision. As a job, accountancy will face great opportunities and challenges, either becoming the core of enterprise or dying out. What should we choose?

With the development of new information technology like internet, Internet of Things, cloud computing and so on, computer is very likely to grab the job of traditional financial staff, just as machine has done to traditional industrial workers. The development of data standardization enables original data on the information system platform to automatically produce financial data or other data needed by the enterprise. Traditional accountants will become the true "bookkeeper". How should we choose?

5 Increasingly High requirements for Accountants in The context of Accounting Informationization

Whether they can make successful transformation depends on accountants themselves. In addition to grasp of solid accounting knowledge, mastering of more management skills is also necessary, which just fits the requirements of transition from “financial accounting” to “management accounting” and helps to relieve the pressure of desperately short supply of senior financial management personnel in the next five years. To transform into administrative staff and to have close cooperation with IT management department and so on, accountants must possess the ability to integrate accounting information and non-accounting information and excel in using new information technology to evaluate enterprise performance, enterprise risk etc. In the future, accountants are required to have deeper development in the direction of “being a generalist” and get more involved in all the procedures of enterprise management. Handling, controlling, and managing all kinds of data will be the core function.

5.1 Accounting knowledge

Accounting informationization poses greater challenges for accountants’ knowledge structure, which can be classified into core knowledge and relevant knowledge. Core knowledge refers to the knowledge that is closely related to accountants’ work, including domain knowledge, technical and craft knowledge, strategic management, corporate governance, financial strategy, financial report, risk management, cost management, merger and acquisition, tax planning, value management, comprehensive budget management, audit and internal control etc. Relevant knowledge includes knowledge in information technology, financial information system and ERP, investment and financing, economics, economic law, international business, management duty and asset management, behaviorist, foreign language and so on. Therefore, accountants should strive to improve the level of accounting professional knowledge.

5.2 Management function

Accounting will enter into an information age where a large amount of accounting information and non-accounting information will come together in the financial department of the enterprise and forms big data. Financial department must change from “storing data” to “using data” and accountants need to grasp more knowledge and skills about management and do more non-financial work. Hence, most resources will be allocated to the use of accounting information and non-accounting information and more work is for providing service support for decision-making. For accountants, they will concentrate on using mass data to provide support for decision-making and striving to raise the management level of the enterprise.

5.3 New information technology

To promote the construction of accounting informationization, accountants need to enhance their learning of accounting professional knowledge and also improve management skills to become compound talents able to use new information technology. New information technology that accountants should grasp is listed below: information retrieval and acquisition, computer cultural foundation, office automation, use of basic processing software tools, electronic collection, information safety, commercial information techniques (e.g. electronic commerce system), management information system, software development and maintenance, system analysis and design and so on.

5.4 International vision

In addition, accountants need to have overall consideration of the external environment of the enterprise, including the developing trend of global economy and the latest industry. Also, they should have a broad international vision and clear up the developing thoughts of the company from a more macroscopic and complicated situation and help the enterprise to make wiser decisions through better analysis and judgment. Meanwhile, creative thinking produced by knowledge collision will bring economic benefits to enterprise and promote its development and also render outsiders to give positive evaluation of the enterprise.

5.5 Professional ethics

In the future, the content and responsibility of accountants’ work poses higher requirements for them. The authenticity and accuracy of the accounting information provided by accounting, which is the important basis of market economic activities, have direct impact on stakeholders like investors, creditors, the public and also influence the economic order of the whole society. Enterprises should proceed from their actual conditions, strengthen ongoing training of accountants, improve professional ethics, hold firm professional integrity, emphasize honesty, justice and impartiality and pursuit of truth, and strive to build high quality accounting talents team.

6 Conclusion

The requirement for accountants is becoming higher and higher due to the special nature of accountancy. Especially for now, China is in the stage of promoting informationization and moving toward internationalization. Accountancy will face new opportunities and challenges. Therefore, completing comprehensive quality construction of accounting talents team, conducting in-depth study of accounting professional knowledge, improving overall service quality and management level of accounting, making accountants broaden their international economic views and receive necessary professional ethics training have remarkable social significance for promoting sustained economic development in China and optimizing the economic structure.

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Determinants of Dividend Policy: Evidence from Banking Industry in Pakistan

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Abstract: The purpose of this study is to know the determinants of dividend policy in financial sector. The domain of study is commercial banks listed on Karachi stock exchange operating in Pakistan. Lintner (1956) model is extended using new variables with context to Pakistan. Multiple regression with fixed effect (i-e LSDV) model is used to test the relationship among study variables. The empirical results suggest that size, profitability, dividend paid preceding year and loans loss provision are key determinants of dividend policy in banking sector since all of variables are positively and significantly correlated with current dividend payment. The empirical results support the evidence that banks in Pakistan tend to follow stable dividend policy.

Key words: Dividend policy; Banks in Pakistan; Profitability; Size

1 Introduction

It is generally acceptable that the wealth maximization of shareholders is a key objective of managers. Wealth maximization does not end at generating one time profit as businesses are ongoing concerns so the wealth maximization needs to be ongoing in nature. Besides many other factors, financing is considered significant for smooth operational activities and grabbing potential projects for sustained growth. At the end of financial year it becomes important to decide the portion of profit to be ploughed back for future projects and the portion that to be distributed among shareholders. The portion of net income that is distributed among shareholder is called dividend. Hence the study of possible effects of dividend policy on different parameters of business becomes inevitable. It is significant for managers to consider the possible effect of their dividend decision on share prices (Bishop et al. 2000). Deciding dividends is not a one-time decision. Abor & Bokpin (2010) term dividend policy as a critical decision since it influences other real or financial investment decisions.

Based on literature study following are possible dividend policies followed by firms at different situations and countries. 1. Coherent dividend policy that firms tend to stabilize dividend payment trend hence they pay dividend at end of each financial year. 2. Non-coherent dividend policy that firms pay higher dividends in case of higher profits and lowers at times of lower income. So they tend to follow random and non-coherent dividend policy. 3. No future growth that firms tend to pay dividend in case of non-attractive potential projects. 4. Potential growth that firms avoid to pay dividends since they fund potential projects through internally generated funds. The study of extant literature shows that researchers have studied dividend policy of non-financial firms in variety of ways. But in comparison with non-financial sector, very few studies have explored determinants of dividend in financial sector. Hence this study is significant in nature since it has tried to explore the determinants of dividend of banking sector in Pakistan which in its context is novelty of a kind.

2 Research Methodology

Ordinary least square is used to test panel data. Based on result of Hausman test, fixed effect model (i-e LSDV model) is used for further analysis.

2.1 Data collection Method

Yearly based data on study variables from 2005 to 2012 is collected from official websites of sample banks, Karachi stock exchange and official website of state bank of Pakistan. All the banks listed on Karachi stock exchange constitute the sampling frame. Commercial banks both private and public banks that paid dividend throughout study period are taken for further analysis. Hence 18 banks with 144 observations make up the final sample of study.

2.2 Model of the Study

Lintner (1956) proposes that the intended (“target”) dividend payment for firm i at time t is a percentage of earnings, or

$$DIV_{it}^* = r_i EPS_{it}$$

On basis of chosen study variables the current work uses the following model.

$$DIV_{it} = \alpha_t + \beta_{1t} Prof_{it} + \beta_{2t} Div_{it-1} + \beta_{3t} Size_{it} + \beta_{4t} LossProv_{it} + \varepsilon_{it}$$

Whereas :

Prof	Profitability
DIV_{it-1}	dividend payment of prior year,
Size	Total Assets of a Bank
LossProv	is Loan loss provision
ε_{it}	is error terms.
β_{12t}	is coefficient of variable for time t.
EPS_{it}	is earnings per share for firm i at time t,
DIV_{it}^*	is the target dividend payment per share, and
r_i	is the percentage rate

3 Literature Review and Hypothesis Setting

Profitable and mature firms tend to distribute stable dividend pattern since they generate enough funds to finance potential project at the same time pay dividends. Adaoglu (2000), for firms listed on Istanbul stock exchange, found that current year profitability has positive and significant effect on determining dividend payment. In other words, profitable firms pay dividends to convey their good financial performance (Aivazian et al., 2003). Fama and French (2001) concluded that profitability, size of firm and investment opportunities are key determinants of dividend payout. Barclay (1995) based on empirical results concluded that there is a negative association between profitability and dividend payout. Profitable firms tend to pay low dividends since they put surplus earnings to finance new projects so they choose to distribute less dividend (Okpara&Chigozie, 2010). Firms tend to stabilize dividend payment so they choose to distribute a certain amount of profit each year. So dividend paid in preceding year serves as a signal of future dividend payment. Rehman (2012) studied firms in Nigeria and study revealed a positive relation between current dividend payout with dividend payout of preceding year. He further suggested that managers strive to maintain dividend payment trend and sometimes even try to increase payout ratio. Lintner (1965) concluded that companies tend to adjust current year dividend payment around target dividend payout ratio. Hence they choose to follow stable dividend payment pattern and increase the dividend payments gradually as per target payout ratio. Thus study suggests a positive relationship between current and preceding year dividend payments. Firms operating in India choose to set lower dividend payout in beginning hence they need to make high dividend payment adjustments to set a stabilize dividend trend (Pandey, I. and R. Bhat, 2007). Few studies found no relation between current and preceding dividend payments. Sheikh and Wang (2011) carried a study on banking industry in Greece. They concluded that preceding year dividend is not estimator for dividend in current year. Study further suggests that earnings in banking industry have been quite volatile hence financial managers choose not to follow stable dividend payout ratio.

In fact, there is big difference in working, domain of work, management style and ease of financing between small firms and larger ones. Mature firms enjoy stable earnings and have little growth prospective, at the same time, have greater and less costly access to equity market, hence they tend to pay high and stable dividends. Mature firms enjoy cheap and easy access to financial markets, depend less on internally generated funds, hence, they tend to pay more dividends Mark (1998). Eriotis (2005) found positive and significant relation between size of firm and dividend payment. Author argued that investors perceive large firms less risky; higher chances of raising funds compared to new or small size firms and the management too prefers to pay higher dividends. Al-Malkawi (2007) found positive relation between size of firm and dividend payout. He argued that large firms have enough residual cash flow after meeting all potential projects; hence they tend to pay higher dividends to reduce significant agent cost. Afza (2010) found that size is significant factor that influence dividend. Author based on empirical results argued that larger firms are perceived to hold high asset and have better potential projects for growth; have high chances of raising funds from financial markets so they tend to pay higher dividends. Mayne (1980) studied financial firms and found size a significant factor determining dividend. The sample includes 12,000 banks operating in U.S. The study concluded that larger banks tend to pay more dividends. Few studies based on empirical results suggest negative or insignificant relationship between size of firm and dividend payout. Hafeez (2009) large firms tend to invest profit in acquiring assets hence they tend to pay low dividends. Shah (2010) based on empirical evidence conclude that in china small firms tend to pay higher dividend whereas in Pakistan large firms distribute

more dividend among shareholders.

Risk may have different forms based on perspective that you want to analyze. Investors may treat a firm as risky based on unstable earnings or divided policy. Management may find risk in pursuing new project or risk in shape of costly source of financing. In this study the researcher has taken cost on equity as proxy for risk from management point of view. Firms mostly rely on internally generated funds if cost of equity for floating new shares is higher. Hence in such given situation management would prefer to pay low dividend in order to avoid high cost of equity financing. Based on this rationale, the study postulates a negative relationship between cost of equity financing and dividend payment.

Although there are many ways of income for banks such as commission, fees, consultancy but interest income is main source of earning of banks. Banks lend money to individuals, corporations or government entities on different and conditions and receive back principal plus certain agreed upon interest income at certain regular intervals. All lending decisions do not perform as per agreed terms. Hence banks provision a certain percentage for non-performing loans every year. Higher the provisioning percentage makes future income less reliable and inconsistent. Hence higher the percentage of provisioning lowers the income of banks. Based on this rationale, the study postulates a negative relationship between dividend payment and provisioning for non-performing loans. Following hypotheses are developed for empirical analysis

H1: There is positive relationship between dividend payment and profitability.

H2: There is positive relationship between dividend payment and size of bank.

H3: There is positive relationship between current dividend payment and dividend paid preceding year.

H4: There is negative relationship between dividend payment and loan loss provision.

4 Robustness of Test

There are few small and big banks in final sample. Hence to get rid of outliers and normalize the data, natural log of following variables were taken before taking their normality tests: Current dividend amount (i-e dependent variable), dividend paid last year, assets (i-e proxy for size of bank), and provisioning for non-performing loans. The Jarque-Bera, P-value for all variables is above five percent except lnloanlossprovision variable. The P-value for Correlated Random Effects-Hausman test is less than 5 percent hence the study used fixed effects (i-e LSDV) model for further analysis.

5 Empirical Results

Assets, dividend paid preceding year, loan loss provision and profitability have P-value less than 5 percent. Hence all study variables are significant and have positive relation with dependent variable. Same conclusion can be made by looking at t-statistic that is greater than 2 for all explanatory variables.

Table 1 Determinants of Dividend

Variable	Coefficient	Prob.
C	-0.068243	0.9804
LNASSETS	0.346095	0.0223
LNDIVPREYEAR	0.160137	0.0084
LNLOANLOSSPROV	0.152117	0.0037
PROFITABILITY	17.62835	0.0002

Table 2 Fitness of Model.

R-squared	0.816616	Mean dependent var	12.06976
Adjusted R-squared	0.785050	S.D. dependent var	1.749883
S.E. of regression	0.811293	Akaike info criterion	2.559389
Sum squared resid	80.30001	Durbin-Watson stat	1.946576
Log likelihood	-162.2760		
F-statistic	25.87003		
Prob(F-statistic)	0.000000		

F-statistic, P-value indicates that model is good for analysis. Hence conclusions reached basis on

this result are reliable. Adjusted R-square is 0.785 which represent that almost 78.5 Percent variation in dependent variable is explained by explanatory variables of model. Durbin-Watson static is close to 2 that indicate that model is free of serial auto correlation.

6 Conclusion

Annual data of eighteen commercial banks listed on Karachi stock exchange operating in Pakistan, were taken for analysis. Loan loss provision is used as proxy for risk. As per best of my knowledge this variable was not used before, so this a novel point of this study. The empirical findings suggest that size, profitability, loan loss provision and dividend paid preceding year positively and significantly affect the dividend payment of current year. The results are consistent with findings of (Fama and French (2001); Okpara&Chigozie (2010); Al-Malkawi (2007); Eriotis (2005); and Rehman (2012)). Study suggests that banks in Pakistan tend to follow stable dividend policy irrespective of ofrisk factor (i-e changes in loan loss provision). Furthermore, results are consistent with agency cost theory since banks tend to distribute dividends regularly to avoid management and principal disputes. Banking industry in Pakistan is well regulated and they tend to pay dividends regularly, hence it is a better choice for individual or institutional investors to invest in this sector.

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The Effect of Innovative Islamic Profit Rate Benchmark on Pricing Islamic Derivatives Securities

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Abstract: The growth of the Islamic capital market depends on the success in developing and structuring risk management products, in particular financial derivative securities that are Shari'ah compliant. The financial engineering industry succeeded in developing Islamic derivatives that provide the same economic benefits provided by conventional counterparts and that are Shari'ah compliant. The developed securities include: Islamic Profit Rate Swap (IPRS), Islamic Cross Currency Swap (ICCS) and others. The pricing and valuation of Islamic derivatives follows the same mechanisms that are used to price the conventional derivatives. A major input to the pricing is the discount rate or equivalently, the profit rate in Islamic finance. This paper examines the effect of misspecification of the profit rate on the pricing and valuation of Islamic derivatives in the context of Islamic Profit Rate Swap. The paper employs a case of an Islamic profit rate swap contract where two widely accepted benchmark rates are used to price the contract namely LIBOR and Government bond yields. The results which indicate that the variations in benchmark rates lead to very large variations in the cash flow profiles of the contract's counterparties lead to a conclusion that the development of an innovative Islamic benchmark rate that is universally acceptable and applicable is necessary for the continuous development of Islamic capital market.

Key words: Islamic derivatives; Islamic profit rate swap; Profit rate curve; Islamic Interbank Benchmark Rate

1 Introduction

Financial derivatives play a vital role in modern financial markets. The risk management industry as well as the financial engineering within investment banks relies on those instruments to develop and structure new products. The Islamic financial markets have witnessed a tremendous growth in all its sectors and subsectors including the derivatives market. The advantages provided by financial derivatives of managing and avoiding risks make it necessary to develop Islamic financial derivatives that are equivalent to conventional securities and that comply with Shari'ah principles. Developing Shari'ah compliant derivative securities has been stressed by Islamic scholars, practitioners, and credit ratings agencies such as Moody's and Standard and Poor's. As a result, a number of Islamic derivative securities have been developed including: Islamic Profit Rate Swap (IPRS), Islamic Cross Currency Swap (ICCS), and others.

The importance of the interest rate in conventional finance and the profit rate in Islamic finance to the pricing and valuation of all derivative securities cannot be overemphasized. A number of alternative approaches have been proposed during the past to model the proper Islamic profit rate curve that enables the effective pricing and valuation of those securities (Jallad, 2015), but none of those models has been acceptable universally on economic and well as Shari'ah basis. This paper aims to measure the effect of the pricing errors caused by the misspecification of the profit rate in the context of Islamic Profit Rate Swap (IPRS).

The IPRS is an OTC product comprised of bilateral agreement between parties to make regular payments to each other at agreed intervals. IPRS is used to hedge against adverse profit rate movements through the exchange of fixed cash flows to floating cash flows (or vice versa) within the same currency. The terms of the swap (the amount, the period of time between the regular payments, and reference rate) are negotiable and can be customized according to the client's and bank's needs. At each settlement date, the commodity transaction is used to facilitate the transfer.

The fixed rate is determined at the start of the contract and remains the same until the end of the tenure and agreed reset date. Whereas, the floating rate is referenced to an index (LIBOR or any other reference rate) and is determined at every settlement date. The notional may or may not be exchanged. Usually, the net-off amount is exchanged at each settlement date.

This paper is organized as follows: the second section provides literature review of swap pricing. This section also discusses the dynamics of the Islamic profit rate swap (IPRS) and provides an

overview of its characteristics. The third section discusses data and the methodology used in the paper. The fourth section outlines the results, whereas the fifth section sums up the conclusion.

2 Literature Review

Chance & Rich (1998) study is considered one of the early studies in pricing swaps. Arbitrage-free replicating portfolios argument was used to derive pricing formulas for a number of equity swaps such as plain vanilla equity swaps, variable notional swaps, and cross currency swaps. Kijima & Muromachi (2001) developed a model where a stochastic interest rate are assumed for equity swaps. The model was assumed to follow a Wiener process and the volatilities of the interest rates and of the equity prices were assumed to be deterministic functions of time. Liao & Wang (2003) provided a generalized formula for pricing equity swaps where they assumed a constant notional principal. The results of their study show that foreign equity swap value is dependent on both the dynamics of the equity price process and the exchange price process. The pricing of the Islamic profit rate swap (IPRS) requires the determination of the following three items:

- 1) The cash flows of the floating rate leg.
- 2) The discount factors that are to be applied to the cash flows to determine the present value.
- 3) The amount of default spread of the counterparty.

In Islamic finance, those rates are estimated using Islamic Interbank Benchmark Rate (IIBR) or other interest based benchmark rates such as LIBOR. The general framework of pricing the IPRS requires determination of the present values of the fixed rate leg and floating rate leg. The difference of these two leg has to be paid from one party to another. The fixed rate leg imposes no problem, as the fixed cash flows are discounted using the contractual flat fixed rate. The present value of the floating leg is determined using the following equation:

$$P_0^{IPRS} = \frac{CF_1 + P_N}{(1+r_1)} \quad (1)$$

Where:

P_0^{IPRS} : market price of floating rate leg.

CF_1 : cash flow of first scheduled payment, this amount equals to the notional principal multiplied by the profit rate available at initiation date.

P_N : notional principal of the contract.

r_1 : profit rate of period one.

The first task requires finding out the expected future forward profit rates. In conventional finance, those rates can be extracted using a number of methods (Ravindran, et al., 2011):

- 1) Zero Rate Term Structure
- 2) Black Derman Toy (BDT) recombining tree method
- 3) Heath Jarrow Morton (HJM) bushy tree method

2.1 The Dynamics of IPRS

The dynamics of the IPRS create the mechanism through which the Islamic profit rate swap is Shari'ah compliant is equivalent to the conventional interest rate swap. This transaction is usually performed by a bank (financial institution) and a client. An Islamic profit-rate swap is implemented through the execution of a series of underlying Shari'ah contracts, which combine wa'ad contract (promise) with commodity Murabaha contract. Parties to the IPRS enter into Murabaha contracts to sell Shari'ah-compliant commodities (often London Metal Exchange-traded metals) to each other for immediate delivery but on deferred payment basis. A term Murabaha is used to generate fixed payments and a series of corresponding reverse Murabaha contracts are used to generate the floating rate payments. The wa'ad contract is being used to ensure the swap reaches maturity where one party unilaterally bind itself to perform what is agreed upon. A wa'ad is given by each party before each commodity Murabaha stage and reverse Murabaha stage, respectively. Through the use of commodity Murabaha or Tawarruq or Musawamah, the Islamic bank carries out the IPRS in the following manner:

2.2 First Murabaha Agreement ("fixed profit rate leg")

The fixed leg of the IPRS is accomplished through a number of steps as follows:

First Leg: Client buys commodity from Islamic bank

- 1) Client buys commodity through Islamic bank from trader B.
- 2) Islamic bank buys commodity from client at cost plus fixed rate at x% per annum.
- 3) Islamic bank sells off the commodity at cost.

2.3 Second Murabaha Agreement (“floating profit rate leg”)

The fixed leg of the IPRS is accomplished through a number of steps as follows:

Second Leg - Islamic bank buys commodity from client

- 1) Islamic bank buys commodity from trader A.
- 2) Islamic bank sells a commodity for a client at cost plus current benchmark (LIBOR/IIBR) plus an agreed spread.
- 3) Islamic bank assist the client to sell the commodity at cost.

On each settlement date, the net result of these trades is the amount of commodities sold under each Murabaha, which will be netted off by way of sales to a third-party broker. The net beneficiary (of the difference between the fixed and floating rate) is dependent on whether the fixed or floating rate was higher.

3 Data and Methodology

To test the hypothesis that changing benchmark rates lead to large variation in IPRS price and the resulting net cash flow profile of the contract parties, we price an IPRS using two profit rates. The first profit rate is the one derived from Malaysian government bond zero curve. The second profit rate is LIBOR benchmark rate. The fixed and floating rate legs payments of the swap are calculated and netted at each settlement date and the net position is determined at the initiation of the contract. The contract is assumed to have the following characteristics:

- 1) The yield rates of Islamic bonds with *semiannual* maturities.
- 2) The notional principal is US\$100,000.
- 3) The term of the Swap is five years.
- 4) The fixed rate is 10.9 percent per annum.

The yield rates of government Islamic bonds on the run whose maturity is closer to every semiannual end were obtained from (Ravindran, et al., 2011). As of July 2010 and for each settlement date once in six months for five years commencing from 31st December 2010 until 30th June 2015. The term structure and forward rates are computed through backward and forward iterations. For LIBOR rates that cover the same settlement dates, the rates are obtained from HSH Associates Financial Publishers. It is noted that a large difference exist between the government rates and LIBOR rates, which is partially due to country risk premium. Accordingly for the initial rates of December 31, 2010, we calculated the difference between the government yield and LIBOR rate, which is 3.17% and consider this as a country risk premium. We added this premium to every floating rates.

4 Results

The table below summarizes the calculation of the position of the fixed rate and floating rate payers at each settlement date under the two floating profit rate curves namely, Government yields curve and LIBOR rates curve. Under each curve, the bootstrapping method was used to construct the implied forward rate curve, floating leg. The fixed payment at each settlement period is fixed at \$5,450 ($0.109/2 * \$100,000$). At each settlement date, a netting process is performed where one of the parties need to transfer money to the other party. For instance, the first settlement period in the table represents a case where the fixed rate payer is obligated to pay \$5,450, whereas the floating rate payer is obligated to pay \$3,630. Accordingly, the fixed rate payer is obligated to settle his obligation of \$1,820. This process is repeated at each settlement date. It is apparent from the table that under the government forward rate curve during the first four semiannual periods the floating rate payer will receive net cash flows, while, the fixed rate payer will receive net cash for the remaining six semiannual periods. On the other hand, under the LIBOR curve, the fixed rate party is a net payer during the whole period of the contract.

The pricing and valuation of the IPRS is performed using the present value of the net cash flows. Therefore, at each settlement date the continuous compounding was used to determine the present value of each net payment. Under the government yield curve, the difference between the total present values is the swap value which is US\$667 is in favor of the fixed payer. The fixed rate payer should be compensated by an upfront payment of US\$667. This amount will equalize both the parties in terms of present values. On the other hand, under the LIBOR forward curve, the net result is that the floating rate payer will be receiving a total of US\$16,595 at the contract initiation.

Table 1 Cash Flows of IPRS for Contract's Counterparties

Settlement Period	Gov't Yield						LIBOR Rates					
	Implied Zero Rate	Implied FWD Rate	CF (FR)	CF (FR)	Net CF	PV of Diff	Implied Zero Rate	Implied FWD Rate	CF (FR)	CF (FR)	Net CF	PV of Diff
Dec-15	3.63	3.63	\$3,630	\$5,450	(\$1,820)	(\$1,787)	3.63	3.63	3,630.00	5,450.00	(\$1,820)	(\$1,787)
Jun-15	3.75	3.87	\$3,873	\$5,450	(\$1,577)	(\$1,519)	3.57	3.51	3,509.18	5,450.00	(\$1,941)	(\$1,873)
Dec-15	3.95	4.38	\$4,376	\$5,450	(\$1,074)	(\$1,013)	3.95	4.81	4,814.62	5,450.00	(\$635)	(\$599)
Jun-15	4.11	4.62	\$4,622	\$5,450	(\$828)	(\$763)	3.90	3.76	3,760.49	5,450.00	(\$1,690)	(\$1,563)
Dec-15	4.36	5.49	\$5,488	\$5,450	\$38	\$34	3.69	2.91	2,911.98	5,450.00	(\$2,538)	(\$2,315)
Jun-15	4.6	5.97	\$5,971	\$5,450	\$521	\$454	3.59	3.11	3,112.72	5,450.00	(\$2,337)	(\$2,099)
Dec-15	4.78	5.99	\$5,988	\$5,450	\$538	\$455	3.52	3.13	3,132.88	5,450.00	(\$2,317)	(\$2,049)
Jun-15	5.02	7.00	\$7,003	\$5,450	\$1,553	\$1,271	3.50	3.34	3,341.04	5,450.00	(\$2,109)	(\$1,834)
Dec-15	5.2	6.85	\$6,848	\$5,450	\$1,398	\$1,106	3.51	3.67	3,670.63	5,450.00	(\$1,779)	(\$1,519)
Jun-15	5.48	8.64	\$8,643	\$5,450	\$3,193	\$2,428	3.59	4.30	4,303.46	5,450.00	(\$1,147)	(\$958)
Total			\$56,443	\$54,500	\$1,943	\$667			\$36,187	\$54,500	(\$18,313)	(\$16,595)

5 Conclusion

The current practice of pricing and valuation profit rate swap is based on money market benchmark rates (LIBOR, IIBR, KIBOR,..etc). This practice is considered acceptable by practitioners as there is no truly Islamic alternative that is widely acceptable and provides the ability to price and value derivative securities.

The paper shows, without any doubt, that pricing the same IPRS contract with different benchmark rates leads to large variations in pricing and the net position of contract counterparties and their cash flows profiles.

This result enforces a conclusion that a universally accepted and applied Islamic profit rate is a necessity and the innovation in the Islamic asset pricing is needed for the continuous development of Islamic capital market in general and derivatives securities in particular.

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Analysis of Financing Difficulty and Its Countermeasure for Chinese Enterprises Overseas Merger and Acquisition

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Abstract: The sustainable development of Chinese enterprises cannot be realized without world market. Making use of various resources in the world market is the shortcut for the Chinese enterprises' development. In the "Going out" of Chinese enterprises, success or failure is more or less related to financing and financing way, since capital is the scarce resource in every enterprise. Therefore, how to finance effectively becomes an extremely important and basic activity for the enterprise, which needs careful analysis and study. In terms of the choice of financing way, this article proposes personal opinions for reference and critical thinking.

Key word: The overseas merge and acquisition; "Going out"; Financing difficulty; Financing way

1 Introduction

Since the middle and late of 1980s, Chinese enterprises, whether the state-owned enterprises or private enterprises, have made considerable progress in capital, technology, management and productivity after more than 30 years of introduction, digestion and absorption. Also, the enterprise size is not what it used to be and today in the international market Chinese enterprises can compete face to face with European and American enterprises.

Liu Zhengyu (2014) and Wen Ruixu (2015) propose that Chinese enterprises need focus on the mergers and acquisitions (M&A) financing when they are to go global and implement their overseas M&A. The enterprises can solve their financial difficulty in overseas M&A through the internal financing, the external financing and the leveraged buy-outs. Zhang Xiangqin (2012) puts forward that Chinese enterprises should innovate financing ways, reduce the M&A costs and scatter the M&A risks by combining the multiple financing ways such as the preferred stock financing and the buyout funds. Wang Di (2015) believes that the results will be different because of the different ways of M&A. Chen Wei and Wang Wanzhou (2009) points out that the trust has an incomparable advantage in M&A.

While numerous products "made in China" become famous in the world, the transaction environment facing Chinese enterprises is becoming increasingly tough. "Going out" becomes the only choice for Chinese enterprises. However, is the financing market and capital market in China well-prepared to go out of China?

2 Analysis of Financing Difficulty for Chinese Enterprises Overseas Merger and Acquisition

2.1 The financing way of Chinese enterprises overseas merger and acquisition lacks the market operation space

In the past 30 years of reform and opening up, the development of capital market is obvious to all. But because of the deficiency in national policy and law, the Chinese capital market is still at the initial development stage and has numerous formidable barriers in providing financing support for the Chinese enterprises overseas merger and acquisition. As is built into the law of the 43rd article of Temporary regulation for stock issue and stock transaction, "not a financial institution can provide loan for stock transaction"; The 133rd article in the "securities law" also states that "bank capital are forbidden to flow into the stock market". But selling enterprise bond makes the public not have enough confidence because of the enterprise popularity, enterprise self-restraint mechanism, enterprise credit capacity, enterprise management level, enterprise bond liquidity and so on. These subjective and objective reasons have all led to the failure of internationally accepted financing way in China, namely depending on the stock or the bond market for financing for overseas merger and acquisition. But from the international experience, native enterprises' participation in the international merger and acquisition cannot go without the support of prosperous native capital market.

2.2 Chinese commercial banks don't provide enough support for overseas merger and acquisition financing

The listing of Farmers Bank of China completed stock system transformation of all our commercial

banks and geared to international convention in terms of system. But in everyday operation, the use of bank loan is actually subject to related laws and regulations. For example, item 3 of the 21st article of “General loan rule” stipulates clearly that the loan is forbidden to be used in the capital stock equity investment. Also, the “commercial bank law” is not clear about whether to provide loan for enterprises merger and acquisition. These laws and regulations try to guarantee loan security and guard against market risk, but they also reflect that the bank credit system lacks flexibility in providing loan for merger and acquisition.

In addition, the loan implements lifelong responsibility system, therefore, in terms of the overall business ability of our commercial banks, the specialization degree is not competent to carry out effective participation, supervision and control in enterprises merger and acquisition and even the mortgage loan mechanism can't effectively control credit loan risk, causing financing failure in enterprise merger and acquisition.

2.3 The financing channel of Chinese enterprises overseas merger and acquisition is unclear and there remains doubt for the source of capital

In the construction and development of the market economic system in China, the private enterprises gain leap development and become the most dynamic economy in our country. But when carefully examining the development process of private economy, it is not difficult to discover that most of them depend on endogenous development to become strong and don't get market resources which are in direct proportion to their contribution to national economy. Also in the “going out” process, the support that private enterprises get is little. The proportion of private enterprises increases unceasingly in the enterprises which go out of China. In the capital market and loan market in China, private enterprises have problems getting capital and these problems not only enhance difficulty in private enterprises overseas merger and acquisition but also bring about doubt to the capital source of private enterprises. For example, when Sichuan Tengzhong Heavy Industrial Machinery proposed the plan in 2009 to purchase the Hummer brand of US General Motors, what people cared most was not whether the acquisition was feasible but whether Tengzhong had plenty of muscle for this acquisition and where did the capital come from?

2.4 The proportion of policy fund in the Chinese enterprises overseas merger and acquisition is large

Different from private enterprises, the Chinese state-owned enterprises (especially the central enterprises), which are the main body of overseas merger and acquisition, have various channels to gain fund and are financially competent to deal with the merger and acquisition that needs large amounts of money. However, the road of these enterprises in overseas merger and acquisition is also not smooth due to the unclear source of capital. For example, the Aluminum Corporation of China in 2009 spent 19 billion US dollars purchasing Australian mineral company despite its operating loss. However, the policy loan caused anxiety of the opposite party, thus, the failure of this transaction was reasonable. Based on the analysis of existing information, the state-owned enterprises in China are more likely to achieve successful overseas merger and acquisition in the developing countries. And the acquisition failure more occurs in the developed countries, which is largely due to the nature of loan.

3 Suggestions for Solving Financing Difficulty of Chinese Enterprise Overseas Merger and Acquisition

From form, currently there is no lack of main financing tools in the financing market in China compared with the mature overseas financing market. However, in the actual process of merger and acquisition financing, available financing way for merger and acquisition is limited and also the financing channel is not unimpeded. The bank loan and internal financing are two main financing ways, which largely restricts the overseas development of enterprises in China.

3.1 Revising and improving existing laws and regulations to make the financial market worthy of the name

The financial capital market is the main battlefield that merger and acquisition occurs. How to make use of native financial capital market to provide convenient financing method and means of payment not only depends on the advancement the financial capital market internationalization but also depends on the environment of native financial capital market. Therefore, the first of the urgent matters now is to revise the the inopportune chapter and article in the current laws and regulations such as “securities law”, “temporary regulation for stock issue and stock transaction”, “general loan rule” and “measures for selling convertible bonds in listed companies” and so on. Secondly, enterprises and

commercial banks should be encouraged to creatively use various financing tools to obtain merger and acquisition funds under the condition of not violating the existing laws and regulations; thirdly, importance should be attached to using the existing laws and regulations to regulate and control the loan behavior of enterprises and commercial banks. And efforts should be made to reduce limits from other methods (laws and regulations excluded) as much as possible to achieve free management and provide genuine support for the enterprises overseas merger and acquisition.

3.2 Establishing and improving the enterprise credit system and bringing various financing tools into play

The perfect and real credit system is the cornerstone on which the financial capital market establishes and it serves as the foundation for sound and orderly development of capital market. In the initial development stage of financial capital market in China, the government, enterprise and society should play a role in the credit construction from different aspects. Firstly, the company should actively improve corporate governance structure, implement scientific and rational decision-making mechanism and set up transparent information disclosure system to make enterprise public company in the real sense; Secondly, credit system should be established through the government or the bank to supervise and manage the good faith construction of whole society and promote the public sharing process of credit information; Thirdly, credit service market should be cultivated under the guidance of market demand and various, complementary and legally operated credit service organizations with market credibility should be encouraged to provide specialized, diversified and multi-level market credit service for the whole society; Finally, great efforts should be made to promote good faith education and severe punishment should be given to market body breaking faith. Franklin once put it: "Credit is also money". In the increasingly competitive world market now, the credit competition will be the main form of future market competition and only good faith can bring convenience to the enterprise financing.

3.3 Treating various economic entities fairly and openly and ensuring their basic market rights

The proportion of private enterprises increases unceasingly in the enterprises that go out of China (though there is no authoritative data to prove it). However, the way or the channel of private enterprises' getting merger and acquisition fund is not expanded yet. Now this issue has finally aroused the attention of the senior leadership. "Risk management guideline for merger and acquisition loan of commercial banks" issued in 2008 by China Banking Regulatory Commission strengthens the status of state-owned enterprises and also mentions local enterprises and private enterprises. But "some suggestions about encouraging and guiding privately operated economy and other non-public economies" issued by the State Council in 2010 was pasted "non-public economy 36", in which increasing the fiscal and financial support for non-public economies and solving the narrow financing channel problem is specially pointed out. Although it is just a beginning, we have reason to believe that in the future the non-public economies or the private economy will enjoy the same or similar market rights as state-owned enterprises with the revision of a series of laws and regulations^[1].

3.4 Transforming the function of relevant government departments and changing the participator into service provider

Adam Smith in the Industrial Revolution advocated the government to act as the "night watchman" and objected to government's gesticulating to the market operation and proposed that market issues should be solved on its own. For Chinese enterprises' overseas merger and acquisition, government needs to accurately identify their market position. The central enterprises in China are the extra large monopolist enterprises group with Chinese characteristics. Basically they are established in the form of separating government functions from enterprises and enjoy various resources that other enterprises can hardly attain, thus they have obvious inherent advantage in the overseas merger and acquisition. However, what this inherent advantage brings to the enterprise is not success. From CNOOC's purchasing American Unocal (Unocal) to ACH's buying stock of Australian ore company, what is shown obscurely in the shadow of defeat is the act of government. Therefore, the government must actively realize its role-positioning. Just as "11th five-year plan" stressed, the realization of economic and social development goal "mainly depend on the improvement of market mechanism and interest guiding mechanism. Government must create good system and policy environment to stimulate the enthusiasm and creativity of market entity through mechanism innovation and policy improvement, making government thoroughly get rid of the role of "positive economic subject" and returns to its role of "system safeguard, market environment founder, the fair mediator and service provider" and well safeguard the overseas activity of enterprises.

4 The Overseas Merger and Acquisition Financing Should Depend on Innovation to Find a Way out

4.1 Encouraging financial service development in enterprises and exploring new financing way for enterprises

For numerous domestic enterprises, either inwardly depend on the so-called endogenous development to raise merger and acquisition fund or outwardly cast eyes on bank loan or the government support fund, very few consider carrying on the overseas merger and acquisition financing through enterprise financing which requires small investment but raises much money. The going-out pioneer enterprise Haier profoundly analyzed the GE pattern (GE is one of the world's top 100 enterprises that realizes industrial multiplication successfully through enterprise finance) and formed original ideas about developing the enterprise finance. Its leader Zhang Ruimin thought that to develop enterprise finance, firstly, internationalization should be realized through two wheels, namely industry and finance; secondly, to develop enterprise finance helps to achieve production resources distribution globally; finally, to develop enterprise finance helps enterprises to integrate into the local wholesale and retail and financial service effectively and help to seek leap development opportunity for enterprises.^[2]

4.2 Using leverage buyout to finance for acquisition

The leverage buyout (the abbreviated form is LBO) is one special form of enterprise capital operation and its essence is leverage buyout, namely an acquisition in which the enterprise uses a small amount of equity money (about 10%-15%) and takes the property of acquired enterprise and future earning capacity as collateral to raise fund for merger and acquisition. Leverage buyout financing is different from other debt financing methods and it mainly depends on the future economic gains of the acquired enterprise or depends on selling some properties of the acquired enterprise to pay the debt. Thus, the leverage buyout is featured by its low cost but much gains, high risk, high income and high skill. Leverage buyout financing enables enterprises that lack massive merger and acquisition fund to rely on external financing to achieve merger and acquisition by creating win-win situation.

At present, the enterprises in China needs to use the leverage buyout to solve the following problems: the first is to solve the problems that conflict with existing laws and regulations. According to "law of corporation", when a company invests other companies (the investment company and holding company excluded), the accumulated investment can not surpass 50% of this company's net assets. But the leverage buyout might make all the registered capital invested to the target company, which obviously goes against "law of corporation"; the second is to solve debt ratio for enterprises in China. The essential requirement of leverage buyout is low debt. But for enterprises that are suitable for leverage buyout in China, many have a debt ratio of more than 100% and don't have the ability to finance; the third is to improve the developed capital market.

4.3 Cooperating with mature overseas investment fund to avoid risk

When carrying on overseas merger and acquisition, state-owned enterprises should actively cooperate with world famous PE (PE is short for private equity), especially PE that focus on buy-out/buy-in (namely buyout fund). They should make use of their status as investor and also its characteristic of rich experience as manager and strong ability to take and manage risk to downplay their state-owned and politically-driven feature, reduce the possibility of refusing merger and acquisition plan and policy authorization detention from related parties, and increase the possibility of success^[3].

4.4 Collaborate with native enterprises or the internationally prominent companies to carry on acquisition

Chinese enterprises' merger and acquisition in European and US developed countries often break down because of politics. General Manager of the Beijing Changmao Consulting Company, HuangTeng, thinks that the key to solving this problem is making use of joint venture to remove doubts and meanwhile keep a low profile so as not to overemphasize control force and interest of the invested company and invested country should be highlighted. For example, CNPC and Shell's participation in the takeover bid of Australian CBM Company Arrow in the name of Shell Energy Holdings Australia should be a new attempt. Different demands of shareholders can be met on the basis of providing fund and market and approval can be obtained from the opposite party.

4.5 Actively cultivating overseas business of investment bank and developing different financing channels for merger and acquisition

When analyzing management veins of Goldman Sachs, Merrill Lynch and other internationally famous investment bank, we can find that selling on consignment, transaction, brokerage and other early business models have been gradually substituted by merger and acquisition, financial adviser, structured

financing, asset securitization, asset management, derivative transaction, direct investment of stockholder's rights and other services. Selling on consignment is the high-end and brand business of investment bank and plays a leading role to other business, but its earning only accounts for 10% of gross profit. The investment bank in our country should draw on the successful experience of large international investment bank and focus the business of overseas investment bank on adviser consulting, merger and acquisition, property transfer, asset securitization, direct finance and other main lines, open up financing channels (e.g. contacting trust company to arrange seller financing, applying to trust company and various investment fund for stock collateral loans, introducing institutional investors, providing bridge loans for high-quality enterprises) for our enterprises' overseas expansion and support merger and acquisition enterprises to raise necessary merger and acquisition fund^{[4][5]}.

5 Conclusion

Chinese enterprises overseas merger and acquisition is a positive phenomenon, explaining that the Chinese economy is integrating into the world economic system in a more extensive field and at a higher level. The analysis of overseas merger and acquisition financing of Chinese enterprises helps various enterprises in our country to better develop the international market, effectively guarantee resources supply and quickly gain crucial technology to make Chinese enterprises multinational company with strong international competitiveness.

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Empirical Study of Earnings Management by Listed Companies Film and Television Industries

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Abstract: As cultural industries take a more prominent role in China's economic development, the State Council has announced positive policies to promote the film and television industries. The goal is to drive this industry to become a pillar of the China's economy. The film and television industries hold half the market share of the cultural industry. However, with the corrections and improvement of accounting practices to comply with international standards and the diversification of investments, what will the difference of earnings management be in this particular industry? I have chosen the China's financial statement data of 20 listed companies as research samples, and used SPSS19.0 software and corrected Jones model to undertake significant tests and multivariate linear analyses, and have come to a conclusion.

Key words: Film and television industry; Listed company; Earnings management; Empirical research

1 Introduction

With the further reformation of China's economic system and the boom in investment markets, China's accounting environment has become more complicated. The users of accounting information now pay more attention to the quality of accounting information. The earnings of a company are one of the top concerns. Because of inadequate accounting rules and related systems, some companies will control earnings for listing, rationing shares, or expanding influence. The film and television industry is a specialized economic form. It has become the endogenous variation of economic and social development. It is a very important and difficult task to develop the film and television industries to meet the cultural demand of the masses, especially the younger generations. That is why I chose the film and television industry as my research subject to empirically analyze the earnings management of listed China's companies.

2 The Redefinition of the Management of Earnings

Earnings management is different from the profits control. The experts from different areas have different opinions about the concept of management of earnings, which in essence is an academic subject. First, let's define management of earnings:

The American accountant William K Scott considers earnings management as the process of maximizing the operator's own benefit by choosing the best accounting policy under GAAP's permissible methods.^[1] Another American accountant, Katherine Schipper, considers earnings management as an act of intentionally influencing the process of financial reporting to obtain some private gain^[2].

These two American accountants tell us the characteristics of earnings management: First, the person who chooses which model to follow is usually the senior executive. Second, the object of earnings management is to manage the total profits reported by the company. Third, the methods of earnings management are comprehensive, including accounting methods and non-accounting methods. Fourth, the purpose of earnings management is to maximize the economic benefits.

Obviously, we can define earnings management according to different users:

1) When the report is mainly for internal users, earnings management is a process by which a company accomplishes financial goals by using multifaceted legal means. It is to manage accounting profits by the executive while following the laws and new accounting rules.

2) When the report is mainly for external consumption, earnings management is a management behavior which is against accounting professional ethics. It is to shade the financial report to influence investors to make economic decisions and affect the governmental judgment of earnings information.

In the spirit of people-oriented principal and considering the interests of different people, the following empirical research focuses on external users.

3 An Overview of the Film and Television Industry

3.1 The definition of the film and television industry

According to UNESCO, the culture industry is defined as a series of activities of production, reproduction, storage, and distribution of cultural products and services, in accordance with industrial standards.

At present, the culture industry is separated into different categories: network culture industry, the film and television industry, audio-visual industry, culture and entertainment industry, performance industry, tourism, works of art, art training, and books and periodicals.

The Film and television industry incorporates a particularly larger and more comprehensive industry chain - including literature, publishing, photography, art, lighting, cosmetics, clothing, scenery, performance, advertising, animation design, production management, etc.

3.2 The development process of film and television industry

In 2000, the fifth plenary session of the 15th China's Congress of the CPC, "culture industry" first appeared in the official documents of the Central Committee. In 2002, the 16th China's Congress of the CPC report discussed cultural construction, and strongly encouraged the development of the cultural industry. On July 22th, 2009, the State Council passed "cultural industry promotion plan", which greatly promoted the rapid development of the whole cultural industry, including the film and television industry. In 2012, the government responded to national conditions, triggering the climax of the development of the cultural industry. In the six plenary session of the 17th China's Congress of the CPC, in a meeting it was proposed to make the development of the cultural industry into a pillar of Chinese industry by 2020. It also introduced supportive fiscal policies which would help usher in the intensive development of the cultural industries published period.

At The Chinese Media University Film and Television Industry Research Institute, the director of the academic committee, Yong Feng Qi, believes that the "12th Five Year Plan" will act as a development stage for the culture industry, and the "13th Five Year Plan" will be an international stage for the culture industry. China's cultural industry will ipso facto fall in line with the international market. It has become an international cultural power. "The demand for cultural consumption has been suppressed by 90% ~ 99%." Independent planner A. Ying said, when interviewed by the "Outlook Weekly", "Releasing this demand is our most important responsibility, by increasing the supply"^[3].

With the development of the cultural industry, the rapid rise of China's film and television industry has played a leading role in the economic and social development of the nation. In recent years, network radio and network TV have become new bright spots in the development of the film and television industry. Radio and television including digital cable television provides a larger forum for the development of the film and television industries. In a period of financial crisis, the film and television industry unexpectedly kept financially sound, especially during prime time and holidays, when people were lining up in front of cinemas. It was difficult for the populace to obtain a ticket. The film and television industry was flying against the wind, and moving forward. This added more confidence and hope to the rapid development of China's film and television industry. At present, China has become the world's second largest film market. The influx of capital has been the direction of the development of Chinese film, suggesting that the Chinese film industry in the capital market has staged a war of cross-border integration and has surged ahead of as new trends are formed. It now has international influence and competes significantly.

4 The Characteristics of Earnings Management of Listed Company in the Film and Television Industry

The Chinese film and television industry started relatively late. With governmental support, the companies in this industry have good prospects. However, listing in A-share is demanding which leads to fewer listed companies with small scale. In order to keep their salaries and positions, and achieve the aspirations of the majority of shareholders, and meet the listing requirement and supervision, the managers will adjust earnings report by earnings management. At present, the government puts great emphasis on the development of the film and television industry and has announced all kinds of preferential policies. The earnings management of listed company in film and television industry has the following characteristics:

1) The manager has great pressure upon him or her. The earnings management has become the decompression medicine.

Elements of pressure on earnings management can be divided into four kinds: economic pressure,

work pressure, bad habits pressure, and other pressure. Pressure comes when the target is more than their own ability. When the operator's scientifically plans the company's development strategy by analyzing SWOT and PEST, makes full use of its resources, reasonably manages averse internal and external risk, the pressure is controlled in the range of ability. In this situation, the pressure is positive, otherwise it is negative. Trying to do something that is known to be impossible deliberately will promote earnings management and fraud.

2) The policy temptation is so big that the motivation of earnings management is obvious.

Restructuring of the state-owned film and television industry supports the private capital to participate. Social capital can establish share-holding film and television productions, performing arts, screening, and entertainment, printing, and exhibition enterprises. "Debt-to-equity swap" allows implementation in the process of cultural enterprise restructuring. The broadening of the cultural enterprise registration authority, the cultural companies of which the registered capital is less than 5 million Yuan, can reflect directly to the local county administration of industry and commerce. The individual businesses and farmers' professional co-operatives are allowed to develop special tourism, the local culture customs, folk culture and other culture activities. Listed companies in film and television industry have preferential policies in land acquisition and usage, finance, taxation, access and other aspects, which makes managers strive to portray earnings management to provide a good image of the company.

3) It has plenty of human resources with many earnings management means.

Our listed company of film and television industry has a great number of talents. These highly knowledgeable managers are good at using cunning means of earnings management. In addition to the accounting estimation, the error correction of early stages and the changes in accounting policy, the government subsidies, or contingencies, the affiliated party transactions, the fair value, merger goodwill are used for earnings management.

5 An empirical study of earnings management of listed companies in film and television industry

5.1 The hypothesis of research

The domestic and abroad accounting scholars come to the same conclusion through the empirical analysis study of earnings management: The earnings management behavior of listed companies exists in various industries. But, no one has been able to confirm whether there is earnings management misbehavior and its degree in listed companies of film and television industry through empirical research. According to experience so far, the first assumption is made:

Hypothesis 1: listed companies of film and television industry have different levels of earnings management behavior every year.

In 2007, with international convergence, new accounting standards have been enacted in China. The new accounting standards will further modify government subsidies, the fair value measurements, and asset impairment losses. It also put forward the stricter requirements to the subjective judgment of accounting estimates and accounting policy changes. These should be able to inhibit earnings management behavior theoretically. So according to this, the second hypothesis is made:

Hypothesis 2: From 2009 to 2011, the degree of earnings management operated by the managers of listed companies in the film and television industry is declining year by year.

5.2 The selection of model

General methods include Hayley accrued profit model, Di 'Angelo model, the Jones model, modified Jones model etc. Considering the uniqueness of listed companies in film and television industry and the efficiency of the data collection the modified Jones model is finally chosen for empirical study of the listed companies in film and television industry.

5.2.1 The total accrued profit method

Overall accrued profit is based on the profits and losses of the cash basis accounting and accrual accounting profit produced by the difference. Generally speaking, under accrual accounting, those that have been implemented in current income and expenses or have occurred, regardless of whether the payment is cashed, should be treated as revenue and expenses. Those that do not belong to the current income and expenses, even if they have been cashed, should not be included as current revenues and expenses. But under the cash basis, when payment is actually received, confirms income, and when actually paid is to confirm expense. John Jason defines overall accrued profit as the difference between net income and cash flows from operating activities ^[4].

Namely:

$$TA \text{ (Total accrual)} = NIN \text{ (Net Income)} - CFO \text{ (Cash Flows from Operating activities)} \quad (1)$$

According to the manipulability, overall accrued profits can be divided into two kinds: controllable accrued profits and incontrollable accrued profit.

Namely:

$$TA \text{ (Total accrual)} = DA \text{ (Discretionary Accrual)} + NDA \text{ (Non-Discretionary Accrual)} \quad (2)$$

$$DA \text{ (Discretionary Accrual)} = TA \text{ (Total accrual)} - NDA \text{ (Non-Discretionary Accrual)} \quad (3)$$

The key of the overall accrued profit method is to measure discretionary accrued profits, and regard it as an index of earnings management.

5.2.2 The modified Jones model

Hayley assumes non-discretionary accrued profits of a company are stable every year. It should be subject to the distribution of white noise with zero mean value. It comes to a conclusion that the expected non-discretionary accrued profits are equal to zero. If the overall accrued profit is not equal to zero, then the earnings management behavior exists. This is the Hayley model. Considering special circumstances of the Hayley model, the Di 'Angelo model improves the estimation period into the event period the year before.

Through research, Jones thought the Hayley model and the Di 'Angelo model do not consider the influence to non-discretionary accrued profits made by the changes of a company scale. Jones considers that the increase of the company's main business income will lead to the increase of accounts receivable project. The increase of original value of the fixed assets will lead to the increase of the accumulated depreciation. Accrued profits will be increased. He makes the following model^[5]:

$$TAt / At-1 = \beta_1(1/At-1) + \beta_2(\Delta REVt / At-1) + (PPEt / At-1) + \varepsilon \quad (4)$$

$$NDA_t / At-1 = \beta_1(1/At-1) + \beta_2(\Delta REVt / At-1) + \beta_3 (PPEt / At-1) \quad (5)$$

TAt = Overall accrued profit of t year

At - 1 = t-1 year's total assets

ΔREV_t = t year income - t - 1 year income

PPEt = t year original value of fixed assets

ε_t = residual

NDA_t = t year Non-Discretionary Accrual

On the basis of the Jones model, Daiqiu found that many companies have credit sales (sell on credit). There should be receivable accounts and even the possibility of bad debts. The existence of credit sales is likely to lead to earnings management behavior. Jones model takes the change of total operating income as a part of non-discretionary accrued profit. This will inevitably produces large errors. The model will underestimate the earnings management behavior and overestimate the non-discretionary accrued profit. Therefore, Daiqiu et al. corrected the Jones model and made the modified Jones model. This model deducted the part of the increased credit sales from income increase. Modified Jones makes formulas as follows^[6]:

$$NDA_t / At-1 = \beta_1(1/At-1) + \beta_2(\Delta REVt / At-1 - \Delta REct / At-1) + \beta_3(PPEt / At-1) \quad (6)$$

Δ the REct = the net value of receivable accounts of t year - the net value of receivable accounts of t-1 year β_1 、 β_2 、 β_3 are the coefficient, can be obtained from the following regression model:

$$TAt / At-1 = \beta_1(1/At-1) + \beta_2(\Delta REVt / At-1 - \Delta REct / At-1) + \beta_3(PPEt / At-1) + \varepsilon_t \quad (7)$$

To achieve the purpose of the study, by using the Modified Jones Model, we can estimate the discretionary accrued profits and non-discretionary accrued profits of Chinese listed companies in film and television industry more accurately.

5.3 The sample selection and data sources

5.3.1 The sample selection

Chinese film and television industry experts Xiao Ming Hu has published more than 30 listed companies on the A-share. He takes out extensive cultural and marginal culture (including tourism) of five listed companies and selects 20 well-operated listed companies, which have complete data as samples to do empirical testing of 2009-2011 data. I have chosen 2008 data of 20 listed companies because of variables used in the model.

5.3.2 The period of the empirical analysis

The period of the empirical analysis is from 2009 to 2011. I study 3 years of data of the selected 20 listed companies in 2009, 2010 and 2011. Due to the conclusion of the model requires the previous year's data, the data of 2008 is also selected.

5.3.3 The data sources

All data is from sina (sina finance and economics) published balance sheet: the receivable net

accounts, the original value of fixed assets and assets of the total amount of data of the selected sample company from December 31, 2008 to December 31, 2011. Income statement: the data of revenue and net profit of the selected sample company from 2008 to 2011. The cash flow statement: the data of net operating cash flow of the selected sample company from 2008 to 2011. The used statistical software is Microsoft Excel 2010 and SPSS19.0 Chinese version.

5.4 The empirical results and analysis

5.4.1 Regression analysis of the correlation test

1) 2009 data test results

Table 1 R analysis Results

Model	R	R Square	Adjusted R-squared	Standard error of estimate
Modified Jones Model 1	0.627 ^a	0.393	0.28	0.126

Note: a predictor variables included: 1 / prior year total assets, fixed assets / total assets last year, (the amount of change in operating income - change in accounts receivable) / Total assets last year, (constant).

Table 2 Anovab

Model	Square and	df	Mean Square	F	Sig	
1	Return	0.164	3	0.055	3.46	0.041 ^a
	Residuals	0.253	16	0.016		
	Total	0.417	19			

2) 2010 T test results

Table 3 R analysis Results

Model	R	R Square	Adjusted R-squared	Standard error of estimate
Modified Jones Model 1	0.861 ^a	0.741	0.692	0.075737578

Note: a predictor variables included: 1 / prior year total assets, fixed assets / total assets last year, (the amount of change in operating income - change in accounts receivable) / Total assets last year, (constant).

Table 4 Anovab

Model	Square and	df	Mean Square	F	Sig	
1	Return	0.262	3	0.087	15.244	0.000 ^a
	Residuals	0.092	16	0.006		
	Total	0.354	19			

3) 2011 data test results

Table 5 R analysis Results

Model	R	R Square	Adjusted R-squared	Standard error of estimate
Modified Jones Model 1	0.565 ^a	0.319	0.192	0.113879273

Note: a predictor variables included: 1 / prior year total assets, fixed assets / total assets last year, (the amount of change in operating income - change in accounts receivable) / Total assets last year, (constant).

Table 6 Anovab

Model	Square and	df	Mean Square	F	Sig	
1	Return	0.097	3	0.032	2.502	0.096 ^a
	Residuals	0.207	16	0.013		
	Total	0.305	19			

5.4.2 Regression parameters significance test (T test)

1) 2009 T test results

Table 7 T Test I

Test value =0						
	t	df	Sig. (Bilateral)	Mean difference	95% confidence interval difference	
					Upper limit	Lower limit
a	3.389	19	0.003	1.77093E-09	6.77E-10	2.86459E-09
b	3.579	19	0.002	0.134	0.06	0.21
c	5.396	19	0	0.364	0.22	0.5

Note: a = 1 / total assets last year, b = (Operating income variable - Variable receivables) / Total assets last year, c = Fixed assets / total assets last year

2) 2010 T test results

Table 8 T Test II

Test value =0						
					95% confidence interval difference	
	t	df	Sig. (Bilateral)	Mean difference	Upper limit	Lower limit
a	4.313	19	0	6.15002E-10	3.17E-10	9.13446E-10
b	2.705	19	0.014	0.224192469	0.050742	0.397643379
c	5.281	19	0	0.37000496	0.225776	0.522225002

Note: a = 1 / total assets last year, b = (Operating income variable - Variable receivables) / Total assets last year, c = Fixed assets / total assets last year

3) 2011 T test results

Table 9 T Test III

Test value =0						
					95% confidence interval difference	
	t	df	Sig. (Bilateral)	Mean difference	Upper limit	Lower limit
a	3.663	19	0.002	6.68038E-10	2.86364E-10	1.04971E-09
b	1.86	19	0.078	0.091010402	-1.14E-02	1.93E-01
c	4.666	19	0	0.360747008	1.99E-01	5.23E-01

Note: a = 1 / total assets last year, b = (Operating income variable - Variable receivables) / Total assets last year, c = Fixed assets / total assets last year

5.5 Positive conclusion

From the results of table 1, table 3 and table 5, we can see that r-squared and adjusted r-squared of 2009 and 2011 of the selected samples are less than 0.5. The r-squared and adjusted r-squared of 2010 are more than 0.5, but also less than 0.9, which proves that the data in the model fitting degree is relatively poor. That is to say, in the sample company annual report, overall accrued profit is more than non-discretionary accrued profits. There is a considerable part of discretionary accrued profits. The reason is the managers do earnings management purposely. It proves the hypothesis is correct. These listed companies of film and television industry do have different levels of earnings management behavior every year. We can also see that the r-squared of 2011 is small. The r-squared of 2009 is modest. The r-squared of 2010 is the biggest. It shows that the sample companies took obvious earnings management in 2009 and 2011. The earnings management behavior is not obvious in 2010. The reason is the managers carried on the earnings management behavior with strong purpose in order to smooth the trace of earnings management and evade supervision. In contrast with the previous year they did a surplus of adjustment. Therefore, it denies the second hypothesis of this article. The promulgation of the new accounting standards does not gradually inhibit earnings management behavior.

In addition, though the empirical study on earnings management behavior throughout the academic study of real estate, manufacturing, etc. it can be seen that the degree of earnings management of listed companies in film and television industry is relatively small. It proves that the importance of film and television industry in China is high. The regulatory policy is more strict.

From the data in table 2, table 4 and table 6, we can see that 1 regression analyzed F value of 2009, 2010, 2011 is relatively low, which means the effect of whole regression equation is relatively poor. It also confirms that the ratio of discretionary accrued profits in the overall accrued profit is large. Again, it proves the accuracy of hypothesis. From the data, we can see that the F value of 2010 is the biggest. The F value of 2009 is modest. The F value of 2011 is small. It also confirms that in 2011, the earnings management behavior of sample companies is most obvious. In 2009, the earnings management behavior is modest. In 2010, the earnings management behavior is least obvious. It denies the second hypothesis.

From model test result of significant regression parameters, the returns of 2009, 2010 and 2011 are not obvious. In other words, the scale change of the selected sample listed companies does not significantly affect the growth of non-discretionary accrued profits. Discretionary accrued profits can greatly influence the change of the sample company's overall accrued profit, which also proves that the earnings management behavior exists in financial reporting of listed companies in the film and television industry.

According to the above empirical analysis, we reach the following conclusions:

1) In the annual financial report of the listed company in film and television industry, there are different levels of earnings management behavior. The earnings management behavior in 2010 is not obvious. The earnings management behavior in 2009 and 2011 is more obvious.

2) The promulgation of the new accounting standards does not gradually inhibit of the listed companies' earnings management. In order to smooth earnings management trace, the managers do the opposite surplus adjustment each year.

6 Conclusions

Through the empirical analysis we can see that the phenomenon of earnings management exists in Chinese listed companies in the film and television industry. This is suggestive of the fact that the film and television industry is becoming more developed. But the excessive earnings management cannot truly reflect the profitability of a company's financial conditions which leads to accounting information distortion. It seriously affects the function of optimizing the allocation of resources in the capital markets. It has become an important factor that blocks the healthy development of China's film and television industry. It also is a huge inconvenience to management, which caused the financial turmoil, heavy loss of the company's economy and the credibility. In order to reduce the negative impact of earnings management, the listed company's earnings management should be standardized. According to this, we can take actions from the following aspects:

1) To strengthen and improve the system of accounting standards and accounting construction to reduce the space of earnings management as much as possible. In China, market economy development is immature. The relevant laws and regulations are not regular. The relevant departments do not enforce law enforcement strictly. It provides great latitude for earnings management, thus affecting the quality of the earnings information. The earnings management of listed company is inevitable, but we can constantly improve accounting standards and accounting systems, forcing the film and television companies to narrow their surplus space to regular earnings management as much as possible. Laws and regulations must be improved. Stricter rule systems must be established to make the company's actual financial operation accept the necessary binding. It can reduce the subjective intent of the financial processing, and prevent the company from taking too much risk.

2) Speed up the governance of the internal structure of listed companies, and standardize the internal constraint mechanism. Corporate governance institution is an internal supervision mechanism to restrain earnings management. With the current situation, the internal governance structure of listed companies is not perfect^[7]. The case that big shareholders infringe the interests of small shareholders happens occasionally. Independent director systems are not perfect since they lack independence. In some companies it simply does not exist. The target interests of owner and operator are inconsistent. The company incentive mechanism is not perfect etc. The companies should adjust internal mechanisms, balances the behaviors of each interest group, which will in fact inhibit some earnings management behavior. For example, it can decrease the proportion of state-owned shares equity and adjust the irrational equity structure. A company can also improve the system of independent directors, and build a dual function mechanism which can not only protect the interests of investors but will also inspire operators. As an example, the director system, concerning the independent director and the interest relationship in the listed companies, the company can take in accreditation system of the third party to get independent directors to rid themselves of the dilemma which he has to subject to listed companies and large shareholders, and be responsible for the market. The independent director is totally independent from the company and his compensation and performance is separate from the company. In addition, we should straighten out the relationship between independent director and board of supervisors and redefine both functions in order to take its responsibility so that we can avoid management effectiveness due to the fight for power and money.

3) Strengthen external supervision functions and improve the quality of the auditing profession and service quality.

Supervision and management of China's listed companies are mainly composed by CSRC. The justice department cannot effectively play a role. It has virtually increased the space of earnings management. We should improve the securities market supervision system, strengthen the supervision of securities regulators, correct related management system errors and reduce the policy incentives. Furthermore, we should strengthen the connection between administrative supervision and the criminal justice department to reinforce the regulation of listed companies and crackdown on the illegal behavior. According to the current relevant laws and regulations in China, the level of company surplus has

become a major indicator which determines whether a company is qualified to list, distribute shares, and avoid delisting. Most of the listed film and television companies will employ earnings management in order to insure the qualifications of listings, distribution shares and delisting. Therefore, we should change the existing rules of securities law, set up scientific evaluation systems for listed companies. Relevant hard indicators should not only consider earnings level, but also pay attention to the quality of earnings and future potential. For example, the CSRC will change share offerings from the quota system into an authorization system. To a certain extent, this can reduce incentive of new pricing for earnings management. Additionally, considering the company's characteristics, growth, and loss of properties etc. as the main reason, the regulation of the stock suspension and Termination of the listing can be adjusted. The conditions of losses for other financial indicators can measure three consecutive years, such as cash flow, and solvency. According to the space-time characteristics of the earnings management, we can establish a long-term supervision mechanism, to change the current regulation, which is seasonal, sometimes intensifying, and sometimes loosening^[8]. Securities regulators should also further transform their ideas and ways of work. They can make full use of modern information means and banking supervision systems to improve the regulatory frequency, efficiency, and effect.

4) Shift audit trading patterns and strengthen the supervision of the intermediary function.

Under the current pattern, the accounting firms are employed by the listed companies, and they audit the accounting information in order to ensure the quality of accounting information. The expenses are paid by the employers. This largely weakens the firm's independence, and seriously affects the reliability of accounting information. Therefore, we should change the current auditing mode to unify consumers and buyers of the auditing suggestions. It can enhance its independence to prompt them to carries on the objective and fair audit to audited listed companies. For example, a listed company should deliver a certain proportion of funds to set up special account according to its assets or profits. The accounting firm is paid from this account. Meanwhile, we should improve the professional judgment ability and set up a civil compensation mechanism for certified public accountants^[9]. If the accountant fails to find significant accounting fraud or gross negligence, which makes investors and creditors suffer huge losses in the process of auditing, the certified accountants and his firm shall bear the corresponding civil liabilities.

From what has been discussed above, the Chinese market economy developing system is inadequate. The related laws and regulations are uncompleted. Especially the lack of self-discipline and heteronomy makes earnings management of listed company in film and television industry incur and cause more harm than good. Information asymmetry damages the information users, especially the interests of investors and creditors. Related government departments should pay attention to it.

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Real Options Used in the Evaluation of Intangible Assets: Take Mobile Game Rights Evaluation as an Example

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Abstract: In the internet economic time, smart phones are growing to be widespread, just like they have become an indispensable part of people's life. Mobile games, as important applications, which attract customers and traffic, are being paid more and more attention. It's critical to reasonably evaluate mobile games' value, which is also an important way to boost the mobile games market. There are some limitations in traditional cost method, market method and income method when evaluating the value of copyright in mobile games. This paper introduces the real option method and put forward new methods to assess the value of copyright of mobile games and analyzes the basic idea and applicability of traditional valuation methods. All those bring important reference to reasonably value mobile games' right.

Key words: Mobile games; Value Rights; Real Option

1 Introduction

Mobile games, referred to as "mobile games" that runs on the game software on the phone. According to the mobile games of networking properties, mobile games are divided into mobile stand-alone games and mobile network games.

1.1 What copyrights are involved in mobile games?

According to mobile games patterns and income sources, the copyrights involved are as follows. Firstly, Mobile games, in the form of software, exists on various Internet, customers download and install via different channels, which mainly related to the reproduction rights of mobile games, distribution rights and communication right of information network. Secondly, allowing all regions except Chinese mainland, including Honking, Macao and Taiwan, to use and distribute mobile games incurs agency fees and revenue share, which is primarily related to the right of reproduction, distribution, translation and so on. Thirdly, adapting the hand travel into TV series or movie and developing other derivatives are mainly related to the filming rights and adaptation rights. In summary, the mobile games copyright, mainly covers the reproduction right, distribution right, information network transmission, translation rights, filming right and the adaptation's right.

1.2 Mobile game revenue model

In general, mobile games revenue in three ways: selling props, downloading with pay and developing derivative products. For now, almost all of the "free" mobile games, achieve profitability from the sale of games props and other virtual items, which takes a large proportion of the income. Moreover, the users' downloading the installation package by one-time pay through the relevant platform is another way to get the benefits of mobile games. In addition to the above two methods, achieving profitability from the further development of derivative products is also another business model. Usually the development of mobile games derivative production is built on high awareness and the large number of users. The development of mobile games' side-line derivatives is still not perfect in China. In the United States, Korea and Europe, the scale of mobile games derivatives industry has been several times larger than that of hand games industry. As the quality of mobile games improves, derivatives will be an important market.

1.3 The research status of mobile games copyright valuation

Currently, many people around the world use the traditional assessment to value mobile games. With time going by, the traditional way is clearly facing many challenges on the applicability of the games. But there isn't any complete mobile games valuation systems proposed. In consideration of the option feature of the mobile games copyright, the paper aims at introducing this option model to build valuation methods which conform to the trend of the times.

2 Background and Significance of Hand Travel Rights Assessment

In the era of the Internet economy, people who can attract users and traffic can create huge profits. Mobile games, one of the mobile applications which attract users and traffic, now has become the

market that all these major Internet giants rush to grab. In 2013 the market size of mobile games in China broke through the 10 billion mark, reaching 11.2 billion Yuan. With the expanding of market scale, the market set off a frenzy of trading because of the huge market potential and profit expectations. However, the development of the mobile games market faces two major difficulties: The first is the game copyright cannot be priced effectively. The innovation can't realize its value effectively, which not only obliterates the enthusiasm of related personnel, but also impedes the effective transactions of mobile games copyright market. Secondly, Chinese copyright-related laws and regulations are imperfect, not giving effective protection to the trading of mobile games copyright, which hindered the hand travel market's prosperity. In this paper, we use the real option pricing method to calculate the value of hand travel copyright in a new way, which has important theoretical and practical significance to copyright pledge financing, copyright trading and value realization. Theoretically, it expands the range of applications of real option and enriches the intangible assets - copyright value assessment method; practically, it provides the basic of the pricing of mobile games copyright and the conditions for the prosperity of mobile games deal.

3 Review the Conventional Evaluation

3.1 Factors affecting the value of mobile games copyright

Mobile games copyright value is generally affected by five factors: cost consumption, production elements, years of the income, operating channels and the external environment. High investment and luxury production have great influences on mobile games' quality, and then products with high quality are more likely to be popular with consumers in the future. The longer the proceeds of earnings years are, the higher the value of copyright will be. Channels and operating platforms are the conditions of the mobile games' launch, and they are the important external factors that decide the value of the mobile games. The Macro Economic environment, media technology environment, legal policy environment and market supply which can influence the value of the mobile games are also the external environment factor that should be considered.

3.2 The basic ideas and applicability analysis of costing method

Evaluating the cost from the point of buyers, we assume that there is no buyer willing to purchase when purchasing price is higher than the cost of asset price. Using the cost method involves four basic elements: a functional replacement cost of assets, loss of tangible assets, depreciation of obsolete assets and economic depreciation of assets. Because there is no visible loss of intangible assets, we do not consider the loss of tangible assets. Buyers who purchase copyright assets are concerned that copyright assets can bring future earnings rather than cost of copyright assets. Mobile games works' future earnings are not determined by its costs, because high cost does not mean high-yield and low-cost mobile games works can also get a good market. What's more, due to the formation of a copyright work relies more on investment which can't be measured including human intelligence, creativity and living labor, its visible costs, such as artificial cost, office cost, investment of equipment and other direct and indirect costs, tend not to fully reflect its real cost levels. The copyright value of the mobile games works, to some extent, is influenced by the development and the investment cost, but cost is definitely not the determining factor of mobile games' value of copyright.

3.3 The basic ideas and applicability analysis of market method

There are three conditions to assess the value of mobile games works copyright by using the market value method: first of all, there must be an public active mobile games copyright trading market and the relevant transaction data; secondly, there must be similar trade cases of mobile games copyright assets to provide the reference for appraisers; finally, the difference between evaluation objects and comparable transaction objects can be adjusted quantitatively.

Market law basic formula:

$$P = P^I \times S_1 \times S_2 \times S_3 \times \cdots \times S_n \quad (1)$$

P is the assessment of the value of mobile games copyright; P^I is the trading price of mobile games copyright in comparable transactions cases; S_1, S_2, \dots, S_n are all the correction factors. But there is currently no active mobile games copyright trading market in the country, so the transaction price may deviate from the intrinsic value of the copyright. There is little comparability of other mobile games copyright's trading price, so it's not applicable to simply use the market approach to assess the value of mobile games copyright.

3.4 The basic ideas and applicability analysis of the income method

The income method is based on how much the revenue that copyright assets can bring in the future.

The formula is:

$$P = \sum_{i=1}^n \frac{R_i}{(1+r)^i} \tag{2}$$

P is the assessed value of mobile games works copyright; R_i is the i years mobile games works of net income; n is the earning years of mobile games works copyright; r is the appropriate discount rate. The value of mobile games copyright depends on its how many profits it can bring to the copyright owner. The income method considered the future cash flow that copyright's future earnings can bring to the owners, and therefore, the evaluation which as the copyright investment, transfer, pledge for purposes often use this method in the appraisal. However, the Income approach also has its shortcomings. Income method assumed that future operating environment is stable and the future cash flows can be predicted based on historical data. However, in the mobile games works, there may exist a lot of uncertainty in the future operation. If the future mobile games works are widely accepted in the market, it will derive other types of copyright value, which can't be considered by income approach. In summary, among the three traditional assessment methods, the income method is the most widely used, the most scientific method in existing mobile games copyright value evaluation, though it was unable to consider the option features of mobile games works. In order to assess the value of mobile games copyright in a better way, we need further exploration on new methods.

4 Real Option Method in Valuing Mobile Gaming Rights

4.1 The basic idea

According to the Real Option Method, the future earnings of mobile games' copyright mainly consists of two parts. The first part is the value of future cash flows identified by the traditional income approach, that is, the present value of the business benefits by the basic application of mobile games copyright. The biggest flaw of traditional income approach is that it ignored the adjustments that would be made by managers and policy makers in the future, that based on development of objective situation, namely earnings posed by avoiding risks. Instead of considering the benefits caused by its flexibility in this section, supposing no matter how the future situation is, and still proceeding in accordance with the beginning of the business decisions, can absolutely not reflect the real value of copyrighted works fairly. The second part is the excess value of the rational exploitation of copyright goods, and the gain of the value in this part is based on that of the first part.

To sum up: value of mobile games copyright = value of mobile games copyright applications + option value of mobile games copyright

$$P = \sum_{i=1}^n \frac{R_i}{(1+r)^i} \tag{3}$$

P is Rights of the mobile games; R_i is the profits or net cash flow brought by applications of mobile games copyrights after i years; r is the appropriate discount rate; n is profit years of mobile games copyrights; Mobile games option value can be calculated by the Black-Scholes model (B-S equation). As the investment in copyright mobile games can be seen as a call option (if the future market situation is good, then executive the option, otherwise, abandon the execution).

Call option is calculated as follows:

$$d_1 = \frac{\ln(\frac{S}{X}) + (r + \frac{\sigma^2}{2}) \times T}{\sigma \sqrt{T}} \tag{4}$$

$N()$ indicates the cumulative probability of a normal distribution. Where: c is option value of mobile games copyright; S is the current price of the underlying assets of the option; X is the exercise price of option; r is the annual risk-free yield rate; σ^2 is the standard deviation of annual rate of return on the investment options; T is the length of option's mature time, generally on an annual basis. In a practical application, copyright of mobile games works may include many options, except the basic use. When determining options to be considered, there are two main standards: the value of the options as well as the possibility of implementing this option in the future. For those options with little value, little future-implementation possibility, we don't need consider their value. For example, when considering the option brought by purchasing mobile games copyright, if the buyer has identified the future strategy on developing derivative products based on the market situation, the right of development on derivative products is the option whose value needs to be taken into account. In general, among mobile games copyrights, the most valuable and possible to executive is the development rights of derivative products.

4.2 Determine the specific parameters

In the practical assessment, first of all, we must analyze what specific options the mobile games copyrights include. In general, the option value of mobile games copyright is mainly the development value of derivative products. When assessing the value of the derivative product development, attentions must be paid on what kinds of products there exist. For example, the mobile games works not only can be adapted into movies, TV dramas, but also carry on for the development of peripheral products. We need to assess the value of the options separately for each product development project.

S is the current price of option underlying assets, which can be calculated in the income method. Firstly, we need to predict the cash flow after conducting this product option, and then select the appropriate discount rate to discount the present value. Besides, when confirming the value of S , we should consider a problem, that is S is the present value of the expected benefits of the project options, rather than the present value brought by basic applications of mobile games works. When determining the value of S , we need to consider that after purchasing mobile games Rights, about how many years later, the option project will be conducted, namely the development of derivative products. For example, we expect to decide whether to invest in the option project after T years, imaging that the project is to invest the adaptation right of mobile games works for n year. We have to determine the sum of the benefits after works being adapted in these n years, (notice that the time point if the value is the T th years) and then we discount P to the time point when purchasing mobile games work to get the value of S .

X is the exercise price of option projects. Be specific to mobile games copyright, it is the needing of beginning input costs when making investment of project option. For instance, the necessary costs happen when we decide to adapt the mobile games works, including the costs of buying adaptation rights, work adaptation and so on.

σ is the volatility of annual return for the options investment, that is standard deviation of benefits. It is one of the parameters that is difficult to ensure in option pricing model. We can only use the past historical data to predict the standard deviation of option programs' benefits. And that also relates to selecting the annual rate of return standard deviation data of products' investment which is similar to option programs. Experts are supposed to predict future earnings' volatility of options investment according to the yield rate's volatility of similar assets investment.

T is the length of option expiry time, usually calculated by year. In valuation of specific mobile games rights, T is the interval between time point of gaining the copyright and time of option project being performed. For example, when purchasing the mobile phone's distribution rights, if it is expected to decide whether or not to develop derivative products within five years, T values on five.

R is the risk-free rate. It should choose the Treasury rate whose period is closed to the Expiration Date T . for example, the Expiration Date of option are 5 years, so we should choose 5-year treasury rate as the risk-free rate.

5 Conclusion

5.1 Summary and suggestions

Using reasonable assessment methods to determine the value of copyright is significant for the development of mobile games industry. As for the assessment methods, firstly, given the value of copyright mainly comes from bringing future economic benefits to the holders, rather than depending on their acquisition cost, so the cost method is not suitable for assessing the value of copyright under general circumstances. Secondly, the high demand of the market method for market conditions and information sources make the using of this method been greatly restricted. From this perspective, the proper use of the income method to assess the value of copyright works is the most scientific and rational choice. And what can not be ignored is that the mobile games works have obvious option characters. So we introduce real option valuation method to supplement the present income method.

5.2 Prospect

Through the research we may conclude that the mobile games works can be considered as a call option. And we applied "Black - Scholes" model in real option valuation and discussed the issue of determining the parameter. (Specific parameters determination is shown in Table 1).

Table 1 “Black – Scholes” Mobile Games Assess the Value of Copyright Definition Parameters

Parameters	Current meaning
S	The present value of the expected benefits derived from the project in the assessment time point
X	For the full cost of development of derivative projects
r	Bonds yield to maturity
T	time interval from the valuation date to the expected exercise of the option program
σ	volatility of annual earnings on derivative project investment, that is standard deviation of field rate

But it should be noted that the model is based on many assumptions, and there will be many unreasonable aspects when applied into reality, thus making the theory physical will be a focus direction of the research. And option model has great significance in terms of asset valuation. There is no doubt that in the future it will be applied to more areas of valuation.

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Analysis of SMEs Financing Difficulty Based on Nash Equilibrium

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Abstract: Financing difficulty is one of the major problems of Small and Medium Enterprises (SMEs) which restrains their development. This paper analyzes the financing difficulty faced by SMEs in a mechanism design theory and Game theory framework. The model results indicate that financing difficulty is an example of Nash equilibrium. Under the premise of self-financing nature of commercial banks as well as private capitals, coupled with severe capital constraints of SMEs, market behavior and market standards that are desirable in well-endowed economies are misplaced. Therefore, governmental preferential policies are in urgent need to facilitate SMEs financing.

Key words: Small and Medium Enterprises (SMEs); Financing; Nash Equilibrium; Mechanism Design

1 Introduction

The number of Small and Medium Enterprises (SMEs) account for 95% of that of the country's enterprises. SMEs contribute substantially to the national economy. The development of SMEs not only boosts the overall level of national economy, but also helps solve many social contradictions and social problems. However, SMEs still face many difficulties in obtaining capital, technology, personnel as well as information. Among them, financing difficulty has always plagued the development of SMEs. In 2014, the executive meeting of the Chinese State Council has referred to the problem of enterprise financing eight times; CPC Central Committee, the Chinese State Council, relevant departments and local governments at all levels have issued a series of policies and measures to support the development of SMEs, including increase the share of special funds in national budget and innovate the investment and financing mechanism etc. These measures should have played a positive role in pushing forward the development of SMEs, however, environment constraints make these policies seldom put into practice. Based on Mechanism design theory and Game theory, this paper analyzes the financing difficulty faced by SMEs.

2 SMEs Financing Model Based on Mechanism Design

2.1 Environment

The financing channels of SMEs can be divided into two categories: direct financing and indirect financing. However, direct financing are not frequently used in SMEs financing because of the imperfect capital market system, asymmetric information in credit market and opaque financial situation of SMEs. When SMEs are facing financial strain, 90% of them will choose indirect financing i.e. to loan from financial institution. However, as banks don't fully trust SMEs and often implement credit rationing, some SMEs have to turn to private capitals to raise capital.

We consider 3 agents, agent 1: a bank; agent 2: a private capital provider; agent 3: a candidate SME; the set of agents is denoted $N=\{1,2,3\}$.

2.2 Set of (physical) outcomes

We let Z^i denote the set of (physical) outcomes. Outcomes of this model are as follows: Z^1 denotes the situation, where agent 3 accepts the loan offered by agent 1, this directly implies the sustainable development of a SME; Z^2 denotes the situation, where agent 3 accepts the loan offered by agent 2; Z^3 denotes the situation, where agent 3 does not accept any loan offered by agent 1 and agent 2. In this case we let Z consists of three elements. $Z=\{Z^1, Z^2, Z^3\}$, where the superscript enumerates the elements of Z .

2.3 Utility functions

Agents' preferences are assumed to be represented by a utility function $U_i, i \in N$, which maps from the set of (physical) outcomes Z , to the set of real numbers R ; i.e. $U_i : Z \rightarrow R$. Letting P_1, P_2 denote the price quote per unit of loans (i.e. loan interest rate) of agent 1 and agent 2 respectively, $c > 0$ the cost of supplying a unit of loans (it includes risk compensation, labor cost, contract cost, opportunity cost etc.), and $R_3 > 0$, the reservation price per unit of loan of the candidate SME, we define agents' utility functions $U_j(Z^i)$ as follows. Note that subscript j indexes agents and superscript i enumerates the elements of Z . The three outcomes are:

$$\begin{aligned}
 U_1(Z^1) &= P_1 - c, \quad U_2(Z^1) = 0, \quad U_3(Z^1) = R_3 - P_1; \\
 U_1(Z^2) &= 0, \quad U_2(Z^2) = P_2 - c, \quad U_3(Z^2) = R_3 - P_2; \\
 U_1(Z^3) &= U_2(Z^3) = U_3(Z^3) = 0;
 \end{aligned}$$

We assume that $P_1, P_2, c, R_3 \in R^+$, where R^+ denotes the set of positive real numbers.

It should be noted that cost, c is not indexed, which implies that agent 1 and agent 2 are assumed to have identical operating costs.

2.4 Assumptions

Assumption ①: we assume $P_i - c \geq 0$, ($i = 1, 2$) as special restrictions δ , apply to agent 1 and agent 2, capturing the idea that both commercial banks and private capitals are self-financing. They always keep their profit-seeking nature. If the agency is unable to cover its expenses by the fees it earns from giving loans, it must close down.

Assumption ②: we assume $R_3 - c < 0$, capturing the idea that the financial resources of the candidate SME are very modest. We rule out the case where the entrepreneur becomes a client of both the private capital and banks.

3 Game Form of SMEs Financing

We adopt agent strategy domain S_1, S_2, S_3 together with payoff function π_1, π_2, π_3 to define the game.

3.1 Strategies

Each agent i , $i \in N$, has a set of admissible actions, S_i (no bribery, rent-seeking, menace or other illegal behaviors). For agent 1 and agent 2, we define P_1 and P_2 to represent the price quote per unit of loans, i.e. $i = 1, 2$ $S_i = P_i$, $S_{1,2} = R^+$.

We assume that agents 1 and 2 submit their price quotes, $s_1 = P_1$ and $s_2 = P_2$, simultaneously, i.e. without observing each other's quotes. We assume that agent 3 observes the pair of price quotes $(s_1, s_2) = (P_1, P_2)$ and subsequently accepts one of two particular price offers or rejects both offers, i.e. $(P_1, P_2) \cup \{\emptyset\}$. Generally, agent 3's action is dependent on the history action of agents 1 and 2, we let $\varphi: s_1 \times s_2 \rightarrow s_3$ denote a correspondence, which associates with every history of actions $(s_1, s_2) \in s_1 \times s_2$, a subset $\varphi(s_1, s_2)$ of s_3 . We call $\hat{S}_3 = \{\varphi(s_1, s_2)\} \cup \{\emptyset\}$ agent 3's constraint set.

Agent 3's pure strategy is to accept one of two particular price offers, or reject both offers, i.e. for $i = 3$, $S_3 = \{S_3: S_1 \times S_2 \rightarrow S_3 | S_3(s_1, s_2) \in S_3\}$, $S_3 = R^+ \cup \{\emptyset\}$. As we assume all three agents' strategy as pure strategy, we define $S = S_1 \times S_2 \times S_3$ with typical element $s = (s_1, s_2, s_3)$ to be the joint strategy space.

3.2 Payoff Functions

Since outcome function can determine how physical outcomes are derived from agent's actions, so we let h denote the outcome function, whose argument is a typical strategy profile $s \in S$, and which maps into the set of physical outcomes Z , i.e. $h: S \rightarrow Z$, therefore $Z = h(s), s \in S, Z \in S$. Agent i 's payoff function represent the utility of participants' joint strategy $S = (S_1, S_2, S_3)$, the value of outcome function h depends on the physical outcome of S , so we define agent i 's payoff function $\pi_i: S \rightarrow R$, as the composition of i 's utility function U_i with the outcome function h , for $i \in N, \pi_i = U_i \circ h$, such that $\pi_i(s) = U_i(h(s))$, and we write $\pi = (\pi_1, \pi_2, \pi_3)$.

3.3 Nash equilibrium

In order to determine the equilibrium of this type of model we extend the game form to a game, so that we can use an equilibrium concept of non-cooperative game theory: Nash Equilibrium. The main difference between a game form and a game is that an essential component of a game form is the outcome function, and the corresponding component of a game is the payoff function. So we adopt the outcome function of g as the outcome function of the mechanism. Given a game form g , let $N_g: E \rightarrow S$ denote the pure strategy Nash equilibrium correspondence, so that:

$$N_g(e) = \{s^* = (s_i^*, s_{-i}^*) \in S: \pi_i(s^*) \geq \pi_i(s_i, s_{-i}^*), \forall s_i \in s_i, i \in N\},$$

where (s_i, s_{-i}^*) denotes the strategy tuple derived from $s^* = (s_i^*, s_{-i}^*)$, s_i denotes agent i 's available strategy, and s_{-i}^* denotes other agents' strategy which remain invariant.

4 Results of SMEs financing model and its policy implication

According to the model results, there are four types of Nash equilibrium, and they are outcome equivalent: the candidate SME rejects both loans.

Nash equilibrium①: If $P_1 > R_3, P_2 > R_3$, then Z_3 ;

Because if agent 3 accepts the loan, its utility $R_3 - P$ will be under zero, therefore, agent 3 will not accept the loan either from agent 1 or agent 2.

Nash equilibrium②: If $P_1 > R_3, P_2 = R_3$, then Z_3 ;

As $P_2 = R_3$, for agent 3, whether to accept private capital loan doesn't make much sense. However the acceptance, by agent 3, of agent 2's loan is not part of Nash equilibrium, because in the case agent 2's price offer is not a best response to player 3's acceptance of such offer. It would give negative utility to agent 2. Agent 2 would be better off to change to the strategy of offering a price that exceeds agent 3's reservation price, i.e. $P_2 > R_3$, in this case the result would be same as the one in Nash equilibrium①, i.e. agent 3 would reject both loan interest rate offer of agents 1 and 2.

This case illustrates that, when SMEs are under conditions of severe constraints on financial resources, i.e. when $R_3 - c < 0$, even if agent 3 accept the loan price of private capital $p_2 = R_3$, it still does not come to a loan contract.

Nash equilibrium③: When $P_1 = R_3, P_2 > R_3$, the equilibrium result is Z_3 ; the commentary is analogous to that of Nash equilibrium 2.

Nash equilibrium④: When $P_1 = R_3, P_2 = R_3$, the equilibrium result is Z_3 ;

Analogous commentary as for equilibrium 2 applies; agent 3 is indifferent between accepting and rejecting the price offers. However in the case agent 3 accept the offer, agents 1 and 2's price offer are not best responses to player 3's acceptance of such offer (they would get negative utility). Agents 1 and 2 would be better off to change their strategy to gain a better utility, therefore, finally agent 3 would reject both loan interest rate offer of agents 1 and 2.

From the above four types of equilibrium, we can draw a conclusion that they are outcome equivalent: agent 3 rejects the affordable loan price offer. The government encourages commercial banks to loan to SMEs, but as the commercial banks are self-financing, they would not change their profit-seeking nature, if they offers a price that is low enough to be affordable by the candidate SME, they makes a loss and is not economically viable. For those commercial banks with monopolizing resources, they could loan the capital for much higher profit. If, on the other hand, the commercial banks offer a price, at which it is economically viable, then it prices itself out of the local market. On the other hand, suppose that the candidate SME were able to afford market prices, there would be no need for commercial banks in the first place, since private capitals could offer loans at market prices. That is to say, the dual constraints of self-financing for commercial banks and private capitals $P_i - c \geq 0$, together with the extremely low ability to pay of SMEs $R_3 - c < 0$, result in the dilemma that commercial banks, private capitals and SMEs cannot achieve a win-win situation through cooperation.

5 Conclusion

In the framework of mechanism design theory and game theory, we present a game model with three agents including commercial bank, private capital as well as SME. The model analyzes four types of equilibrium and produces an equivalent outcome, i.e. the dual constraints of self-financing constraints of commercial banks and private capitals $P_i - c \geq 0$, coupled with insufficient capital constraints of SMEs $R_3 - c < 0$, prevent SMEs from getting loans from both commercial banks and private capitals. This model illustrates that even though the government encourages commercial banks to offer SMEs loans, but as long as commercial banks maintains their self-financing and profit-seeking nature, the finance difficulties facing SMEs will still remain, preventing SMEs from financing from bank loans and private capital. From the perspective of mechanism design, the goal of this design is to subsidize the development of SMEs; the rule of this mechanism lies that commercial banks are self-financing; the outcome of this mechanism design seems that no loans is obtained by SMEs from commercial banks. therefore, this mechanism design is failed under specific environment (SMEs are under capital shortage and cannot afford high interest rate of loan). This model results further illustrate that indiscriminate application of market criteria may be counterproductive in an environment characterized by severe constraints on material wealth accumulation. Therefore, government should take the responsibility to formulate preferential policies and take adjustment measures to help SMEs financing.

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Foreign Direct Investment (FDI), Trade and Its Contribution to the Mining Sector of Guinea

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Abstract: In order to objectively analyze Foreign Direct Investment (FDI) contribution to Guinea's mining sector, the granger casualty test was used to determine the relationship among variables and to determine whether any of these variables affect others and how. The variables used are Gross Domestic Product, Government Income, Trade, FDI inflow into Guinea mining sector and the exchange rate. The granger casualty test produced evidence of a bidirectional casualty relationship which suggests that FDI's influence on efficiency lies in the government relaxing its dependency on the mining industry for economic growth.

Key words: Foreign Direct investment; Economic growth; Mining sector

1 Introduction

Guinea is one of the richest countries in West Africa in terms of its mineral resources. Around one third of the world's reserves of bauxite are found in Guinea.

The economy relies heavily on the Mining sector as this attracts major foreign investment.

In general, mineral exports accounted for more than 90% of the country's total export about 35% of government revenues. Export share of GDP growth was in 2001 (3.8%), 2002 (4.2%), 2003(1.2%), 2004(2.3%), 2005 (3%), 2006(2.5%) 2007(1.8%), 2008(4.9%), 2009(-0.3%) 2010(1.9), 2011(3.6%), 2012(4.7%) respectively. This investment is for an amount comparable to the country's annual GDP. Mining industry is dominant sector in the Guinean economy and main source of foreign exchange. The role of the foreign direct investment (FDI) has been recognized as a growth-enhancing factor in the developing countries. Campos and kinoshita (2002) wrote: 'the positive impact of foreign direct investment (FDI) on economic growth seems to have acquired status of stylized fact in the international economic literature'.

2 Overview of Guinea Mining Sector

The mining sector in Guinea contributes around 25% of the country's income, with bauxite production by far the most important contributor.

It is estimated that Guinea contains an estimated 24% of global bauxite reserves. Guinea accounts for 94% of Africa's bauxite production. Bauxite accounts for 20% of Guinea's GDP and 90% of exports. Gold and diamonds are also major export products. Although Guinea has significant commodity reserves, the country has been poorly explored and future potential exists for gold, base metals, iron ore and diamonds.

Guinea is underlain by the extensive Archaean West African craton.

3 Literature Review

In Guinea the Mining sector is still the most important of the Government Economy. FDI is one of only a handful of mining companies to have successfully commercially mined the ocean. Gold and Diamond Fields' strategy has capitalized on that experience to target, obtain and develop promising marine mineral prospects such as Guinea Conakry West Africa. Soon it became the most important sector in the mining industry.

Policies target at improving funding either through public sector or private sector investment will not help to meet the mining sector needs of the ever-bulging populace but also help socio-economic problems that come with such increase, one of which for example is unemployment in Guinea.

However, Guinea remains involved in two of the stages in the bauxite to aluminum chain, namely bauxite mining and alumina refining. During the period 1987-90, real growth in the mining sector averaged 5.7 per cent annually, compared with GDP growth of 4.1 per cent(Economist Intelligence Unit,1995b:20).

Therefore, the foundation of national wealth is essentially the mining sector. Development on how the mining sector can best contribute to overall economic growth and modernization must be explored.

The mining sector has the potential to be the industrial and economic catalyst from which a country's development can take off.

Ayanwale (2007) argued that most countries strive to attract FDI because of its acknowledged advantages as a tool of economic development. Africa and Guinea in particular joined the rest of the world in seeking FDI as evidenced by the formation of the New Partnership for Africa's Development (GEPAD), which has the attraction of foreign investment to Africa as a major component.

Improved research interest in FDI stems from the change of perspectives among developing countries. An important aspect of international economic integration is the larger role of foreign direct investment (FDI) in different economies.

4 Research Methodologies

4.1 Research design

The econometric model used to examine this study is Gross Domestic Product (GDP) as a dependent variable and Foreign Direct Investment (FDI), Government Income (GOVI), Trade volume (TRV), Exchange Rate(ER) as independent variables.

4.2 Granger Causality Test

Granger causality test was conducted to identify causal relationship between the variables Gross Domestic Product, Government Income, Trade, FDI inflow into Guinea mining sector, Exchange rate, and to determine whether the current lagged values of one variable affect another. The granger test may be explained with the help of the following equations.

$$X_t = a_0 + \sum_{j=1}^m a_j x_{t-j} + \sum_{j=1}^n b_j y_{t-j} + e_t \tag{1}$$

$$Y_t = c_0 + \sum_{j=1}^m c x_{t-j} + \sum_{j=1}^n d_j y_{t-j} + w_t \tag{2}$$

Bidirectional causality exists if the null hypothesis, that X_t does not strictly Granger-cause Y_t , is also rejected.

4.3 Modelspecification

The model estimation will be done through the use of the ordinary method of estimation.

$$GDP_t = f(GOVI, FDI, TRV, ER,) \tag{3}$$

Where

GDP_t is Gross Domestic Product

GOVI_t is Government Income

FDI_t is Foreign Direct Investment inflows

TRV_t is Trade volume

ER_t is Exchange rate

μ_t is stochastic random term

In a more explicit and econometric form, equation (1) can be stated as

$$GDP_t = \alpha_0 + \alpha_1 GOVI_t + \alpha_2 FDI_t + \alpha_3 TV_t + \alpha_4 ER_t + \mu_t \tag{4}$$

5 Dataanalysis Ofempiricalresult

5.1 Correlation test result

We want to examine the negative and positive relationship between all the variables and to determine if the p-values or significance values are more or less than 5% to make a decision.

Table1 Correlation Test Results

Variables	GDP	FDI	GOVI	TRV	EXR
GDP	1	0.70278	0.90593	0.71944	0.8249
FDI	0.70278	1	0.70082	0.69055	0.75538
GOVI	0.90593	0.70082	1	0.74221	0.76783
TRV	0.71944	0.69055	0.74221	1	0.77631
EXR	0.8249	0.75538	0.76783	0.77631	1

Finding: The result of the table shows that the observation correlation relationship of each pair is positive, it can be concluded that each of the variables in this corresponding analysis testing has a positive significant correlation. This means our variables have a strong linear relationship with each other by +1.

5.2 Unit root test for order of integration

Table 2 Unit Root Test

Null Hypothesis: D(GDP) has a unit root				
Exogenous: Constant				
Lag Length: 3 (Automatic - based on SIC, maxlag=6)				
Lag Length: 3 (Automatic - based on SIC, maxlag=6)	Lag Length: 3 (Automatic - based on SIC, maxlag=6)	Lag Length: 3 (Automatic - based on SIC, maxlag=6)		
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-73.86446	0.0001
Test critical values:	1% level		-8.033476	
	5% level		-4.541245	
	10% level		-3.380555	
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(GDP,2)				
Method: Least Squares				
Date: 03/16/15 Time: 23:40				
Sample (adjusted): 3 5				
Included observations: 3 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.770991	0.023976	-73.86446	0.0086
C	-0.031396	0.005613	-5.593854	0.1126

ADF and Philips Perron at first difference with intercept and trend at 0.05 level of significance

Finding

From the result of table 2 the null hypothesis of the unit root shows all the variables are not stationary at conventional level since their p-value both ADF and PP test are not significant at all conventional levels of significance. We can therefore reject the null hypothesis and accept the alternative hypothesis.

Table 3 Granger Causality Results

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause GDP	25	1.44655	0.2590
GDP does not Granger Cause FDI		3.66212	0.0441
GOVI does not Granger Cause GDP	25	0.99521	0.3872
GDP does not Granger Cause GOVI		0.50656	0.6101
EXR does not Granger Cause GDP	25	12.7336	0.0003
GDP does not Granger Cause EXR		5.45199	0.0129
TRV does not Granger Cause GDP	25	5.12698	0.0159
GDP does not Granger Cause TRV		0.96879	0.3967
GOVI does not Granger Cause FDI	25	1.26060	0.3051
FDI does not Granger Cause GOVI		1.78824	0.1930
EXR does not Granger Cause FDI	25	21.5382	1.E-05
FDI does not Granger Cause EXR		3.35995	0.0552
TRV does not Granger Cause FDI	25	7.25881	0.0043
FDI does not Granger Cause TRV		0.11011	0.8963
EXR does not Granger Cause GOVI	25	19.9202	2.E-05
GOVI does not Granger Cause EXR		2.30919	0.1252
TRV does not Granger Cause GOVI	25	1.56940	0.2328
GOVI does not Granger Cause TRV		0.53805	0.5921
TRV does not Granger Cause EXR	25	2.38872	0.1174
EXR does not Granger Cause TRV		7.94733	0.0029

Finding

FDI does not Granger Cause GDP and interchangeably GDP does not Granger Cause FDI. However there is a unidirectional relationship between the two variables which means the causal relationship between them (FDI > GDP) signifies FDI has improved the country's productivity which affected

rapid GDP growth.

Furthermore, the results indicate that the variable trade volume TRV does not Granger Cause FDI. However, FDI Granger Cause TRV which means that they are unidirectional between the two variables, which mean that there is an improvement of the mining trade system to attract more foreign direct investment to the sector. However, with inefficient policies and political instability, private investment and investment in research and development are struggling in the sector. Boosting local economic growth in mining and other sectors will only be profitable if the government is able to access new technologies to assist in attracting FDI and improving R&D investment.

The result shows that Exchange rate EXR Granger causes GDP while GDP does not cause Exchange rate EXR. This indicates there is a bidirectional causality relationship which means they are statistically significant in explaining changes in the economic growth of the country due to the fact that exchange rate plays a significant role in determining the import and export in the country.

6 Conclusion and Policies Recommendation

In this research on Foreign Direct Investment (FDI), Trade and its Contribution to Guinea's Mining sector our investigation indicates there is a bidirectional causality relationship which means they are statistically significant in explaining changes in the economic growth of the country due to the fact that exchange rate plays a significant role in determining the import and export in the country.

Therefore, in order to attract FDI that improves efficiency in the mining sector; the government should prioritize the sector and reduce its dependence to grow the economy. Macroeconomic stability must be ensured and distinct, it should also be predictable and have an "easy-to-access" policy environment inclusive of incentives. There is also the need to improve infrastructural development especially in both primary and secondary infrastructures and this investment will lead to higher productivity which in turn increases productivity and improves efficiency in all sectors of the economy. This creates a multiplier effect which stimulates job creation, economic growth, productivity, national welfare and investment and functional development.

Thus, we conclude that if Guinea wants to increase the mining production it is imperative to develop effective FDI policies. However, the expansion of agricultural production, reduction in reliance of import, and attainment of food security requires capital, energy, technology, and international business connections. This is the second list of factors that Guinea is lacking, but FDI can serve as a channel to supply such inputs.

1) Government should seek additional FDI for the Mining sector since the success of the sector is essential to the attainment of true economic stability.

2) Factors such as foreign ownership restrictions and multiple corporate taxes that discourage Foreign investors should be reviewed and addressed.

3) Government should not just focus on attracting FDI to the sector but on attracting the type of FDI that seeks to enhance the capacity of investment.

4) The Government of Guinea must further target specific types of FDI that are able to generate spillover effects in the entire value chain of the Mining sector and by extension the overall economy.

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A Review on the Importance of E-Commerce for SMEs in Pakistan

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Abstract: E-commerce becomes important factor of success for both large organizations and Small and Medium Enterprises (SMEs) as it helps to reduce transaction cost, approach larger untapped markets and avoid intermediaries. However, the published research has mainly focused on the role of e-commerce in large organizations compared with SMEs. Based on a comprehensive review of the past literature, we have highlighted the importance of e-commerce in the SMEs, especially how it is important in the setting of developing countries and its potential role in the SMEs of Pakistan. Given the lack of scholarly discussion on the topic, the present paper will enhance the understanding on the importance of e-commerce in SMEs of Pakistan. Recommendations for future research are proposed.

Key words: E-Commerce; SMEs; Developing countries; Pakistan

1 Introduction

E-commerce refers to “the buying and selling of information, products, and services via computer networks” Kalakota (1997) is transforming the way business is done traditionally and transactions are carried out between trading parties. Scholars believe that e-commerce has tremendous potential to contribute in economic growth more so for developing countries than the developed ones (Lituchy (2000); Kshetri (2001); Kofi (2001); and BBC News (2003)). It may be because there is a more room for improvement in the developing countries, owing to larger population and huge untapped markets dispersed on a wide geographic area. Research indicates that e-commerce is not only one of the most important tools for large companies, but is also imperative for small medium enterprises (SMEs) to progress and sustain. According to Molla (2005) e-commerce helps SMEs not only to reduce transaction cost but also helps to get rid of intermediaries gives more convenience of selection from a range of products and services available on storefronts.

Extensive research has been conducted on the use of e-commerce, however; there is more need for scholarly effort on the role of e-commerce in SMEs in developing countries. Hence, we have conducted a comprehensive review of the published literature on the importance of e-commerce for SMEs in the developing countries; especially in Pakistani setting since majority of previous scholars have mainly focused on the developed regions where socio-cultural, economic, political and technological factors differ greatly from those in the developing regions. Even the same economic development level and the region does not imply that the studies can be generalized because of various country specific factors, such as form of government economic conditions and other factors. The present effort therefore contributes to better understand the ties among e-commerce and SMEs in the developing country and indicate the potential avenues for adopting e-commerce in SMEs of Pakistan to grow and sustain. We discuss the importance of SMEs in Pakistan, and a brief discussion on potential role of e-commerce in the next section.

2 Literature Review

2.1 Importance of SMEs in Pakistan

SMEs work as growth engines for a country's economy (Dawn (2002); and Poon (1999)). SMEs make up approximately 80% of world economic growth (Dawn (2002)). Despite such importance of E-Commerce and SMEs and extensive studies on subject; unfortunately there has not been a single standard definition among researchers for the two terms. Different researchers describe them in a different way; For instance, Simpson (2004); Cloete (2002); Mac Gregor (2004); and Chitura (2008)). SMEs are business entities employing a maximum of 250 full time employees European Parliament (2000). It is agreed among researchers that E-commerce and ICTs can benefit organizations in general.

Small and Medium Enterprises Development Authority (SMEDA) established in 1998 is the premier institution of the Government of Pakistan for policy formulation to better develop SMEs, it works under the ministry of Industries. SMEDA defines, SMEs as business units having full time employees up to 250, annual sales up to PKR 250 Million (USD 2.5 Million approx.) and paid up capital up to PKR 25 Million (USD 0.25 Million approx.). SMEDA's eServices/IIN provides various E-marketing services to SMEs using several digital technologies that link E-marketing with technical

and innovative aspects of the internet, using Search Engine Marketing (SEM) and Search Engine Optimization (SEO) along with email marketing and web technology 2.0 strategies www.smeda.org.pk. Web technologies 2.0 are widely used by E-commerce sites, as they focus on user-generated content; it allows users to interact with each other like a social media. Further, it enables customers to give feedback about the product or services offered on E-commerce site or ask for opinions and share their purchase experiences with others on the site. Most of the SMEs in Pakistan are involved in the production of export-oriented items. These SMEs contribute 30% of the total export receipts www.smeda.org.pk.

SME sector in Pakistan is pivotal for economic growth, contributes greatly in employment generation, poverty alleviation. SMEs account for over 90% of all enterprises in the country and there are approximately 3.2 Million SME units in Pakistan www.smeda.org.pk. SMEs in Pakistan contribute 40% to GDP (Economic Survey of Pakistan 2010-11) and an estimated 70.49% labour force other than agriculture is employed by manufacturing sector (Labor force survey 2009-10) and the same also has 25% share in the exports.

During the period (2003-2013) world exports grew at 14% per annum while Pakistan's growth during the same period had been just 11%. Whereas, the annual export growth of our neighbour countries was more than 3 times that of Pakistan. India and China showed remarkable export growth rate of 39% & 37% respectively. One of the reasons being exposure to world market through their well-established E-Commerce channels.

Moreover, SMEDA's next 5 year plan estimates exponential growth in emerging and traditional SMEs selected on the basis of their potential to generate employment, contribute to GDP and enhance exports, as presented in Table 1.

Table 1 SMEs and The Economy of Pakistan

Indicators	2013*	2018	Incremental Change
Employment	14.85 Million	25.00 Million	10.00 Million
GDP	\$73.95 Billion	\$193.50 Billion	\$120 Billion
No. of Enterprises	1.73 Million	2.00 Million	0.27 Million
Exports	\$18.21 Billion	\$54.20 Billion	\$36 Billion

*The figures pertain to indicators in 13 priority sectors having large SME presence.

2.2 E-commerce in the context of Pakistan

Currently, Pakistan lags far behind in terms of E-commerce infrastructure and business volume compared to the other countries in the region, such as China, India, Turkey and others. The current statistics report that e-commerce is really thriving in the immediate region of Pakistan, For instance: Alibaba Group of China set a world record when it got listed at the New York Stock exchange in September, 2014 raising huge Initial Public Offering (IPO) of \$ 25 Billion, making it the biggest IPO in the world, taking lead from Walmart the world's largest old discount store chain.

Until 2009 when India launched 3G, the Internet penetration in Pakistan used to be higher historically, 3G boosted the internet usage in India and E-commerce grew exponentially. In the region, Sri Lanka was the first one to launch 3G in 2006, followed by India in 2009 and recently Pakistan also joined the 3G club in 2014; (Source: Worldbank). Although Pakistan is late to the party but still has immense potential and huge increase in internet penetration rate is estimated. According to one estimate, Pakistan's Internet users' number is estimated to increase from 30 Million users today to 56 Million in 2019. Whereas, the online purchases in Pakistan stand at \$ 30 Million annually which is expected to grow multiple times and reach \$ 600 Million by 2017.

E-Commerce facilitates the progress and growth of SMEs in developing countries due to the ability of the internet technology and ICT to reduce cost of transactions, to eliminate intermediaries and facilitating linkages to the global supply chains Molla (2005). To admit the significance of E-Commerce, over 20% of SMEs in Pakistan implemented it in their business to take competitive advantage not only locally but also in international market Khan (2014). Electronic Supply Chain Management applications in SMEs enable them cut operation cost, provide better customer service, better inventory management, reduce order cycle, receive customer feedback, maintain customer profiling, hence can satisfy customers better and achieve an overall competitive edge Chuang (2000).

Country is witnessing online brands allocate sufficient advertising budgets for TV commercials, Newspapers in addition to advertising on social media. Several foreign companies have already entered Pakistan to cash on the highly potential e-Commerce market. For Instance: OLX by Nasper South Africa, Asani by Schibsted Norway and Rocket Internet a German internet company which is running tow

e-Commerce sites in Pakistan namely Daraz.pk and Kaymu.pk recently raised a huge \$8.2 Billion IPO in October, 2014. And the two will be bringing huge capital into E-Commerce market not witnessed in the country before. Many other local online companies are also expected to follow the trend. On the other hand there over 650,000 SMEs presently registered at the world's biggest Business-to-Business giant, Alibaba group and this number is expected grow rapidly. This growing industry will gain more credibility; as a result consumer trust in e-Commerce will spread through word of mouth.

Electronic payment systems are also growing rapidly in Pakistan which means that in future there will be huge potential of E-commerce websites. Currently due to lack online payment systems, over 95% of online purchases are completed through Cash on Delivery (COD), which is not one of the most preferred and convenient payment method. Well-developed electronic payment system is indispensable for the growth and sustainability of E-commerce. Multiple payment options encourage more online shopping as customers feel ease and convenience. In China for example, E-commerce is of enormous volume and there are various payment options available to customers. Such as, online bank payment, debit card payment, credit card payment powered by UnionPay, COD, WeChat etc.

TCS, BlueEX, Leopards, OCS, and other couriers are providing COD services across over 150 cities of Pakistan. The data indicates a very lucrative avenue to the businesses revealing that over 1/3 of the orders are from the cities other than 3 major cities of Pakistan. In major cities more people buy online, however, the value for shoppers living outside major cities is higher as many products they can't find in the markets nearby. Hence, this large untapped market segment will changeover to shopping online.

SMEs in Pakistan have the largest e-commerce platform to market their products globally through Alibaba.com, as the Pearl Shine Group International (PSGI), a Pakistan based firm has inked a strategic partnership agreement with the world's largest B2B portal as per the agreement, PSGI has been authorized to verify SMEs for registration at Alibaba.com's B2B portal, this will bring manufacturers in contact with suppliers for online trade globally. <http://www.psgint.com/press-relese.html>. Publish: November 8, 2012 <http://tribune.com.pk/story/462414/pakistani-firm-authorised-to-verify-smes-for-alibaba.com/>

Over 650,000 SMEs from Pakistan are at present members of Alibaba.com and this agreement of partnership will help expand business and give opportunity to more Pakistani SMEs to enjoy great exposure, (Timothy Leung, Alibaba's group head of Global Supplier Development and sales.)

3 Conclusion

Based on the above discussion and the relevant facts and figures, we conclude that the e-Commerce has great potential for SMEs in Pakistan, especially SMEs for export development of the country as the world's Business to Business giant, Alibaba.com has authorized a Pakistani firm to verify SMEs in the country for listing on its website, this will showcase the country's products to rest of the world. SMEs are already contributing significantly in employment generation and poverty alleviation as discussed above; in future this contribution is expected to increase. As SMEs are businesses with lesser resources in comparison to large enterprises hence they cannot reach out to mass markets and allocate huge advertising and marketing budgets, this major problem of SMEs can be overcome to a large extent through e-Commerce, and this will enable them to compete with their larger business rivals on relatively level playing field. Future studies are recommended to explore the potential relationship of e-commerce and its relevant sources such as use of social media in ecommerce in the context of SMEs in Pakistan. As previous studies are largely quantitative in nature, a qualitative study on the topic is highly recommended to get in-depth understanding on the topic and to explore untapped findings.

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Ship Equipment Repair Cost Forecast Combination Based on Neural Network and GM(1,1)

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Abstract: The influencing factors of ship equipments repair cost are various, and its uncertainty is huge. It is very difficult to accurately predict ship equipments repair cost. The change of ship equipment repair cost is nonlinear. The traditional BP algorithm is improved by Levenberg-Marquardt optimize theory to adjust the network weights and thresholds. Meanwhile, the original value of traditional GM(1,1) is the first value of original data, which may affect forecast accuracy. The structure method of original value is improved by least gradient algorithm. On the base of this, the optimal forecast combination method is proposed to combine forecast results of the ahead two forecast models. Both the results of analysis and forecasting indicate the validity and feasibility of the researching methods.

Key words: Ship Equipments Repair Cost; Forecast Combination; BP Neural Network; GM(1,1)

1 Introduction

Modern war draws various innovative and high technologies to weapon system. Ship equipments become more and more complex. Its repair cost proportion in life cycle cost is continuous rising. The forecast effectiveness directly affects the efficiency of ship repair cost. Because of the influencing factors of ship equipments repair cost are various^[1], whose acting mechanism is not clear, the traditional linear regression methods cannot meet practical demand. This paper is going to improve the traditional BP neural network and GM(1,1) algorithm, and use the optimal forecast combination method to combine forecast results of the ahead two forecast models. The novel forecast method can reduce the forecast risk and boost the benefit of ship equipments repair cost.

2 Improvement of BP Neural Network

Traditional BP neural network algorithm revises its weights by steepest descent method, which result in slow convergence, local minimum objective function, and other issues^[2]. Aiming the nonlinear of ship equipments repair cost, the traditional BP algorithm is improved by Levenberg-Marquardt optimize theory to adjust the network weights and thresholds. The basic theory idea is to adjust the weights and thresholds not only in the direction of negative gradient but also in other direction, allow the search make error inferior. Meanwhile, the network weights are self-adaption adjusting between steepest descent method and Newton method to optimal. Then, the networks can valid convergence. The convergence speed and generalization of BP neural network is improved greatly.

The adjust formula of L-M optimizing algorithm can express as:

$$\Delta w = (J^T J + \mu I)^{-1} J^T e \quad (1)$$

Where, e is error vector; J is the Jacobi matrix of error differential to weights; μ is a scalar, and when μ increasing, it approaching the steepest descent method with less study speed, while μ descent to zero, it become the Gaussian-Newton method. Therefore, L-M optimizing algorithm is a kind of smooth adjusts between steepest descent method and Gaussian-Newton method. The step of L-M optimizing algorithm as follows.

(1) All study samples are input to BP neural network. The network output vectors are calculated by basic algorithm of BP neural network. Then, the output vectors are compared with the object vectors, and the error square sum of all study pair in samples is calculated.

(2) Calculate the Jacobi matrix of error differential to weights

First, the Marquardt sensitivity is defined as

$$S_i^m = \frac{\partial E}{\partial n_i^m} \quad (2)$$

It express the variation sensitivity of E to i^{th} element in layer m , where, n is the weighting sum of every layer network.

The network sensitivity is Back Propagation from the final layer to the first layer. The recurrence

relationship formula express as

$$S_p^m = E(n_q^m)(w^{m+1})^T S_q^{m+1} \tag{3}$$

Finally, the elements of Jacobi matrix calculate as follows:

$$J(h, j) = \frac{\partial e_{k,q}}{\partial w_{i,j}^m} = \frac{\partial e_{k,p}}{\partial n_{i,q}^m} \times \frac{\partial n_{i,q}^m}{\partial w_{i,j}^m} = S_{i,h}^m \times \frac{\partial n_{i,q}^m}{\partial w_{i,j}^m} = S_{i,h}^m \times a_{j,q}^{m-1} \tag{4}$$

(3)Calculate Δw by weights adjust formula.

(4)Calculate $w + \Delta w$ by iteration formula, and then the error square sum is calculated. If the new sum less than the result in step (1), then μ divide θ ($\theta > 1$), and let $w = w + \Delta w$, and skip to step (1); else, μ multiply by θ ($\theta > 1$), skip to step (3). When the error square sum decreases to object error, the algorithm is thought convergence.

3 Improvement of GM(1,1)

The computational formula of traditional GM(1,1) forecast as follows^[3]:

$$x^{(1)}(t+1) = (x^{(0)}(1) - \frac{\mu}{\alpha})e^{-\alpha t} + \frac{\mu}{\alpha} \tag{5}$$

From the formula, it is obvious that the accuracy of GM(1,1) is not only depend on α and μ , but also depend on the original value $x^{(0)}(1)$. So the fitting and forecast accuracy of GM(1,1) can be increased by choosing a better original value. The selection of original value is first point in original data in traditional method, but there is without any support in theory, which may reduce the accuracy of GM(1,1) in modeling and forecasting. To improve the forecast accuracy of GM(1,1), a kind of novel algorithm is introduced to format the original value.

Let the original value in model $\beta x^{(0)}(1)$, and use it to replace the original value in traditional GM(1,1), the equation as follows:

$$x^{(1)}(t+1) = (\beta x^{(0)}(1) - \frac{\mu}{\alpha})e^{-\alpha t} + \frac{\mu}{\alpha} \tag{6}$$

The residual error index function is defined as:

$$M = \sum_{t=1}^n [\hat{x}^{(1)}(t) - x^{(1)}(t)]^2 = \sum_{t=1}^n \{[\beta x^{(0)}(1) - \frac{\mu}{\alpha}]e^{-\alpha(t-1)} + \frac{\mu}{\alpha} - x^{(1)}(t)\}^2 \tag{7}$$

When the residual error index function achieves the minimum in least gradient algorithm, the revised parameter β can calculate as follows:

$$\frac{dM}{d\beta} = \sum_{t=1}^n \{[\beta x^{(0)}(1) - \frac{\mu}{\alpha}]e^{-\alpha(t-1)} + \frac{\mu}{\alpha} - x^{(1)}(t)\}x^{(0)}(1)e^{-\alpha(t-1)} = 0 \tag{8}$$

Let $b = \sum_{t=1}^n e^{-2\alpha(t-1)}$, $c = \sum_{t=1}^n e^{-\alpha(t-1)}$, $d = \sum_{t=1}^n x^{(1)}(t)e^{-2\alpha(t-1)}$, then

$$\beta x^{(0)}(1)b + \frac{\mu}{\alpha}(c - b) - d = 0, \quad \beta = \frac{\mu(b - c) / \alpha + d}{bx^{(0)}(1)} \tag{9}$$

When the revised parameter β is obtained, the improved GM(1,1) can be applied to forecast.

4 Forecast Combination

For a certain forecasting problem, assume the actual value in period t is x_t ($t = 1, 2, \dots, n$), and there are m forecast candidates available. Moreover, let x_{it} ($i = 1, 2, \dots, m$) represent the forecast produced by the i^{th} forecasting method. Assume forecast error of the i^{th} forecasting method is $e_{it} = (x_t - x_{it})$ in time t. Let $\mathbf{w} = (w_1, w_2, \dots, w_m)^T$ represent the weights vector of m kinds of forecasting methods in combination of forecasts, then, the general formula of forecast combination can

describe as follows.

$$x_{ct} = w_1x_{1t} + w_2x_{2t} + \dots + w_mx_{mt} \tag{10}$$

$$e_t = x_t - x_{ct} = \sum_{i=1}^m w_i e_{it} \tag{11}$$

If the error square sum of forecast combination is represented by J , then

$$J = \sum_{t=1}^n e_t^2 = \sum_{t=1}^n \sum_{i=1}^m \sum_{j=1}^m w_i e_{it} w_j e_{jt} = \mathbf{w}^T \mathbf{E} \mathbf{w} \tag{12}$$

Where, $\mathbf{E} = (E_{ij})_{m \times m}$, $E_{ij} = \mathbf{e}_i^T \mathbf{e}_j = \sum_{t=1}^n e_{it} e_{jt}$, $i, j = 1, 2, \dots, m$.

Depending on the rule of error square sum minimum, the optimal forecast combination model can construct as follows:

$$\begin{cases} \min J = \mathbf{w}^T \mathbf{E} \mathbf{w} \\ \text{s.t. } \mathbf{R}^T \mathbf{w} = 1 \end{cases} \tag{13}$$

Where, $\mathbf{R} = (1, 1, \dots, 1)^T$ represent m -dimension vector with all element 1.

Assume the error vector of m forecast model is linear independence, applying the Lagrange multiplication, then the unique optimal solution of formula (13) as follows:

$$\mathbf{w}^* = \frac{\mathbf{E}^{-1} \mathbf{R}}{\mathbf{R}^T \mathbf{E}^{-1} \mathbf{R}}, \quad J^* = \frac{1}{\mathbf{R}^T \mathbf{E}^{-1} \mathbf{R}} \tag{14}$$

5 Application and Results

Assume the statistics data of some ship equipment repair cost is showed in table 1. In order to make it easy for the comparison of different forecast methods, we adopt the former 22 samples (which form 1 to 22) as the calibration sample for modeling and the later 3 samples (which form 23 to 25) as the samples to evaluate different models in forecasting period.

Table 1 Statistics Data of Some Ship Equipment Repair Cost

Serial	Real	Serial	Real	Serial	Real	Serial	Real	Serial	Real
1	26.0216	6	45.6144	11	50.6082	16	51.1856	21	54.4845
2	30.5371	7	46.8108	12	50.9577	17	50.1031	22	61.7835
3	34.7433	8	48.7474	13	51.5021	18	50.7732	23	66.2113
4	36.5567	9	49.0572	14	50.9933	19	51.2371	24	67.2784
5	43.4005	10	50.3737	15	49.9536	20	51.4948	25	70.8557

5.1 Forecast by BP neural network

1) Sample divide and data pretreatment

To quicken the training speed of network, the data must be normalization. The method used is that every element in original data divide the magnitude of maximum, in this experiment, it is 100. Then the Serial of normalization is obtained.

Step 1: Study the samples from 1 to 10, and then forecast the 11th by the trained network.

Step 2: Ahead one step, study the samples from 2 to 11, then forecast the 12th by the trained network.

Step 3: In proper order, it is continue to train until the network trained completely. Then, the neural network can be applied to forecast.

Step 4: Ship equipment repair cost can be forecasted by forecast data and the trained network.

2) Confirm the construct of network

The theory of neural network has probed that the 3 layers BP neural network can approach any kind of function when it is studied sufficiently. Therefore, the 3 layers BP neural network is choose in this experiment. And the notes in input layer ascertain 12 by testing repeatedly. The amount of nodes in the middle layer is not any generally accepted method, in the most moment, the convergence quickly most method is selected in the same whole error.

The amount of nodes in the middle layer select 5 by synthesizing various factors in this example.

And the performance target of network is 0.001. The Matlab tool box on neural network is applied to calculate and the results are showed in table 2, where, the error criterion is the absolute value of error percentage.

Table 2 Comparison of the Forecast Value and Relative Error among Various Models

Serial	Real	neural network		GM(1,1)		Equal combination		Optimal combination	
		forecast	error	forecast	error	forecast	error	forecast	error
11	50.6082	51.577	6.86%	47.138	1.91%	49.357	2.47%	51.183	1.14%
12	50.9577	51.634	5.31%	48.254	1.33%	49.944	1.99%	51.334	0.74%
13	51.5021	50.029	4.09%	49.396	2.86%	49.712	3.47%	49.973	2.97%
14	50.9933	53.220	0.84%	50.566	4.37%	51.893	1.76%	52.984	3.90%
15	49.9536	52.984	3.62%	51.763	6.07%	52.373	4.84%	52.875	5.85%
16	51.1856	51.222	3.52%	52.988	0.07%	52.105	1.80%	51.379	0.38%
17	50.1031	48.790	8.26%	54.242	2.62%	51.516	2.82%	49.274	1.66%
18	50.7732	49.388	9.36%	55.526	2.73%	52.457	3.32%	49.933	1.66%
19	51.2371	50.913	10.94%	56.841	0.63%	53.877	5.15%	51.439	0.39%
20	51.4948	58.186	12.99%	51.914	0.81%	55.050	6.90%	52.471	1.89%
21	54.4845	59.564	9.32%	54.422	0.11%	56.993	4.60%	54.878	0.72%
22	61.7835	60.974	1.31%	57.580	6.80%	59.277	4.06%	57.881	6.32%
23	66.2113	62.417	5.73%	63.160	4.61%	62.789	5.17%	63.094	4.71%
24	67.2784	63.894	5.03%	68.160	1.31%	66.027	1.86%	67.782	0.75%
25	70.8557	65.407	7.69%	72.160	1.84%	68.784	2.92%	71.561	1.00%
Average error in fitting		6.37%		2.53%		3.60%		2.30%	
Average error in forecasting		6.15%		2.59%		3.32%		2.15%	

5.2 Forecast by GM(1,1)

The Matlab 7.2 is used to calculate the GM(1,1) and the results are showed in table 2. Since the BP neural network can only fit and forecast the ship equipment repair cost after 11th data, in order to make it easy for the comparison of different forecast methods, the results of GM(1,1) show only the data after 11th data. Finally, the posterior difference test is necessary in GM(1,1). The posterior difference ratio can calculate as $C = s_2 / s_1$. The small error probability can calculate as $P = P\{\varepsilon^{(0)}(t) - \bar{\varepsilon}^{(0)} < 0.6745 s_1\}$. By calculating, the posterior difference ratio in this example is $C = 0.3971$, and the small error probability is $P = 96\%$. The accuracy of this GM(1,1) is above the qualitative.

5.3 Forecast combination

The BP neural network can only fit and forecast the ship equipment repair cost after 11th data. Thus, the equal weights combination and the optimal combination are only from the 11th to 25th. The combination results and corresponding error is showed in table 2. From table 2, the average error in calibration samples and forecasting samples are also performing good. And the optimal forecast combination method performed best. It is not only surpassing any individual forecast model, but also surpasses the equal weight combination method^[4], which performed well in practice.

6 Conclusions

The influencing factors of ship equipments repair cost are various, whose acting mechanism is not clear; the traditional linear regression methods cannot meet practical demand. The accuracy and stability of forecast cannot be controlled, which result in the risk of invalid forecast. This paper aim at above characters of ship equipment cost, the traditional BP neural network and GM(1,1) are improved. On the base of this, the optimal forecast combination method is proposed. The optimal forecast combination method can synthesize the information from BP neural network and GM(1,1), so can provide more

accurate and stabilized forecast results. The idea provided in this paper can offer some reference for other equipment repair cost forecast.

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Gross Domestic Product Growth, Money Growth Exchange Rate and Inflation in Sierra Leone

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Abstract: GDP growth, money growth, exchange rate and inflation play critical role in the macroeconomic stability of an economy and have a direct effect on policy making process. This paper examines the relationship between exchange rate, GDP growth, money growth and inflation in Sierra Leone from 1980 to 2013 using descriptive statistics and regression methods for the data obtained from the world development indicators (WDI) data base. Inflation was the dependent variable while its potential macro elements were explanatory variables. The correlation result revealed that, there is an absence of multicollinearity among the variables in the model. The result of the long-run co-integrating relationship in the model shows that GDP growth has significant negative effect on inflation in Sierra Leone whereas exchange rate, foreign price level and money supply growth have a positive effect. Given the implication of these macroeconomic indicators, it is imperative on government to ensure that the liquidity specifications be broaden in order to incorporate foreign currency deposits held at commercial banks so as to establish efficient control over money supply. This study would be of great value to policy makers in facilitating macroeconomic stability.

Key words: Inflation; Exchange Rate; Co-integration Test; Sierra Leone

1 Introduction

GDP Growth, Money Growth, Exchange Rate and Inflation are amongst the key economic indicators for measuring macroeconomic performance for any economy nation. These indicators are closely connected to the external sector and provide critical information with regards the stability of an economy. The external sector measures the performance of an economy with respect to the rest of the world. Increase in price level/inflation causes the demand of money to increase, which in turn causes the interest rate and then the higher interest rate causes intensification (Case and Fair, 1992). On the other hand, a reduction in consumption brought by an increase in interest rate enhances a decrease in output (Case and Fair, 1992). Sierra Leone is a British colonized country which gained independent in April; 1961 and shared boundary with Guinea to the north and extended to northeast and Liberia in the southeast and to the west of the Atlantic Ocean. Like many Sub-Saharan countries, Sierra Leone is part of the Least Developed Countries (LDC), and participates in Heavily Poor Countries (HIC) initiatives. The country, once an exporter of cocoa, coffee, piassava and diamond is now one of the least developed countries in the world. During this period, its annual economy growth was high as compared to many developed countries by standards. Moreover, the economy increased approximately by 4 percent in the early 1970s. However, the performance on the external balance of Sierra Leone has been poor since the 1970s, balance of payments problems is persistent, the country's economy began to fall exponentially as a result of the crude oil crises in the Middle East. Consequently, the country lost its international competitiveness in terms of real exchange rate- an indicator used in international trade to measure the competitiveness of a country as a result of political instability, unstable macroeconomic policies and adverse effects of peripheral shocks. Hence, the GDP growth was low and there was high inflation, high unemployment rate and huge budget deficits. Furthermore, the weakness of the country's economy was near collapsed in the 1980s. The nominal exchange rate depreciated uninterruptedly as a result of adverse effect of global financial crisis on diamond exports from 16 percent in 1980/81 to 5 percent in 1985/86 together with devaluation in the country's tax base. From 1991 to 2000- the ten year brutal armed conflict, with dramatic economic growth decline, the real GDP declined by -4.27 percent with 80 percent of the population lives in poverty. Sierra Leone, like many other countries launched the Structural Adjustment Program (SAP) and the floating exchange rate in 1986. These were aimed to increase the competitiveness of the country's export, as well as retaining a fixed exchange rate and nominal volatility to ensure a smooth, competitive and efficient financial sector to stimulate the

development of the economy.

The aim of the present study is to contribute to the existing literature on the grounds of analyzing the association of exchange rate, GDP growth and monetary policies for inflation in Sierra Leone towards the transformation of the economy of the country so as to attain a middle income economy. Moreover, based on results of rigorous empirical studies about occurrence of the global financial crisis and its attendant repercussions, it is necessary for Sierra Leone to focus on economic policy.

1.1 Inflation and the monetary policy scheme in Sierra Leone

Inflationary exposure in Sierra Leone reached its highest level in 1987 hitting 178.7 percent before declining to 110.9 percent in 1990. There were further reductions in the 1990s compared to the 1980s where inflation was on the high. Inflation was compromising in the first half of 2000s where it was a single digit until 2004 when it attained double digit of 14.2 percent before falling to 12.1 percent in 2005 and a further devaluation to 9.5 percent in 2006 and 11.7 percent in 2007. To reverse the deterioration in the economy since 1980, Sierra Leone like any other less developed Country in Africa embarked upon several transformations in the financial sector following the worsening economic performance and the systemic problems that encapsulated the financial sector during the 1980s. These rectifications embodied the liberalisation of interest rates and trade, removal of some foreign exchange controls, elimination of price controls, ratification of a volatile exchange rate, and confirmation of indirect controls of monetary policy based on market related instruments.

Monetary policy in Sierra Leone is controlled by the Bank of Sierra Leone (BSL) with market-based instruments. The primary goals and objectives is to facilitate sustainable price stability especially providing a low alternative indivisible digit inflation, rebuilding foreign reserves and downsizing inflationary pressures. The BSL achieves these goals and objectives by admonishing the domestic assets growth. At present, the main instrument of monetary policy is open market operations. Operations are however concentrated in the primary market for government securities. Reserves requirement is also employed as a monetary policy instrument. Reserve and liquidity ratios are used as prudential measures and because of the small size of the financial market, and the high liquidity of commercial banks there has been very little activity in the secondary market. Monetary policy is conducted within the framework of a monetary targeting regime. The operational target is Reserve money and is used for day-to-day (or week-to-week) policy to attain the ultimate between the central bank's ultimate policy goals and the operating target. Quarterly targets on Reserve Money are set within the framework of International Monetary Fund (IMF) supported and monitored programmes and these are consistent with programme targets on inflation and economic growth

2 Review of Literature

The study conducted using data from 1960-90 obtained from Turkey to investigate on nonlinear three-stage least squares estimation revealed that unanticipated devaluations have positive effects on output but unanticipated devaluations do not exert any significant effect on output (Domac, 1997). Another study conducted to examine the relationship between output, money and real exchange rate using Korean quarterly data over the period 1971-1974. The data was tested using Johansen's co-integration and error-correction techniques and the results revealed that there exists a long run relationship between output, money and real exchange rate. They affirmed that real depreciations were unfolding in the long run and the most significant unfurling impact of real depreciations came into view with a lag of three quarters (Bahmani-Oskooee and Rhee, 1997). The study conducted on the impact of exchange rate depreciation on output and inflation in Nigeria using Quarterly data for the period 1970-1995 with an impulse response function revealed that expansionary impact of exchange rate depreciation on output in both the medium and long run but a contractionary effect in the short run (Oduola and Akinla, 2001). The use of error correction mechanism to examine the relationship between monetary growth, exchange rate and inflation in Ghana, found the existence of a long run equilibrium relationship between real income, inflation, exchange rate and money supply (Mahamadu and Philip, 2003). The analysis on the dynamics of money supply, exchange rate and inflation in Nigeria using secondary data obtained from the International Financial Statistics from 1986Q1 to 2008Q4 using vector error correction mechanism integrate both the long run and the short run effect is predicted concurrently. The study confirms that there is significant long run relationship among the variables. Money supply and exchange rate have significant negative effect on inflationary pressure, although real output growth and foreign price changes have direct effects on inflationary pressure. Furthermore, the test of short term relationship of these variables on inflation; only money supply is the significant variable in support of

the apriori theoretical expectation (T.O.Akinbobola, 2012). The use of Johansen multivariate cointegration, granger causality test and variance decompositions to find out the dynamic interactions among macroeconomic variables by using quarterly data from Pakistan over the period 1972Q1 to 2009Q4 found an existence of a stable long run equilibrium relationship among the macroeconomic variables from the cointegration test. The Granger causality tests tend to support the non neutrality of money in accordance with the Keynesians and the monetarists in the short run. Their findings show that inflation is not purely a monetary phenomenon rather structural factors play a key role in affecting in Pakistan (Faiz Bilquees et al. 2012). An investigation of Exchange rate volatility and Employment Growth in Ghana's manufacturing sector using OLS regression technique revealed that interest rate has a negative relationship; GDP has a positive relationship with employment growth (Mensa et al, 2013). Another study on the relationship between exchange rate and inflation in Zimbabwe using Granger causality test during the period 1980 to 2007 revealed that both the exchange rate and inflation have equilibrium condition and share a common trend in the long run and reveals that the order of causality in annual tests is normally bi-directional, from inflation rate to exchange rate conversely (Wellington Madesha et al 2013). An examination of the relationship between exchange rate and interest rate in Namibia using unit root tests, cointegration tests, impulse response and variance decomposition for the period 1993Q1 to 2012Q4 treasures that there is no cointegration among the variables and was unable to clear systematic relationship between interest rates and exchange rates. However, the variance decomposition revealed that the errors in the forecast of both the exchange rate and interest rate are dominated by itself (Johannes Payavali Sheefeni Sheefeni, 2014). An investigation on the impact of macroeconomic variables of GDP growth of Pakistan using correlation coefficient, regression analysis and Granger causality using annual data for the period 1980 to 2013 revealed that inflation and exchange rate have a unidirectional causality whilst exchange rate and Foreign Direct Investment (FDI) indicates significant impact on GDP growth. The study also confirms that FDI, Interest rate, exchange rate and inflation demonstrate significant impact on GDP growth (Umar Kibria et al, 2014).

3 Methodological Discussion

The study adopts an econometric approach, data series were sourced from the world development indicators (WDI) data base for a period of 34 years (1980-2013). We used Ordinary Least Square (OLS) method to analyse the relationship between inflation, GDP growth, exchange rate, foreign price level and money supply. In order to predict the impact of the above mentioned variables in the Sierra Leone economy, the General Multiple linear Regression was adopted to take the following specification;

$$INF = F(GDP, EXR, FPL, MG) \quad (1)$$

From equation (1), the econometric form of the equation is specified in natural logarithm as;

$$\ln INF_t = \beta_0 + \beta_1 \ln GDP_t + \beta_2 \ln EXR_t + \beta_3 \ln FPL_t + \beta_4 \ln MG_t + U_t \quad (2)$$

Where; INF = Consumer Prices Index Inflation, GDP = Gross Domestic Product, EXR = Exchange Rate, FPL = Foreign Price Level, MG = Money Supply Growth and U_t = Error Term

β_0 is a constant and β_1 to β_4 are the parameters to be estimated.

4 Analysis of Empirical Results and Discussion

The empirical investigation commences with an analysis of the descriptive/summary statistics of the variables under investigation. The mean was used as measure of central tendency, whereas the standard deviation is used as measure of dispersion. The results in table 1 show that all the variables have a positive mean and standard deviation with highest standard deviation recorded for Exchange rate and its lowest value recorded for Foreign Price level. Skewness and Kurtosis denotes the measures of Skewness and Peakedness respectively and the maximum and minimum values for each variable are also computed (table 1.). Both skewness and kurtosis are positive and that kurtosis curve for INF, GDP and FPL are leptokurtic.

In an attempt to detect the problem of multicollinearity in the model, a correlation matrix was done to determine the degree of correlation among the variables under investigation. Correlation explains the changes that occur in one variable due to change in other variable. If a high correlation is found between variables, it can lead to multicollinearity. The table below shows the result from the matrix.

The rule of thumb is that if multicollinearity among two variables is 80% and above, then it is a cause of concern. However, the current study does not show any severe case of multicollinearity between the variables as the highest value of correlation is 71% between inflation and money supply.

This confirms the absence of multicollinearity among the variables in the model.

Table 1 Descriptive Statistics

	INF	GDP	EXR	FPL	MG
Mean	33.64	6.38	1521.04	3.54	34.92
Maximum	165.68	26.27	4349.16	13.51	88.40
Minimum	1.79	0.73	1.05	0.36	2.62
Std. Dv	37.01	5.74	1505.12	2.46	22.22
Skewness	1.99	1.97	0.55	2.60	0.90
Kurtosis	6.76	6.58	1.94	10.52	2.76
Jarque-Bera	42.40	40.08	3.32	118.42	4.68
Observations	34	34	34	34	34

Table 2 Correlation Matrix

Variables	INF	GDP	EXR	FPL	MG
INF	1.00	-0.12	-0.52	0.02	0.71
GDP	-0.12	1.00	0.37	-0.23	-0.24
EXR	-0.52	0.37	1.00	-0.47	-0.48
FPL	0.02	-0.23	-0.47	1.00	0.01
MG	0.71	-0.24	-0.48	0.01	1.00

4.1 Unit Root Test Analysis

Under existing practice the unit root test is conducted to check the stationarity of data series. This step is very vital because if non-stationary variables are not identified and used in the model, it will lead to a problem of spurious regression, the results suggest that there is a statistically significant and meaningful relationships between and amongst the variables in the stated regression model where in actual fact all that exists is contemporaneous correlation rather than meaningful causal relationships. The Augmented Dickey-Fuller and the Phillips-Perron tests were carried out and the test results are presented in table 3.

Table 3 Results of the Test for Stationary: Using Augmented Dickey Fuller and Phillips-Perron Tests

Augmented Dickey-Fuller Tests					
Variable	Level/ Δ Level	Calculated ADF	ADF critical values	Included in tests equation	Conclusion
lnINF	Level	-3.1524	-4.2627	Intercept & trend	I(1)
	Δ Level	-6.8082	-4.2733***		
lnGDP	Level	-2.0564	-2.6369	None	I(1)
	Δ Level	-8.5726	-2.6392***		
lnEXR	Level	1.7648	-2.9540	Intercept	I(1)
	Δ Level	-3.5900	-2.9571**		
lnFPL	Level	-4.2169	-4.4163	Intercept & trend	I(1)
	Δ Level	-6.1454	-4.4407*		
lnMG	Level	-3.4830	-4.2627	Intercept & trend	I(1)
	Δ Level	-7.8095	-4.2733***		
PHILLIPS-PERRON TESTS					
lnINF	Level	-2.9428	-4.2627	Intercept & trend	I(1)
	Δ Level	-11.7002	-4.2733***		
lnGDP	Level	-1.7897	-2.6370	None	I(1)
	Δ Level	-12.6302	-2.6392***		
lnEXR	Level	2.5806	-3.6463	Intercept	I(1)
	Δ Level	-3.2837	-2.9571**		
lnFPL	Level	-1.2051	-3.6220	Intercept & trend	I(1)
	Δ Level	-4.3138	-3.6329*		
lnMG	Level	-3.3964	-4.2627	Intercept & trend	I(1)
	Δ Level	-8.0871	-4.2733***		

Note: ***, ** and * indicates that the variable is stationary at the 1 %, 5% and 10% level of significance respectively.

The unit root test result reveals that all the variables in the model are non-stationary at their levels but become stationary at first differencing. This suggests the use of co-integration analysis since the concept of co-integration requires variables must be stationary after differencing at least once I (1).

4.2 Co-integration Test Analysis

The stationary linear combination is termed the co-integrating equation and can be infer as a long run equilibrium relationship between the variables. The common objective is to determine the most stationary linear combination of the time series variables under consideration. Consequently, Johansen and Juselius (1988, 1990) co-integration technique has been employed for the investigation of stable long run relationships between inflation, GDP growth, exchange rate, foreign price level and money supply growth in Sierra Leone by using both the Trace and Maximum-Eigen tests statistics. The results are presented in table 4 and 5.

Table 4 Unrestricted Co-integration Rank Test Result (Trace)

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.758152	98.43549	69.81889	0.0001
At most 1 *	0.562171	53.01318	47.85613	0.0152
At most 2	0.420392	26.58354	29.79707	0.1122
At most 3	0.219840	9.130656	15.49471	0.3534
At most 4	0.036397	1.186445	3.841466	0.2760

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values

Source: E-views output

Table 5 Unrestricted Co-integration Rank Test Result (Maximum Eigen value)

Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.758152	45.42231	33.87687	0.0014
At most 1	0.562171	26.42964	27.58434	0.0697
At most 2	0.420392	17.45288	21.13162	0.1517
At most 3	0.219840	7.944212	14.26460	0.3844
At most 4	0.036397	1.186445	3.841466	0.2760

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values

Source: E-views output

The results of both the trace test (table 4) and the maximum-eigen test (table 5) indicate that co-integrating equation exists at the 5% significance level. Therefore the null hypothesis of no co-integrating equation is rejected. Consequently, it can be concluded that there is a significant long run relationship between the given variables. Since variables can either have long run or short run effects, then an error correction model (ECM) is used to disaggregate this effect.

Table 6 Result of the long run co-integrating relationship

Independent variables	Coefficients	Standard Errors	T-Statistics	conclusion
lnGDP	-1.0135	0.2318	-4.3723	significant
lnEXR	0.0023	0.0040	0.5750	insignificant
lnFPL	16.6826	2.7144	6.1460	significant
lnMG	2.0296	0.2393	8.4814	significant
constant	-620.0248

Source: computed by author from e-views output

The result of the long-run co-integrating relationship in the model shows that GDP growth has significant negative effect on inflation in Sierra Leone whereas exchange rate, foreign price level and money supply growth have a positive one.

4.3 Short run dynamics (ECM)

Table 7 Error Correction Model. Dependent variable dlnINF.

Variables	Coefficient	Standard Error	T-Statistics	Probability	VIF
C	2.2558	4.8802	0.4622	0.6476
dlnGDP	-0.5062	0.2031	-2.4920	0.0299	1.0588
dlnEXR	-0.0066	0.0226	-0.2916	0.7728	1.1329
dlnFPL	0.6636	0.2281	2.9095	0.0142	1.1033
dlnMG	0.3943	0.1898	2.0772	0.0474	1.1276
ECM(-1)	-0.9345	0.1523	-6.1372	0.0000	1.0771
R-squared	0.600395	Mean dependent var	0.129021		
Adjusted R-squared	0.526394	S.D. dependent var	30.15025		
S.E. of regression	20.74912	Akaike info criterion	9.065850		
Sum squared resid	11624.20	Schwarz criterion	9.337943		
Log likelihood	-143.5865	Hannan-Quinn criter.	9.157401		
F-statistic	8.113331	Durbin-Watson stat	1.988357		
Prob(F-statistic)	0.000089				

Source: computed by author from e-views output

The coefficient of GDP growth -0.5062 has a negative and significant impact on inflation. There is an inverse relationship between GDP growth and inflation. This implies that a 1% increase in the GDP growth leads to approximately 0.51% decrease in inflation in Sierra Leone. This outcome is in line with theories and previous studies that an increase in economic growth has the tendency to reduce the rate of inflation in an economy.

With regards to exchange rate, the sign of the coefficient reveals that an appreciation of the Leones will cause a decline in the rate of inflation in Sierra Leone. However, the relationship is insignificant for the study given that the probability value is greater than 5%.

Unlike GDP growth, the coefficient of foreign price level 0.6636 has a positive and significant impact on the rate of inflation. There is a direct relationship between foreign price level and inflation. This implies that a 1% increase in foreign price level can lead to approximately 0.66% increase in the rate of inflation in Sierra Leone. This finding is in conformity with theories and findings from previous studies that there exists a positive relationship between them.

Similarly, the coefficient of money supply 0.3943 has a positive and significant impact on the rate of inflation. There is a direct relationship between money supply and inflation. This implies that a 1% increase in money supply can lead to approximately 0.39% increase in inflation in Sierra Leone. This finding is also in conformity with theories and findings from previous studies that there exist a positive relationship between money supply and inflation.

The coefficient of the error correction term indicates the speed of adjustment in eliminating deviation from the long run equilibrium. It shows how much time would be taken by the economy to reach at long run equilibrium. Its coefficient is statistically significant -0.9345. This shows that the speed of adjustment is approximately 0.93% implying that if there is a deviation from the equilibrium, approximately 0.92% of inflation is corrected annually as the variable moves towards restoring equilibrium. The adjusted R-squared value is 0.526394, implying that approximately 52.6% of the variation in the inflation rate is explained by the independent variables, which is an indication of a very good fit. The Durbin-Watson statistic is high suggesting that there is no first order autocorrelation. The overall equation is statistically significant as shown by the probability value of the F-statistic (0.008407).

5 Conclusions

This paper intended to find the link between inflation, exchange rate, GDP growth and money supply growth in Sierra Leone. The empirical and econometric analysis performed in this paper showed that there is existence of long run functional relationship between inflation as a dependent variable on one side, GDP growth, exchange rate, foreign price level and money supply growth as explanatory variables on the other side. Furthermore, results from the short run relationship indicated an inverse relationship between GDP growth and inflation. This implies that a 1% increase in the GDP growth leads to approximately 0.51% decrease in inflation in Sierra Leone. This outcome is in line with theories and previous studies that an increase in economic growth has the tendency to reduce the rate of inflation in an

economy. With regards to exchange rate, the sign of its coefficient reveals that an appreciation of the Leones will cause a decline in the rate of inflation in Sierra Leone. However, the relationship is insignificant for the study given that the probability value is greater than 5%. Unlike GDP growth; the coefficient of foreign price level 0.6636 has a positive and significant impact on the rate of inflation. There is a direct relationship between foreign price level and inflation. This implies that a 1% increase in foreign price level can lead to approximately 0.66% increase in the rate of inflation in Sierra Leone. This finding is in conformity with theories and findings from previous studies that there exists a positive relationship between. Similarly, the coefficient of money supply 0.3943 has a positive and significant impact on the rate of inflation. There is a direct relationship between money supply and inflation. This implies that a 1% increase in money supply can lead to approximately 0.39% increase in inflation in Sierra Leone. This finding is also in conformity with theories and findings from previous studies that there exist a positive relationship between money supply and inflation. Therefore, a policy recommendation is that the liquidity specifications should be broadened to incorporate foreign currency deposits held at commercial banks to establish efficient control over money supply. Finally we look forward to future studies on GDP growth, inflation, Exchange rate, money growth issues with a view to further provoke policy discourse; such study could be the nexus between Monetary policy and economic growth for the Sierra Leone economy.

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An Empirical Study on Regional Differences of Electronic Banking Service Capability*

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Abstract: Electronic Banking Service capability not only is an important power of regional modern service industry, but also is an important indicator to measure regional economic development. On the basis of the full study of the relevant literature, two dimensions on the growing power of industry and carrying capacity of resources constructed evaluation index system of electronic banking services. By SPSS19.0 analysis tools, the principal component analysis is to analysis the data from the six major regions of the country for the relevant comprehensive evaluation from 2003 to 2012. Use the Gini coefficient (GINI) and Theil index (GE_0 & GE_1) to measure and decompose difference of 6 large areas between the electronic banking service capability. The results showed that: among the regional differences were gradually narrowing.

Key words: Electronic banking; Service capability; Assessment system; Regional difference; Change trend

1 Introduction

As one of the emerging modern service industry, electronic banking industry with the network technology and electronic business platform showed explosive growth in the last decade, but the electronic banking service capability of the domestic various regions showed significant regional differences. Regional differences of electronic banking service capacity not only exacerbate the imbalance of regional economic development, but also affect the stability of the regional financial markets. Over time, the changing trend of this regional difference is widening or narrowing, for the formulation and adjustment policies played a key role.

China Banking Regulatory Commission defines electronic banking as the banking financial institutions such as commercial banks, for the public use of open communication channel or open public networks and banks establish specific self-service facilities or customer private networks, to provide the banking services. In the factors affecting the development of electronic banking in the region of the macro, we use questionnaires to analyze the four major barriers to impact the development of Iran's electronic banking: professional technical barriers, legal and social barriers, policy barriers and financial and economic barriers (Mehdizadeh et al., 2012). The system and institutional factors, management factors and technological level of the bank belong to internal factors, and the structure of financial markets, financial innovation are external factors, so internal and external factors are together on the scale economy of electronic banking (Lu Xinghua, 2008); The regional, the development process, system, scale, talent, technology and other intrinsic factors are the reasons that cause development gap among various regional commercial banking (Zhai Yibo, 2012). Regional differences in measurement tools, the Gini coefficient, Theil index and mean logarithmic deviation are used to comprehensively measure Provincial Disparity of China's financial development, eastern Midwest financial development differences and differences in urban and rural areas from 1978 to 2004, and the use of R/S analysis to quantitatively analyze long-term change trends in regional financial development differences (Li Jing et al., 2008); Timing Global Principal Components Analysis is used to measure a comprehensive level of development of commercial circulation of western 12 provinces from 2005 to 2010, on the basis of the analysis, western commercial circulation area will be divided into three categories by cluster analysis, using the Theil index measures regional differences and decomposition (Chen Shan et al., 2013).

Based on the above views of scholars, paper is from the perspective of regions of six areas, such as Northeast, North, East, South, Southwest and Northwest, based on the country's 31 provinces (cities, autonomous regions) of data from 2003 to 2012, using principal component analysis electronic to evaluate and score banking service capability of each region, and the use of the Gini coefficient and Theil index to comprehensively compare differences and change trends in the national

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electronic banking service capability.

2 Construction of Evaluation System of Electronic Banking Services Capability

Electronic banking service capability impacts the investment and operations within the industry ,and outside resources of the entire industry also play an important supporting role. Therefore, the evaluation system of electronic banking service capacity is divided for two dimensions, namely growing power of industry and carrying capacity of resources. Electronic banking includes online banking, telephone banking, mobile banking and self-service banking, so when selecting indicators, the financial sector, telecommunications, postal services, e-commerce services industry indicators should be taken into account.

Principles for selecting the level of development of electronic banking index (Liu Mingfei & Zhou Menghua): First, scientific principle; second, operability principles; third, the principle of comprehensiveness.

Based on the above principle of evaluation index selection, combined with the availability of data, the final paper selected 21 indicators to build evaluation system of nationwide electronic banking service capability, as shown in Table 1:

Table 1 Evaluation System of Electronic Banking Service Capacity

Level indicators	Secondary indicators	sign	Level indicators	Secondary indicators	sign
growing power of industry	Financial added value (hundred million yuan)	X ₁	carrying capacity of resources	Per capita GDP (yuan/people)	X ₁₂
	Financial fixed assets investment (hundred million yuan)	X ₂		RMB savings deposit balance at the end of urban and rural residents (hundred million yuan)	X ₁₃
	The number of telecommunications and Other Information Transmission Services employment (people)	X ₃		The added value of transportation, warehousing and postal service (hundred million yuan)	X ₁₄
	Telecom business volume (hundred million yuan)	X ₄		Residents' consumption level (yuan)	X ₁₅
	Fixed telephone talk time (Ten thousand minutes)	X ₅		whole society fixed asset investment of Information transmission computer services and software (hundred million yuan)	X ₁₆
	Mobile SMS traffic (hundred million messages)	X ₆		The local finance general budget spending (hundred million yuan)	X ₁₇
	At the end of mobile phone users (Ten thousand Users)	X ₇		Delivery quantity (Ten thousand items)	X ₁₈
	3G mobile phone users (Ten thousand Users) ①	X ₈		The postal outlets (place)	X ₁₉
	Fixed telephone end users (Ten thousand Users)	X ₉		the amount of domestic patent applications to accept (items)	X ₂₀
	Long-distance fiber optic line length (Ten thousand kilometers)	X ₁₀		Technology Market Turnover (hundred million yuan)	X ₂₁
	Internet users (Ten thousand people)	X ₁₁			

Note: ① 3G mobile phone launched from 2009, so the data before 2008 are zero.

3 Principal Component Analysis of Electronic Banking Services Capability

3.1 Data collection and pretreatment

In this paper, the study involved data of 31 provinces (cites ,autonomous regions) from 2003 to 2012 , and the sources of data include the province (cites, autonomous regions) of the “Statistical Yearbook” “Financial Yearbook” and national statistical offices, the China Economic Information Network statistics database.

3.2 Assessment of regional electronic banking service capability

3.2.1 National electronic banking industry growth potential assessment in 2012

For example, the data in 2012, Use SPSS19.0 to measure 11 indicators of growing power of industry in the KMO test and Bartlett test of sphere city. Get KMO is 0.840, greater than 0.5, Bartlett's test of sphere city was significant probability is 0.000, less than 0.05, and therefore suitable for factor analysis. Factor analysis to obtain results as shown in Table 2:

Table 2 Principal Component Extraction of Growing Power of Industry and Component Analysis of Rotated Factor Loading Matrix

comp onent	The initial eigenvalues			Extracting square and load			principal component	
	sum	Variance (%)	Accumulation(%)	sum	Variance(%)	Accumulation (%)	F ₁	F ₂
1	8.586	78.055	78.055	8.586	78.055	78.055	0.869	-0.378
2	1.115	10.135	88.19	1.115	10.135	88.19	0.829	-0.076
3	0.47	4.274	92.464				0.76	-0.259
4	0.393	3.575	96.039				0.988	0.064
5	0.225	2.045	98.084				0.867	-0.083
6	0.116	1.054	99.137				0.962	-0.031
7	0.071	0.648	99.785				0.972	0.151
8	0.011	0.104	99.89				0.987	0.058
9	0.007	0.066	99.956				0.98	0.032
10	0.003	0.028	99.984				0.302	0.92
11	0.002	0.016	100				0.969	0.118

Table 2 shows, the first two principal components corresponding to the characteristic values are greater than 1, and the cumulative contribution rate is 88.19%, so extract the first two factors F₁, F₂ as a main component.

By calculating the coefficients for each indicator of two main components to give each principal component score formula, namely:

$$F_1 = 0.3X_1 + 0.28X_2 + 0.26X_3 + 0.34X_4 + 0.3X_5 + 0.33X_6 + 0.33X_7 + 0.34X_8 + 0.33X_9 + 0.1X_{10} + 0.33X_{11} \quad (1)$$

$$F_2 = -0.36X_1 - 0.07X_2 - 0.25X_3 + 0.06X_4 - 0.08X_5 - 0.03X_6 + 0.14X_7 + 0.05X_8 + 0.03X_9 + 0.87X_{10} + 0.11X_{11} \quad (2)$$

The weight weighted is calculated by the each of the main components variance contribution rate to occupy all the main component variance contribution rate, evaluation formula of growth potential of the national electronic banking industry can be derived in 2012: $A_1 = 0.885F_1 + 0.115F_2$

It can calculate the scores of National Electronic banking industry's growth potential on each principal component in 2012, the results shown in Table 3:

Table 3 National Electronic Banking Industry's Growth Potential Principal Component Scores in 2012

Area	scores(A ₁)	Area	scores(A ₁)	Area	scores(A ₁)
Beijing City	1.102	Anhui Province	0.203	Sichuan Province	1.787
Tianjin City	-2.165	Fujian Province	0.378	Guizhou Province	-1.666
Hebei Province	0.971	Jiangxi Province	-1.272	Yunnan Province	-0.729
Shanxi Province	-0.916	shandong Province	3.026	Tibet Autonomous Region	-3.165
Inner Mongolia Autonomous Region Province	-0.966	henan Province	1.085	Shanxi Province	-0.319
Liaoning Province	0.750	hubei Province	0.368	Gansu Province	-1.873
Jilin Province	-1.557	hunan Province	0.565	Qinhai Province	-2.894
Heilongjiang Province	-0.691	guangdong Province	9.497	Ningxia Hui Autonomous Region	-3.168
Shanghai City	0.457	Guangxi Zhuang Autonomous Region	-0.696	Xinjiang Uygur Autonomous Region	-1.560
Jiangsu Province	4.512	Hainan Province	-3.038		
Zhajang Province	3.666	Chongqing City	-1.691		

3.2.2 National electronic banking resources carrying capacity assessment in 2012

The same method of industry growth assessment assess the carrying capacity of resources of the national electronic banking in 2012. Use SPSS19.0 to measure 10 indicators of carrying capacity of resources in the KMO test and Bartlett spherical test ,results showing KMO value is 0.734, significant probability of Bartlett's test of sphere city is 0.000, and therefore it is suitable for factor analysis.

Through factor analysis, extract the first two factors F₃, F₄ as a main component, to give each principal component score formula, namely:

$$F_3 = 0.24X_{12} + 0.38X_{13} + 0.32X_{14} + 0.27X_{15} + 0.36X_{16} + 0.34X_{17} + 0.35X_{18} + 0.34X_{19} + 0.33X_{20} + 0.17X_{21} \quad (3)$$

$$F_4 = 0.51X_{12} - 0.14X_{13} - 0.24X_{14} + 0.49X_{15} - 0.01X_{16} - 0.27X_{17} + 0.02X_{18} - 0.28X_{19} - 0.1X_{20} + 0.52X_{21} \quad (4)$$

The weight weighted is calculated by the each of the main components variance contribution rate to occupy all the main component variance contribution rate, evaluation formula of carrying capacity of resources of the national electronic banking can be derived in 2012: $A_2 = 0.783F_3 + 0.217F_4$

It can calculate the scores of National Electronic banking industry's growth potential on each principal component in 2012.

3.2.3 National electronic banking service capabilities integrated assessment in 2012

On the basis of computing the scores of two dimensions of national electronic banking service in 2012 ,the weight is the ratio of variance of each layered score capacity as the total variance,the force of industry growth (A₁) is calculated right weight 0.516, arrying capacity of resources (A₂) the weight is 0.484, calculating the weighted national electronic banking service capabilities composite score in 2012, as shown in Table 4:

3.3 Regional electronic banking service capabilities integrated assessment from 2003 to 2012

The method ,according to the 2012 regional electronic banking service capabilities integrated assessment, respectively calculating the data from 2003 to 2011, the finally summary the main component score data from 2003 to 2012, as shown in Table 4:

Table 4 The Score of Principal Component of Six Regions of the Electronic Banking Services from 2003 to 2012

Years	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
A score of Northern Region(A)	0.328	0.469	0.383	0.459	0.380	0.647	0.479	1.450	0.777	0.398
A score of Northeast Region(A)	-0.225	-0.538	-0.265	-0.554	-0.551	-0.569	-0.787	-1.085	-1.217	-1.192
A score of eastern Region(A)	9.003	9.052	8.928	9.195	9.446	9.279	10.088	10.803	10.694	10.630
A score of South Central Region(A)	5.027	4.973	5.048	5.157	4.989	4.682	5.019	3.589	4.739	4.900
A score of Southwest Region(A)	-5.843	-5.75	-5.878	-5.862	-5.669	-5.496	-5.74	-5.915	-5.901	-5.822
A score of Northwest Region(A)	-8.285	-8.200	-8.217	-8.394	-8.597	-8.543	-9.055	-8.842	-9.095	-8.912

4 An Empirical Study on Regional Differences of Electronic Banking Services Capability

4.1 To select Indices of differences of regional electronic banking service capability

Indices has yet to measure a special area of the electronic banking service capability differences, therefore we use the Gini coefficient (GINI) and Theil index (GE₀ & GE₁)^[4] to reflect the income gap as the Indices of the area of electronic banking services capabilities Difference.

4.1.1 Gini (GINI) coefficient of differences of electronic banking service capability

The Gini coefficient, a numerical reflection of the overall income gap is widely used in international economic circles. The ability to reflect regional differences in the electronic banking services Gini coefficient is calculated as follows:

$$GINI = \frac{-(n+1)}{n} + \frac{2}{n^2 \mu_y} \sum_{i=1}^n iy_i \tag{5}$$

In which, *n* represents the number of samples; *y_i* represents the electronic banking service capacity after high from low to the *i* individual service capabilities; *μ_y* is the average value of electronic banking service capabilities.

4.1.2 Theil index of electronic banking service capability to calculate the difference

Theil index (GE₁) and log mean deviation (GE₀) as a measure of regional inequality index is often used, which is calculated as:

$$GE_0(y) = \frac{1}{N} \sum_{i \in N} \ln \frac{\mu}{y_i} \quad GE_1(y) = \frac{1}{N} \sum_{i \in N} \frac{y_i}{\mu} \ln \frac{y_i}{\mu} \tag{6}$$

In the above two equations, *N* is the number of regions; *μ* is the average national level of electronic banking development; *y_i* represents the variable value of the electronic banking service ability in each area.

4.2 Analysis the measurement and change trend of the difference of regional electronic banking service capability

According to table 6 ,we obtain scores of the principal component of electronic banking service ability from 2003 to 2012, because of the standardization process and produce a negative, so the data translation process for non-negative. According to the formula (1)、(2) ,we can calculate the six regions of the country in electronic banking service capabilities ability of GINI coefficient (GINI) from 2003 to 2012, the logarithmic average deviation (GE₀) and Theil index (GE₁), as shown in table 5:

Table 5 Difference of Regional Electronic Banking Service Ability of GINI Coefficient, Logarithmic Average Deviation (GE₀) and Theil Index (GE₁) from 2003 to 2012

year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	average
GINI	0.332	0.332	0.331	0.339	0.342	0.336	0.359	0.359	0.369	0.365	0.346
GE ₀	0.264	0.255	0.259	0.276	0.292	0.280	0.357	0.332	0.372	0.343	0.303
GE ₁	0.196	0.193	0.194	0.203	0.208	0.200	0.233	0.23	0.243	0.235	0.2135
The growth rate of GINI	-	-0.0014	-0.0023	0.024	0.0091	-0.0184	0.0694	0.0002	0.0278	-0.0106	0.0109
The growth rate of GE ₀	-	-0.0318	0.0135	0.066	0.0572	-0.0405	0.2766	-0.0711	0.1217	-0.0795	0.0347
The growth rate of GE ₁	-	-0.0171	0.0068	0.0458	0.0257	-0.0372	0.1646	-0.0149	0.0602	-0.0343	0.0222

The results showed that regional difference between electronic banking services is widening from 2003 to 2012 : GINI coefficient increased from 0.332 to 0.365, the logarithmic average deviation(GE₀) increased from 0.264 to 0.343, Theil index (GE₁) increased from 0.196 to 0.235. Contrasting the fluctuation range of three indicators differences, the change of regional electronic banking service ability difference has distinct phases:(1) From 2003 to 2005, China has entered the popularity of e-banking industry, major banks launched a complete electronic banking products and services, users in the regions gradually accepted this emerging industry, and therefore the regions did not have a huge difference.(2)Since 2006, the height of access to electronic banking, regional differences emerged between surges, at the same time banks began to enrich the type of e-banking products and services, these services were associated with the level of economic development in the region, the size of banks and Internet penetration , so the gap between the regions was widening. (3)Since 2009, the difference between various regions was to further expand, mainly due to the rise of e-commerce platform for online banking payment transaction behavior, the development of electronic commerce was associated with the area of the development of traffic transportation and the development of the logistics industry , leading to the growth rate of the three difference index peaked at the same time.(4) In 2012, the regional electronic banking development had entered a stable period, yet it continued to stimulate the emergence of new business development, and early the more backward regions in the past decade had increased the development of electronic banking, logistics, telecommunications and other related industries ,so the intensity of regional differences in growth will therefore fall trend.

5 Conclusion

In this paper, electronic banking service capacity in 6 large areas were evaluated by principal component analysis method. The results showed that the level of development of electronic banking in East China is much higher than in other regions, while the level of electronic banking Northwest region is relatively backward. This paper uses the Gini (GINI) coefficient, logarithmic tomean deviation (GE₀) and Theil index (GE₁) to measure the ability of regional differences in the electronic banking service. The results show that there are significant differences between the 6 large areas of electronic banking service capacity and regional differences expanded gradually in the decade from 2003 to 2012. But in recent years, the increase in regional differences of expansion is narrowing. This shows that in the next few years the regional differences of our country's electronic banking service capacity may show narrowing trend.

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Countermeasures and Suggestions for Students Internet Businesses

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Abstract: In the increasingly severe employment situation, many students turn their attention to their own businesses on the road. Internet businesses based on their strengths, generally welcomed by university students, but how to improve the success rate of Internet businesses, be placed in front of college students and universities a problem. By analyzing typical problems students in the network business, proposes Students should select the appropriate network entrepreneurship, a reasonable position, improve their overall quality, improve risk awareness, entrepreneurship and education countermeasures system.

Key words: College Students; Network business; Comprehensive Quality

1 Introduction

In recent years, the severe employment situation, the network business has become one of the most popular entrepreneurial way college students. First domestic "Chinese Internet business studies students" showed that up to 97.62 percent of the students support and recognition of the network business, there are 68.78 percent of college students network business is full of longing. However, Chinese college students each year choose entrepreneurship ratio of 5% average success rate of entrepreneurship was only 3 percent, and the United States 20 percent success rate of entrepreneurship Students have 7-fold difference. The low success rate of Chinese students' network business reflects the many problems which exist.

2 Students' Network Entrepreneurship Problems

2.1 Passion but no power

In the "Forbes" magazine out of 2010 in the world's youngest billionaire, 25-year-old Facebook founder Mark Zuckerberg tops the list. This started from Harvard University dormitory, the magnificent transformation of the world's youngest billionaire entrepreneur story once again ignited the passion of entrepreneurship among university students, college students in mind to become a benchmark figure. But many college students blindly follow the network business boom, without careful consideration of their suitability in the online business. When the venture blindly optimistic, I believe that after the company opened soon to achieve profitability, the recovery of funds, once the business is facing difficulties, resulting in the gap between dreams and reality, they begin to lose confidence, suspicion, complaining, negative, and finally back. Students' Internet business startup projects generally rush to focus on low barriers to entry of goods clothing, skin care products, prepaid card, there are few college students do detailed market research, combined with their expertise and interest, entrepreneurial direction reasonable position. Investigation and analysis of the lack of entrepreneurial projects, resulting in network product homogeneity is serious, network operators lack of features, it is difficult to obtain a place in the fierce competition in the market. Faced with the rapid development of the network at the same time, many entrepreneurs lack of deep thinking on the network business profit model, the estimated rate of return on investment is too optimistic, after the Web site operators often find it difficult to achieve the expected profit, leading to run soon into funds shortage dilemma.

2.2 No risk awareness

Venture refers to various uncertainties affect students achieve business objectives in the entrepreneurial process. Entrepreneurship involves many aspects, including technical factors, markets, capital, and management, while students in the school and community have little contact, in the forging, the overall quality of culture accumulation of knowledge, ability and entrepreneurship needed ability there is not a small gap. Feasibility of students in the business for the selected network venture lacks rigorous analysis, the market potential of the project products face how much competitors status, what their own competitive advantage, and is able to break through the technical problems, Whether able to obtain a stable supply, there is no clear understanding. Poor risk awareness has led many entrepreneurs in the early days, on premature mortality, escape the "business namely unemployment," the curse. Some entrepreneurs although across the threshold of the early days, difficult to obtain the living space, but companies need to step into a stable period of development, there are often disagreements team situation,

because there is no timely establish a standard operating system, the lack of team cohesiveness of the building, resulting in the initial success has been obtained in vain. Although the network business compared to the traditional business model, with low investment, high return characteristics, but the financial risk is still one of the major risks faced by business students. For most avid Internet entrepreneurs, how scientific financial planning is always a big problem on the road to business success. When college students think they have a great business idea, there will always desperate to put where, until driven to the wall, will clearly recognize the importance of financial planning. Many people think the Internet is a "burn" the industry, do not know how the rational use of college students entrepreneurs with limited funds, it is facing a huge financial risk.

2.3 Lack of marketing knowledge

Internet business is a network for entrepreneurs in the form of the carrier, so entrepreneurs are required to have some knowledge of the network. Current students network business model is mainly online shop, opened the portal to become the online freelancers like. Online shop, is open a virtual store online sale of goods or merchandise auction, by merchandise sales to profit; creation of professional portals that build online platform to provide products such as transaction-specific customer groups, online dating, search, software downloads, games and other services; there are many students to become online freelancers, such as the creation blog, forums, writing novels and other networks. Shop opened at present is the lack of start-up capital of Students generally choose the mode, but many college students lack knowledge of e-commerce, do not understand the B2B, B2C, C2C basic connotation, the characteristics of the importance of e-commerce transactions, transaction security, credibility, online payment means of lack of deep understanding, can not take full advantage of network operations and services performed. No matter what online business model selection, network marketing knowledge are essential. Core business is the marketing, the core of e-commerce network marketing. Faced with a growing number of shop, a growing number of professional websites fellow travelers, students start to become more difficult road. How to seize the precise positioning through their own customer base, how the difference of marketing, how to reduce marketing costs, how to improve the visibility and credibility, is a university student entrepreneurs in winning the competition at all.

2.4 Lack of technical training

In recent years, more and more emphasis on entrepreneurship education in colleges and universities, but the social needs and the overall situation, not enough attention and popularity. Entrepreneurship courses in addition to the current Chinese Universities Entrepreneurship foundation courses, such as "college students KAB entrepreneurship base," "entrepreneurship", but most are "career planning", "career guidance" series, start a single type, and many more electives based, did not form independent entrepreneurship curriculum, not throughout the entire process of education and training, more of a contingency introductory training education. In the teaching, the current Speaker of entrepreneurship education teachers are mostly "academic" teachers, mainly from the administrative department in charge of student employment and responsible business education teaching departments, most of these teachers lack practical experience and entrepreneurial business experience. In recent years, some universities in order to strengthen practical entrepreneurship education, and also hired a group of entrepreneurs or entrepreneurs as business mentor, but the lack of institutional guarantees and financial support on the whole, than add your entrepreneur or entrepreneurs lack teaching experience, teaching the result is not satisfactory.

3 Students' Internet Business Suggestions

3.1 Reasonable position

First, college students should combine their expertise and interests, study the market, choosing the right network business areas. Determined to do a particular focus on commodity trading e-commerce sites, or do to meet the students, white-collar workers or business people dating and social networking site gaming needs. In this process, you must do the characteristics of the industry and consumer groups, in-depth analysis, we found gaps in the market, try to avoid the highly competitive field of the blind get together phenomenon. Secondly, in the chosen field in a reasonable position, differentiated competition, establish their own unique competitive advantage, build brand image. Do B2C e-commerce Eslite to low-cost fashion brand image, with nine dollars stockings, T-shirts 29's, 59's canvas shoes quickly attracted many fashionable men and women; then the watercress for the review site Example, "Art, Petty, elegant" is the beginning of watercress inception adhere to brand identity, watercress reading, watercress movie, watercress music interpretation of all three major sections such brand connotation. For Internet

companies, adhere to a clear unique position, it is the most effective way to change the direction of movement of the user's mouse. Positioning requires an appropriate policy to support. For the ivory tower boys and girls, respect for individuality, like innovative ideas, we provide the kind of goods or services? For fast-paced life, urban white-collar life stress, what should provide the kind of goods or services? Differences in consumer demand, the goods or services we offer must be clear for the needs of the target audience.

3.2 Improve the overall quality

Students' Internet entrepreneurs to have a good overall quality, including psychological, as well as certain management, e-commerce, financial and other professional knowledge, improve their organization and leadership, coordination and communication skills. If the funding, the project as a "hardware", then the overall quality of the entrepreneur is essential "software." Overall quality of entrepreneurs often decide the future of the enterprise. College students, as a passionate group, with a network of young, fashion, full of opportunities has a natural fit. But dream must have perseverance in the face of setbacks brave can survive and develop in the fierce competition. Meanwhile, college students venture must possess the necessary management knowledge, it is possible, based on careful market research, the maximum tap the potential demand of customers. A direct impact on sales prices that double-edged sword, artistic use, flexible adjustment is necessary to ensure profits, because the price is too high and will not become a barrier obstacle consumer spending. In addition, the entrepreneur should have a good network to promote the ability to promote their products and services to target consumers through various promotional means, including the use of search engines, with the well-known e-commerce platform, using forums, QQ group, blog and so on. Given the special nature of online transactions, such as the authenticity of parties to the transaction, the online provision of goods described as accuracy, timeliness logistics and distribution, leading to consumer credit has become a key factor affecting network. Internet entrepreneur must clearly recognize the importance of establishing credibility, develop good service awareness, improve customer loyalty. Students of leadership for Internet businesses success. Alibaba's business team has been called the most successful entrepreneurial business team, which is totally based on strong leadership Ma team spirit. Internet is a new media, both in the event of a new thing every day, in the online business in the process, the team members will inevitably be divided about the direction, operation mode view, the situation appears to split the team, so college students should consciously cultivate their team leadership.

3.3 Improve risk awareness

Financial risk is the main risk college students network entrepreneurs, funding strand breaks early Internet businesses often become unable to break through the bottleneck. When college students to create a site, you need to consider the construction costs itemized site, built on the line after marketing costs, distribution costs, etc., analyze how long it takes to recover the cost, how long it can begin to profit and other issues. There is not enough money, there was a lack "winter" of the capital, the second is the lack of "blood" function, can not be profitable, these two issues have become many sites "Achilles heel." While most college students choose to invest less open shop, but the shop to purchase a going concern requires continuous Distribution, we need to have some cash flow on the book. If the market situation is not good, there will be inventory, no doubt to the poor financial risk tolerance shop cause greater financial pressure. Online business, you need to establish a smooth, reliable, and have the advantage of sourcing, can students start early, demand is unstable, often only fragmented supply organizations, which will bring greater business risks. First, scattered high purchase price, plus profit margins, sold to customers in the inevitable price too high to attract customers; the second is the channel instability, when the customer needs, it is difficult to find immediately affect customer confidence in the shop; three It is their favorite styles and varieties of customers may not like it, will cause the product backlog; four varieties, specifications incomplete, too single product, customers will turn to choose other products richer, more complete listing of different specifications. Therefore, the students should recognize the sources of risk online business, try to look for flexible delivery methods, to establish a stable supply partnerships.

3.4 Right training

Internet entrepreneurship education is to guide students through the network platform entrepreneurship education, its content needs to keep up with the development of network information technology, to adapt to the social demand for e-commerce, Students' entrepreneurial learning ability in network technology and network management aspects of practice and innovative ability. In addition to school choice and practical, cutting-edge materials, employ highly qualified, than there is considerable practical experience of teachers, you can also try other innovative training model, for example, can be

combined with each other between the universities, to break the sectarianism, share resources, learn from the experience. Talents in the network program development, related professional and curriculum development, teaching skills, curriculum implementation, conduct all-round cooperation in practice substantive training base and so on. At the same time, the effective implementation of and cooperation among network companies, employing a network of successful people and senior technical talent as the network business mentor, entrepreneurial real guidance. In addition, students are encouraged to participate in a variety of network Venture Challenge, take advantage of multiple opportunities and platforms, training college students' ability for Internet businesses.

4 Conclusion

In recent years, as the network environment continues to improve, more and more consumers began to accept and love on the Web to shop, began to try a variety of network products and services, a vast network of market potential, which is faced with enormous pressure on employment of the students through the network platform. It provides an opportunity to achieve their business dreams. However, college students can not rely on the entrepreneurial passion, should be in-depth analysis of the risks for Internet businesses, improve their overall quality; entrepreneurial universities should play a guiding role of a good college students, college students network entrepreneurs together to improve the success rate.

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Empirical Research on the Affect from Industrial Technology to Ecological Efficiency: Based on SE-DEA and Panel Data*

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Abstract: Technology-environment paradox argues that technology can be both the origin and remedies of environmental change. The accelerated development of China's industry not only brought technology progress and industrial prosperity but also resulted in a series of ecological problems. Based on the calculation of 2005-2011 SE-DEA eco-efficiency of China's industrial sectors, this paper used industry panel data to analyze the impact of industrial technology on eco-efficiency. The results show that: 1) a large number of low eco-efficiency industries pull down the overall industrial eco-efficiency, the growth of TFP is mainly dependent on technology progress; 2) innovation efficiency represented by patents have a significant positive effect on the eco-efficiency, the commercialization represented by new products has a significant negative effect; 3) industrial independent innovations show a significant positive effect on industrial eco-efficiency, but its lagged variable of the first phase shows a significant negative effect.

Key words: Ecological Efficiency; Technology Innovation; Innovation Achievements; Super Efficiency DEA; Panel Data; PCSE Robust Variance

1 Introduction

In recent years, PM2.5 index stays high in the most areas of China, which has focused the public's attention on the environmental hazard. Industrial technological progress has accelerated industrial development but has also quickened deterioration of ecological environment. Technology-environment paradox argues technology can be both the origin and remedies of environmental change. Coordinating the double-edged sword effect of technology to achieve ecological technology is important to establish industrial ecological civilization of resource-saving and environment friendly.

At present, research of ecological technology largely starts from the philosophical perspective. For instance, Peng Fuyang (2003)^[1], Hu Yuanqing (2007)^[2], Yi Xianfei (2013)^[3] and Du Juan (2013)^[4] analyzed and defined the connotation of ecological technology respectively from the perspective of social development, complexity thinking, value orientation and sustainable development. In the view of realization of ecological technology, Peng Fuyang (2006)^[5] argued that the obstacles of ecological technology were mainly the understanding gap, low innovation ability, lack of good environment for innovation, etc., while the significant increase of the economic strength and science and technology level, the establishment of outlook of scientific development and stable political environment were conducive to ecological technology development. Chen Xicheng (2014)^[6] proposed the driving force behind the ecological technology from three aspects, resource availability, actual living space for human and further need for expanding human activity space.

Although the philosophy research theoretically indicates the direction of technology development, it still needs to combine reality for specific analysis in the management practice, which is hard to be achieved by the basic philosophy. Taking philosophy as its key link, this paper analyzed the impact of industrial technology on eco-efficiency, which not only pointed out the real path for industrial technology, but also provided the basis for the government to formulate policies.

2 Modeling

World Business Council for Sustainable Development formally proposed the definition of eco-efficiency in 2000: it is to provide product or service with a competitive price, which can meet the human needs and ensure the life quality and gradually reduce the ecological impact and resource consumption intensity, which is consistent with the earth's carrying capacity. The formula can be described as follows:

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$$EE = (P_q \cdot Q) / E \tag{1}$$

EE is eco-efficiency, P_q is the produce price, Q is produce output, $(P_q \cdot Q)$ is economic value of product, E is the resources and environment impact of product, in this analysis we define it as resource consumption and pollution emissions.

In order to further analyze the relationship between industrial technology and eco-efficiency, a Cobb Douglas production function was constructed, in addition to labor L and capital K , E was introduced as the third production factor input, and A was set as technical level, so the production function is:

$$Q = A \cdot F(K, L, E) \tag{2}$$

Assuming Q keeps constant return to scale, based on the factor demand equation we can get the cost function:

$$C = H(P_K, P_L, P_E, P_M, A) = A^{-1} P_K^{e_K} P_L^{e_L} P_E^{e_E} P_M^{e_M} Q \tag{3}$$

P_K , P_L , P_E and P_M respectively represent the price of capital, labor, environment and raw materials, while e_K , e_L , e_E and e_M represent the price elasticity of capital, labor, environment and raw materials. According to Shepard theorem, the demand of production factors equals partial derivative of the cost function to the price of the factor, so the partial derivative of environmental factor price of (3) is solved:

$$E = \frac{\partial C}{\partial P_E} = \frac{e_E \cdot A^{-1} \cdot P_K^{e_K} P_L^{e_L} P_E^{e_E} P_M^{e_M} \cdot Q}{P_E}, \text{ if } P_Q = P_K^{e_K} P_L^{e_L} P_E^{e_E} P_M^{e_M}, \text{ then } \frac{P_E \cdot E}{P_Q \cdot Q} = e_E \cdot A^{-1} \tag{4}$$

put (4) into (1), we get

$$EE = e^{-1} \cdot A \cdot P_E \tag{5}$$

Clearly, the eco-efficiency can be expressed as a function of the technological level and the price of resources and environment. The technical level is set as

$$A = e^{g(RD, NP, PT) + \delta} \tag{6}$$

There are three technical indicators which can reflect the technical level: RD can be used to reveal to technology innovation ability and strength, patents PT to measure the innovation efficiency and new product NP to measure commercialization so as to illustrate the practicability and effectiveness of technological innovation. the function $g(\cdot)$ can be set as:

$$g(\cdot) = \alpha_1 \ln RD + \alpha_2 \ln NP + \alpha_3 \ln PT \tag{7}$$

Put (6) and (7) into (5), and take the logarithm on both sides of (5), the basic model is:

$$\ln EE_{it} = \beta_0 + \beta_1 \ln RD_{it} + \beta_2 \ln NP_{it} + \beta_3 \ln PT_{it} + \beta_4 \ln PE_{it} + \varepsilon_{it} \tag{I}$$

For an easier identification, in model (I), PE is used to replace P_E without the meaning changed, i is individual, t is time, β_0 is intercept, ε_{it} is random error term and $\beta_1 - \beta_4$ is coefficient.

3 Determination of Eco-efficiency of Industries

3.1 Eco-efficiency model and index selection

Data envelopment analysis is a nonparametric method for production efficiency first raised by operational research experts A. Charnes and W. W. Cooper in 1978. The basic model of DEA is CCR model, and the BCC model can be obtained with convex constraints added. It is difficult for CCR or BCC model to make comparison and evaluation for multiple decision units in forefront surface, but though converting the decision-making unit on the forefront surface, SE-DEA model can exclude a decision-making unit from the set of decision making units, and further compare the efficiency of perfect decision-making unit. Referring to the research of scholars such as Wang Enxu (2011)^[7], we also used SE-DEA as the main tool for the evaluation of eco-efficiency.

According to the definition of eco-efficiency given by WBCSD, and combining with the research of Zhang Bing (2008)^[8] and Gao Feng (2011)^[9], the evaluation system of SE-DEA eco-efficiency can be divided as three parts: economic system, resource system, and environment system (Tab.1). The environment system as non-expected output is similar to the nature of input, that is, the maximum

economic output is expected with minimum input, so the environment system was included as input.

Table 1 The Evaluation System and Index of Industrial Sector Eco-Efficiency

System	Type Of System	Index
Economic System	Output	Gross Industrial Output Value (Y)
Resource System	Input	Consumption Of Water (X1), Coal (X2), Fuel Oil (X3), Nature Gas (X4), Electricity (X5)
Environment System	Non-Expected Output /Input	Industrial Waste Water (X6), Industrial SO ₂ (X7), Industrial Soot And Dust (X8), Industrial Solid Wastes (X9)

3.2 Calculation of eco-efficiency for each industry field

Using DEA, the amount of decision units should at least reach two times of selected input and output indices, and the evaluation index should have obvious correlation and should avoid the multicollinearity. Then we got the data of indices in table 1 from *China Energy Statistical Yearbook 2012* and *2006-2012 China Statistical Yearbook on Environment*. SPSS16.0 was used to conduct multicollinearity and significance test on these indices, and the result showed that X1, X8, X9 was not significant (Sig.>0.05); the variance inflation factor was inspected, x6 had the collinearity (VIF>5), finally 5 optimized variables including X2, X3, X4, X6 and X7 were obtained.

Because SE-DEA model can sort efficient DMU, the software EMS1.3 was used to calculate SE-DEA eco-efficiency of industrial sector. As a static analysis, the eco-efficiency reflects the distance between each sector and corresponding production frontier boundary in a specified period; meanwhile the Malmquist index was used to calculate TFP of ecology environment so that the dynamic change of TFP could be mastered and its contribution source could be further analyzed (Tab. 2).

Table 2 2005-2011 The Eco-Efficiency and Efficiency Index of 37 Industrial Sector

Sector	EE	Tech	Pech	Sech	Tfp	Sector	EE	Tech	Pech	Sech	Tfp
1	0.081	1.124	1.067	0.995	1.193	20	0.285	1.057	1.096	1.025	1.187
2	0.277	1.247	0.957	1.004	1.198	21	0.132	1.056	1.038	1.050	1.150
3	0.117	1.075	1.032	1.158	1.285	22	0.204	1.175	0.987	1.002	1.163
4	0.144	1.065	0.983	1.132	1.184	23	0.768	1.207	0.881	0.978	1.040
5	0.095	1.108	1.031	1.159	1.323	24	0.178	1.223	1.184	0.975	1.413
6	0.428	1.056	1.161	1.003	1.229	25	0.087	1.244	1.511	0.674	1.267
7	0.250	1.056	1.116	1.027	1.210	26	0.190	1.245	1.071	0.964	1.285
8	0.268	1.056	1.109	1.035	1.212	27	0.244	1.099	1.047	0.995	1.145
9	0.928	1.086	1.037	1.028	1.157	28	0.552	1.237	1.078	0.959	1.278
10	0.166	1.057	1.077	1.001	1.139	29	0.492	1.176	1.139	0.962	1.288
11	0.639	1.100	1.010	1.028	1.143	30	0.619	1.088	1.147	0.925	1.155
12	0.741	1.056	1.051	1.032	1.146	31	1.441	1.185	1.000	1.000	1.185
13	0.293	1.206	1.111	1.018	1.364	32	1.826	1.130	1.000	0.999	1.128
14	0.995	1.237	1.000	1.000	1.237	33	1.079	1.174	1.000	1.000	1.174
15	0.091	1.056	1.084	1.025	1.173	34	0.553	1.411	0.811	0.985	1.127
16	0.555	1.344	0.914	0.954	1.172	35	0.079	1.093	1.057	0.987	1.140
17	1.244	1.252	1.000	0.910	1.140	36	0.218	1.252	1.202	1.133	1.704
18	0.097	1.212	0.990	0.986	1.182	37	0.414	1.341	1.073	0.863	1.241
19	0.056	1.077	1.183	0.936	1.193	Mean	0.454	1.155	1.055	0.994	1.211

Note: Because data acquisition is not complete, the sector of mining of other ores and recycling and disposal of waste were not concluding in analysis.

3.3 Analysis of eco-efficiency in industrial sector

1) Within seven years, the whole condition of eco-efficiency in industrial sectors is not optimistic. Although eco-efficiencies in four traditional clean industries are relatively effective (EE>1), the eco-efficiency of whole industry fields is not satisfactory (averaged EE<0.5). There are only 10 sectors with EE≥0.6 in the industry sectors and totally 21 sectors with EE<0.3 (Fig.1). The eco-efficiencies in most of industry sectors are low, and this reduces eco-efficiency of the whole industry.

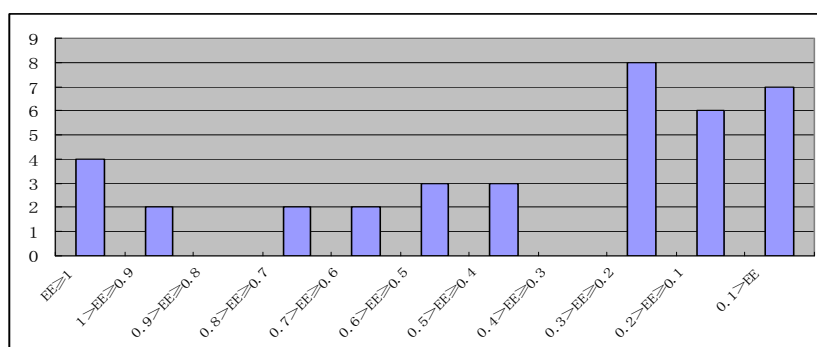


Figure 1 The Industry Number on Different Interval of Eco-efficiency Value

2) From industry characteristics, eco-efficiencies in the fields such as communication field and electronic field regarded as traditional clean industry fields are relatively effective, and eco-efficiencies of the industry fields with high energy consumption and high emission are very low; the preceding conclusion meets industry production characteristics of China's industry. It is noted that equipment manufacture industry is one of the key industries that China mainly develops, and based on empirical result, its eco-efficiency has more gaps with what is expected, especially the scale efficiency on resource and environment is obviously lower than average level of the whole industry. Li Shaodong (2011)^[10] pointed out that although the international competitiveness of China's equipment manufacture was continuously strengthened in the four leading countries (USA, Japan, Germany and China), environment protection (CO₂ emission per unit USD off GDP) and resource saving (energy consumption per thousand USD of GDP) of these industries were the worst and technology innovation was far behind those of the other three countries. It is similar to this research, indicating that China's equipment manufacture industry still possibly does not break away from extensive development; science and technology innovation should be strengthened, the added value of products should be improved, the whole intensive development of R&D- production-product should be realized.

3) From the Malmquist index, TFP of resource and environment in industry fields is increased by 21%. The TFP increase mainly comes from technology progress, pure eco-efficiency index is slightly increased, and scale efficiency of environment and resource is decreased slightly.

4 Research on the Impact from Industrial Technology on Eco-efficiency of China

The preceding analysis has shown that the influence was obvious from technology to eco-efficiency. Basing model I, the panel data analysis was used to calculate the actual impact.

4.1 Data source and processing

The indices in model I are as follows: 1) the eco-efficiency for industry fields were calculated by SE-DEA model; 2) the data of industry independent innovation were calculated by "R&D funds for industrial enterprises above designated size" in 2006-2012 *China Statistical Yearbook on Science and Technology*, and then converted by price index of science and technology (Wang Jin, 2011)^[11]; 3) new product data used ex-factory price index of industry manufacturer to deflate "industry total value of out-put of new products of industrial enterprises above designated size in all the industrial fields" in 2006-2012 *China Statistical Yearbook on Science and Technology*; 4) as for patent, "patent application amount" in "patents of industrial enterprises above designated size sorted by the field" 2006-2012 *China Statistical Yearbook on Science and Technology* was used; 5) Liu Ruijie's social payment willingness (2012)^[12] by environment product was take as the reference to represent the price of unit environment product, which multiply the amount of three kinds of resources consumables (coal, fuel oil, nature gas) and five kinds of main emitted pollutants (COD, SO₂, industrial soot, dust, solid wastes) got the environmental price, and the amount data were found on 2006-2012 *China Statistical Yearbook on Environment*.

4.2 Empirical analysis

During empirical analysis, the software Eviews5 was used to determine the model type through F-statistics and Hausman test; the result showed that the model had variable intercept and fixed effect. The industries may have some correlation with each other, such as the relationship between upstream and downstream, so cross section heteroscedasticity and contemporaneous correlation are allowed in the model. PCSE robust variance method was used to evaluate the model. Meanwhile, in consideration of

time lag for the effect of R&D, the lag variable of R&D was set. During evaluation process, insignificant variables were eliminated; the result was shown on table 3.

Table 3 The Regression Results of Each Type Industrial Eco-Efficiency

Variable	Effective Industries		Ineffective Industries		All Industries	
	Coefficient (Std. Error)	t- Statistics (Prob.)	Coefficient (Std. Error)	t- Statistics (Prob.)	Coefficient (Std. Error)	t- Statistics (Prob.)
lnRD			0.037195 (0.010412)	3.572340***	0.038570 (0.009453)	4.08000***
lnNP	-0.350211 (0.07039)	-4.97467***	-0.161184 (0.022118)	7.287562***	-0.157655 (0.021656)	7.27988***
lnPT			0.103526 (0.014418)	7.180246***	0.094723 (0.014387)	6.58383***
lnPE	-0.958015 (0.19275)	-4.97011***	0.191611 (0.012998)	-14.7414***	0.186286 (0.012806)	-14.5472***
lnRD(-1)			-0.069847 (0.014333)	-4.87328***	-0.050623 (0.013876)	-3.64831***
	R ²	0.738778	R ²	0.996940	R ²	0.9978
	F - Statistics	12.4438***	F - Statistics	1408.891***	F - Statistics	1994.77***
	D.W Stat.	1.078476	D.W Stat.	1.619417	D.W Stat.	1.642529

Note: *** was presented that parameter estimates is significant at 1% .

4.3 Empirical conclusion

1) Between ineffective industries and all industries the fitting results have similar characteristics of each index coefficient, but with effective industries there is biggish difference on index coefficient. Firstly it may be due to different technical index plays different roles in different types of eco-efficiency industries. In addition, the limited samples (only 4 effective industrial sectors) may be lead to the deviation of empirical results.

2) Innovation efficiency has a significant positive effect on the eco-efficiency, while commercialization has significant negative effect. It is important to note that industrial independent innovation has a significant positive effect, but its lagged variable of the first phase has negative. This result is not only highly consistent with the coefficient characteristics and economic implications of innovation efficiency and commercialization, but also echo the preceding results which is that the average scale efficiency of resources and environment is less than 1, that mean the utilization efficiency of resources and environment has slightly down.

3) Same as expected, the price of resource and environment has significant positive effect on ineffective industries and all industries. Possibly due to the limited samples, the price of resource and environment has significant negative effect on effective industries.

5 Conclusion

1) In the 37 industry sectors, there are only 4 effective sectors in term of eco-efficiency from 2007 to 2011, and the sectors with extreme low eco-efficiency occupy more than half, which reduces the eco-efficiency of the whole industry. TFP of resource and environment of industry fields is increased by 21%, and its contribution mainly comes from technology progress; the pure eco-efficiency improvement index is basically unchanged, while the scale efficiency improvement index of resource and environment is slightly reduced. In this regard, the government and the industry, on one hand, can guide the industry fields with effective eco-efficiency such as communication, electronics and instrument manufacture to give play to their technology advantages so as to promote the diffusion of ecological technology among industry fields and, on the other hand, they should pay much attention to the upgrade of industry structure, support and guide traditional extensive industry to transform or upgrade into new intensive industry so as to really realize ecological promotion.

2) Industry technology progress is subdivided into independent innovation, innovation effect and innovation achievement transformation to further analyze its influence on the eco-efficiency, and the following conclusion can be drawn: the innovation effect measured by the patent in industry fields plays positive function for the ecological technology, while commercialization measured by new product still does not break away from extensive characteristics. Corresponding to the conclusion, industry independent innovation attaches importance to the ecological sustainability in the early stage, but with R&D development, the enterprises start to value the economic benefit associated with non-intensive

development. Therefore, the government and industry should guide industry technology to develop towards two-oriented characteristics: on one hand, they should reinforce the R&D and commercialization of production and environment technology on consumption and emission reduction; on the other hand, focusing on the product, they should guide the enterprises to accelerate product and technology upgrade, improve quality and the added value of products.

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A Study on Member Satisfaction and Management Strategies in Commercial Fitness Club

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Abstract: The commercial fitness club provides the platform for people's fitness, while the member satisfaction is one of the key factors affecting the club's survival. This study investigated the 1250 members' satisfaction in 20 commercial fitness clubs in Wuhan, Hubei. The results showed that there were different degrees of satisfaction to the course, coach, equipment, price, service and facilities. The satisfaction of those not related to the individual member needs is relatively high, while the satisfaction related to the individual needs is relatively low. Suggestion should be given that the club should optimize the management strategy, putting focus on meeting the members' individual and special needs.

Key words: Fitness Club; Member; Satisfaction; Management Strategies

1 Introduction

With the rapid economic development and the continuous improvement of life standard, the commercial fitness club emerged and gradually became an important and new physical exercise organization and platform for people's health. Although the main aim of commercial fitness club is to attract consumers and then realize profits maximization, but they should also provide high quality fitness products and health services for members, to promote their health and wellness and improve the quality of daily life. With commercial fitness clubs widely distributed in lots of cities, they are facing seriously competition situations. More and more managers of clubs are aware that the competitiveness of fitness clubs is the service quality, and member satisfaction can reflect the quality of service. Therefore, in recent years, the relevant research regarding member satisfaction of the commercial fitness club has gradually developed. At present, in China, the research on the commercial fitness club mainly concentrates on course designing, coach hiring, management idea, business operation mode, and so on. However, these kinds of studies are mainly from the perspective of the club building but rarely from the perspective of members. This means little attention is paid to the member satisfaction of the fitness club when they participate the fitness exercise. In contrast, researchers and practitioners in foreign countries focus more on member satisfaction of fitness club, such as the comparison of satisfaction of members with different income or social status or socioeconomic background, the effect of government policy on member satisfaction, the relationship between religious belief and member satisfaction, etc. These studies have greatly promoted the development of fitness club abroad, and improved the member satisfaction. We urgently need to strengthen this research in China. This research will take Wuhan city as an example, aiming to explore the factors that affect the member satisfaction, and then raise a targeted management strategy so as to provide scientific evidence and basis for fitness club development.

2 Data and Methodology

2.1 Questionnaire survey

Based on the literature review and practical experience summary, questionnaire with title *The Effect Factors on Member Satisfaction of Commercial Fitness Clubs* was designed, instrument validity and reliability were also established. Member satisfaction was defined in terms of the fitness course, coach, equipment, price, service and facilities variables. Instrument with a five-point Likert scale indicated the level of member satisfaction (5=high satisfaction, 4=satisfaction, 3=middle satisfaction, 2=low satisfaction, 1=none satisfaction). This study randomly selected 1500 participants from 20 different commercial fitness clubs in Wuhan, Hubei, 1420 questionnaires were collected, and 1250 were valid, of which 520 were from men and 730 were from women aging from 10 to 80 years old.

2.2 Interview

This study randomly selected 10 participants from different commercial fitness clubs with various background. A semi-opened interview was conducted to everyone, targeting to explore the different effect factors of member satisfaction, and collect their comments and suggestions that may be inspiring to the managers in club management.

3 Results

According to the questionnaire, we generally defined the research results satisfaction as (high satisfaction + satisfaction + middle satisfaction), and defined the unsatisfaction as (low satisfaction + none satisfaction).

3.1 Satisfaction of the fitness course

Regarding to the fitness course(see Figure 1), the members have highest satisfaction in time arrangement of courses, accounting for 87.2%, followed by the colorful course types (85.3%), the proper difficulty of courses (77.1%), the course with a great attraction (75.3%). However, only 65.2% members is satisfied with course updates. This shows that although there are many different courses in the current commercial fitness clubs, the content is traditional and fail to introduce the latest fitness methods into the course.

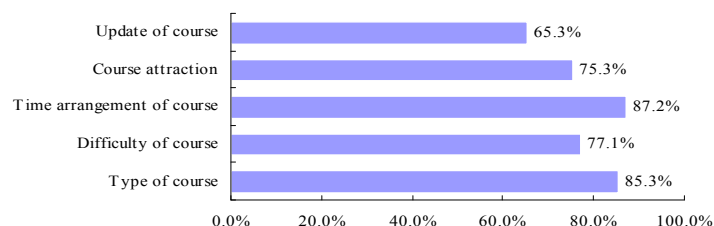


Figure 1 Data of satisfaction of the fitness course

3.2 Satisfaction of the coach

The coach can directly contact with the members in commercial fitness club, their main duty is to provide scientific fitness guidance to members. Study results showed that, the member thought coach has professional sports skill and teaching ability (89.1%), can tell members with good fitness philosophy (80.7%), effectively control the members' exercise intensity and load (78.3%). However, Only 67.4% of the members thought that their coaches are good at creating a good class atmosphere and fully mobilize the enthusiasm of members with interpersonal and communication skills(65.2%), eager to help members solve problems in the process of exercise(55.1%). From the data, we can conclude that although the coach has high professional skills, they may not have strong enthusiasm to communicate with members and help members. The reason may be that most of the coaches are part-time jobs, most of them major in physical education in colleges. These students have high sports skill but lack practical experiences.

Table 1 Member Satisfaction of Coach

Coach has professional sports skills and teaching ability	89.1%
Coach can tell members good fitness philosophy	80.7%
Coach is good at creating a good class atmosphere and fully mobilize the enthusiasm of members	67.4%
Coach are eager to help members solve problems in the process of exercise	55.1%
Coach can effectively control the members' exercise intensity and load	78.3%
Coach have strong interpersonal and communication skills	65.2%

3.3 Satisfaction of the equipment

Fitness equipments are the basic carrier for members' exercise. The results showed that members generally considered the fitness equipments are advanced and functional (90.1%), the placement and layout are reasonable (87.4%). In contrast, members have lower satisfaction in terms of safety performance, hygiene condition, equipment maintenance, the percentage of which were 70%, 69.3% and 71.2% respectively (see Figure 2). we can conclude that the fitness equipment in the club are good, the club probably spent lots of money on buying equipments, but the hygiene and health associated with the equipment are not very satisfying.

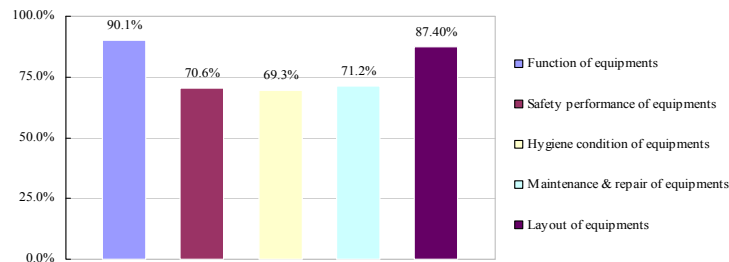


Figure 2 Data of Satisfaction of the Equipment

3.4 Satisfaction of the price

About the price, 87.9% of the members think the overall charges is reasonable, and there are also plenty of activities for the initiation (86.6%). But their satisfaction about service that matches with the price is not high. Only 69.9% of the members considered the club's service quality is consistent with the price, while only 52.1% considered the club's price can meet the needs of customers at different levels (see Figure 3). This means that although the average cost of the members is reasonable, the customer's price expectation with different economic situation level is neglected.

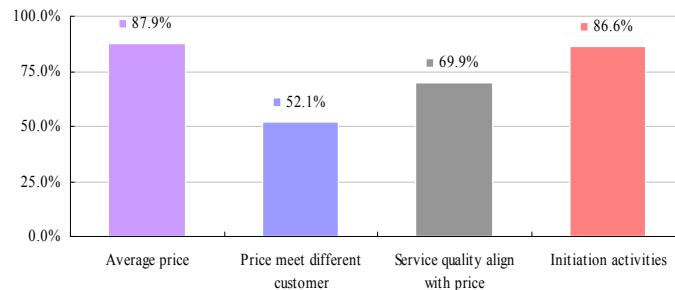


Figure 3 Data of Satisfaction of the Price

3.5 Satisfaction of the service

In the aspect of satisfaction of service, the members considered the service from commercial fitness club is very convenient (83.2%), various fitness activities are frequently organized (95.5%), personal fitness information are regularly provided (80.1%), relevant service information is released timely (87.2%). However, members have lower satisfaction in terms of problem solving for customers and service individualization, which account for 72.6% and 70.3% relatively (see Table 2). This showed that the fitness club may provide a lot of external services, but they need to upgrade, personalize, enhance the quality of service to individuals.

Table 2 Member Satisfaction of Service

Service for customers is very convenient	83.2%
Solve customers' problem timely	72.6%
Frequent organization of various fitness activities	95.5%
Service individualization	70.3%
Provide personal fitness information regularly	80.1%
Timely release of relevant service information	87.2%

3.6 Satisfaction of the facilities

Facilities are very important for the development of fitness clubs, which sometimes plays a decisive role. The results showed that fitness clubs members have high satisfaction in basic facilities (90.1%), location and traffic situation (95.2%), fitness exercise environment (85.1%). However, Members are not satisfied in special facilities for disabled people (45.2%), the old people and children (43.9%). The results demonstrated that the fitness club rarely cares for special groups with different fitness exercise needs (see Figure 4).

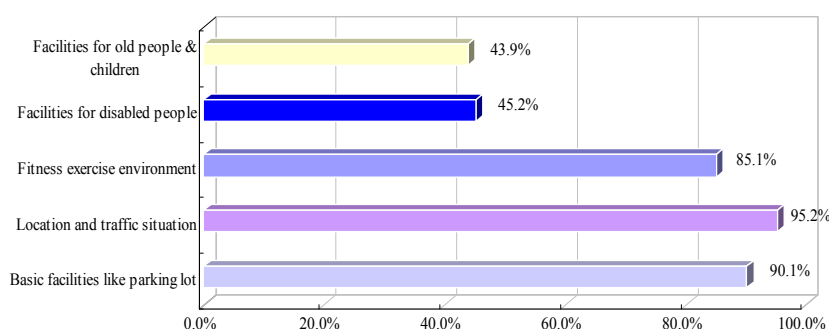


Figure 4 Data of Satisfaction of the Facilities

5 Conclusion

Commercial fitness club members have different satisfaction levels of course, coach, equipment, price and facilities. In general, they have higher satisfaction for those that is not related to the members' personal factors, but lower satisfaction for those related to members' individual demand and internal factors. So we can come to the conclusion that the external satisfaction of member in commercial fitness club is higher, meanwhile the internal satisfaction of member is lower.

Based on the conclusion, suggestion were given that the commercial fitness club should adjust the management mode and actively to optimize the membership management strategy. Some detailed suggestions is as following: 1) Try to introduce the latest fitness program from domestic and international background, provide most cutting-edge fitness information to members, stimulate their curiosity and interesting for exercises. 2) In the process of hiring coach, the club managers should not only pay attention to the skills but also to the investigation of their comprehensive quality. They need to improve the overall quality of coaches and request more communication between the coach and the member. In addition, they need to build a stable and professional coach team and minimize part-time coaches. 3) Recruit full-time specialist to manage the fitness equipment, clean and disinfect the equipment timely, improve the hygiene and health condition of the equipment, reduce the potential danger of harmful germs, eliminate the worry of the member on the health status of equipment. 4) Investigate the member's opinion and suggestion on the price, adjust the price according to the members so that the member can experience the fitness benefit that can match with the cost. 5) Provide more personalized fitness services to members, give them more choices such as introduce some special fitness services for the targeted specific groups, strengthen the characteristics, meet the personalized needs of individual members. 6) Build the fitness facilities for disabled people, old people, children and other special groups, provide more fitness opportunities for special populations, expand customer groups and finally improve the member satisfaction.

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R&D Talents Flow of Chinese Manufacturing Firms: A Case Study*

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Abstract: R&D talents are the key forces of manufacturing firms' technical innovation and have an important influence on business operation. In order to describe the R&D talents flow situation of manufacturing firms under China's new normal and improve human resource management, this paper used state transition equation conducting empirical research on a Chinese manufacturing enterprise's R&D talents flow in recent four years. It shows that the flow of R&D talents is inevitable and the contest for R&D talents is more fiercely. Therefore, Chinese manufacturing enterprises should take effective measures, such as salaries and stocks policies, technical qualifications certification, work-life balance programs and employer brand construction etc., to attract and retain R&D talents.

Key words: Manufacturing firms; R&D talents flow; State transition equation; Human resource management

1 Introduction

With China's economy stepping into the new normal state, in order to realize the change from 'the large manufacturing country' to 'the strong manufacturing country', China's traditional manufacturing enterprises need to improve their own core competency by sticking to the road of innovation driven development. The R&D talents are the strategic human resources of enterprises, and the key power of manufacturing enterprises' technological innovation. Reinforcing the R&D talents development is the inevitable demands of upgrading and transition of manufacturing enterprises. However, in this process, in face of fierce external competition in talents war, some of the enterprises experienced relatively high talents turnover rate, exerting unfavorable influence on enterprises' normal manufacturing operation. According to the research report released by 51job, the renowned domestic human resources agent, the talents turnover rate of manufacturing enterprises in 2013 is 3% higher than the average rate, reaching 19.1%, among which the R&D talents ranked high. The free flow of R & D talents is beneficial to the optimization of human resources, but also poses great challenges to human resources management for enterprises. Judging from the present practice, the talent flow management in manufacturing enterprises is still rather weak, sometimes even the supply is inconsistent with the demand. To ensure the sustainable development of enterprises, it is necessary to strengthen the analysis and prediction of R & D talents flow, enhancing the supply and demand balance of R & D talents in manufacturing enterprises.

American scholar Wright (1992) emphasized that the nature of strategic human resources management is a planned human resources allocation mode. This mode can enable the enterprises to reach its business objectives. Strategic human resources management stresses that the organization must timely formulate insightful human resources plan according to the development strategy, goal as well as external environment change to provide necessary talents guarantee for organization development. Raymond A. Noe, etc (2012) considered that issuing the the key procedure of human resources plan is predicting the supply and demand of human resources. However, as to human resources prediction, John M. Ivancevich (2010) predicted that at present many enterprises still lacked effective scientific method on the analysis of talents flow, overly relying on management

staff's instinct. To better analyze the flow state of R&D staff in manufacturing enterprises and enable the human resources plan designed by enterprises to adjust to the dynamic changes of the environment, it is necessary to construct a more effective prediction model to help enterprises make rational decisions.

2 Methodology

2.1 Model

Way and Johnson (2005) pointed out through predicting to realize the adjustment of human resources range to the organizational need is the focus of formulation of human resources strategy. But

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at present scientific and effective analysis and prediction instrument is still in shortage. Cascio, etc. (2010) considered that the major quantitative method for human resources prediction are trend model, regression model and state transition equation model. Th first one is the single variable model based on time, mainly about predicting the future changes based on the past historical figures. The second stresses using the mutually dependent relations between human resources number and other quantitative variables. The state transition equation comprehensively takes into consideration of all kinds of staff flow influences such as promotion, demotion, quit, as well as the state transition as time moves on, predicting the staff flow from the latest to the distant. Compared to the previous two quantitative prediction method, state transition equation model only needs latest materials, not large quantity of historical data. The calculation is relatively easy, and can better analyze the trend of the enterprises talents structure change as time moves on.

The state transition equation model is brought up by Russian mathematician A.A.Markov in 1907. He found that some things' change process has something to do with their recent state, but not the past state. That is to say, the result of the n time, usually is determined by the $n-1$ time experiment result. When the system initial state is known, after K times transition, the probability of i state is $S_i^{(k)}$, and

$\sum_{i=1}^n S_i^{(k)} = 1$, n is the incompatible state number of the system. According to Chapman Kolmogorov

equation, $S_j^{(k+1)} = \sum_{i=1}^n S_j^{(k)} \cdot p_{ij}$ ($k=0,1,2,\dots$). If we use the vector $S^{(k+1)} = S^{(k)} \cdot p$, we can infer that $S^{(1)} = S^{(0)} \cdot p$, $S^{(2)} = S^{(1)} \cdot p = S^{(0)} \cdot p^2$, ..., $S^{(k+1)} = S^{(0)} \cdot p^{(k+1)}$. Therefore, the general form of the state transition equation is $S^{(k+1)} = S^{(0)} \cdot p^{(k+1)}$. The state of the system at one time node is decided by initial state and the state transition probability. The equation of matrix multiplication is as follows:

$$S^{(k+1)} = S^0 \begin{bmatrix} p_{11} & p_{12} & \cdots & p_{1n} \\ p_{21} & p_{22} & \cdots & p_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ p_{n1} & p_{n2} & \cdots & p_{nn} \end{bmatrix}^{k+1}$$

2.2 An enterprise sample

According to the definition by OECD, R&D talents specifically include three types: researcher, Technicians & Equivalent staff and Supporting staff, namely those are directly engaged in R&D work and those who provide direct service for R&D work. The research sample in this paper is a manufacturing company in central China, Hubei province, mainly engage in valves, hydraulic machinery, environmental equipment, machine tools' research and development, with fixed asset worth of 0.82 billion. The staff number at the end of 2014 is 671, 120 are R&D staff, accounting for 17.8% of the total staff number. In 120 R&D staff, Males accounts for 81.67%, females accounts for 18.33%. In respect to age, staff above 50 accounts for 13.33%, 40~49 is 34.17%, 30~39 is 37.5%, under aged 29 is 15%. As to the education level, master degree and above accounts for 11.67%, bachelors degree is 59.17%, three year college degree and below is 29.17%. The detailed distribution are shown in table 1.

Table 1 The Composition of R&D Talents

Item	Distribution	Number	Ratio(%)
Gender	Male	98	81.67
	Female	22	18.33
Age	Above 50	16	13.33
	40~49	41	34.17
	30~39	45	37.50
	Under 29	18	15.00
Education level	postgraduate degree or above	14	11.67
	Undergraduate degree	71	59.17
	College degree or below	35	29.17

2.3 Talents flow analysis

The R&D talents flow in enterprises both includes the inflow (hiring) and the outflow (turnover, and retiring, etc.), and internal transition between different levels. As the inflow number is mainly determined by the outflow number, this paper mainly deals with the last two situations when applying the model to

analyze the talents flow. According to the qualification system of this company, the talents are divided into three levels: senior, middle and junior. At the end of 2014, number of 3 levels of R&D talents are respectively 41, 52 and 27. At the end of 2013, there are 137 R&D talents, among which the senior level is 45, the middle level is 58, and the junior level is 34. The talent loss in 2014 is altogether 17. Judging from the last three years' historical data (2011~2013), we discovered that the state of talents flow is steady, the average flow ratio can be seen in table 2. According to the flow probability, we can assume under the condition of small changes of external situation, in any year, 85% of the senior level are still working, 15% leaving, 75% middle level remaining, 5% promoted to middle level, 20% loss; 70% Junior level remaining, 10% promoted to middle level, 20% loss.

Table 2 The flow Probability of R&D Talents

Item	Senior (S)	Middle(M)	Junior (J)	Loss (T)
Senior	0.85	0	0	0.15
Middle	0.05	0.75	0	0.2
Junior	0	0.1	0.7	0.2
Loss	0	0	0	1

If two conditions for stability and independence are satisfied, we can use state transition equation to analyze and predict the enterprise's R&D talents flow. The specific procedures are as follows:

Step 1, ascertain the starting state of the R&D talents. Here, the R&D talents number in 2013 is the initial state vector, that is $S^{(0)}=(45\ 58\ 34\ 17)$.

Step 2, establish the state transition probability matrix of talents flow. According to the R&D flow state exhibited in table II, it is possible to establish the state transition probability matrix P.

$$P = \begin{bmatrix} 0.85 & 0 & 0 & 0.15 \\ 0.05 & 0.75 & 0 & 0.2 \\ 0 & 0.1 & 0.7 & 0.2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Step 3, using the model to predict. This paper assumes that China's new normal would not change in short time, the external and internal changes in recent years are not huge, the state transition probability matrix P remains the same, namely the state vector of 2014 is as follows:

$$S^{(1)}=S^{(0)}P= (45\ 58\ 34\ 17) \cdot \begin{bmatrix} 0.85 & 0 & 0 & 0.15 \\ 0.05 & 0.75 & 0 & 0.2 \\ 0 & 0.1 & 0.7 & 0.2 \\ 0 & 0 & 0 & 1 \end{bmatrix} = (41\ 47\ 24\ 42)$$

The state transition equation predicts that by the end of 2014 the numbers of senior, middle and junior R&D talents are 41, 47 and 24, the loss is 42. Since 120 R&D talents at the end of 2014 include 6 new hires, the predicted results are basically consistent with the actual situation, the error rate is only 1.67%. This shows that the state transition equation is used to analyze the flow of R&D talents is feasible. So we can forecast the talents flow situation in 2015, 2016 and so on by this way. The vector of R&D talents flow at the end of 2015 is $S^{(2)}=S^{(1)}P=(37\ 38\ 17\ 62)$, and the vector of R&D talents flow at the end of 2016 is $S^{(3)}=S^{(2)}P=(33\ 30\ 12\ 79)$.

Step 4, trend analysis. Taking into consideration of the above prediction data, it is possible to get the talents flow trend of the enterprise. In the next several years, the overall flow rate of the R&D talents in the enterprise will keep an upward trend, the number of senior R&D talents being stable, the middle and junior R&D talents keeping a rapid downward trend. It can be shown in figure 1.

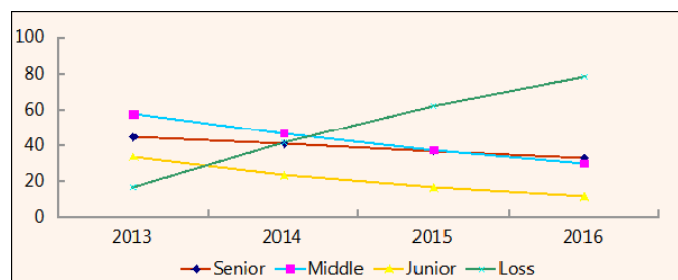


Figure 1 The Flow Trend of R&D Talents

3 Discussion

The above analysis shows that: (1) The R&D talents turnover is rather serious in that enterprise, keeping an upward trend in recent years. (2)The junior and middle R&D talents number is decreasing fast. (3)The number of youth under 30 is relatively low, the loss rate is high. The R&D talents confronts a “fault zone”. (4)The promotion space is small, opportunities are few, and also “upward instead of downward”. The reasons behind this include the external market and industry competition, but also internal management void.

To better improve the competitiveness of talents in the new normal state, it is suggested that:(1)Design enterprises' R&D talents development plan, through widening hiring channels, positively bring in R&D youth talents, making up for the position vacancy left by the talents flow, and also rely on the internal development, avoid the the vacuum of R&D talents. (2)Perfect the enterprises' qualification management system, establish clear qualification criteria, increase the different technical levels for R&D talents, build the horizontal development tunnel for R&D talents, and create sound organization environment for talents, especially young R&D talents' individual development. (3) Adjust the enterprises benefit policy, Increase the income level of R&D talents to some extent, reinforcing the contribution oriented income values, and enable the design of wages and salary program to satisfy different levels of R&D talents. (4)Enforce the “work-life balance program, pay attention to the mental health of R&D talents, regularly organize some healthy cultural and physical activities, paying attention to staffs' psychological consultation and guidance, ease the mental pressure of them. (5)Establish the employer brand, popularize the enterprise name, reputation and market influence, reinforce the consciousness of management staff serving the employees, create sound culture, enhancing the talents pride and sense of belonging to the organization, boost the cohesion between talents and organization.

4 Conclusion

The analysis and prediction results suggest that the flow of R&D talents is inevitable and the contest for R&D talents in manufacturing enterprises would be more and more drastic. The flow of R&D talents increases the risks of the operation for enterprises. Strengthening the flow prediction and management of R&D talents is the inevitable requirement for the enterprises to deal with fierce market competition. The R&D talents flow in manufacturing enterprises has some patterns, the prediction of the flow possibility is relatively stable, and the next year R&D talents number only has something to do with last year. All of these match the state transition equation's usage requirement. Proved by the concrete example, applying state transition equation model in prediction and analysis of the R&D talents flow doesn't need too many complex influence variables, and has a low requirement on historical data, easy operation, relatively accurate prediction result, is suitable to be applied. One thing worthy of notion is that the market fluctuation and business objectives adjustment would result in the changes of talents supply and demand. The enterprises would also make up for some R&D talents according to their reality. When the state transition equation is used year by year to make the long-term prediction, it is necessary to make adjustment according to the real situation.

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Analysis on Technological Innovation Capability of Industrial Robot Industry

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Abstract: Industrial robot industry is the fundamental and strategic guide industry of the national economy, is the embody of a country or region's industrial scientific and technological level, and it showed frontier nature of science and technology. This paper constructed the evaluation index system of technological innovation capability of industrial robot industry from 4 aspects: technological innovation environment support capability, technical innovation investment capability, technological innovation transformation capability and technological innovation output capability. And establish SEM of technological innovation capability of industrial robot industry.

Key words: Industrial robot industry; Technological innovation capability; Evaluation index system; SEM

1 Introduction

1.1 Necessity of the research

As a technology-intensive industry, technological innovation is the driving force of industrial robot industry's growth and development. The level of the technological innovation capability will not only affect the development prospects and the pace of development of industrial robot industry, it will also affect the pace of development of the national economy. Technological innovation capability is so important for survival and development of industrial robot industry that it is necessary to design the evaluation index system of technological innovation capability of industrial robot industry to evaluate it scientifically. Furthermore, the industrial robot industry in China is still lack of technological innovation capability, and the level of technology intensive is not high. Chinese and industrial robot enterprises must pay attention to technological innovation, and improve the technological innovation capability of industrial robot industry.

1.2 Literature review

1.2.1 Research on industrial robot and its technological innovation capability

The industrial robot was put forward by US "Metal Market" in 1960. The industrial robot was defined as a reprogrammable multifunctional operation mechanism which is used to transport material, components, tools or special equipment according to pre-programmed action which can complete a variety of jobs by US IRA.

Currently, the definition of industrial technological innovation capability is not unified. Fu Jiaji et al. (1998) argued that technological innovation capability includes manufacturing, digestion and innovation capability. Fores et al. (2011)^[1] defined it as a catalyst which make learning effect on business performance from the level of the process. Xu Fengwei(2011)^[2] put forward industrial technological innovation capability is the combination of intra-industry enterprise innovation activities from the synergy perspective, rather than simply adding them. Zhang Jiaqing et al. (2015)^[3] deemed that technological innovation capability refers to the ability to use input elements in the process of technological innovation.

1.2.2 Research on evaluation index system of industrial technological innovation capability

Different scholars chose different indexes because of different perspectives. Most scholars were based on input - process - output perspective, they constructed evaluation index system of industrial technological innovation capability in many aspects such as technical innovation investment capability, technological innovation transformation capability, technological innovation output capability and so on. Some scholars also considered technological innovation environmental factors. Sana et al. (2009)^[4] believed that R & D has a significant impact on technological innovation capability. Xu Fengwei(2011)^[2] thought the factors that influence technological innovation capability of equipment manufacturing industry also include co-factors which consists of internal and external collaboration capabilities.

The existing research results about industrial technological innovation capability are all take high-tech industry or equipment manufacturing industry as study objects. And there is no specific research on technological innovation capability of industrial robot industry. We know that industrial robot industry belong to both high-tech industry and equipment manufacturing industry,so the Existing

research results about evaluation index system of industrial technological innovation capability have a high reference value to construct evaluation index system in this paper. However the existing evaluation index systems of industrial technological innovation capability did not combine with input - process - output and synergism of industrial internal and external environment. This not only can not fully reflect the industrial technological innovation capability, but also not conducive to enterprises or government formulate policies and measures about improving industrial technological innovation capability.

2 Technological Innovation Capability of Industrial Robot Industry and Its Restrictive Factors

Industrial technological innovation capability is the capability relying technological innovation to improve the competitiveness of enterprises and promote enterprises development. It is a comprehensive capacity can conduct and complete technological innovation behaviors which are constituted by very many factors. On the based on the existing research results and combining with the characteristics of industrial robot industry, this paper argues that technological innovation capability of industrial robot industry specifically includes 3aspects: technical innovation investment capability, technological innovation transformation capability, technological innovation output capability and 2 dimensions: industrial internal environment support capability and industrial external environment support capability. Here referred it as the "three aspects and two dimensions " system, shown in Figure 1.

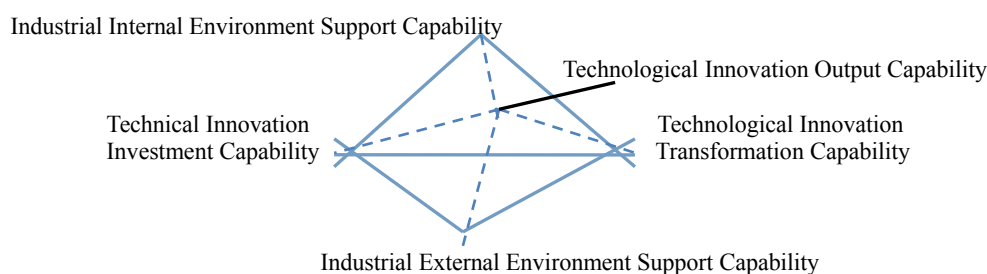


Figure 1 "Three Aspects and Two Dimensions" System

2.1 Factors affecting technological innovation environment support capability

Technological innovation environment support capability of industrial robot industry includes industrial internal and external environment support capability.

Industrial internal environment support capability refers to the internal support capability for technical innovation activities. Technological innovation must be based on technical capability and economic foundation. Industrial internal environment support capability is advantageous to ensure technological innovation of industrial robot industry success. It is mainly in the industrial technological capability and industrial economic strength. Therefore, its main factors are technical ability level and economic strength level of industrial robot industry.

Industrial external environment support capability is the external support capability for technical innovation. It coordinated with industrial internal environment to enhance the promotion of technological innovation capability of industrial robot industry jointly, including supports of government and universities, research institutions. Tax incentives and financial support of government, research cooperation are important factors of technological innovation environment support capability.

2.2 Factors affecting technological innovation investment capability

Technological innovation investment is fountainhead of technical innovation activities. Its magnitude directly determines the magnitude of technological innovation capability. So it is an important indicator to measure technological innovation capability of industrial robot industry. Its main manifestations are quantity and quality of the resources invested in technological innovation process. Factors affecting it are primarily industrial robot industry's revenue degree of Human, material and financial resources in terms of technical innovation.

2.3 Factors affecting technological innovation transformation capability

The ultimate goal of technological innovation is transforming new technologies, new crafts into practical productivity. Technological innovation transformation capability reflects the degree of transforming knowledge and technology into practical productivity. Its influencing factors are industrial robot industry's digestion and absorption ability, re-innovation ability of technology introduction and the ability of converting technological achievements to new products.

2.4 Factors affecting technological innovation output capability

Technological innovation output is the ultimate effect of technological innovation. Its level represents the magnitude of technological innovation capability, and is the most direct parameter to measure industrial technological innovation capability. Technological innovation output capability includes direct profit in the process of technical innovation activities and future economic benefits of put new technologies and new products which will soon be researched and developed into production field. Innovation ability of intellectual property, the mastery level of key technologies, technical output of new products, direct profit of technological innovation and export competitiveness of technological innovation are the major factors affecting technological innovation output capability.

3 Construction of Evaluation Index System

The evaluation of technological innovation capability of industrial robot industry is a complex system engineering. In this paper, we follow the principle of scientific, operational, dynamic and systematic, construct the evaluation index system from 4 aspects: technological innovation environment support capability, technical innovation investment capability, technological innovation transformation capability and technological innovation output capability. According to the analysis on restrictive factors of technological innovation capability of industrial robot industry, we establish evaluation index system as shown in Table 1.

Table 1 Evaluation Index System of Technological Innovation Capability of Industrial Robot Industry

First Grade Indexes		Second Indexes	Quantification	
Technological Innovation Environment Support Capability X1	Industrial Internal Environment Support Capability	Scientific and technological institutions	Number of the enterprises have scientific institutions / Number of enterprises in industry (X11)	
		Labor productivity	Gross output value in industry / Employment in industry (X12)	
		Total profit	Total profit in industry (X13)	
		Net value of fixed assets	Original value of fixed assets - Accumulated depreciation of fixed assets (X14)	
	Industrial External Environment Support Capability	Support of government		Increasing the proportion of tax relief compared with last year's (X15)
				The specific gravity of financial funds in scientific and technological activities raise funds (X16)
				The specific gravity of financial organizations' loan in scientific and technological activities raise funds (X17)
		Support of universities and research institutions	Number of universities, research institutions engaged in the study of industrial robot (X18)	
Technical Innovation Investment Capability X2	Input intensity of technical staff	Number of technical staff / Employment in industry (X21)		
	Input intensity of R&D	R & D funds / Sales income of products (X22)		
	Input intensity of non-R & D	(Technological introduction funds+Technological transformation funds)/ Sales income of products (X23)		
Technological Innovation Transformation Capability X3	Digestion and absorbability of technology introduction	Digestion and absorption funds / Technology introduction funds(X31)		
	Development rate of new products	Number of new products development / Number of items of scientific and technological activities (X32)		
Industrial External Environment Support Capability X4	Number of patent applying for	Number of patent applying for (X41)		
	Number of patent possess	Number of patent possess (X42)		
	Output rate of new products	Output value of new products / Gross output value of industry (X43)		
	Selling rate of new products	Sales income of new products / Sales income of products (X44)		
	Export rate of new products	Export revenue of new products / Sales income of new products(X45)		

4 Establishment of Evaluation Model

As described above, the evaluation index system of technological innovation capability of

industrial robot industry is constructed from 4 aspects: environment support capability, investment capability, transformation capability and output capability. The 4 first grade indexes affect each other. We draw SEM of Technological Innovation Capability of Industrial Robot Industry by AMOS17.0 and consider the relationship between first grade indexes, shown in Figure 2. The step to evaluate technological innovation capability of industrial robot industry by SEM is shown in Figure 3.

According to Figure 2, the mathematical expressions to evaluate technological innovation capability of industrial robot industry are as follows:

$$X_i = \sum_{j=1}^{n_i} X_{ij} W_{ij} \tag{1}$$

$$X = \sum_{i=1}^4 X_i / 4 \tag{2}$$

Among them $i=1,2,3,4$, $n_1=8, n_2=3, n_3=2, n_4=5$, W_{ij} are weights of observation variables, X is the evaluation score of technological innovation capability of industrial robot industry.

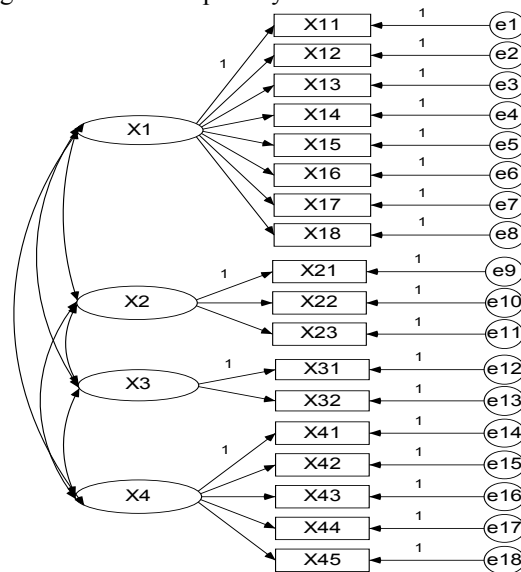


Figure 2 SEM of Technological Innovation Capability of Industrial Robot Industry

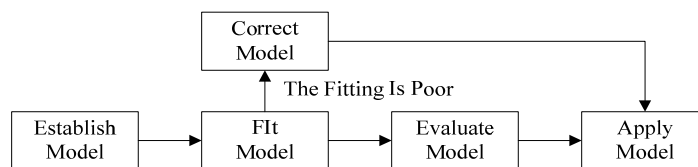


Figure 3 The Flow Chart of SEM

5 Conclusion

This paper designed evaluation index system of technological innovation capability of industrial robot industry from the theoretical level. It explained the meaning of technological innovation capability of industrial robot industry, constructed its evaluation index system, and quantified the 18 second indexes directly or indirectly. Design of evaluation index system and establishment of model is only the preparatory work to evaluate technological innovation capability of industrial robot industry. Then we can correct indicators and model combine with empirical data.

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A Case Study on Pricing Behavior of User Innovation in Supply Chain*

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Abstract: In a duopoly competition market, the existence of innovation is likely to bring differentiated competitive behavior. This paper considers that two different supply chains in a duopoly market, in which the manufacturers in the first supply chain is assumed to take a closed innovation pattern, whereas the manufacturers in the second supply chain is assumed to take

advantage of user innovation. The paper presents a case study of mini vehicle industry in western China.

Key words: Supply Chain; Pricing Behavior; User Innovation; Bertrand Duopoly Model

1 Introduction

The so-called user innovation refers to innovation by users, that is, users play an important role in the process of innovation. In 1962, Enos J. L.^[1] studied the important refining processes and equipment innovation and found that the users of the refining processes and equipment are the major innovators of the significant inventions and improvements. Afterwards, many studies have shown that user innovation exists widely in industry, such as, Freeman C (1968)^[2], Knight K. (1963)^[3], and Rosenberg (1976)^[4].

In 1988, Eric Von Hippel firstly put forward the “user innovation” concept based on the sources of innovation theory, and he believes that users are one of the critical sources of innovation. For the research background of user innovation, Eric Von Hippel explained in details in his book “Democratizing Innovation”, where he believes the research on user innovation stems from the differences in user needs.

2 Case Description: Mini Vehicle Market in Western China

Mini vehicle, also known as minivan, can be used for passenger and cargo. After China's reform and opening up, Mini vehicles have been poured into China market from abroad, simultaneously, a number of China's famous mini vehicle manufacturers have been nurtured and developed, which is known as an industrial miracle in China. In western China, there are two mini vehicle manufacturers, one is SMG Company located in the west of China, and another is CAM Company located in Xi'an of China. The two companies occupy the main market in western China (including Guangxi, Gansu, Qinghai, Guizhou, Yunnan, Xinjiang, Gansu and Shaanxi), and there are fierce competition between this two companies. Although in the whole China, the mini vehicle market is not strictly under Duopoly, if only considering the western market of China, as well as taking into account the intense level of competition SAM and CAM, the mini vehicle market in western China is very similar and close to a duopoly market conditions.

SAM is a Sino-US joint venture company to produce mini vehicle based, supplemented by the production of cars. CAM company's original main business was also mini vehicle, while then, CAM turned their attention to the production of cars, paid less attention and investment to mini vehicle market, so that, starting from 2006, SAM won the competition of mini vehicle market share and took the first place from CAM in mini vehicle market in western China.

From Table 1, which shows the mini vehicle sales of various companies in western China, it can be seen, in 2013, SAM remains the first position in the market shares in western China, and in 2013, the total sales of SAM and CAM are accounted for 86.2% of the whole market share. Therefore, the mini vehicle market in western China can be roughly considered as a duopoly market.

In terms of end-users' participation in the whole vehicle innovation, SAM set prizes to attract end users (farmers users) involved in product innovation in 2001, according to the need of “big load, fast speed” in countryside, SAM increased the space of mini vehicles, selected hardwearing tires, and brought Light brand mini vehicles mass into the rural market, continue to catch up on CAM company in

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mini vehicle market. SAM finally won the first place over the CAM in mini vehicle market in 2006. From 2008 to 2011, SAM company also found that subtle changes in farmers' demand for mini vehicles, from the pursuit of "big load, fast speed" to "comfort and better design", so SAM company attracted customers to experience test drive and set prizes for solicitation views through their sales network, making the direction of mini vehicles production toward the development direction of famers' needs and expectations.

Table 1 Sales of Mini Vehicle in Western China Market in 2013

No.	Mini Vehicle Companies	Sales in Western China (Units)	Market Share in Western China (%)
1	SAM Mobile	197400	51.3
2	CAM Mobile	134196	34.9
3	DF Xiaokang	19661	5.1
4	HF Mobile	11175	2.9
5	JL Mobile	6049	1.6
6	CH Mobile	5610	1.5
7	HM Mobile	5256	1.4
8	QR Mobile	4970	1.3

Data source: Extracted from China Gaishi Automobile Web: CAPA

In the aspect of the whole vehicle manufacturers' participation in the innovation activities of engine manufacturers, to some extent, SAM and CAM are all involved in process innovation of the upstream engine manufacturers.

Figure 1 shows that SAM participates in process innovation of the upstream engine manufacturers. In concrete, SAM is directly involved in the innovation activities of LZ Motors and SAM Motors, the innovation fruits help LZ Zuofeng by technology transfer, SAM offers technical guidance and training to LZ Liuji and WX Liujia. Figure 2 presents that CAM participates in process innovation of the upstream engine manufacturers. In concrete, CAM is directly involved in the technical development of JL Machine, but not involved in the innovation of SUZIKIG.

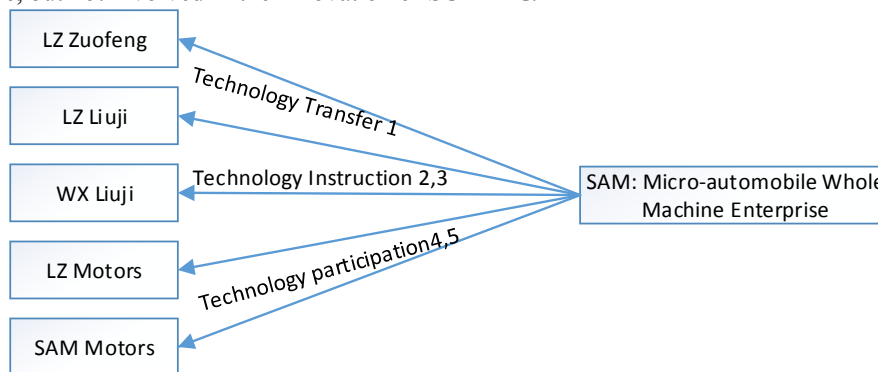


Figure 1 SAM's Participation in the Process Innovation of the Upstream Engine Manufacturers

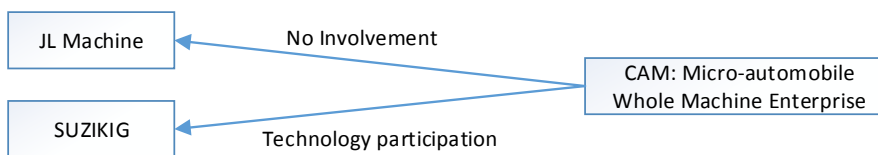


Figure 2 CAM's Participation in the Process Innovation of the Upstream Engine Manufacturers

3 Case Modeling

According to the specific circumstances of this case, there is some characteristics: (1) the engine is only one part of the whole vehicle cost, rather than its full cost; (2) in this case, SAM has both process innovation from the first layer to the second layer, and product innovation from the second layer to the third layer; while CAM is not completely without user innovation, but the presence of process innovation from the first layer to the second layer.

For the first question, we can assume that the engine cost accounts for a certain percentage of the total cost of the mini vehicle, let it be k_{A1} (from the first layer to the second layer in SAM supply chain) and k_{B1} (from the first layer to the second layer in CAM supply chain), based on the Bertrand model, we

can get the two stage prices P_{A1}, P_{A2} in the first stage and second stage of supply chain A respectively, and the two stage prices P_{B1}, P_{B2} in the first stage and second stage of supply chain B respectively :

$$\begin{aligned}
 p_{A2} &= \frac{2e_2(b_2P_{A1}/k_{A1} - a_2) + c_2(d_2 - e_2P_{B1})}{4b_2e_2 - c_2f_2} \\
 p_{B2} &= \frac{2b_2(e_2P_{B1}/k_{B1} - d_2) + f_2(a_2 - b_2P_{A1})}{4b_2e_2 - c_2f_2}
 \end{aligned}
 \tag{1}$$

Where, $a_1, b_1, c_1, d_1, e_1, f_1$ are parameters, and satisfy: $a_1, b_1, c_1, f_1 > 0$; $b_1, e_1 < 0$; Also, $a_2, b_2, c_2, d_2, e_2, f_2$ are parameters, and satisfies: $a_2, d_2, c_2, f_2 > 0$; $b_2, e_2 < 0$.

Meanwhile, the extent of SAM's involvement in the innovation of the engine manufacturers higher than CAM, it can be assumed that $C_{A1} < C_{B1}$.

From 2010 to 2013, the prices of mini vehicles manufactured by SAM and CAM are basically stable. The retail price of SAM's Light type is from 29,800 RMB at the minimum configuration to 48,000 RMB at the maximum configuration. The retail price of CAM's Star type is from 25,000 RMB at the minimum configuration to 46,900 RMB at the maximum configuration. As can be seen, at the same or similar configuration, SAM's price is higher than CAM's price, whereas, surprisingly, the sales volume of SAM is higher than the CAM. This seems inconsistent with the law of demand. When we look at the reasons behind, the main influence factor is that the SAM's end users' involvement in the innovation of the whole vehicle, which makes its products much easier to meet the needs of users.

4 Conclusion

This paper has discussed pricing behavior problems in different supply chains by using a two-stage model of dynamic Bertrand game, based on the previous assumptions of the two different supply chains, one chain adopts user innovation, and the other does not have user innovation. Taking two mini vehicle manufacturers accounted oligopolistic position in western China as an example, the paper has analyzed user innovation and pricing behavior of these two mini vehicle manufacturers.

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Analysis on the Mobile Enquiry Service Model of Commodity Information Based on E-Commerce

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Abstract: The mobile enquiry service model of commodity information based on e-commerce is constructed with the focus on online purchase, virtual retail and mobile retail. This paper analyzes the synergic and causal effect of online industrial chain structure, brick-and-mortar retail and online retail, and recommends the architecture of mobile enquiry system for commodity information as well as the open access repository platform that the system's functional modules and mobile enquiry service depend on. The mobile enquiry services of commodity information contain position-based service, mobile transaction service, mobile information service and multimedia information service. These services rely on the synergic effect of brick-and-mortar retail and online shopping, and can be innovatively developed by university library. Thus, the library must employ the existing mature technical platform to provide the customized services available everywhere.

Key words: E-commerce; Commodity information; Mobile information; Service model; Mobile retail; Repository platform; Synergic effect

1 Introduction

Mobile e-commerce is an e-commercial system integrating mobile phone, PDA, laptop and wireless internet access technology as main communications technologies. Users can surf the internet, get information, make an order and book services, etc. anytime anywhere, which is not only convenient and expedient but also time saving. Mobile e-commerce has the redundancy to handle millions of users and their simultaneous transactions^[1]. The mobile e-commercial services include: (1) position-based service: offer community services and identify the location to realize positioning for traffic, weather report, restaurant, ticket booking and emergency service; (2) mobile transaction service: mobile shopping, mobile finance, mobile business, online monetary transaction (E-wallet); (3) mobile information service: provide news, finance and other information; (4) multimedia information service: display numerous multimedia contents, such as, images, audios, videos, data and texts.

At present, 45% of domestic enterprises have the demand for mobile business and partner with Nokia, Motorola and all WAP networks to expand the mobile business market and provide some attractive mobile services for users. Docomo and Sonera release some simplest applications, which are widely welcomed by users.

2 Industrial Chain of Online Shopping

The industrial chain of online shopping refers to a chain that supports the whole process of commodity transaction between the buyer and the seller. The industrial chain of online shopping involves store owner, buyer, logistics company, supermarket, shopping network, B2B (business-to-business) e-commercial website, payment platform and many other parties. Online shopping is categorized into B2C (business-to-consumer) and C2C (consumer-to-consumer), involving goods flow, information flow and cash flow. The industrial chain of online shopping is presented in Figure1. :

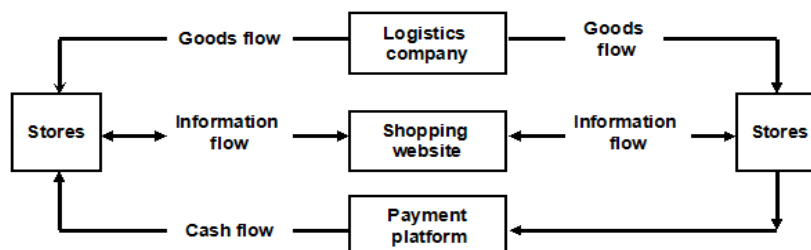


Figure 1 Industrial Chain of Online Shopping

Now, online shopping has played an important part in people's life. As a new type of shopping, it

can effectively lower the cost of transaction, but it also increases the risks of shopping for consumers. Compared with the traditional shopping, online shopping can more reliably evaluated and more measurable, and its cost of after-sales service is lower. In addition, the risk of default is lower since consumers can check the information of commodity with brick-and-mortar store, supermarket or department store by person, and make a purchase decision through commodity analogy. Nevertheless, online shopping can hardly verify the authenticity of product information, so it has to depend on the decision-making mechanism of “perceptive effect” (“perceive the value of use”, “trust”, “perceive the existence of risk” and then “make a purchase decision”)^[2].

A consumer can learn about a seller’s product and the quantity of sold products, and evaluation the credit rating of the seller, the proportion of consumers giving good or bad comments and the duration of transportation offered by logistics company. These are traceable, so network effect is easily recognized, which can improve the “perceived usefulness” of consumers to some extent, reduce the risks of online shopping and make consumers more willing to purchase.

2.1 Virtual business

Virtual business utilizes such advanced information technologies as internet of things, cloud computing and big data to combine corporate production chain with commercial supply chain^[3]. The flow of people is effectively managed together with goods flow, energy flow, resource flow and information flow, so as to realize their comprehensive integration and overall optimization and combination. With virtual business, the franchise stores of virtual retailers transform from sale of commodity to provision of service and realize the profit from service instead of simply depending on the difference between the buying and selling prices. Under the same brand, a retailer can unify the purchase and distribution for all stores, gradually abandon the chain stores and distribute all commodities to franchise stores. The brick-and-mortar network and B2C network can realize directory shopping and offer commodity collection, storage, delivery, return and experience services, and take part in the distribution of profits.

2.2 Mobile retail

Retailers should determine the omni-channel business model for mobile shopping based on the type of own commodity and the composition of different service elements^[4]. The business model of retail depends on “commodity + service”. In other words, the output of retail is not only commodity, but also the unique services offered by retailers to consumers in the industry, including commodity service, location service, environment service and information service.

3 Synergic and Causal Effect Between Brick-and-Mortar Retail and Online Retail

Brick-and-mortar retail and online retail are subject to and affected by customer demand, enterprise development demand and cost demand, etc., which may promote or obstruct retail and even cause any conflict. If the conflict can be properly resolved, the synergy between brick-and-mortar retail and online retail will be strengthened to improve the sharing percentage of advantageous resources among enterprises.

3.1 Factors affecting the synergy between brick-and-mortar retail and online retail

Figure 2 presents the synergy between brick-and-mortar retail and online retail.

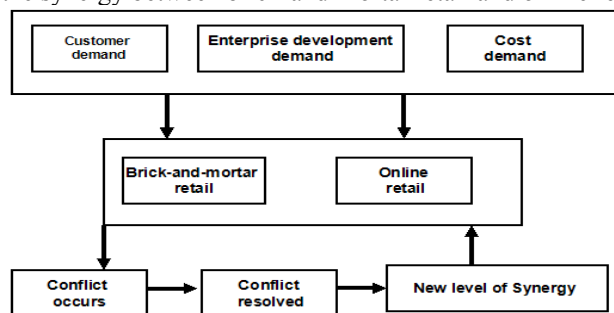


Figure 2 Schematic Diagram of Synergy Between Brick-And-Mortar Retail and Online Retail

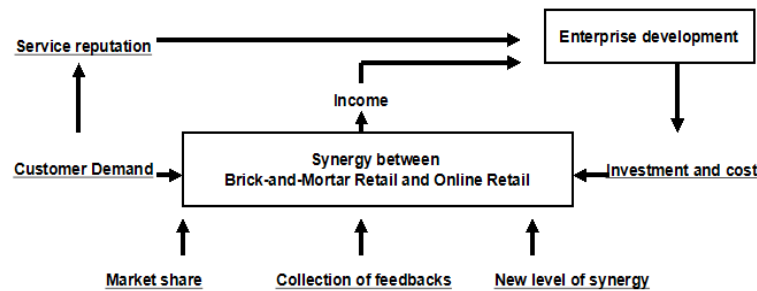


Figure 3 Schematic Diagram of Synergic and Causal Effect Between Brick-And-Mortar Retail and Online Retail

The synergy between brick-and-mortar retail and online retail is affected by such factors as: (1) customer demand, (2) enterprise development demand and (3) cost demand. It is shown in Figure2.

(1) Customer demand

Customer demand comprises market demand, so a market needs to attract customers by finding out their actual needs, so as to bring benefits and incomes to enterprises. Brick-and-mortar retail can make customers enjoy the actual experience of shopping and the face-to-face sale service, while online retail is advantageous for its low price, convenient distribution and no restriction by time and space. Customer demand involves shipping environment and after-sales service. The change of customers may affect the synergic effect between brick-and-mortar retail and online retail.

(2) Enterprise development demand

Retail enterprise is the main player, so its development affects the progress of synergy between brick-and-mortar retail and online retail in terms of time. Enterprise development demand can be divided into three parts as follows:

(a) Technical development demand: An enterprise should have its own open platform for sale system to propagandize itself, promote the development of brick-and-mortar retail and attract more sellers.

(b) Large-scale development demand: If the construction of a business model beneficial to its development is affected, a powerful enterprise may develop brick-and-mortar retail and online retail simultaneously and combine their functions, so as to build its own retail channel.

(c) Management development demand: It can strengthen the management of customer service personnel, improve their awareness of service and increase customer satisfaction.

(3) Enterprise cost demand: Cost is an important motivator to enterprise development. The operation and maintenance of network technology require very high cost, while the process of synergy also costs money. Meanwhile, the cost of entry into third-party platform and operation network may also restrict the development and collaboration of brick-and-mortar retail and online retail.

3.2 Causal effect of elements on synergic effect

Figure.3 reveals the causal effect of elements on synergic effect. In Figure3. , the evolution of market pattern shows the causal effect with related demand, that is, customer demand→ synergy between brick-and-mortar retail and online retail→ increase of income→ enterprise development→ more investment and cost→ a new level of synergy between brick-and-mortar retail and online retail.

Also, another new level of synergy between brick-and-mortar retail and online retail is achieved in the following path: customer demand→ improved reputation of service →increase of enterprise income→ enterprise development→ more investment and cost→ a new level of synergy between brick-and-mortar retail and online retail.

Meanwhile, the market share of a retail enterprise and its high quality and level of information gathering and feedback are positively correlated with the synergy between brick-and-mortar retail and online retail.

4 Architecture and Functional Modules of Commodity Information Enquiry System

For university library, a way for innovation of its service model is constructing the mobile enquiry system of commodity information and the online information platform. Library is interconnected with online shop, so its information platform can provide the transaction service. However, commodity information should be dynamically combined and integrated through gathering, processing, storage,

enquiry, transmission and application, etc., so as to make it more possible and convenient for e-commerce users to access commodity information quickly. In this way, university library can improve its shopping service and quality level, and users can have the mobile enquiry for commodity information via Ipad, Iphone, portable terminal, popular third-generation 3G mobile communication technology and wireless network.

In Reference [6], the System of Electronic Reference for Teaching in the Service of Teaching Resources for Teachers and Students constructed by Shanghai Jiao Tong University converted teaching resources into business information, and placed them into the architecture and functional modules of the Mobile Enquiry System of Commodity Information applicable to e-commerce, as shown in Figure4. and Figure5.. Also, Mobile.e-Pay mobile service network was introduced (Figure6.).

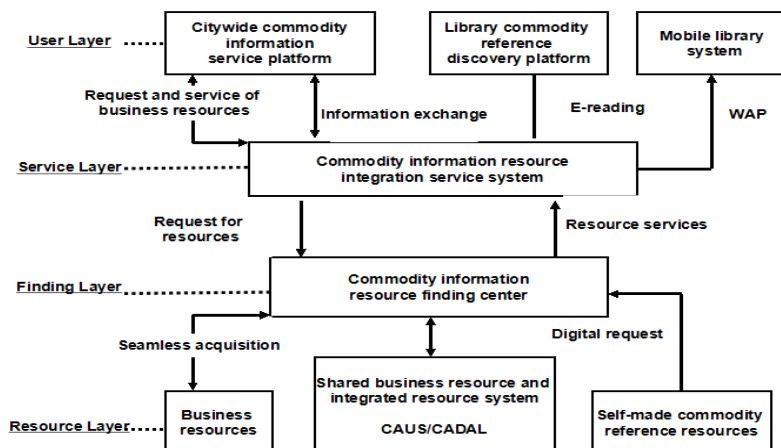


Figure4 Architecture of Mobile Enquiry System for Commodity Information

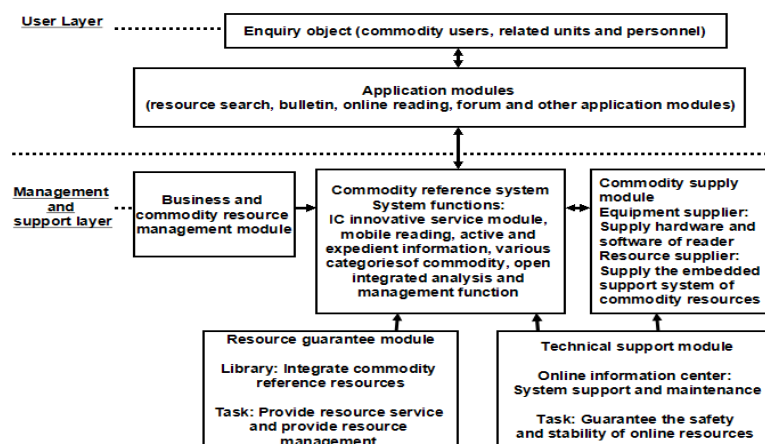


Figure 5 Main Functional Modules in Mobile Enquiry System of Commodity Information

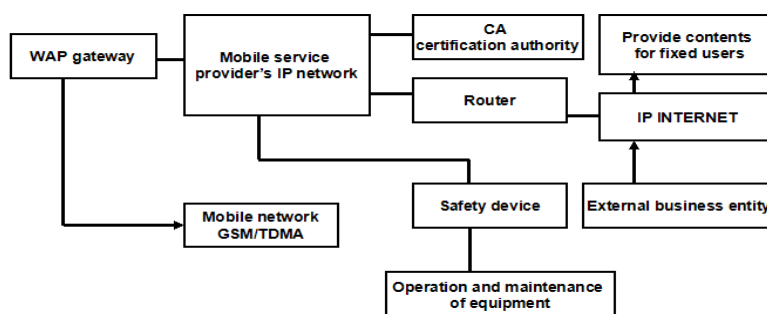


Figure 6 Structure of mobile.e-pay mobile service network

The requirements for the indexes of mobile enquiry platform of commodity information and its system

and modules are as follows:

(1) Openness and inclusiveness of platform and system: Platform and system can be opened to satisfy user’s demand for commodity enquiry and be interactive. The inclusive service function allows to contain and operate other platform and system, so as to provide the open and customized data and information “readily available” to users as well as the convenient references for commodity.

(2) Embedding of system functional modules: Functional modules of system can be embedded, so commodity information is not limited to the business information platform. By embedding modules into mobile equipment, commodity resources become “readily available” to satisfy the needs of users in the current technical environment;

(3) Conversion of fixed network into mobile terminal: The structure of Mobile.e-Pay mobile network in Figure. 6 applies the fixed network protocol to the operation, management, interview and maintenance of mobile terminal, and supports the payment function and the browsing function of mobile terminal (OA@M). Also, it supports the interaction of back-end system and the business trade can be completed via mobile phone;

(4) Scientific and active push of business information: Commodity information should be actively pushed to PC, Ipad and smart phone, so as to be “readily available” to users.

(5) Customized and convenient push of commodity information: It should not only satisfy the special needs of users and their requirements for customized services, but also guarantee the expedience and convenience of logistics and services and reduce the cost of payment;

(6) Mobilized channel of enquiry: Wireless network environment and 3G technology are employed to shatter the barrier that a library only collects fixed commodity information, stores it in the immobile database and keeps it away from reading on the commercial mobile terminals, so as to make the references of commodity “readily available anytime anywhere” and provide the commodity information more readily for users;

(7) Collaboration among commodity information departments and diversification of commodity information: Commodity information requires the collaboration among various departments (supermarket, department store, shop, commercial bureau, department of commerce, retail store and so on), so as to take into account the needs of all departments in all aspects. By integrating commodity information, it can realize the collaboration among departments and diversify the contents of commodity information.

5 Supportive Backstage for Mobile Enquiry Service---Open Access Repository Platform

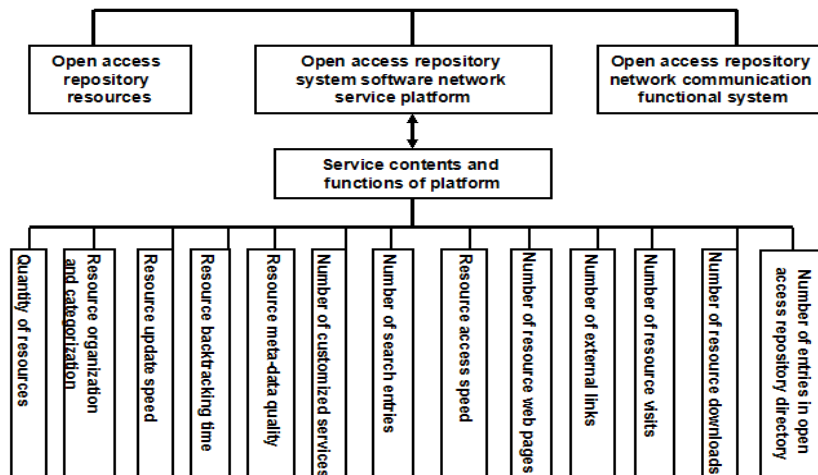


Figure 7 Open Access Repository Platform for Mobile Enquiry Service

Commodity information is an important and strategic resource of e-commerce. In the cooperation and communication between storeowner and users, it is necessary to share commodity information, which must be supported by backstage technology. Reference [7] recommended the platform with the structure as presented in Figure. 7, which can be borrowed to give the open access to business information to storeowner and uses for effective application. It should contain (1) type of access; (2)

content accessed; (3) utility of access.

5.1 Main components of open access repository platform

Open access repository platform is mainly composed of knowledge repository and institutional repository.

Knowledge repository: Knowledge repository gathers, sorts out, organizes, integrates and stores business information for long-term storage and wide application. Thus, it facilitates the sharing and utilization of information between two parties, and can be combined with the expert system of artificial intelligence, so as to intelligently obtain the commodity information. Artificial intelligence expert system refers to the book coauthored by Zhou Dixun and Zhouji whose research achievements depend on knowledge repository.

Institutional repository: The business resources stored in knowledge repository can be divided into the business resources of a business institution for open sharing, and the institutional repository can provide exclusive services for a business institution.

Knowledge repository and institutional repository can alleviate the imbalance between user's acquisition and demand of information, and satisfy user's demand for high-quality and free business information.

5.2 Functional requirements for access platform

- (1) Abundant content: Have a large quantity of stored resources;
- (2) Satisfaction: Satisfy the needs of users and realize many enquiry accesses and quick access;
- (3) Supportiveness: Have high management level and competency, quick update and short period of backtracking;
- (4) Effectiveness: Users have good attitude toward the quality of resources and the effectiveness of information acquisition is high;
- (5) Usefulness: High rate of access and application.

The evaluation indexes for open access repository platform include practicality, timeliness, value, reliability, novelty, openness, history of actual application and advancement of actual software.

Open access repository platform mainly employ the advanced software including Dspace, Eprints and Opos.

6 Conclusion

This paper analyzes the synergic effect and causal relation between brick-and-mortar retail and online retail under the network industrial chain. By consulting with the mobile reading system of electronic teaching and educational resources for teachers and students in References [6] and [7], the author improves and establishes the mobile enquiry system of commodity resources and its supportive backstage, that is, open access repository platform of commodity information. The mobile services of commodity information consist of position-based service, mobile transaction service, mobile information service and multimedia information service. These services depend on the synergy of brick-and-mortar retail and online retail, so it highlights on the requirements of each platform and system. By expand these requirements, the quality of mobile service is improved as well.

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Innovation Research of Supply and Demand System Docking of Agricultural Science and Technology Information *

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Abstract: Modern agriculture gradually evolved into “stereoscopic, established, ecological, automatic, integrated, biological, park style”, and corresponding agricultural science and technology information is also undergoing great changes from supply to demand quantity, quality, and structure. In order to effectively push docking of supply system and demand system of agricultural science and technology information, must from the system, structure, management innovation driven docking two system, must perfect relevant laws, specify institution functions, increase policy support; not only highlight the government supply main body function, but also develop in the diversification direction, combine with market and social attributes of agricultural science and technology information. It must develop standardized, institutionalized, standardized procedure, scientific management measures, planning reasonable investment, incentive, operation, feedback mechanism, and human resources.

Key words: Agricultural Science and Technology Information; Supply System; Demand System; Innovation Driven; Docking

1 Supply and Demand System and Docking of Chinese Agricultural Science and Technology Information

Agricultural science and technology information refers to the technology information of agricultural production, rural life and agricultural products processing. The demand content of the agricultural science and technology information mainly includes the agricultural science and technology information, production information, varieties, market information, rural life information, online education information, policies and regulations, etc^[1]. Taking advantage of college students' summer vacation to practice, we have carried on the questionnaire survey of the above problems. We obtain the grassroots farmers' demand information of agricultural science and technology information, at the same time, grassroots agricultural workers' relevant information of the way, usage, category, obstacles of obtaining agricultural science and technology information. The supply and demand docking of agricultural science and technology information refers to the degree of the supply meeting the demand. When supply and demand just meets each other, that is, to achieve a total supply and demand docking, otherwise it is part of the docking. To implement the supply and demand docking of agricultural science and technology information depends on three aspects. First, the quantity of docking. The supply quantity of agricultural science and technology information quantity just meets the actual demand of agricultural departments and personnel. Second, the structure of docking. The supply structure of agricultural science and technology information is corresponding to the demand of agricultural science and technology information. Third, the quality of docking. The supply quality of agricultural science and technology information are in conformity with the demand degree of the agricultural science and technology information. The supply and demand docking of agricultural science and technology information must satisfy the quantity, structure, and quality of docking at the same time. If any conditions are not satisfied, namely belongs to butt off form, it is unable to realize the effective link of supply and demand docking of agricultural science and technology information.

We use Figure 1 to represent the situation of supply and demand docking of agricultural science and technology information. When the intensity of the demand of agricultural science and technology information is bigger (D), but the intensity of the supply of agricultural science and technology information is smaller (A), supply and demand docking deviates from the docking position (G) (which means the supply and demand docking deviation). When the intensity of the demand of agricultural science and technology information is smaller (C), but the intensity of the supply of agricultural science and technology information is bigger (B), excessive supply (F) also can appear the supply and demand docking deviation (as shown in Figure 1).

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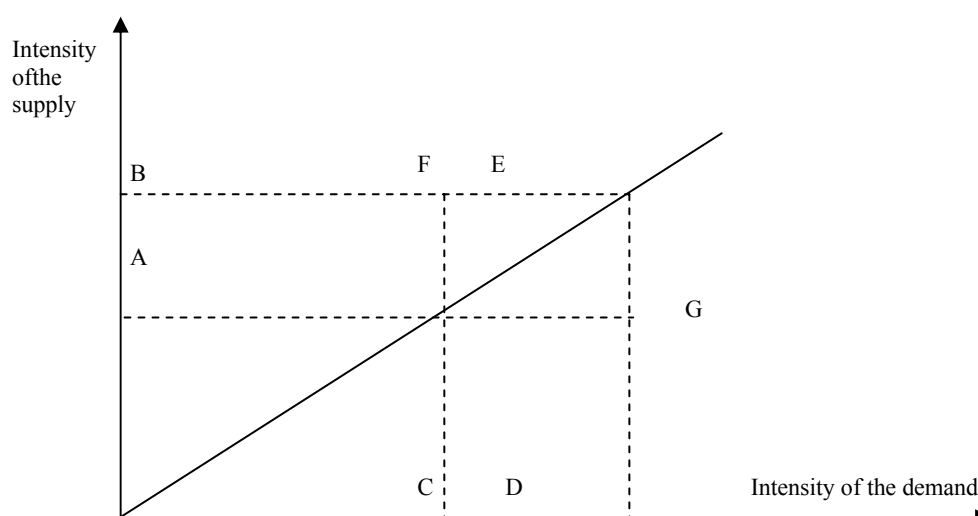


Figure 1 Supply and Demand Docking Of Agricultural Science And Technology Information

When docked conditions for agricultural science and technology information are not met, the supply and demand of agricultural science and technology information presents deviated form. That form mainly show as quantity deviation, structure deviation, and quality deviation.

Supply and demand quantity deviation is mainly less supply or oversupply, mainly for less supply. The gross supply of agricultural science and technology is affected not only by the government's fiscal system, decision-making mechanism and the internal assessment mechanism, but also by the agricultural market perfection and agriculture organization. If the government finances insufficient, inefficient benefit farming policy, coupled with agricultural market perfect degree is not high, agricultural research institutes from the practical demand, the development of agricultural organization, led to the supply cannot meet the demand of large-scale popularization of agricultural science and technology information.

Supply and demand structure deviation is the mismatch between supply and demand. The demand structure of agricultural science and technology information does not correspond to its supply structure; the actual demand of the demand side is out of the all or part of the agricultural science and technology information provided by the suppliers, the suppliers provide a large number of agricultural science and technology information most of which is not real demand sides' demand. Agricultural science and technology information supply and demand can't one-to-one correspondence is caused by the difference between supply and demand of motivation. From the perspective of supply, the government, universities and research institutes decision-making supply of agricultural science and technology information held by the government and even the central government; From the perspective of demand, the demand of the agricultural science and technology information constrained by regional characteristics, farmers, education level, arable land, crop species, production methods and local economic development level, is a diversified needs. Demand of diversified agricultural science and technology information and the supply of top-down model is asymmetric, and agricultural science and technology information lack of effective diversified demand expression mechanism, which aggravated the supply and demand in the agricultural science and technology information structure deviation.

Supply and demand structure deviation manifestations included the degree of demand and supply of agricultural science and technology information quality is not consistent, supply quality is low or high, main performance for supply quality is low, is a higher level of requirements for the supply of agricultural science and technology information. Financial investment, preferential agricultural policy, agricultural markets will affect the quality of the supply of agricultural science and technology information. And agricultural science and technology information systems, the quality of personnel may also affect quality of the supply of agricultural science and technology information. It leads to cannot achieve professional and high quality, resulting in the supply and demand of agricultural science and technology information quality deviation.

Modern agriculture is transforming from the "flat-style" to "three-dimensional" ,from the "natural

style” to “facilities-style”, from “conventional type” to “eco-style”, from “mechanical” to “automatic”, from the “one-way” to “comprehensive formula”, from “formula” to “biological type”, from “farm style” to “park-like”^[2], corresponding to the needs of agricultural science and technology information supply quantity, quality, structure also changed dramatically. In order to effectively promote the docking of supply and demand of agricultural science and technology information systems, it is must to make some innovations to drive the docking of two systems in institution, structure and management.

2 System Innovation of Supply and Demand System Docking of Chinese Agricultural Science and Technology Information

From a strategic point of view, during a given period, the country or region has to plan and decide the supply and demand docking of agricultural science and technology information, for it is a global, decisive, long-term problem. By deciding the objectives, priorities, procedures and measures of docking, we set out medium-term planning and long-term planning in the three aspects of system, structure and management. From the institutional point of view, the government management system should embody the guiding ideology and policy objectives of the supply and demand docking of agricultural science and technology information. The adopted organizational system, organizational forms and management methods should be reflected in the management methods and measures of supply and demand docking of agricultural science and technology information. Although constrained by many factors of natural resources, economy, society, science and technology, we can conduct institutional innovation by improving relevant law, defining institutional function, strengthening policy support and other aspects (as shown in Figure 2).

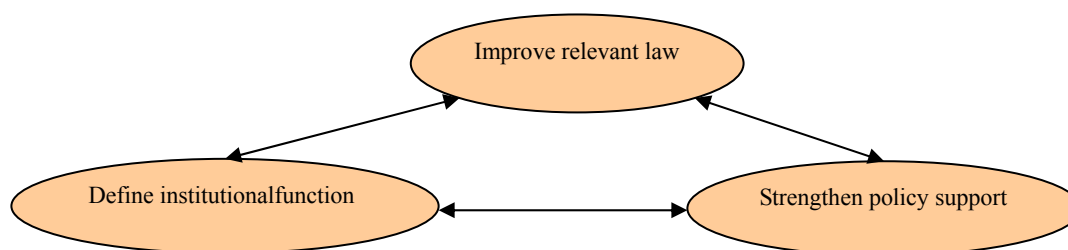


Figure 2 System Innovation of Supply and Demand System Docking of Agricultural Science and Technology Information

Foreign organization of agricultural science and technology information supply can be divided into three categories. The first is the government organization dominant: primarily directly lead by the government department of agriculture, and the agricultural sector is responsible for the organization, management and implementation, Japan, Netherlands, and Italy belong to this type. The second is the government acts as leader, universities act as organizers, conduct agricultural education, research and extension, and take response of the organization, management and implementation of agricultural science and technology information, the United States and India fall into this category. The third category is government provides subsidies, farmer association act as contractors, government provides subsidies and the land tax are fully transferred to farmer association, France and The United Kingdom belong to this type. These three types all have robust legal system and organizational systems, with high degree of standardization, normalization and systematization, high quality human resource, well-funded, content-rich supply of information, these experiences are of important significance for the supply and demand docking of Chinese agricultural science and technology information.

(1) Soundness legal guarantees the supply and demand docking of agricultural science and technology information. The deviation of the supply and demand docking of Chinese agricultural science and technology information is mainly resulted from the lack of legal basis, and mostly depended on the attitude of local government officials. Despite the enactment of the "People's Republic of China Agricultural Technology Promotion Law", relevant funding, staffing, incentives and other relevant provisions are lack of effective operability. And subject of law enforcement has not been clearly defined, therefore, there are some difficulties in law enforcement. Therefore, we should promulgate related regulations about the supply and demand docking of agricultural science and technology information according to the actual situation in the region. We should formulate specific implementation measures and supporting operational measures to make the supply and demand of agricultural science and

technology information can really dock. Therefore, we improve the legal system to promote the stable development of the supply and demand docking of agricultural science and technology information.

(2) Make clear each institution's function and promote the supply and demand docking of agricultural science and technology information. Due to its fundamentality and strategy, the supply and demand docking of agricultural science and technology information should make clear the main duty of governments at all levels. And clearly define functions of relevant government sectors. Each institution ought to be reasonably set and optimized, and the duty ranges of scientific and technological information supply and demand should be made explicit based on the idea that "public welfare is the basis and operation is properly controlled"^[3]. Government's main duty is to formulate project and plan, organize and coordinate each body to realize the supply and demand docking of agricultural science and technology information. The expenses of public welfare organizations should be paid by finance sector. Government must gradually separate from administration, production and management. It should not engage in any profitable activities and leave them to professional intermediary agencies. In this separate way, public welfare is guaranteed and agricultural scientific and technical personnel are stabilized. Make a good job of services in each process of the production. Import, demonstrate and promote practical techniques and good stocks in agriculture. Carry out knowledge training of science and technology, encourage and give aid to the technology promotion, operation management and information consultation of some economic entities. Meanwhile, the profits of organizations, which are autonomous and flexible in supply, process, transportation and sale, need to be protected.

(3) Intensification of policy support of the supply and demand docking of agricultural science and technology information. Our country needs to support and protect the foundation and weak industry which lacks equal competitive condition compared with industrial and commercial industry. The agricultural science and technology information has the characteristics of public goods, that is, the marginal cost is almost zero, so it's possible to reduce the actual agricultural production cost. From this point of view, supply and demand docking of agricultural science and technology information should apply charge free service which can benefit the whole society. Our government should support supply and demand docking of agricultural science and technology information. It should use economic leverage to promote agricultural science and technology information to serve in practical production, encourage social industries to get involved in the supply and demand docking of agricultural science and technology information under the macro policy guidance, coordinate the relationship between agriculture and its social environment, modify the cooperation among different departments and professions and intensify policy support for departments, industries, units and individuals that are involved in docking service, giving appropriate preferential to profit distribution and tax policy in order to ensure that farmers' effective practical technology can be satisfied. The smooth progress of the supply and demand docking of agricultural science and technology information needs the strengthening of the construction of legal system, strengthening of the government macroeconomic regulation and control, overall planning and comprehensive arrangement of reserve and regulation fund of supply and demand docking of agricultural science and technology information. The government should proceed macro-control in the implementation of supply and demand docking of agricultural science and technology information, use rural industry investment funds reasonably, effectively and fully, as well as mobilize and strengthen the social from all walks of life to each perform its capital, strengthening agricultural elementary education, secondary education, higher education and vocational education and investment in them so as to lay the foundation for establishing agricultural science and technology information talents.

3 Structure Innovation of Supply and Demand System Docking of Chinese Agricultural Science and Technology Information

The major objects who demand for agricultural science and technology information are households. The docking process must be shorten, which depends on the adjustment of both the demand sides and the structure of supply institutions. Steps can be simplified, we can absorb new practical information by face-to-face direct docking to reach the goal of rapid application into agricultural production. As supply side, the government administrative organs, agricultural institutions of higher learning and scientific research institutes, agricultural leading enterprises and intermediary agencies should optimize the combination. We should make a batch of rural science and technology model households, cultivate a group of farmer technology messengers closely associated with soil, develop a group of agricultural talents who have a good knowledge of technology, business and management, mobilize the innovative and aggressive farmers, making them become leaders of

agricultural science and technology information supply and demand docking and helping them firstly accept the new science and technology information in order to form a backbone team of farmer science and technology information. We should establish a level 4 united and innovative docking network among model households, village-level service organizations, rural agriculture management stations, and county and municipal level administrative organizations of agricultural science and technology, organically combining practical ability of farmer technical talents with the agricultural science and technology information providers related to government and playing docking roles of the two to make the demand of the agricultural science and technology information be sent to suppliers in the path as short as possible and at the speed as soon as possible and try to shorten and reduce the intermediate procedures^[4]. In the process of farmers' pursuit of behavioral objective, the driving force mainly comes from the requirement of economic development, science and technicalization of agricultural service, improvement of policy environment and the strengthening of external contact. Encouraging to establish all kinds of agricultural cooperative organizations and enterprise groups, developing intermediary organizations in agricultural economy and forming a multiple supply and demand docking of agricultural science and technology information are the basic requirements of rural market economy. To conform with the unbalanced conditions of regional economic development in the countryside and adapt to the needs of rural science and technology market are the important conditions of improving the efficiency of agricultural science and technology information.

The supply and demand docking of agricultural science and technology information should not only highlight the role of the government as supply main body, but also develop in the direction of diversification, combining fully market and social attribute of agricultural science and technology information. First, we should encourage and support civil organizations represented by farmer specialty technology association, the agricultural professional cooperation to serve in the supply and demand docking of agricultural science and technology information and play its connecting role which offers agricultural science and technology information and reflect the real requirements of farming practices as well to build the bridge for both the supply and demand sides. Secondly, encourage multi-functional integrated enterprise with technical services as the center to carry out supply and demand docking business of agricultural science and technology information, support some agricultural leading enterprises to establish services department to provide technical information for the whole production process of agricultural, and encourage some success agricultural science and technology experts and technicians to start their own company or establish intermediary services company as co-founders, and to become the subject of both the supply and demand sides of the agricultural science and technology information, realizing effective docking of supply and demand^[5]. Third, guide farmers to adapt to the level of the current productivity and establish self-organization to improve the organizational ecology, to develop a variety of agricultural professional cooperative organizations and professional associations of farmers. By government's promotion and market mechanisms, to promote loose or tight farmer organization, to improve the demand strength and ability to undertake agricultural science and technology information (as shown in Figure 3).

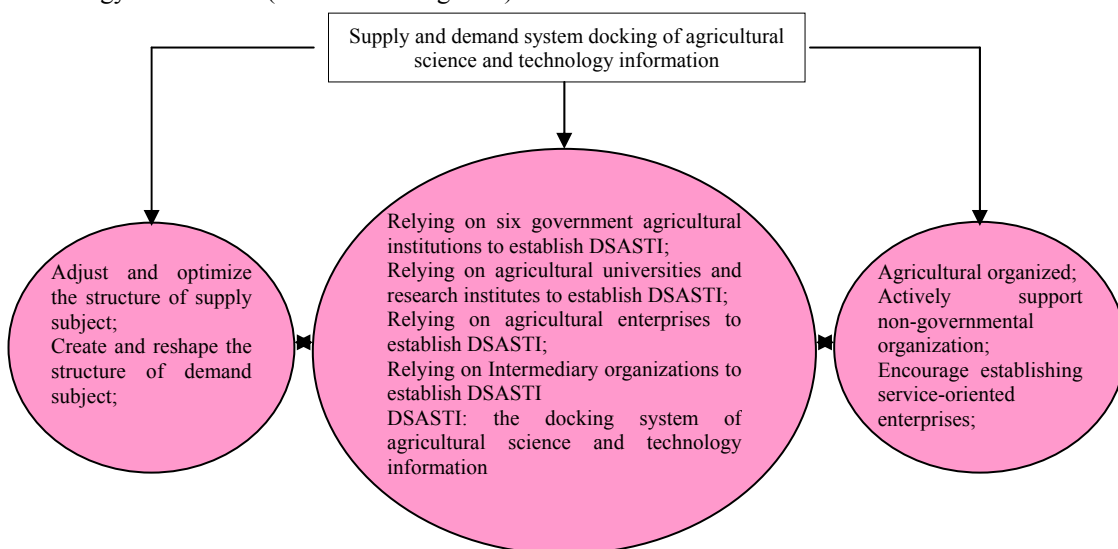


Figure 3 Structure Innovation Of Supply And Demand System Docking Of Agricultural Science And Technology Information

Relying on six agricultural government institutions to establish supply and demand docking system of agricultural science and technology information is to optimize the government's current six agricultural sectors, unify the dispersive departments of agriculture, agricultural development office, aquatic products, agricultural machinery, horticulture, animal husbandry and veterinary. Reform the institutional settings, separate administrative units and public institutions, each performs its own functions, and improve service efficiency. Ensure the demand information of agricultural science and technology are collected in time and feedback to the relevant departments, in the meantime introduce the latest scientific research achievements and timely practical techniques to agricultural producers, form the comprehensive supply and demand docking services center for agricultural science and technology information.

Depending on agricultural universities and research institutes to establish supply and demand docking system of agricultural science and technology information is to take full advantage of the favorable opportunity of the restructuring of universities and the reform of research institutes, to establish various forms of platforms integrated by agricultural, universities and scientific research institute. Use agricultural universities and agricultural research institutions to improve the cultural quality of farmers and agricultural workers, training inter-disciplinary talents both master agricultural production knowledge, technology, skills, and are familiar with the rural market development. Use this platform to graft new knowledge, new technology and new product.

Relying on leading enterprise to establish supply and demand docking system of agricultural science and technology information is to highlight the dominant position of agriculture-related enterprises. By means of its own strength and effective marketing system, to realize market-oriented integration business of agricultural production, circulation of agricultural products, agricultural science and technology research and development, agricultural management and agricultural information service. Use market leverage to guide the supply direction of agricultural innovation knowledge, and use profit mechanism to stimulate farmers to transform innovative achievements into practical productive forces, which is an effective way of supply and demand docking of agricultural science and technology information. Therefore, the government should guide agricultural research institutions into the agricultural leading enterprises, guide agricultural research institutions restructuring to be enterprises, and cultivate demonstrative enterprise of supply and demand docking of agricultural science and technology information, and promote agricultural enterprises to gradually establish modern enterprise system.

Depending on intermediary organizations to establish the supply and demand docking system of agricultural science and technology information is to organize farmers with the help of intermediary organizations, adhere to the voluntary, private, cooperative principle, improving management practices, based on the common demand-oriented of science and technology information, and dock with the supply side of agricultural science and technology information as soon as possible. Using macroeconomic policy to improve the degree of farmers' organization, absorb and use the new agricultural technology, new technology as soon as possible, and strengthen specialization and network collaboration. Rely on agricultural markets, agricultural research and development, agricultural consulting services to form a self-development supply and demand docking entities of agricultural science and technology information.

4 Management Innovation of Supply and Demand System Docking of Chinese Agricultural Science and Technology Information

Supply and demand docking of agricultural science and technology information is regulated by the provisions of the agricultural and rural economic development policies. We must develop standardized and institutionalized, routinized, scientized management measures. Aiming at a series of activities: preparation, reporting, implementation and acceptance of the supply and demand docking of agricultural science and technology information, we should plan the investment system, incentive mechanism, operation mechanism, feedback mechanisms, human resources support(as shown in Figure 4).

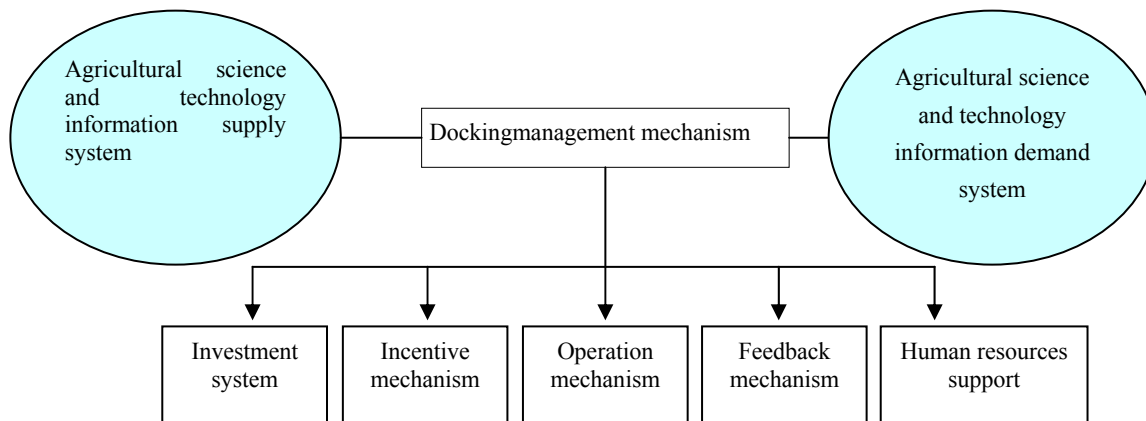


Figure 4 Management innovation of supply and demand system docking of agricultural science and technology information

(1) Establish diversification and social investment system of the supply and demand docking of agricultural science and technology information. Low investment is the main factor that affects supply and demand docking activities of agricultural science and technology information. Peasant household are in the management state of individual, scattered, small-scale, and low-efficiency. Agricultural science and technology information supply companies do not have sufficient capacity for self-development, cannot gain profit by charge information query cost from farmers. Therefore, we need to establish a multi-form, multi-channel and multi-component supply input mechanism of agricultural science and technology information. Because the supply and demand docking of agricultural science and technology information focus on obvious public interest and mainly generate social benefit, so the main source of funding on the supply and demand docking of agricultural science and technology information is government grant. Government investment is mainly concentrated in the public welfare and fundamental agricultural science and technology information supply. Carry out full budget management and financial supervision and audit system, and increase capital investment in infrastructure construction. In order to improve the efficiency of government funding, we need to strengthen the main channel of financial allocations, fully use financial, banking, business, foreign investment and individual investment funds, form a diversified investment structure, and establish the agricultural development fund and the incentive fund^[6]. Non-government investment should focus on high return on investment, the supply of scientific and technical information adjusting flexible according to market. Banks, other financial institutions and tax authorities arrange certain special purpose loan and low-interest loan for agriculture-related enterprise, intermediary and agricultural cooperative organization, aiming at supply and demand docking of agricultural science and technology information, and keep increasing investment, encourage direct investment to agricultural production and the circulation field, to increase revenue of operating service, and improve investment efficiency.

(2) Establish an effective incentive mechanism for supply and demand docking of agricultural science and technology information. Arouse the enthusiasm of related personnel of supply and demand docking process of agricultural science and technology information, form agricultural science and technology information talent market system, introduce competition mechanism, put personnel system into the orbit of the agricultural technology market mechanism, and actively promote the improvement of income and living conditions of relevant personnel. Improve the supervision and restraint mechanisms, establish distribution mechanism of coexistence of various forms, expand department internal income distribution autonomy, allow individuals to participate in secondary allocation in form of proprietary technology and intellectual work, lay emphasis on performance and contribution, and giving priority to efficiency, take count of equity simultaneously, mobilize the enthusiasm of scientific and technological personnel, implement preferential policies in aspects of wages, bonuses and housing, give priority to outstanding talents and key positions; and establish and improve job management, evaluation, resignation, dismissal and other systems, form various forms of independent and flexible allocation incentives system.

(3) Establish operational mechanisms for supply and demand docking of agricultural science and

technology information. Guide a large number of high-quality personnel to rural areas, directly contact farmers and agricultural enterprises, select a number of staff from agriculture-related government departments, universities, research institutes and other departments to the town and village taking a temporary post to guide the farmers use of agricultural science and technology information. Allow selecting personnel to carry out paid service about supply of agricultural science and technology information, and encourage becoming a shareholder by capital or technology to form interest community with professional peasant household or agricultural production, circulation and processing enterprises, form constraint mechanism that shares interests, and risk. Adhere to service connecting, typical demonstration and projects driving, cultivate strong village, important town, big peasant household, typical enterprises, family farms, agricultural science and technology area. Develop and use agricultural science and technology information, by the typical demonstration effect, strengthen horizontal cooperation and collaboration, reengineer county, town, village, and household quaternary network system, and form of communicating and connecting at all direction, multi-level and multi-functional supply and demand system of agricultural science and technology information.

(4) Establish human resource system for supply and demand docking of agricultural science and technology information. In the four factors of system, technology, human resources and investment, the change of human resources will induce changes in system, technology and investment. Therefore, the supply and demand docking of agricultural science and technology information should increase the training of the supply side and the demand, to improve the scientific and technological ability and literacy of farmers by introducing talent and improving the human resource structure of agricultural science and technology information supplying staff. The human resource system of supply and demand docking of agricultural science and technology information need to constantly update their knowledge, improve their own quality, and strengthen the training of on-the-job personnel^[7]. Broaden their knowledge by short-term training, encourage on-the-job personnel conduct correspondence, self-study examination and other academic education, combined with practical needs and in certain target to improve the level of knowledge of agricultural science and technology information related personnel, and make plans to send young talent to universities or research institutes to study related professional degree. Implement certification system of agricultural science and technology information, dismiss some unqualified personnel to ensure the basic knowledge and skills to enhance the efficiency of supply and demand docking of agricultural science and technology information. Improve the treatment of personnel of supply and demand of agricultural science and technology information, implementing the "universal allowance" system, narrowing the gap with other industries.

(5) Establish feedback mechanism for supply and demand docking of agricultural science and technology information. To change the one-way, top-down departure of supply and demand of agricultural science and technology information, and break through top-down, layer-by-layer select and decision mode of agricultural science and technology information. Strengthen the feedback of technology application at basic level, and excavate information needs desires of basic farmers and agricultural enterprises, and establish the channels and mechanisms for their meaning expression. Scientific and technological information docking deviations will not occur in the choices and decisions that are made by the full participation and common decision. Previously, the supply side of the establishment of the supply and demand docking of agricultural science and technology information was in a dominant position or a powerful position, and it was regular government-owned organization, not the user-oriented, not to mention the participation of farmers. Therefore, farmers union, rural specialized cooperative association, farmer civil organizations and other farmers organizations must play a role in the supply and demand docking of agricultural science and technology information. On the basis of fully aware that the farmers and agricultural enterprise are the main demand subjects of agricultural science and technology information, the government should transform the thinking of "work for the farmers to the working practice of "with the farmers", to change the traditional thinking radically. The low level education of farmers', the lack of market information, the backward of economic status, and the low level of technology hindered the individual farmer's pursuit of high yield and efficiency, high quality and other goals. The expressing method or channel of farmers' expressing demand is not appropriate, thus suppressing the farmers' demand desire and motivation on agricultural science and technology information. We must develop farmer "reen Certificate" project and the agricultural vocational education projects to improve farmers' agricultural science and technology level and scientific and cultural qualities, and strengthen various training. Therefore, everyone can contribute to and benefit from supply and demand docking of agricultural science and technology information.

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Research on Factors Influencing Music Products Purchase Intention Based on the Consumer's Perceived Value Framework

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Abstract: Given that music products attach with typical characteristic of subjective perception, this paper adopts consumers' perceived value framework to study on the relationship between music products inner value dimensions (influencing factors) and its purchase intention, which will provide referential meaning for its production and marketing strategy and help to achieve its market development. Based on the exploratory factor analysis and linear regression test, it finds that cognitive deviation exists in music products, factors including experienced function value, social identity value, psychic healing value, professional promotion value (the influencing effects from strong to weak) have positive influence on music products purchase intention but the perceived cost element impact on that turns out to be negative.

Key words: Music products; Consumer's perceived value; Purchase intention; Music economy

1 Introduction

Music is one kind of art expression reflecting people's feelings and thoughts, which plays a more and more significant role in people's spiritual world and real lives. With the evolution of the times, the typical way to realize the music spread and expand popularity is through music products in the currency exchange actions. Therefore, the music product has becomes music commodities with exchanging value making development in the economic and social life. Both of the fashion to embrace modern music products and the participation in the modern music cultural activities in the general public can be simplified as a kind of market behavior, in which people have to pay in economy, namely is actually a kind of economic consumption behavior. As commodities toward to the market, the production and promotion of music products must follow the rules of the market and music business and industry theories have been explored and constructed since the nineties.

However, considering the music marketing environment have changed a lot, more practical and theoretical insights are needed to enrich or promote the process of music business. Take the account of both music characteristics of sentiment experience and commodity attributes, consumer's perceived value framework is adopted to make analysis and research on factors influencing music product purchase intention of customers, following the core of the supply and demand discipline in the marketing environment.

2 Theoretical Foundations

2.1 Consumption Behaviors in Music Market

As the cultural and experiential mass carrier in the market circulation, all kinds of music products can be classified into three types: form of cultural goods, such as MP3, CD record, music journal or book, cultural relics, music cards, software and related audio equipment, instrument, etc., form of music experience respectively goods, such as music show, paid music works, on-demand music service, radio and TV channels, etc., and the form of music auxiliary goods, such as background music of shopping malls, restaurant coffee house, film or television works (Wang Yanan, 2013)^[1]. The forms of cultural goods and experience respectively goods are mainly research scope in this paper. Lacher (1989) introduced hedonic consumption paradigm into the music products and revealed music products focused on the experiential aspects with subjectively base including the sensation seeking, emotional arousal and fantasizing^[2]. Additionally, music products are not something discrete being diffused but a sociable networked entity with roles, identities, qualities and practices to produce, reproduce and consume (Gander, 2011)^[3]. Reilly et al. (2013) intended to open up the 'black box' of music market and to shed more light on the relation between music, markets and consumption, which emphasized the focal point of the exchange relationship^[4].

2.2 Consumer's Perceived Value Framework

The balance theory of gain and loss reveals that consumer's perceived value is a psychological balance index reflecting the customer perception between product performance and cost and the

empirical base has proved that customer's willingness to spend is likely to increase with the perceived value (Zeithaml, 1988)^[5]. There is multi-dimension framework in the consumer's perceived value toward the given product, which embodies the interaction of preferences and attributes, resulting in the purchase intentions (Woodruff, 1997)^[6]. A lot of empirical analysis has been conducted with the consumer's perceived value framework to seek confirmation of the relationship between consumer's perceived value and product purchasing willingness to propose suggestion for the marketing (Pi-Yun Huang, 2011)^[7]. As to the new entrant or commodity with new era characteristics, Mohd Rizaimy Shaharudin et al. (2010) have implemented an empirical analysis with genetically modified product and proved that the same significant positive correlation also exists in the relation between consumers' perceived value and consumption intention^[8], which possesses important reference significance for the customer's behavior in the music product market.

2.3 Consumer's Perceived Value in Music Market

The theory of music product used to focus on the production, diffusion and application part, the close or empirical study on the purchasing intention is ignored to some degree. Classical theory of marketing has laid a sound ground for music products production and marketing practice, but it is still a necessity to analyze the factors influencing the purchasing decision, which can propose the mechanism of the music products consumption in the customers' ground. In addition, since the music products consumption is based on the interaction and experience, this paper introduces consumer's perceived value framework for the analysis of the influencing factors in the consumption process.

3 Conceptual Framework of Music products' Perceived Value

3.1 Music Products' Perceived Value Inner Dimension Exploration

Based on the subjective characteristics of customer perceived value, combined with the background scene, there is great distinction presenting in different products in different stages of the customer perceived value dimension and the researches in view of the music of the product customer perceived value are also very limited at present. Therefore, scientific and reasonable means are utilized to develop the music product customers' perceived value scale based on the perspective of the theory of dimension and explore the music internal dimension of the customers' perceived value for further segmentation. Through in-depth interviews, this paper can get the discipline that when customers' consumption needs are not met, consumption motives will be generated, being motivated to music product consumer action that is buying music product, so as to satisfy the value of demand. According to key words in the interview, the most frequently demand motive mentioned by 16 interviewees are chosen and classified into the dimension framework combining with the original selection. Hence, there are five inner dimensions of music products consumers' perceived value including experienced function value, social identity value, psychic healing value, professional promotion value and perceived cost.

3.2 Research Hypothesis

Supported by a large number of literature, a high degree of consumers' perceptive value leads to high degree of willingness to spend propositions is a topic with well verification, and under the background of the theory of economics, the supply and demand curve reflects the value perception also increase or decrease in the probability of occurrence and buying behavior of positive or negative effect.

Experienced function value is in accordance with the essence of hedonic consumption, meaning that music products can affect the emotional experience of the audience and create the certain atmosphere in the given circumstances bringing the joyful and fantastic feeling namely optimizing people sense of well-being (Lacher, 1989; Hoyer & Stokburger-Sauer, 2012; Taylor, 2013)^[2, 9, 10], which can promote the buying decision to formulate. Therefore, the hypothesis (H1) that experienced function has positive influence on music product purchase intention is developed. Music products are not only as the individual commodities but at the level of the society group which means they will help to facilitate interaction beyond words and through the emotional sharing reactions they promote the specific group identities or images (Miell, MacDonald, & Hargreaves, 2005; Taylor, 2013)^[11, 10]. Given that the social group background, this paper develops the hypothesis (H2) that social identity value has positive influence on music product purchase intention. Based on the powerful medical evidence, the music product can stir therapeutic effects on the audience in the way of listening or activating in all kinds of musical activities (Hurt-Thaut, 2009)^[12]. Hence, the hypothesis (H3) that psychic healing value of music products has positive influence on music product purchase intention. Since the study range contains the music relatedly audio equipment and professional instruments and the role of expertise affecting the judgment of consumers (Hoyer & Stokburger-Sauer, 2012)^[9], which provides groundwork

for the hypothesis (H4) being developed that professional promotion value of music products has positive influence on music product purchase intention. Perceived cost consists of the cost of financing, energy and time spent during the whole purchasing process and sported by the base of rule in the economy and customer praxeology, this paper developed the hypothesis (H5) that perceived cost of music products has negative influence on music product purchase intention.

3.3 Observation Items and Method

Based on the music products' perceived value inner dimension exploration through the in-depth interviews, the perceived value inner dimensions consist of experienced function value, social identity value, psychic healing value, professional promotion value and perceived cost and the influencing factors are classified into these five dimensions. However, previous research is limited and maturity scale is lack of so that in this paper it is a necessity to design a scale for the variance measurement. On the basis of the dimensions with the related research foundation, a good validity of the reliability of the test items have been used in related literature and the depth interview will be adopted into the scale for the study measurement and Likert scale will be adopted for data collection.

Using econometric model as the operational theoretical model of this study, this paper applies the social science statistical software of SPSS19.0 for data and quantitative analysis to conduct exploratory factor analysis and regression analysis. Through conducting the exploratory analysis for the reliability and validity in the pre-test inspection analysis process of the measurement items, some items are deleted and the rest are recoded and the final result of the questionnaire scale.

4 Empirical Analysis

4.1 Exploratory Factor Analysis

4.1.1 Reliability Analysis

Reliability test is the scientific method to judge whether the scale tool has the consistency and stability through testing the data collection and its average difference degree. Likert scale reliability analysis usually uses Cronbach's Alpha coefficient method for the reliability test. The value range of the coefficient is from 0 to 1 and the closer to 1 indicates that the credibility of the scale is higher and when the reliability value more than or equal to 0.60 can be accepted meaning the result is reliable. The reliability test results of the questionnaire scale in this paper is shown as table 1, in which every dimension Cronbach 's Alpha coefficient are higher than 0.7, indicating that the questionnaire has high reliability.

Table 1 Questionnaire Reliability Test Result

Influencing Factor	Measurement Dimension	Cronbach's Alpha Coefficient
Consumers' Perceived Value	Experienced Function Value	0.765
	Social Identity Value	0.841
	Psychic Healing Value	0.782
	Professional Promotion Value	0.817
	Perceived Cost Factor	0.822
Purchase Intention		0.879
Questionnaire Scale		0.873

4.1.2 Validity Analysis

The reliability and validity test result of the inner dimensions of music product consumers' perceived value is shown as Table 2. The KMO value of 15 factors in the overall questionnaire scale is 0.812, the chi-square in Bartlett's sphere test is 2036.008 and the related significance probability (Sig) is less than 0.001 namely highly significant, which proves this questionnaire scale is suitable for using factor analysis method.

Table 2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.812
Bartlett's Test of Sphericity	Approx. Chi-Square	2036.008
	df	105
	Sig.	.000

Principal component factor analysis is carried out on the whole questionnaire scale, and characteristic value greater than or equal to 1 common factor number is five. As shown in the scree plot, the value of characteristic root: $\lambda_1=5.103$, $\lambda_2=1.719$, $\lambda_3=1.621$, $\lambda_4=1.363$, $\lambda_5=1.177$.

The cumulative explained variance of five common factors is 78.207%, meeting the minimum requirements of 60% (see Table 3). To take five dimensions as the questionnaire scale dimension number has high structure validity of the questionnaire. According to the inner dimension exploration, the factors coded with EXFU is named experienced function value, the factors coded with SOID is named social identity value, the factors coded with PSHE is named psychic healing value, the factors coded with PRPR is named professional promotion value and the factors coded with COST is named perceived cost factor.

Table 3 Variance Factor Loading Matrix after the Worst Orthogonal Rotation

	Rotated Component Matrix ^a				
	Component				
	1	2	3	4	5
EXFU2	.879	.101	.104	.077	.055
EXFU3	.803	.081	.133	.109	.244
EXFU1	.791	.158	.065	.210	-.022
SOID2	.128	.872	.110	.151	.148
SOID3	.102	.833	.088	.087	.159
SOID1	.161	.723	.361	.177	-.015
PSHE3	.086	.183	.885	.144	.146
PSHE1	.067	.242	.812	.163	.163
PSHE2	.149	.043	.741	.286	.087
PRPR1	.133	.188	.062	.808	-.003
PRPR2	.151	-.145	.263	.742	.145
PRPR3	.121	.275	.277	.699	.075
COST1	.026	.132	.084	.127	.877
COST3	.226	-.067	.136	-.119	.786
COST2	-.011	.210	.182	.235	.736
Characteristic Root	5.103	1.719	1.621	1.363	1.177
Variance Devoting Rates %	36.788	14.927	10.874	8.566	7.052
Cumulative Explained Variance 78.207%					

Additionally, the exploratory factor analysis of purchase intention has the result that all of the four factors with the load above 0.8, far more than the minimum requirement of 0.6, and the load factor of intersection are below 0.5, cumulative explained variance reaches 76.309%, which shows good criterion validity.

4.2 Regression Analysis

Multivariate linear regression analysis is used to establish equation, based on the analysis of its reflect the relations of variables to analyze its fitting effect should be taken before inspection. Shown as Table 4, fitting degrees of the regression model analysis namely R^2 is 0.646, the adjusted R^2 is 0.632, which indicates that there is a good fitting degree and the predictors can explain 63.2% variance in the purchase intention. The change of F is 217.022 and Sig. F Change is approximately 0, which implies that there are linear relationship between every factor and purchase intention respectively. In addition, the test value of Durbin-Watson is 2.33 indicating residual value is independent of each other.

Table 4 Effect Parameters of the Regression Model

Model Summary ^b							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		Durbin-Watson
					F Change	Sig. F Change	
1	.783 ^a	0.646	0.632	0.90104	217.0222	0	2.033

a. Predictors: (Constant), Experienced-Function, Social-Identity, Psychic-Healing, Professional-Promotion, Perceived-Cost

b. Dependent Variable: Purchase Intention

The standard regression equation in the regression is as:

$$\text{Purchase Intention} = 1.845 + 0.278 * \text{Experienced Function Value} + 0.256 * \text{Social Identity}$$

Value+0.210*Psychic Healing Value+0.186*Professional Promotion Value-0.193*Perceived Cost

5 Conclusions

According to the regression coefficients, all of the five hypotheses are tested to be valid meaning that experienced function value, social identity value, psychic healing value and professional promotion value have positive influence on the music products purchase intention respectively and perceived cost has negative influence on the music product purchase intention. The effect order from strong to weak is experienced function value, social identity value, psychic healing value, perceived cost, professional promotion value. These findings are in good accordance with the classical music marketing theory especially the hedonic consumption and the facilitation in the social network interaction. Combined with the consumers' perceived value factors influencing the buying decision, the production, marketing and reproduction strategy can be design to meet the consumers' deep requirement.

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Preliminary Works of Art Marketing Model under the Theory of 4V

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Abstract: In recent years, the development of the art market is in full swing, with the advent of the era of experience economy, the art of marketing innovation also appears more and more important. Art has the unique value of creative, aesthetic and spiritual and the essence of marketing fits theory 4v. Reference the four elements of literature and art that Meyer Howard Abrams "the Mirror and Light" put forward proposed more in line with the four elements in the art marketing: the art, the universe, artists and consumers. On this basis, through the analysis of the art market environment generalized interpretation of art value, then linked to the concept of combination of marketing theory 4v, art marketing model is constructed, and combined with the model of art marketing implementation approaches in brief in this paper.

Key words: 4v; Artworks Marketing; Artists; Consumers; Culture Enterprises

1 Introduction

With the development of the times, people are no longer satisfied with the simple needs of material and tend to a higher level of culture, for example, art, etc. Art market is in full swing and it becomes a new field of investment that a lot of money was poured into the art market works of art. It is the inevitable outcome of the art market that the combination of art and marketing, the current pattern of art market marketing is: auction for the high-end market, galleries, art exhibition and trade fair in the end, to antique collection for low-end market.

Both rely on the traditional marketing platform, and the modern virtual network way, more concentrated on the study of the art marketing ways and strategies in the context of marketing, communication, etc.

Art marketing not only follow the general property market circulation of commodities, but also has a unique aesthetic features, and its unique aesthetic is the essential difference among other commodities. There are two tendencies existing in the current research status: its marketability and aesthetic in art marketing equivalent of or too much emphasis on its commodity attribute. The unique aesthetic should be as the cornerstone in the art marketing research, rather than using the method of marketing, market demand for the creation of art.

2 The Meaning and Purpose of Art Marketing

Art generally refers to the model of art works, including ink painting, oil painting, calligraphy, porcelain, etc. Art marketing refers to the marketing theory which is on the basis of special methods and techniques, for the analysis of art market profile and the selection of target market, marketing and strategy, marketing, effective control of all activities. In a sense, the decisive factor in art price is not just the value and number of work of art itself, but the attention that art can attract in. Art marketing general through traditional media, shops, conference and exhibition, individual sales and auctions to launch and possess the market. With increasingly fierce competition in the art market, companies promote enterprise concept and product characteristic by designing systems. The meaning of art lies in maximizes the realization of art value, to meet the diverse needs of consumers, maintain the healthy sustainable development of enterprises.

3 The Overview of 4V Marketing Theory

4V marketing theory was put forward in the early new century. 4V marketing theory is known as marketing model in the new economic era.

4V means the mix theory of "Variation (differentiation)", "Versatility (functional)", "Value (added value)", and "Vibration (resonance) of the marketing. It emphasizes the differentiation that the customer requirements and the enterprise to provide the diversification of the function of the goods, by providing high value-added in order to make customers and enterprises to achieve resonance (See Table 1).

Table 1 4V Marketing Elements and Interpretation

4V	Variation	differential	Constant innovation to keep the uniqueness of their product or service
	Versatility	functional	By “single-function multi-function - full function” in the direction of development, functional flexibility
	Value	Value added	Remove the function of the product itself unexpected additional value culture, spirit, etc
	Vibration	resonance	Provide consumers with satisfies its maximum value innovation

4V theory is the sublimation of 4P, 4C, 4R theory, which is under the new era background and in-depth consumer demand. 4P (Product, Promotion channels, Price, Promotion) mixed marketing was put forward since the late 1950s by Jerome McCarthy and has been regarded as the classic marketing theory. In the 1980s Lauteborn put forward 4C theory (Consumer, Cost, Communication, and Convenience) which is aiming at the existing problem of 4p marketing In the 1990s, a famous American scholar Don. E. Schltz follows the development of marketing practices proposed 4R theory (Relevancy, Reaction, Relation, and Reward).

4P, 4C, 4R, 4V have their own advantages, each focus. Overall, 4P can be seen as a result of commodity marketing, 4C can be seen as an object of study on the market, 4R can be seen as the maintenance of market relations, and 4V embodies the core values of the art of marketing. Western marketing strategy experiences from "product center" to the "customer center".

The change from a "product" to the "customers" is more emphasis on customer interests, to consider whether products meet the needs of the customers. The transition from "the price" to "cost", is the cost more to consider customers, rather than the enterprise's profit target. From "distribution channel" to "convenient", consider more customers to buy goods, reduce circulation costs and benefits to customers. The change from a "promotion" to "communication" is more emphasis on interactive communication with customers, rather than a one-way information output of the enterprise. 4V theory is based on the traditional 4P, 4C, 4R marketing theory; pay more attention to diversity, experience and creativity.

4 Building Art Marketing Model under the 4V Theory

There are many similarities between Art production activity itself and 4v theory fits the essence of art aesthetic and the universal law of marketability and it is a feasible attempt that using the theories of 4V art marketing attempts to establish the new model.

In 20th century, the theorist of American literature and art Abrams made his famous four elements of literary theory in his book “The Mirror and the Lamp”: Art Work, Universe, Artist, and Audience. (See Figure 1)

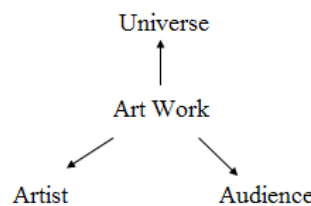


Figure 1 “The Mirror and Light” in the Four Elements and the Relationship Between Literature and Art

The relationship of the four elements can form a triangle. The artwork creation and evaluation also follow this logic and relationships, on the basis of the evolution of marketing for conforms to the art of four key elements and their relations: works of art, the world, artist and consumer.

In the art market, and external factors associated with the world of art can be narrowly defined as the art market in another subject, namely cultural enterprises, both an art market in the body, but also the spread of mediator artwork. Therefore, based on the analysis of the art market, the elements of environment contain art, cultural enterprise, artist and consumer. Combined with 4V marketing theory, art marketing should be based on the value of art embodied 4V combination as the core, through the study of consumer demand. 4C, by cultural enterprises and other market players’ deal with the relationship 4R, which showing itself to reflect the product and consumers design result value 4P. (See Figure 2)

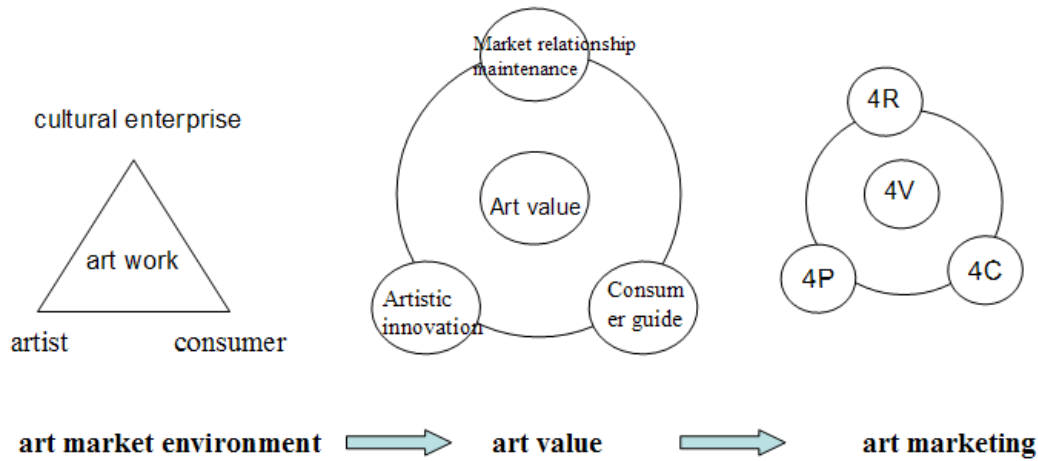


Figure 2 From the Art Market Environment to the Art of Marketing

5 Art Marketing Approach under the Guidance of 4V Theory

There are deeper cultural core values in Art in the cultural market in addition to the high profit target. Combined with elements of 4V marketing theory, the author draws art marketing approach as shown below. (See Figure 3)

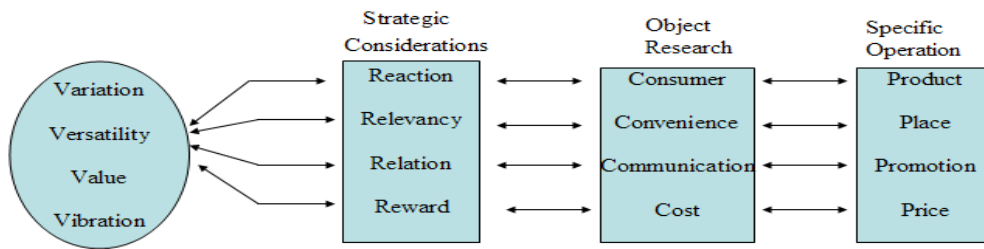


Figure 3 Art Marketing Approach

1) Reaction ↔ Consumer ↔ Product: Art market must pay attention to the rapid response to the market and the changes of consumer demand. Consumers' aesthetic habits and aesthetic level changing along with the development of the era, such as the traditional ink painting gradually left out, the new ink has the spirit of the times, abstract paintings have become the new darling of young consumers.

2) Relevancy ↔ Convenience ↔ Place: Art absolutely need certain channels or bridge among consumers. In addition to the traditional channels, in the new economic era, the network has become a major platform that businesses compete. As the major auction companies in the online auction conducted, as well as in the days of cat art trading platform.

3) Relation ↔ Communication ↔ Promotion: Cultural enterprises must be good at using various sales platform to promote their own ideas and heritage, and establish good interaction with customers and gain aesthetic and emotional resonance.

4) Reward ↔ Cost ↔ Price: Cultural enterprises should not only aim at profiting, but also from the perspective of consumers' interests and the cultural market benign development, build a good market environment for the industry and create good art market ecosystem.

6 Conclusion

This article combines the classic theory of 4V and art marketing and construct the model of art marketing through the analysis of the art market environment and generalized interpretation of art value and briefly described the art of marketing combined with the model to achieve pathway, it is of great significance to making the aesthetic of art as essential attributes and the guidance on the art market macro healthy development.

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Optimization of Automobile Reverse Logistics System Based on the Internet of Things*

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Abstract: With the rapid development of the global economy, people's living standards continue to be improved, which makes automobile consumption demand increase continuously. However, a large number of sales will lead to many scrap automobiles. Faced with the serious problem, the reverse logistic in the automobile industry arises at the historic moment. But now the existing system of scrap automobile reverse logistics is still in a relatively primary stage and has not yet formed a comparatively perfect system, which has many disadvantages such as not harmonious mechanism, not unobstructed information, low efficiency and high cost. To sum up, the optimization study of reverse logistics system is imperative.

This paper researches the optimization of automobile reverse logistics system based on the Internet of things by choosing the Internet of things as the introduction to technology, holding the scrapped automobiles as the research object, and citing the reverse logistics system as the research content. Thus solving the uncertainty and complexity effectively and eliminating the information barriers in the automobile reverse logistics and improving the efficiency of the automobile reverse logistics and reducing operating costs.

Key words: The Internet of things; Reverse logistics; Automobiles; System optimization

1 Introduction

With the progress of science and technology and improvement of people's living standard, car is becoming more and more popular. At the same time, the increasing upgrading of automobile products makes the quantity of scrapped automobiles increase year by year. In order to make the resources get the reasonable and effective application of scrapped automobiles, it is very important to establish a reasonable and effective scrap automobile reverse logistics optimization system. The Internet of things is a network through the laser scanner information sensing device such as the radio frequency identification (RFID), infrared sensors, global positioning system (GPS), which connects any item with the Internet and proceeds information exchange and communication according to the contract agreement, realizing intelligent identification, location, tracking and monitoring and management^[1]. Its architecture can be divided into three levels^[2]. The bottom is used to aware of data layer and the second layer is the data transmission network layer and the top is the content of the application layer. With the changing of logistics technology, as one of the focus on the development of new industry in China the Internet of things shown by diversified terminals, comprehensive perception, network transmission, safety of processing, the application of intelligent characteristics, realizes non-contact processing in the reverse logistics system of collecting, sorting, inspection, rework process implementation, and achieve information sharing through the network, which has good effects on solving the problems that the reverse logistics system operation mechanism is not in coordination, information is not unobstructed, the efficiency is low, the cost is too high, so as to achieve efficient management of scrap automobile reverse logistics supply chain system^[3]. Therefore, the article will research the scrapped automobile reverse logistics system optimization based on the Internet of things, bringing the reverse logistics of scrapped automobiles to high efficiency and low cost.

2 Literature Review

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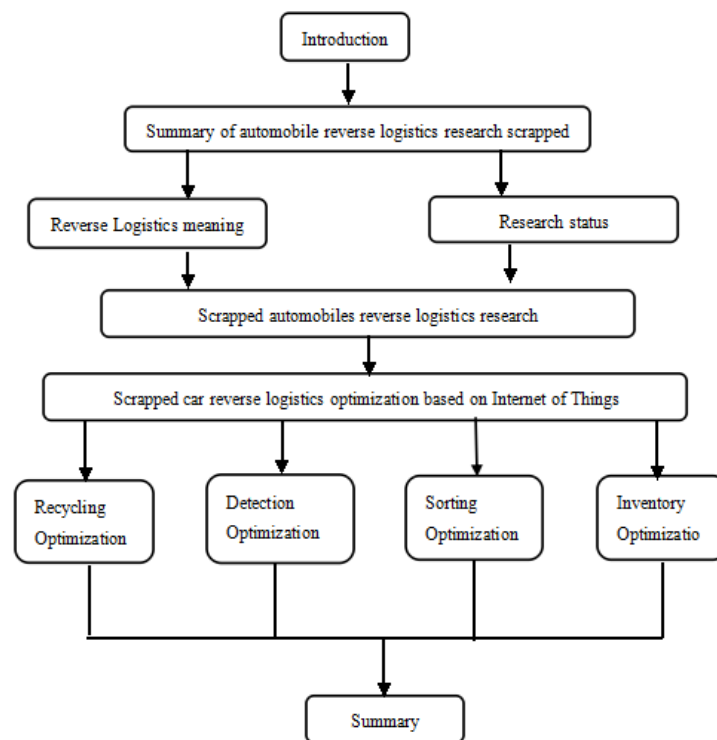


Figure 1 Framework of This Dissertation

3 Relative Study Scrapped Automobiles Reverse Logistics

3.1 Research status of reverse logistics in foreign

Reverse logistics can be achieved scrap and recycling of automobile, which is the important part of car circular economy. In the early days, many developed countries had begun the study of automobile reverse logistics, and up to now, it has gradually formed a reverse logistics network, including network planning, reverse stock and recycling production planning and control. For example: The United States as the world's largest auto producer and consumer countries, from late last century emphasis on recycling scrap cars, has become one of the world's automobile recycling fruitful country. General Motors, Ford, DaimlerChrysler and other auto companies are actively to join the ranks of auto recycling, and the recycling rates per vehicle parts up to 80%. In Germany, Recycling of materials and automotive spare parts have reached Reuse rate of 85% and the recovery rate of 80%. Mercedes-Benz from 1992 to recycle old cars. Removing the manufacturing process decomposition in reverse, engine, metal frames, plastic, wire, and other rare metals are categorized stacked together; intact parts were sent to an auto repair shop use as a spare, and the rest as a recycled material is regenerated^[4]. In Japan, the use of automobiles reached almost 100% in number by legal constraints and policy guidance. The most representative of Toyota Company, who cooperates with relevant enterprises, attaches great importance to improve the possibility of re-use from vehicle development to disposal at various stages^[5].

3.2 The development of automobile reverse logistics in China

Domestic automobile reverse logistics of a late start, most research is consistent with foreign, mainly staying in basic concepts, network optimization design, inventory control, recovery mode and so on, but did not form a relatively complete system. On the demand forecast, Wang Lihua (2005) put forward regional logistics demand analysis and demand analysis index system overall size distribution prediction method^[6], Rui Weina (2006) and others to build the model provides a fuzzy logic inference system recovery levels for older products (recovered amount and recovery time) effective method^[7]; In the Inventory control, Da Qingli and Huang Zuxing (2005) investigated the seller to return the product optimal control model, Yang Jie and others (2006) were based on inventory control theory, a continuous inventory control model, Li Xinjun and Da Qingli (2006) were extended with classical EOQ model and established waste treatment (M, 1) (1, R) EOQ model; In terms of mode of operation, Fan Jianghua (2004) studied the factors to implement reverse logistics and divided reverse logistics operation mode into four categories: Self Reverse Logistics Model, Social welfare agencies responsible for Reverse

Logistics Model, Company jointly established Reverse Logistics Model and Reverse logistics outsourcing model^[8].

4 The Current Research Status of Scrap Automobile Reverse Logistics

Automobile manufacturing industry has the characteristics of different from forward logistics, which has more complexity and uncertainty, and there exists a tardy and the characteristics of the high cost. It's mainly shown in the following aspects. Firstly, the information dependence of automobile reverse logistics is very strong. As a result of information acquisition for the recycling car types, sources and damage degree plays a very important role in remanufacturing and reusing for automobiles, so It's very important for the automobile reverse logistics to the acquire and excavate information. Secondly, the diversity of automobile reverse logistics has a variety main body. Automobile reverse logistics is not only involves the supplier of scrapped automobiles but also involves the consumer from the car to the retailers, dealers and manufacturers, who have mastered the information of a certain degree of scrapped automobiles. Thirdly, the reverse logistics information has a long tracking span. In the whole cycle of car use, any point may be the beginning of recovery time, so it's another key point of reverse logistics success to realize the information sharing between automobile reverse logistics service provider and can automobiles owners. Automobiles reverse logistics are as below figure 2:

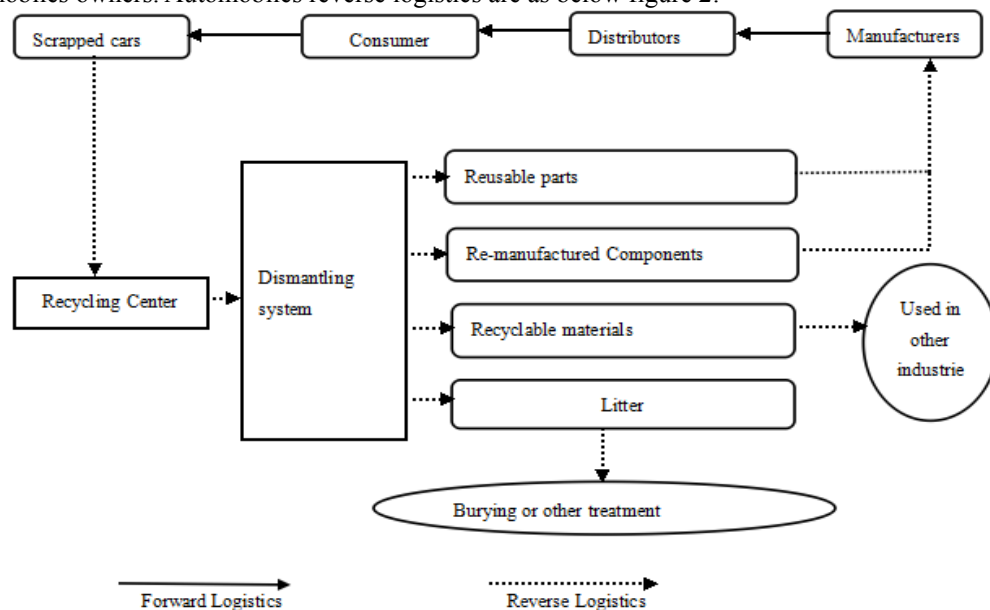


Figure 2 Reverse Logistics Flow Chart

5 The Specific Optimization Measures

Current logistics can be divided into forward logistics and reverse logistics. reverse logistics have information dependence, subject diversity, information tracking span, information updates and maintenance difficulties and other characteristics, so its operation is more difficult than forward logistics. These features make the traditional technologies simply can't adapt. However, Internet of Things technology has met reverse logistics requirements based on its features of identified, perception, processing and information transfer, and has ability to cope with the development of reverse logistics problems, but also for improving the overall service level of logistics created the basic conditions.

Optimization of automobile reverse logistics system based on the Internet of things is on the basis of the existing reverse logistics, combined the technology of Internet of things system, will reform the operating system of reverse logistics intelligently, will record logistics information and resource information intelligently involved in reverse logistics through perception, and on this basis to achieve full integration of reverse logistics system optimization^[9]. Due to the long life cycle of the car, which can be extended to the forward logistics, the specific measures are as follows:

At the beginning of the manufacturing, Car related components is identified, so car information throughout the process can be reserved. Until the car scrap recycling, the reading device can be used to obtain information on these properties, and on this basis, completing the reverse logistics in the process

of recovery, testing, sorting, inventory and other aspects of the data collection automation. So as to ensure the process works smoothly, improve operational efficiency, and realize information sharing. Specific process shown in Figure 3:

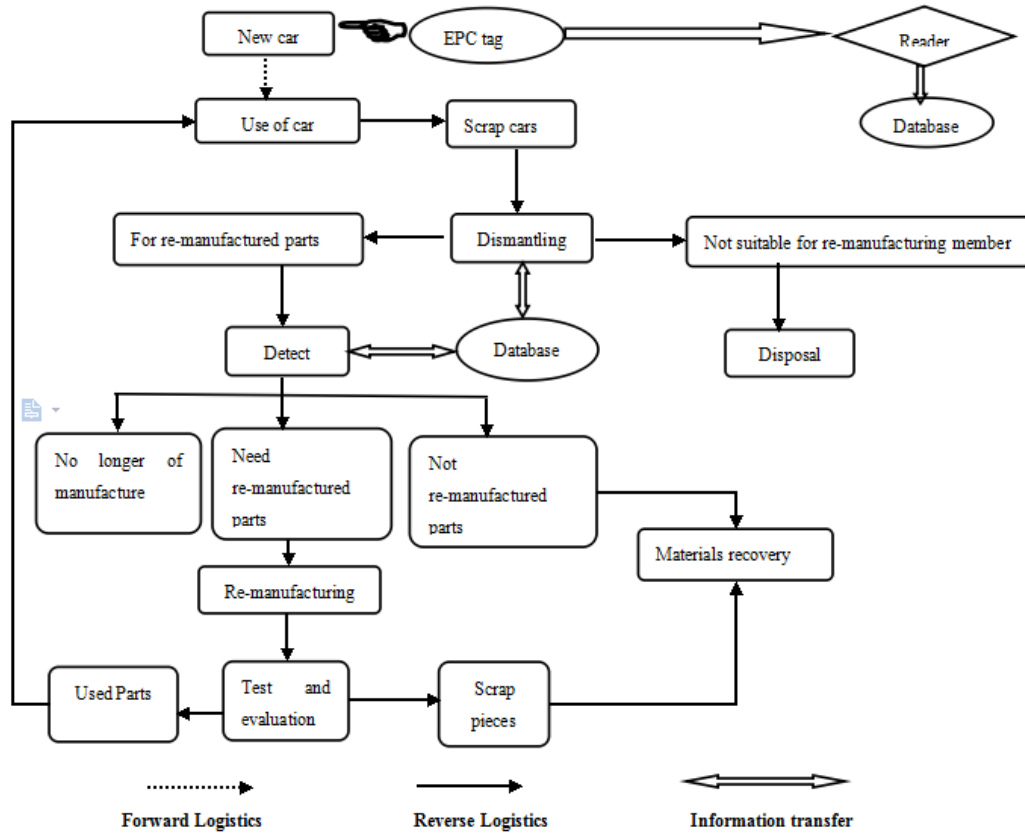


Figure 3 Automotive Reverse Logistics Systems Based on Things

5.1 The optimization of the recycling process

Long cycle car makes uncertainties scrap cars more than other reverse logistics, resulting in recycling difficult and inefficient. Internet of things technology uses in the production car in the process, namely the relevant EPC code embedded in its main components. That is the car networking, Auto repair replacement parts in the process of car use information kept by the maintenance department record and input into the database. Thus when the car is recycled, collection points and other relevant departments will be able to scrap car factory attribute information through EPC-encoded query and track the use of scrap auto parts full information. Thus scrapped cars can be classified automatically based on certain preliminary classification criteria, for example, according to age, species and other classified manufacturer; At the same time, no recovery value items can be early identified, saving on unnecessary waste transportation costs.

5.2 The optimization of the parts of the sorting process

Scrapped auto parts automobile recycling sorting process is an important part, is a next step after the dismantling of car parts, by sorting components are divided into suitable for re-manufacturing parts and not suitable for remanufactured parts. Traditional sorting process is more complicated and requires a lot of manpower, material and financial resources, the use of intelligent Internet of Things technology enables the sorting operation scrap auto parts: After parts to disassemble and clean, first experienced workers visually eliminate obvious defects and excessive deformation of the parts, then sorting department set up EPC tag reader to read parts, accessing to parts of the model, materials, work environment, working conditions, use the repair information, through which information and certain criteria parts are divided into no longer manufacture of parts, the manufacture of parts and need no longer be manufactured in several pieces, then use a conveyor belt parts sent to the appropriate next step.

5.3 The optimization of parts detection process

When before the demolition or removal to the quality of automotive components tested to determine whether the parts can be recycled or re-manufacturing, which is the traditional life vehicle recycling when necessary step; However, since the detection tool to select the detection method used improperly or incorrectly components is likely to cause secondary damage and the waste of resources; in addition, unnecessary testing will occur sometimes. In the inspection department also set the reader to read parts of EPC labels, direct access to repair damaged parts of all kinds of information, can save the use of non-destructive testing method or apparatus for the detection of defective parts, to avoid secondary damage and improve zero utilization components.

5.4 The optimization of spare parts inventory

In actual junk car reverse logistics, since the number of repossessions and reuse of parts will have great uncertainty, the inventory is an indispensable part in the supply chain and logistics. Traditional inventory management is not always the best, use of Internet of Things technology for scrapped cars can accurately locate the position, and thus the number of cars scrapped each region to estimate, a reasonable set of used spare parts storage center, can effectively resolve the zero logistics and parts distribution problems. Further, FRID radio frequency identification technology as the foundation, with the Internet of Things of software systems and hardware devices, automated inventory management for auto parts, and can improve the efficiency of inbound and outbound data updating and processing libraries.

6 Conclusion

With the progress of science and technology and people's living standards improved, more and more people to pursue high quality of life, which accelerates replacement rate to the car. In order to alleviate the harm to the environment by scrapped automobiles, the reverse logistics arises at the historic moment. However, China's current scrap cars reverse logistics has not yet formed a relatively complete system, optimizing scrap cars reverse logistics system is imminent.

This paper analyzes the main characteristics and development status scrap automobile reverse logistics and Internet of Things, and then discuss the specific optimization of things based on reverse logistics system scrapped automobiles from auto parts recycling, testing, sorting, and optimize these areas measures. Innovation of this paper is as follows:

Firstly, Internet of Things is extended to the forward logistics in order to achieve information sharing. Secondly, Internet of things will apply to sorting, inspection, inventory location and other recycling processes, which can avoid secondary damage and improve zero utilization components, thus optimizing the traditional recovery process.

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Concerning Government Positive Role in the Development of the Gen Space

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Abstract: This paper mainly discuss is the development of the "positive as the link between the space and the Chinese government. It puts forward the space is comply with the public entrepreneurship network times, and all the new trend of innovation, using the Internet to a wide range of integrated innovation of thinking innovation service resources, the existing innovation service system to improve and improve. It thinks that "The space" contains the service main body, content, carrier and so on three aspects. The gen space should give full play to the decisive role of market resources allocation, should also actively as the government level. It concluded that the Chinese government's functions should be changed to build the good environment for the development of the space. It includes the thread resources integration, and to strengthen the gen space classification guidance, increasing financial investment, extensive media publicity, widespread entrepreneurial culture.

Key words: Development; The gen space; Government; Positive role

On January 28, 2015, the state council executive meeting of China to determine the policies and measures to support the development of the "space, build a new platform for entrepreneurial innovation. On March 5, China's prime minister Li Keqiang pointed out in the government work report in 2015, to build the public entrepreneurship, innovation and increasing public products and public service "twin-engine", promote the development of speed is not because of better quality, quantity, realize the Chinese economy to increase quality upgrade. On March 11, issued by the general office of the state council "about the development of the business and promote the innovation in the public space of the guidance", puts forward the focus of eight aspects, promote the entrepreneurship, peoples innovation comprehensive deployment. According to the voice of China "epicenter wide news" report, in the aspect of the job, this year the national employment for network will be more than ten million people, is one of the most important areas of public entrepreneurship, peoples innovation. Popular entrepreneurship and innovation strategy is put forward, with the new trend, new requirements of economic and social development, shows that its "a lot of social problems also has strong rational" can be cured(Yu keping,2000)^[1]. It to adapt to the new technology revolution and industrial revolution of the world's new situation, to lead the economic development of the new normal, release and arouse folk entrepreneurial creativity and innovation in the whole society to build innovative entrepreneurial culture has important practical significance.

1 Introduction

Understanding and the understanding of all the space .At present, for the space, there is no unified in China, clear definition. Tsinghua university relevant scholars in 2014 produced a similar GIS (group innovation space) theory, defines the GIS as is characterized by loose groups to participate in the activities of innovation, to provide from idea to achieve the required materials, equipment and facilities and have the social function of physical space. Under the state council general office on the development of the guidance of the business and promote the innovation in the public space "will be the space expression for the low cost, convenience, total factor, open new innovation service platform. Ministry of science and technology put forward the "four modernizations" and space (i.e., marketization, specialization, integration and network), and "series" (that is, innovation and entrepreneurship, as well as the combination of online and offline, hatch and investment), "four space" (that is, the working space, the network space, social space, resources sharing space).

Reference of related theory research results, according to the national related documents of China, you can see, the space is different from the traditional incubator, university of science and technology park innovation such as business services, professional institution and training guidance, investment and financing, is to keep up with the new Internet age masses entrepreneurship, peoples innovation trend, using the Internet to a wide range of integrated innovation of thinking innovation service resources, the existing service system to improve and promote innovative undertaking and is the innovation of the traditional business service

agencies “upgrade”, its core characteristics is open, the exchange and sharing, is put forward by China's prime minister Li Keqiang, in his government work report “Internet +” strategy. “Freedom as the final goal, and finally the individual for the social entity”(Milton Friedman, 1988) [2]. From the literal meaning analysis, “the space” contains the service main body, content, carrier and so on three elements, namely: “all” is the main body: face all innovative entrepreneurial teams and individuals to provide services, promote innovation entrepreneurship from the elites to the masses, to promote all kinds of creative main body participation, mutual help, through all kinds of subjects, resources “aggregation” produce “fusion” effect. “A” is the content: provide service for all the innovative entrepreneurial activity, both service business, service innovation, trying to form innovation to stimulate entrepreneurship, entrepreneurship leading the innovation of the benign interaction, promote the coordinated development of innovative undertaking. “Space” is the carrier of: both in the workplace, operation sites, such as physical space, including resources docking platform based on Internet, study and communication platform, collaborative work platform, the virtual space of network community. The virtual space is an extension of the physical space, in a sense is more important than physical space.

2 An Example

There are “five kinds of ability of the gen space”. One is the entrepreneurial capacity. Entrepreneurial capacity refers to undertake innovative entrepreneurial teams, individuals, in space, facilities, equipment, etc, for the team, the individual’s ability to provide hardware support to carry out the innovative entrepreneurial activity, is the gen space should have the basic ability. Innovative entrepreneurial activity needs both outer soft environment support such as market, policy, service, also cannot leave the working space, the operation sites, common instruments and equipment and other hardware support. The space have a certain entrepreneurial capacity, is all the more conditions to provide support for innovative entrepreneurial activity, can better realize “nesting on a”. Create entrepreneurial capacity, need to pay attention to revitalize the stock resources, reasonable layout of the venue, facilities, equipment, and constantly adapt to innovative entrepreneurial teams and individual demand for hardware service.

The second is the support service ability. Support services ability both in the basis of the property and business service ability, also including the industrial and commercial registration agents, agent of financial accounting, tax returns, intellectual property rights to apply for the auxiliary services of ability, is the ability of the gen space should actively expand. Innovative entrepreneurial teams and individual demand has the characteristics of individuality, diversity and differentiation, but the universal demand for basic services, auxiliary service urgently. The gen space support capability, and can effectively solve the trouble back at home of innovative entrepreneurial teams, personal, let them into creative work. Build support service ability, need to have a thorough understanding of innovative entrepreneurial teams and individual needs, in such aspects as basic services and ancillary services in human, material and financial resources and realizing a complete coverage of support services, no dead Angle.

The third is the ability of organization. Activity organization ability refers to innovative entrepreneurial teams, personal organization to carry out all kinds of internal communication activities, build communication platform, lead team develop extensive exchanges and cooperation, personal ability, is the gen space should improve its ability. Innovation entrepreneurship is a difficult process, is also a lonely search process, need more community support, the gen space activities has certain ability of organization, will be a group of similar age, similar goals and aspirations of the same together, innovative entrepreneurs build up play each other, inspire each other, encourage each other “community” innovative entrepreneurial atmosphere. Ability of organization, building activities with strong charisma and cohesion, is good at using new media platform, guide the innovative entrepreneurial teams, personal work closely, collaborative innovation.

The fourth is the resource integration ability. Refers to across regions, regional resource integration ability, extensive use training guidance, investment and financing, such as external innovation service resources, to provide innovative entrepreneurial teams and individual total factor the ability of integrated services, is the core of the gen space should have ability. Innovative entrepreneurial activity dependence on external service resource support, in today's degree according to market rules constantly improves, resources has break through geographical restrictions, present the distinct features of liquidity. The gen space resource integration capability, and is able to allocate resources in a wider organization, for the innovative entrepreneurial teams, personal “go”. Makes the resources integration ability, it is necessary to firmly establish a “not for all, but for the” concept, is good at using the Internet, such as thinking, strengthen the innovation of the integration of innovation service resource configuration.

Fifth, radiation ability. Radiation impetus ability is to point to in promoting scientific and technological innovation, promote industrial development and cultivate the innovation culture of the area surrounding the demonstration drive ability, is the gen space should focus on enhancing the ability. At present, as the Internet, mobile Internet, cloud computing, big data, etc. The development and popularization of technology, innovative entrepreneurial threshold is reduced, the space as the cradle of the innovative undertaking, is becoming a emerging enterprises, technology, industry, business model, and the birthplace of the culture of innovation and the radiation source. The radiating and driving ability to create, it is necessary to accurately grasp the trend of new technology revolution and industry revolution, vigorously the introduction of technology, the original pattern, strengthen the interaction of technology innovation and business model innovation, cultivate a geek, a guest, such as innovative culture, in technology innovation, business model innovation and culture innovation always ahead, fast people a beat.

3 Data, Problems and Methodology

3.1 Data

At present, the professional development and space has just beginning. Such as the jade chamber of commerce, Peking University of China on the use of university or alumni resources, focus on providing the tutoring business entrepreneurship training, 36 kr, entrepreneurs, such as focus took advantage of the media, to provide online and offline services for innovative entrepreneurs, garage coffee, innovation works, angel sinks, dedicated to provide innovative undertaking investment and financing services such as a guest focus provides industrial chain upstream and downstream industry chain services such as cooperation and exchange, firewood space, the new focus of workshop, onion capsule, and the guest room, with 3 d printing, open source hardware services, etc. 36 kr, for example, at the beginning of its founding positioning for reporting the latest Internet technology news and one of the most potential Internet start-up technology press, with the development of the business and the grasp of the demand for innovation entrepreneurship, venture investment service, its started in 2011 to help entrepreneurs and investors have financing demand docking, explore to professional service transformation. In 2013, the open innovation service platform “36 kr +”, integrate all aspects of resources, through the combination of online and offline form, for entrepreneurs to provide investment and financing and so on various aspects of business services, currently has more than 400 investors, provide service for more than 7000 startups, successfully hatched a batch of start-up companies. Executives resigned from the company "stove" copy of a company and successfully listed, the scene is frequent in the capital markets. Such as The company's top executives of Vanke, Mao Daqing departure entrepreneurship, who was a former senior executive collective in the Internet. Public business, rely on the wisdom to create wealth, to market forces shaping the new national spirit, show that the transformation of Chinese society values.

3.2 Problems

Better giving play to the role of government of China and accelerating the development and space, It needs to be known the gen space problems of innovative undertaking. Public undertaking and have innovation, all the “grassroots entrepreneurship”. Relative to the institutions of higher learning, large and medium-sized enterprises innovation such as “national team” and “army” of entrepreneurship, innovation public entrepreneurship has a congenital disadvantage, such as lack of venue, equipment, capital and other resources, for the acquisition of ability and the innovation elements operation ability is insufficient; Tend to focus on the business model or technology itself, market channels such as impeded; Risk prevention consciousness, and are less able to take risks, etc., innovative entrepreneurs themselves alone, to overcome the difficulties of innovative undertaking and risk. If the related service and support is not in place in time, innovative business will face a greater risk of failure. As innovative entrepreneurial resource integration, service providers and business guidance, the gen space should always be for the purpose of service innovation entrepreneurship, on the one hand, to provide innovative entrepreneurs entrepreneurship required venues, equipment and other hardware conditions, on the other hand to provide innovative entrepreneurs from training courses, teaching entrepreneurship matched, exchange of experience to the investment and financing, technical consultation, scheme of diagnosis, the full range of marketing services, improve the innovative entrepreneurial success.

3.3 Methodology

At present, the space in the country has formed the tendency of “a single spark can start a prairie fire”. In Beijing the firewood and the guest room and guest room, shenzhen, Shanghai, Hangzhou of China new workshop onion capsule and innovation works, such as the garage coffee a batch of new innovation service organization to flourish, is leading a wave of the national innovation entrepreneurship,

innovation business has entered the “golden age”. The next step, the development of the space is to give full play to the decisive role of market resources, should also actively as the government level.

3.2.1 Seize resources integration, and a space as an important part of regional innovation system of science and technology

All construction creates the space is innovation service resources, revitalize the whole society innovation to strengthen the construction of innovative undertaking ecological environment, promoting the public entrepreneurship, has important way of innovation, is to stimulate the creativity of hundreds of millions of people, promote independent innovation ability, cultivating innovative enterprise and the emerging superiority industry, adapt and lead the new normal economic development, to build a new engine for the economic development of important choice. Borrow bourdieu's field theory(Pierre bourdieu,1998)^[3],The gen space should be as an important part of regional innovation system of science and technology of China, the more prominent position, and regional scientific and technological innovation work synchronous deployment, coordination, give full play to the government on strategic planning, policies and regulations, standards and the role of the supervision and other aspects, for the development of the "space. At present in China, as the public entrepreneurship, united innovative heating up, across the country have gradually into the gen space construction start a prairie fire. To encourage bold exploration, innovation actively the gen space model of development, at the same time also pay attention to the possible problem, such as through the line and space in the name of, the reality of the real estate development, regardless of the local actual situation, one-sided pursuit of scale, cause the waste of resources, etc., it has violated the original intention of promoting the development and space, does not mass innovative entrepreneurial activity of healthy and sustainable development. The development of the space, the key is to help promote the innovation of entrepreneurship, to the construction of regional innovation system as the development of the criteria and space. Only in this way, give full play to the space key support role in promote the innovative undertaking.

3.2.2 The development of the space, can't just focus on physical space, hardware facilities, the key is to adhere to the concept of service first, around the resource integration

Resource integration capability is the gen space should have the basic ability, as well as the gen space should strive to create core competitiveness. Innovation entrepreneurship is a complicated system engineering, from ideas to verify, development, popularization and application, such as the stages, is inseparable from the information, capital, management, market resources and elements such as input. Decided to innovative entrepreneurial success is the outcome of combined action of many factors, lead to innovative entrepreneurial failure may simply be due to the lack of a link resources and elements. The space as a creative services, constantly filling up the “short board” of the entrepreneurial innovation, both to improve hardware supporting ability, makes the service innovation entrepreneurship “hard power”, more to improve resources integration ability, provide innovative entrepreneurs with low cost, wide coverage, easy acquisition of service resources, perfecting the innovation entrepreneurship “soft environment”. The need to constantly strengthen the space resources integration ability, make full use of pricing, market incentives, competition mechanism and the decisive role of market resources allocation, break through its own development limited, a wide range of integrated innovation entrepreneurship resources, better to meet the needs of differentiation of innovative entrepreneurs. Especially with the development of Internet technology and business models evolve, broke the shackles of physical space and resources integration across the region, regional and industry field for the integration of online resources, greatly improve the efficiency of integrated utilization of resources. The space as a product of the Internet to promote the development of, more should actively embrace the Internet, according to the country about the implementation of the strategy of “Internet +” deployment, make full use of Internet technology and Internet, thinking of the depth of the resource integration and operation mode of deep refactoring, let all creative resources to flow, demonstrating the powerful vitality.

Considering the characteristics of mass innovation, all business all the gen space should integrate the resources mainly include the following aspects. One is money, mainly is the angel investment, risk investment and various government supportive funds, crack innovative undertaking facing financial difficulties; Second, market, docking downstream users, to provide innovative entrepreneurial strong driving force; 3 it is technology, integration of various technical resources, minimizing technology risk; Four is the talent, establish extensive contacts, to help entrepreneurs to introduce suitable talents, form a complementary structure entrepreneurial teams; Five is to manage, mentors, for innovation entrepreneurship walk fast, go too steady make recommendations.

4 Results

Attaches great importance to the professional development, and to strengthen the gen space classification guide. To give priority to construction of marketization of social forces to the gen space. The traditional incubator, university science parks, such as innovative business services, guides the use of the Internet thought, optimize and improve the operating mechanism and business patterns and realize the transformation and upgrading, make “incubator” 2.0. Counselling, venture investment and so on specialized institutions for training, industry leaders, and angel investors, successful entrepreneurs and other social organization, support to revitalize the existing idle factories, equipment and other resources, or in connection with the innovation of the traditional innovation service agencies to participate in the construction of a space. Actively create conditions and provide convenience for all social capital investment and space construction.

With the continuous development of socialized production, the social division of labor is more and more fine, specialization become inevitable trend. Look from the science and technology business incubator development course of about twenty years, from the early government-led innovation service center, to the comprehensive incubator, to focus on a particular industry, is good at providing a service in the field of professional incubator. It is professional development, science and technology business incubator by basic services, such as emphasis on property to pay attention to the resources integration, to provide professional services, achieved a perfect leap to the gen space. The gen space adhere to professional development, and will be able to concentrate more focus and attention to the area, the resources and services more concentrated in the field of need, so that they can intensively farmed in the field of a certain form features, realize the differentiation development.

The space as a new thing, is in beginning stage of development. On the one hand, should actively create conditions to guide the social capital into the space construction, growing innovation innovation service team; On the other hand, we should always adhere to the professional development direction, the space continuously outstanding professional characteristics, improve their professional skills, “one-size-fits-all” go in for grandiose projects, can be avoided.

5 Conclusion

Change of government functions, build the good environment for the development of the space. Increasing financial investment, supports the gen space in information consultation, business communication, training, coaching, investment and financing services such as docking, to move into the space rent of venture enterprises, broadband access, public software, development tools such as cost of appropriate subsidies. Give play to the role of multi-level capital market, provide innovative companies with comprehensive financial services. Implementation of centralized office registration system, in view of the characteristics of the space of the gen office, simplify the residence registration and provide convenience for startups industrial and commercial registration. In zhongguancun business street of China business services such as relatively dense area promoting the construction of the spatial agglomeration region, form the agglomeration effects and scale advantage. Support for entrepreneurial salon, entrepreneurship lecture hall, entrepreneurship training camp, innovative entrepreneurship contest and other activities, training professional career coaches and innovative entrepreneurial talent, excellent entrepreneurial projects and team. To strengthen the statistics of the gen space monitoring, timely grasp the industry development situation, completes the guidance for the development of the industry. Extensive media propaganda, introduce the typical patterns, the innovation and space characters and typical advanced deeds, widespread entrepreneurial culture, the masses entrepreneurship, has become more common in the whole society. This model is based on trust, is “to support China's new social stability is the most important and the most subtle is also the most key pillars.”(John naisbitt,Doris naisbitt,2009)^[4].

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Vehicle Scheduling Problem Based on Cloud Platform*

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Abstract: With the rapid development of China's economy, the logistics industry has been rapidly developed, but the gap between China and the developed countries is obvious. The development of emerging technologies like cloud platform make the new problems emerge in the logistics industry, such as multi-distribution center vehicle scheduling problem, and studying all kinds of these problems makes China's logistics industry exceed developed countries' possible. On the basis of the study of some vehicle scheduling algorithms, cloud platform and the analysis of the cloud platform integrated enterprise resource advantages in optimizing their aspects, I proposed a vehicle scheduling system based on cloud platform, the system helps logistics business to optimize vehicle scheduling and assets configuration, balance demand and capacity contradictory, but it has difficulties to schedule the entire region cluster enterprises' vehicles to maximize social benefits, its future development will be clustered vehicle scheduling, flexible dynamic, practical.

Key words: Cloud platform; Scheduling algorithms; Logistics industry; Vehicle scheduling

1 Introduction

1.1 Background

With the China's economic development and adjustment of economic structure, the industrial logistics industry, as a basis of the tertiary industry, has been rapidly developing, and feedbacks and supports the development of secondary industry and primary industry, and gradually develops into a pillar of the national economy industry. The degree of development of the logistics industry is widely used to measure a country's level of industrialization, the health of the economy and national strength [1]. However, there is still a big gap between the China's logistics industry and the developed countries', especially China's logistics industry concentration is not high. For example, the current top 20 China road transport companies' market share is less than 2%. The top five US LTL road transport companies account for 60 percent of the US transportation market share. This shows that China road transport companies cannot form a large-scale competition, most of the industries and enterprises are repeating inefficient market competition. This is bad for the development of modernization, informationization and intellectualization of the industry. With the rapid growth of China's logistics transportation enterprises, the initial formation of a national logistics network and the emergence of new logistics needs, there is the appearance of new logistics and transport problems in logistics and transport industry. For example, with the social and economic rapid development, Internet and communications technologies become more sophisticated, networking, big data, cloud platform emerged together which birth the new vehicle scheduling, such as joint vehicle scheduling, dynamic vehicle scheduling, inter-regional, large-scale and multi-distribution vehicle scheduling [2], while the traditional logistics vehicle scheduling mode is ineffective in dealing with this type of new vehicle scheduling requirements. With the increasing maturity of the Internet and communications technology and the emergence of new technologies, especially the development of cloud platform technology enables manage transportation vehicle scheduling and try new vehicle scheduling mode based on cloud platform possible. So studying the role of cloud platform technology in terms of the logistics industry has immeasurable benefits to improve the level of information, lever of intelligence and core competitiveness of China's logistics industry. This makes China's logistics industry catch and surpass developed countries' possible.

1.2 Vehicle scheduling algorithms

Vehicle scheduling problem is a hot topic in the logistics industry, since it was first proposed in 1959 by German scientists Dantzig and Ramser, lots of solutions for vehicle scheduling algorithms have been produced, which are divided into exact algorithms and heuristics algorithms.

Exact algorithms mainly have tabular method, branch and bound methods, cutting plane, dynamic programming and graph theory [4].

On the one hand, heuristics algorithm was found that people inspired by the nature laws governing the operation, on the other hand, heuristic algorithm was resulted from the previous work experience by

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people drawn from a summary. Firstly proposed heuristics algorithms are greedy algorithm and local search algorithm, but the algorithms solved the problems with poor quality results and cannot solve the problem of large-scale defects which caused a slow heuristic algorithm development, and with the rapid development of computer technology, the NP problems (Non-Deterministic Polynomial) and the genetic algorithm were proposed which ushered heuristics algorithms' development in a boom, scientists have proposed and developed a simulated annealing algorithm, artificial neural networks, taboo search algorithm, evolutionary algorithm, ant colony algorithm, physical algorithm and quantum algorithm.

Genetic algorithm, simulated annealing, taboo search and ant colony algorithm are applied more in vehicle scheduling, and their basic principle is starting from a random initial solution, adopting the optimal solution iterative improvement strategy and then gradually approaching the issue.

Genetic algorithm is use groups search technology, start from local search to improve the survival of the fittest law [5], simulate evolution gene on chromosome selection, crossover and mutation algorithms obtained.

Simulated annealing is annealing crystallization process simulation statistical physics of solid substances. In the simulation process, if you search for the good solution is accepted, otherwise, with a certain probability to accept a bad solution.

Taboo search is simulating the human experience through history and memory of the most recent search, contraindications some solution, so as to achieve the purpose of avoiding local search.

ACO is to simulate the behavior of ants foraging, ants will discharge its path through a pheromone as a marker, and the amount of emissions is based on the path length and the food rating decisions [5].

Currently single algorithm operation results may not be satisfactory, we may require a combination of several algorithms to optimize the current, and then it will come to a better solution, such as genetic algorithm search speed is slow and search ability is poor. As the cloud model's capability in transforming an uncertain relationship between qualitative and quantitative can well improve genetic algorithm[6], then people propose the quantum genetic algorithm, improved genetic algorithm and adaptive genetic algorithm based on cloud platform. With the development of intelligent computer, Hyper-Heuristic Algorithm has been developing based on these heuristic algorithms.

2 Vehicle Scheduling Based on Cloud Platform

2.1 Cloud computing platform

Cloud platform is a service platform which is built on the basis of cloud computing, it is to provide Internet-based hardware and software services, such as data storage services. Nowadays there has no universally accepted definition, the current high acceptance is defined by the US National Institute of Standards and Technology: Cloud computing is a pay-per-use model that provide a usable, convenient and network access on-demand into a shared pool of configurable computing resources, and these resources can be provided quickly, simply put minimal management effort or service provider with very little interaction. Cloud computing platform has a service resource pooling, safety and reliability [7], the use of processing power and billing features. Because cloud platforms can integrate logistics enterprise's internal capacity resources, advanced technology and advanced systems, so that the logistics enterprises can coordinate demand and transport capacity and build a vehicle scheduling system based on cloud platform [8].

2.2 Vehicle scheduling based on cloud platform

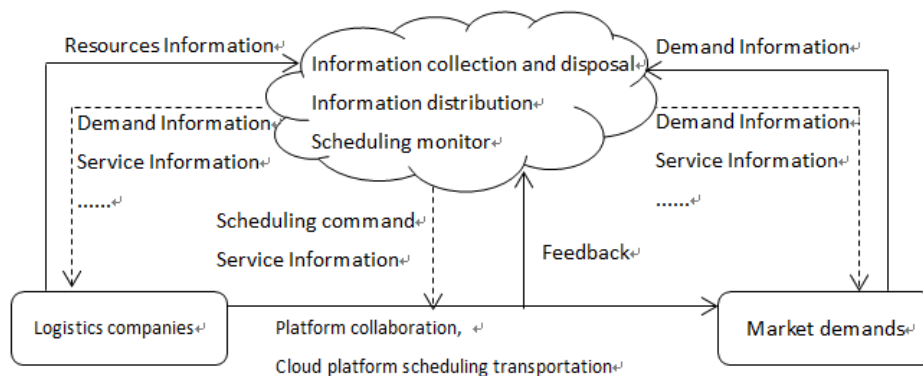


Figure 1 Vehicle Scheduling Based on Cloud Platform Principle Schematic

Cloud platform is equivalent to virtual brain in the entire transportation process. Cloud platform involves in the operation management of the entire process, gathers preliminary information and data generated during transportation, uses the algorithm to help the transport companies develop vehicles scheduling. Logistics companies will leverage cloud platform to complete vehicle scheduling, and cloud platform will communicate with logistics companies closely through communication information systems in order to manage and control the whole logistics process^[9]. This can significantly reduce the cost of logistics enterprises and the fixed assets of internal control risk and increase the professionalism, the core competitiveness and market responsiveness of enterprises. American Robinson transport company is only be a “transportation coordinator” between market businesses and transport companies, its core competitiveness is its ability to build a service platform for the global transportation business and the needs of enterprises and monitor the logistics chain^[10]. As a virtual brain of the chain, Robinson is the information collection point and service center of transportation and distribution chain. Its strong computing power and abundant data produced in platform will strongly support Robinson to do vehicle scheduling. So cloud platform has a huge advantage to deal with multi-distribution center vehicle scheduling relying on its powerful information collection and processing capabilities, computing capacity and reliability features.

2.3 Vehicle scheduling based on cloud platform advantages

2.3.1 Information collection and processing

The cloud platform can collect policy information, market business needs information, resources information and business operations logistics companies’ real-time information and so on, such as enterprise resource idle vehicles, the number of business needs, traffic conditions and insurance of the standardization services information^[2]. Cloud platform could classify information processing and distribute enterprises need information.

Using preliminary information provided by the cloud platform, logistics companies can manage their business preferably with better vehicle scheduling, do real-time scheduling adjustments based on feedback information. Logistics companies can also use the processing power of cloud computing platform to optimize their vehicle scheduling.

Demand enterprise can fully compare logistics companies to make a good choice, combining with their demand conditions and logistics enterprises references given by cloud platform.

2.3.2 Demand management

Demand management includes demand consolidation, demand regulation and demand forecast.

According to the needs of SMEs in China dispersion problem, cloud platform can integrate fragmented needs of SMEs, simplify the relationship between the responsible parties, and thus logistics industry will develop to scale and intensification.

Actual demand includes fixed demand and variable demand. As variable demand is randomness and unpredictability, it is difficult for transportation companies to do the whole vehicle scheduling. Cloud platform can monitor market demand fluctuation, then dynamically balance the fluctuated demand, transport enterprises can cooperate with demand enterprises to establish a similar "futures" modes of transport, demand enterprise will use recording information based on cloud platform, combining with market demand, to forecast and update the demand in real time, transport companies use the demand information released by demand enterprises to do vehicle consolidation scheduling, assignee peak demand to the off-season. With this Option Contract transport mode, transport enterprises can balance the capacity and demand contradiction of busy season and off-season, ease the contradiction between the waste and overuse of transport vehicles, reduce maintenance and acquisition costs of transport vehicles and develop the lever of vehicle scheduling optimization and asset allocation. This option contract form needs build related facilities and the related enterprises’ close collaboration.

With the development of communication technology and the Internet, the demand is no longer a passive pre-production, the system itself can also generate demand. On the process the system will continuously produce information^[3] which will generate a lot of variable demand. Cloud platform will simulate variable demand generated laws, enterprises can take advantage of the stimulated laws to schedule idle vehicles or require other companies or individuals to schedule free vehicles to complete variable demand, such as empty driving vehicles and return vehicles^[11], thus control the variable demand in the range of transport capability and gradually optimize transportation scheduling.

2.3.3 Monitoring and regulation

Cloud platform can help enterprises release scheduling plan and require other enterprises to assist when they fail to deliver. Cloud platform can monitor vehicle operating conditions in the logistics and transport process and collect real-time information along the road, then notice related service agencies to

take preventive preparation where vehicles and drivers may have possible accidents to reduce logistics risks. This enables dynamically schedule vehicles, query real-time scheduling information which will improve the lever of information management^[11] and services quality of logistic during transport.

Cloud platform can collect data while monitoring transport process to support government departments and industry associations to forecast, design and make macro-control legislation and regulation^[2]. These pave the way for the development of the logistics industry in the top-level design.

2.4 Vehicle scheduling based on cloud platform flaws

Transport enterprises will go through the process of enterprise developing alone and developing in regional industrial clusters syndication, so there has a contradiction when cloud platform does a single enterprise scheduling and the scheduling of the logistics industry as a whole. Cloud platform cannot manage other business enterprise resources well, thus cannot maximize social benefits while it does individual enterprises Scheduling; while it does scheduling management of logistics industry as a whole, there exists the game's stakeholders, hindering its integration of resources and coordination.

Cloud platform development in terms of the pre-information collection and dispatch is maturing, but now the information is generated randomly, so it will have difficulties in collecting early useful information, so vehicle scheduling parameter settings are not optimal and thus feasible solution is not optimal.

Cloud platform lacks humane factor, most current research is focusing on early information gathering and resources scheduling, the research on how logistics enterprises, drivers, customers and society to participate and exert influence in the logistics process is still a lack.

The current vehicle scheduling algorithms also cannot simulate actual conditions and realities very well to form the optimal solution, such as GA's control variables set unreasonable may cause local optimal solution, which cannot achieve maximum benefits.

3 Conclusion

Vehicle scheduling system based on cloud platform will promote the development of China's logistics industry in a certain extent, but there are still lots of problems to be solved. As technology advances, these problems will gradually be resolved. With the development of networking and urban industrial clusters, vehicle scheduling based on cloud platform will gradually develop vehicle scheduling from a single enterprise vehicle scheduling to regional cluster enterprise vehicle scheduling coordination, which will greatly release the transport capacity of logistics enterprises and help logistics enterprises integrate industry chain resources, optimize the operational efficiency of the industrial chain, increase value chain, improve profit chain and expand and extend the industrial chain of integrated supply chain management^[12].

Logistics and transport situations are complicated, this makes a very high demand for real-time monitoring capability of the vehicle and emergency service dispatcher, and the rapid development of car networking and intelligent transportation system make it possible to collect in-real-time vehicle scheduling operation information, thus cloud platform will establish a more flexible dynamic vehicle scheduling system.

Future vehicle scheduling algorithm will be more concise, parameter setting more realistic scheduling program quality greatly enhanced the level of participation in the system will be more and more, participation will be more extensive.

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Making a Compatibility Match Between Supply Chain Type with Product Type and Product Life Cycle Stage

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Abstract: This paper describes a typology for designing supply chains that work in harmony to design, produce, and deliver products with different characteristics and customer expectations. This review discusses supply chain types that are necessary for success across three types of products: standard, innovative, and hybrid. It develops a framework for categorizing the supply chain types according to product characteristics and stage of the product life cycle. The key success factor for a product change as the product moves through its life cycle, and this may require different supply chain characteristics and capabilities. The paper blends literature and theory development to create the typology and develop a set of research questions for further investigation.

Key words: Agile manufacturing; Lean manufacturing; Supply chain management; Supplier selection

1 Introduction

Competition is shifting from firm versus firm to supply chain versus supply chain. Supply chain management integrates suppliers, manufacturers, distributors, and customers through the use of information technology to meet customer expectations efficiently and effectively. As a result, groups of companies can respond quickly and in a unified manner with high-quality, differentiated products demanded by fastidious final consumers while achieving system-wide advantages in cost, time, and quality.

This paper discusses strategies and methodologies for designing supply chains that meet specific customer expectations. Supply chain design should be, in part, a function of the product characteristics and expectations of the final customer (Fisher, 1997)^[4]. The goal of this paper is to provide insights to organizations that are designing supply chains to manufacture discrete parts. The paper defines the product characteristics of standard, innovative, and hybrid products, provides a framework for understanding lean, agile, and hybrid supply chains, and relates the adoption of these supply chains to the characteristics of the products and the needs of the customers.

2 Supply Chain Types

Supply chain type is to a large extent a function of product characteristics and customer expectations (Fisher, 1997)^[4]. The product is the soul of the supply chain; there is no justification for adopting a particular supply chain type unless it conforms to the needs of the product and its customers.

2.1 Lean supply chain

A lean supply chain (LSC) employs continuous improvement efforts that focus on eliminating waste or non-value steps along the chain. It is supported by efforts to achieve internal manufacturing efficiencies and setup time reduction, which enable the economic production of small quantities and enhance cost reduction, profitability, and manufacturing flexibility to some degree. The short setup times provide internal flexibility, but a lean supply chain may lack external responsiveness to customer demands, which can require flexibility in product design, planning and scheduling, and distribution in addition to manufacturing (Booth, 1996)^[1].

2.2 Agile supply chain

An Agile Supply Chain focuses on responding to unpredictable market changes and capitalizing on them through fast delivery and lead-time flexibility. Successful implementation involves responding to rapidly changing and continually fragmenting global markets by being dynamic, context-specific, growth-oriented, flexible across the organization, and driven by customer. An ASC focuses on responding to unpredictable market changes and capitalizing on them through fast delivery and lead-time flexibility. It deploys new technologies, methods, tools, and techniques to solve unexpected problems. It utilizes information systems and technologies as well as electronic data interchange capabilities to move information faster and make better decisions. It places more emphasis on organizational issues and people (knowledge systems and empowered employees), so decision making can be pushed down the organization. It is a systemic approach that integrates the business, enhances

innovations across the company, and forms virtual organizations (VOs) and production entities based on customer needs.

2.3 Hybrid supply chain

A hybrid supply chain generally involves “assemble to order” products whose demand can be forecasted with a relative accuracy. The chain helps to achieve mass customization by postponing product differentiation until final assembly. The lean or agile supply chain techniques are utilized for component production with different characteristics. For example, air bags would most likely be produced with a LSC while engine electronics might require the innovation found in an ASC. In addition, the agility is needed to establish a company–market interface to understand and satisfy customer requirements by being responsive, adaptable, and innovative.(Vonderembse et al. 2002)^[7].

3 Identify Product Types

Understanding the characteristics of the product is essential to design a supply chain that meets customer expectations (Vonderembse, 2002)^[7]. This section describes three product types (standard, innovative, and hybrid), relates these product types to the product life cycle, and discusses the factors that are critical for designing effective supply chains.

3.1 Standard product

The market for standard products tends to be stable, and demand can be forecasted accurately. Standard products tend to have long life cycles where designs characteristics change incrementally or slowly over time. This ensures well-defined and predictable processes for product design and manufacturing. Manufacturer may find it useful to establish a long-term relationship with its suppliers for high quality materials, just-in-time delivery, and quantity discounts. These products are usually in the latter part of the growth segment of their product life cycle or beyond. With predictable demand patterns and consistent processes, cost minimization can be pursued very effectively, especially in the mature phase of the product life cycle. The characteristics of the Lean supply chain fit the needs of the standard product well.

3.2 Innovative product

Innovative products are new or derivative products that often represent a breakthrough in product concept and design. They often satisfy emerging customer needs and in some cases needs that customers have yet to articulate. Innovative product requires sophisticated design and/or manufacturing capabilities. These are designed to be adaptable to changing customer requirements. As such their product designs may be unstable and require close and continuous customer contact and have uncertain demand (Fisher, 1997^[4]; Mason-Jones et al., 2000^[5]).

Innovative products usually command a premium price, which has the potential to increase profits. Once introduced and found to be successful, competitors quickly emulate innovative products because they command premium prices. As demand grows and competitors emerge, innovative product can become standard product where cost and quality are dominate characteristics. This forces the original manufacturer to constantly interact with customers to generate new ideas that drive a steady stream of new and improved product types.

Innovative products generally have a shorter product life cycle than standard products. Innovative products are usually in the introduction and growth stages of the product life cycle. However it can also be derivative or differentiated products that re-ignite the growth potential of a product in the mature phase of the product life cycle.

3.3 Hybrid product

The hybrid product is a complex product that includes a mix of standard and innovative components. To respond, lean supply chain and agile supply chain are combined to provide the components needed in final assembly. Hybrid products tend to have a long product life cycle with a certain degree of improvement or innovation offered periodically. These innovations most frequently occur at the module or component level.

4 Supply Chains Design and the Product Life Cycle

This section describes the product life cycle and discusses a set of observations that relates product type and supply chain type. Table 1 summarizes the supply chain classification based on product type and product life cycle.

4.1 Product life cycle

The product life cycle illustrates unit sales for a product category over time. It is divided into four

discrete stages: introduction, growth, maturity, and decline. The shape of the sales curve reflects the notion that a product’s sales begin slowly during the introductory stage, then grow rapidly often reaching a peak relatively early in a product’s life. During the saturation or maturity phase, demand may grow slowly for a long period of time before it begins to decrease.

The introduction stage involves the satisfaction of either a new or an existing need. A new need tends to involve the introduction of an incrementally innovative product, whereas an existing need often involves a standard product. If the product is new, generally the competition comes from different products. New products may have defects, but these are dealt with as quickly as possible in order to prevent the premature death of the product.

The growth stage involves the product’s market acceptance and an increase in the organization’s market share. Demand begins to accelerate and the size of the total market expands rapidly.

In the maturation stage, competition increases with other organizations trying to emulate the generic product with low cost products. Demand is often determined by the replacement or wearing out of the product and new family-formation rate. Products enter the decline stage as they lose consumer appeal and sales drift downward. Product obsolescence causes sales to decline, and new products (innovations) replace existing products.

Table 1 Supply Chain Classification Based on Product Type and Product Life Cycle

Product life Cycle \ Product Type	Standard	Innovative	Hybrid
Introduction	Lean Supply Chain	Agile Supply Chain	Hybrid Supply Chain
Growth		Hybrid/Lean Supply chain	
Maturity			
Decline			

4.2 Relating supply chains and product type

Lean supply chain focus on reducing lead-time, increasing efficiency, expanding manufacturing flexibility, and cutting cost. A LSC approach attempts to build a level schedule across the supply chain, and it uses pull production to respond to customer demand. While striving for these goals, the LSC focuses on incremental improvements (kaizen). It tries to improve the product and the associated processes, by balancing the supply chain.

The long product life cycle of standard product provides a stable design over many years. Being a low cost item, globally manufactured, with highly predictable demand patterns, profitability can be achieved by minimizing cost and employing a level schedule over the entire supply chain and over all the products life cycle stages (Mason-Jones et al., 2000)^[5]. This justifies the usage of a LSC for standard products. In addition to providing cost minimization, the LSC is efficient and flexible, and it brings about incremental improvements, permitting firms to constantly improve the quality of their products and keep their customers satisfied.

Proposition 1:To have the highest internal performance and customer satisfaction, standard products should be designed and produced by Lean Supply Chains through all stages of the Product Life Cycle.

In order for innovative products to succeed, they should be producible in any volume, as per customer requirements. The first two stages of the product life cycle, introduction and growth, are the testing grounds to ensure that organizations are achieving customization and market adaptability. For this, one of the strategic tools provided by Agile supply chain is a virtual organization (VO). VO integrate complementary resources existing in a number of cooperating companies to produce that particular innovative product(s) as long as it is economically justifiable to do so. This dynamic alliance provides access to a wide range of world class competences, enabling organizations to overcome the customization/responsiveness squeeze. This supports the usage of an Agile supply chain for the first two stages in the life of an innovative product. By providing concurrency of operations among the members of the VO, the agile company can rapidly deliver its innovative products in small quantities, as per customer requirements.

Proposition 2a:To have the highest internal performance and customer satisfaction, Innovative Products should be designed and produced by Agile Supply Chains in the Introduction and Growth stages of the Product Life Cycle.

Once the product has been firmly established, it transitions into the third stage of its life cycle, maturity. By this stage, the innovative product begins to take on the characteristics of a standard product. Price competition becomes very important. Production becomes more routine and is part of the organizations daily schedule, which already follows the LSC concept. In order to maximize their profits,

organizations still need to deal with their customers and provide them not only the support that they need, but also introduce new, improved versions of the existing product, thus maintaining their customer base. From the maturity level onwards, organization may employ LSC to meet the needs of this product.

Proposition 2b: To have the highest internal performance and customer satisfaction, innovative products should be designed and produced by Lean Supply Chains in the Maturity and Decline stages of the Product Life Cycle.

Hybrid products, which are complex, require the organization to bring together a set of suppliers with a wide range of capabilities (Choi and Hong, 2002)^[2]. This implies innovative and standard products as well as strategic partnerships. While it may be true that hybrid products that are near the end of their life cycle may use fewer innovation components than a product that is at the beginning, there is always the opportunity to introduce innovation into the hybrid product. As a result, hybrid products require HSC throughout their product life cycles.

Proposition 3: To have the highest internal performance and customer satisfaction, Hybrid Products should be designed and produced by Hybrid Supply Chains throughout the Product Life Cycle.

5 Conclusion

Standard products, which tend to be simple products with limited amounts of differentiation, should be produced by lean supply chains, which focus on simplicity, cost reduction, quality and limited amounts of flexibility. Early in their product life cycle, innovative products, which may employ new and complex technology, require agile supply chain. As the product enters the maturity and decline phases of the product life cycle, a lean supply chain could be more appropriate. Hybrid products, which are complex, have many components some of which may be components while others are new and innovative calls for a hybrid supply chain.

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On Constructing Logistics System for Agricultural Products in Mountainous Areas: A Case Study of Fangxian County in Hubei Province

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Abstract: At present, agriculture is the main portion of economic structure in remote mountain areas. Agriculture products are the main income sources for local peasants. However, Abundant agriculture products are not utilized enough, due to serious lag of logistics systems. According to the status quo of agriculture logistics in Fangxian county in Hubei province, this paper discusses the construction of agriculture logistics on the basis of modern theory of logistics. Through the analysis of advantages and disadvantages for developing the agriculture logistics in Fangxian, the agriculture logistics system is put forward centering on the processing enterprises of agriculture products .

Key words: Agriculture products; Logistics system; Fangxian; Mountain areas

1 Introduction

As a branch of logistics industry, logistics for agricultural products refers to the physical flow of material substances of agricultural products and relevant information from producers to consumers in order to satisfy the demand of the latter, including a series of links like agricultural products production, procurement, transportation, storage, handling, carriage, packaging, delivery, distribution processing, distribution and information activities, etc. Located in the deep mountains of western Hubei Province, Fangxian County has constructed an appropriate logistics system for agricultural products by combining national policy support and local special advantages of agricultural products, thus bringing along rapid development of agriculture and significantly uplifting the income level of the locals.

2 Overseas and Domestic Research Status on Logistics System for Agricultural Products

2.1 Overseas research progress in logistics system for agricultural products

The earliest overseas research of logistics for agricultural products starts with the Report of Agricultural Products Circulation Industry Committee made by John Crowell in 1901, which has expounded on various factors that may influence the costs of delivering agricultural products, thus raising the curtain on the researches of logistics for agricultural products. Later on, an increasing number of researches have arisen, and the researches related to the logistics system for agricultural products are mainly concentrated on two aspects. Including optimization researches on logistics links^[1], Informationization researches on logistics system^[2]. Due to the advanced information technology of agriculture in developed countries, the informationization of logistics system for agricultural products has been an important research direction.

2.2 Domestic research progress in logistics system for agricultural products

From the scope of research perspectives, domestic researches on constructing logistics system for agricultural products can be divided into macroscopic and microscopic levels. Macroscopic researches are mainly targeted at national or specific regions or specific objects^[3]. Microscopic researches are centered on the logistics system itself. Researches on the governance of logistics system^[4]. Application researches of new technologies^[5].

Based on the above, coordination researches of logistics system for agricultural products will remain an important direction for future. Fangxian County can construct a logistics system suitable for the realities of mountainous areas by starting from the overall coordination of the logistics system and giving play to the leading role of processing enterprises.

3 Development Status of Logistics for Agricultural Products in Fangxian County

3.1 Advantages of developing logistics for agricultural products in fangxian county

(1) Abundant natural resources

Located at the southeastern part of northwestern Hubei Province and the north subtropical monsoon climate zone. In 2014, three industries involving walnuts, goats and traditional Chinese medicine have ranked the first in the annual assessment of *sibaiwan*(four million) project in Shiyan City. By 2015, the black fungus, mushrooms, cold-water red rice, as well as bupleurum Chinese have been awarded the title of national product of geographical indication in succession.

(2)Improvement of infrastructure like transportation

The major transport lines within Fangxian County are S-N No. 209 national highway and E-W No. 305 provincial highway. In recent years, the transportation condition in Fangxian County has witnessed great improvement: (a) it has basically completed the building of village-to-village roads with enhanced hardening level. (b) the original roads have been optimized. (c) Two highways have been built, namely, the E-W Xiantian Highway running through the County and the S-N Shifang Highway connecting the counties and cities.

(3)Policy guidance and support

Under the support of national policies, Fangxian County has stepped up its efforts of offering capital subsidies to the cultivation of characteristic agriculture, including subsidies for fine breed and aquaculture to motivate farmers. Meanwhile, it has also guided the centralized and scale development of agriculture, Fangxian County has built standard production gardens of edible fungi. In the central belt of the County town, trade markets have been constructed to promote issuance and circulation of the information about agricultural products.

3.2 Unfavorable factors to the development of logistics for agricultural products in fangxian county

(1)Government policy misplays

In selecting agricultural products, a small misplay of agricultural departments can cause huge economic losses. Due to inaccurate grasp of the value principle of commodities, Fangxian County had once vigorously encouraged the cultivation of yellow ginger. Given the large-scale plantation in the local areas already, its market price went through a sharp decline, not only wasting large amounts of land resources but also bringing economic losses to farmers. The list of cases like these goes on; as a result, the farmers 'enthusiasm is harmed and it becomes difficult for them to accept the agricultural policies from government. In a word, reasonable decision-making mode weighs a lot.

(2)Dilemma of self-production and self-marketing

"Hard to sell" has always remained a core difficulty in the commercialization of agricultural products in mountainous areas. The sales are scattered, farming households based on the unit of families take advantage of available transportation equipment and seek for the buyer's market. Consequently, (a) most farming households choose to sell the products in places nearby. (b) It is unfavorable to expand external market and seek maximum benefits. (c) Limited enthusiasm of farmers for production will lead to decreased scale or quitting, harming sustainable development of agriculture.

(3)Extensive operation mode

Take the cultivation of traditional Chinese medicinal materials for an example. Due to the lack of scientific cultivation standard and guidance, farmers usually succumb to extensive management and use large amounts of pesticides in the growing period of materials, finally leading to non-conformity of products for limit-exceeding pesticide residues. It can be seen that traditional extensive operation mode can hardly adapt to the needs of modern commercialization of agricultural products. So improving scientific input and cultivating new-type farmers remain the only ways out for agricultural development.

4 Construction of Logistics System for Agricultural Products in Mountainous Areas

4.1 Reasonable positioning the subject role of logistics for agricultural products

The subjects of modern agricultural logistics refer to the organizers and participants who can provide agricultural logistics services and plan, execute, manage and control the operation process of modern agricultural logistics, including government agencies, producers of agricultural products, processing enterprises of agricultural products, selling enterprises of agricultural products and logistics enterprises, etc.. Many problems in the commercialization of agricultural products in mountainous areas are closely linked with subjects of logistics, and positioning the role of participants in logistics reasonably, optimizing their functions and reshaping the logistics system can effectively solve these problems.

4.2 Reasonable planning of logistics function

(1)Labor division of current logistics subjects for agricultural products and its demerits

In the current logistics system for agricultural products, all logistics subjects focus on their own functions and ignore communication and coordination among themselves, so the effective flow of information is affected (figure 1).

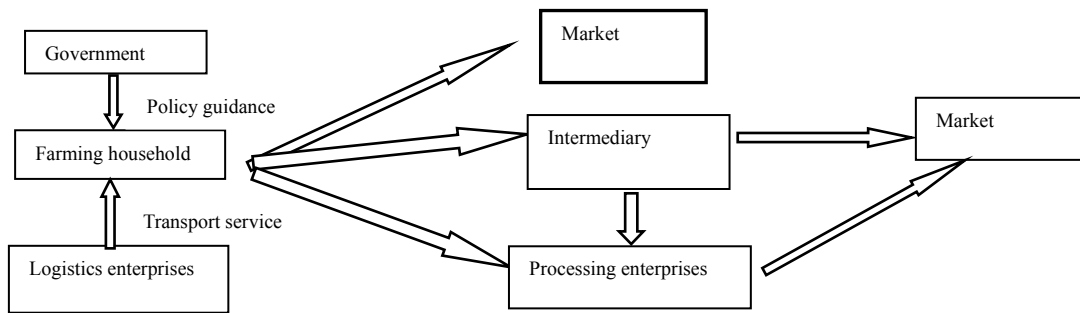


Figure 1 Current Logistics System for Agricultural Products

Seen from the above, the labor division mode for the current logistics subjects of agricultural products hinders the efficiency of the whole logistics system for its own defects. The fundamental reasons lie in that close cooperation relationship is absent among the subjects and none of them can play the role of coordinating the whole logistics system. Therefore, exploring a new-type logistics model dominated by a certain subject serves as an effective way to cope with the commercialization of agricultural products in mountainous areas.

(2) Construction of vertically integrated logistics system centered on processing enterprises

Within the whole logistics system, processing enterprises, as a value-adding link for agricultural products, can obviously uplift their market value. Hence, in agriculture-dominated mountainous areas of China, processing enterprises have always been supported and attached great importance to by local governments. Processing enterprises, positioning in the middle link of the logistics system, can effectively coordinate the relationship between upstream and downstream logistics subjects. In sum, the vertically integrated logistics model centered on processing enterprises is feasible.

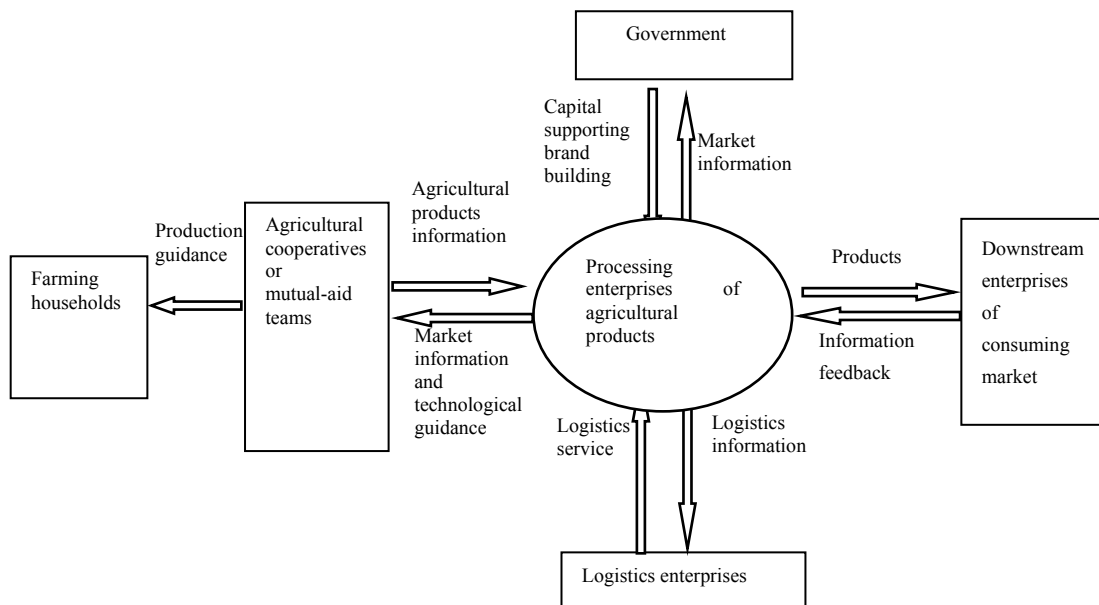


Figure 2 Logistics System for Agricultural Products Centered on Processing Enterprises

In the vertically integrated logistics system centered on processing enterprises, logistics subjects can realize mutually coordinated operation by centering on the processing enterprises of agricultural products and basing on the information so as to optimize the whole system.

(3) Construction of logistics system centered on processing enterprises at fangxian county

Take the edible fungi industry in Fangxian County for example. Processing enterprises should be established at the center of the three townships to reduce transportation cost and uplift the efficiency of

processing. Processing enterprise can choose to establish their own logistics system or cooperate with a third party according to the product features.

As the investment subject, the government should increase its capital support to processing enterprises of edible fungi, and improve the popularity of products with available publicity media like agriculture information website, newspaper and television. Processing enterprises of edible fungi can share the information with government decision-making departments so as to timely adjust the production scale and refine the breed of edible fungi.

To enhance the communication with producers, processing enterprises of edible fungi can foster agricultural cooperatives or mutual-aid teams into a bridge to reach for farming households. The production of edible fungi places relatively high requirement upon the temperature as well as humidity. It also demands necessary equipment. Therefore, processing enterprises can send technical staff to provide technical guidance to household and offer production tools. This agricultural practice, in which the government provides capital and processing enterprises offer assistance, has changed the situation of low efficiency for the government's insufficient energy to directly manage agriculture. Agricultural cooperative organizations should provide the production information of edible fungi to processing enterprises so as to make advance preparations for production, transportation and market planning, etc.

Given the advantages in capital, talents, location, logistics and network, processing enterprises should actively set up B2C and B2B e-business platforms to enlarge the selling channels of products. In order to grasp the information of all upstream and downstream links, processing enterprises of edible fungi should set up a platform for information collection, storage, analysis and decision-making, and through information sharing satisfy the interest of all logistics subjects. Information tracing mechanism can also guard against agricultural risks that might arise and promote the standardization of the production technologies of agricultural products and functions of logistics.

5 Conclusion

By analyzing the disadvantages of logistics for agricultural products at Fangxian County, this paper constructs a logistics system for agricultural products centered on processing enterprises through function integration. Nevertheless, the real conditions of mountainous areas in China are varied and the factors considered to have an impact upon logistics for agricultural products are not all-covering, so the research results are not free from limits and remain to be tested and improved in practice.

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Research on Reverse Logistics Management Mode Based on the Theory of Traditional Chinese Medicine Five Elements: Study on Economic Benefit*

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Abstract: Based on illustrating the relationship between TCM Five-Elements System and the objectives of the enterprise benefit system, the essay aims to interpret the consequences of the enterprises medicine reverse logistics management system due to lack of target economic from the perspective of the reinforce of the five elements. Besides, the Five Elements Balance Theory is explored to discuss how to enhance economic benefits of the drug supply chain enterprises, reduce excessive intervention in the market and increase the safety of drugs in the logistics environment in order to balance the objectives system of corporate and to promote society reverse logistics management efficiently.

Key words: TCM Five elements theory; Medicine reverse logistics; Management by objectives; Economic benefit

1 Literature Review

1.1 Review of the theory of traditional chinese medicine and chinese management research

Chinese culture is profound, it embodies the Chinese management speculative culture. In recent years, an increasing number of scholars apply the traditional Chinese culture, especially some Chinese medicine theory to management among local enterprises management.

Through the thoughts of Chinese traditional culture and Chinese philosophy, as well as the study of the practice, Cheng^[1] put forward Chinese-style management “C theory.” The “C” contains change, culture, centrality, creativity and concerning, then analysis the corresponding “Five Elements Theory”. Li^[2] analyzed the organization in Hong Kong and Singapore, divided strategy of organizational change mode into “Yin” and “Yang” strategy. The characteristics of the strategy of “Yin” is to ease, participation, not mandatory. “Yang strategy” for the characteristics is of rapid, the participation and mandatory. They think that the effectiveness of the organization strategy depends the balance of two opposing and complementary forces——Yin and Yang.

Xu^[3] divides the capital into “physical capital”, “human capital” and “intellectual capital” from the aspect of economic philosophy. He thought the modern enterprise capital includes entity capital “Yang capital” (physical capital) and the virtual capital “Yin capital” (human capital and intellectual capital), then used model analyzes the boundary of the two types of capital and the transformation problem. Li^[4] proposed that there is certain coupling between the whole concept of TCM culture, treatment based on syndrome differentiation, Yin and Yang and modern human resource management, through the in-depth study of traditional Chinese medicine, it can presented many references to the Chinese human resource management.

Lin^[5] engaged in applying the theory of Yin and Yang, five elements and hexagrams(from the “book of changes”)into economic management field, and has obtained certain research results: To confirm all business activities in enterprise profit and loss account qualitative from the new perspective of the Confucian concept of Yin and Yang, and established the business variables causal chain based on four images: real image, illusion, just like, from the new Confucianism related theory. Using one-way causal loop five lines of logical inference, and connecting with the five elements in the successful application of economic and business cycle activities, pointed out that the enterprise can not only use five lines to regulate anything one-directional human society, but also can have the effect of organization, guidance, and systematic quickly.

Chen^[6] applies the eight tri-grams causal chain into resolving the value of industry performance

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evaluation, the bottleneck of diagnosis, bench-marking and the key chain on the basis of studying the Lin, defined positive correlation “inter-promotion”, negative correlation “inter-restriction”, and using t-test analyze, concluded that the reason why big enterprise run smoothly lies in the “inter-restriction” in management chain is not strong.

1.2 Review of theory about five elements and organization management

Wen^[2] systematically expounds the connotation of analogism in TCM, and established the analogy model of enterprise on the basis of the five categories and five function system of human, then using the fuzzy evaluation method to diagnostic the enterprise's health. Ding^[7] put forward the enterprise could grasp the overall relationship of the basic modern enterprise organization in the multitude of complex giant system as long as hold the cultural, political, ecological, economic, social, five lines of benefits in management.

Dong^[8] considers that six functions in enterprise: budget-busting transfers, strategy, operations, constraints, and innovation corresponds to the fire elements: fire, wood, earth, metal and water, and put forward five kinds of TCM thinking research method inter-promotion, inter-restrict, dialectical, principle and process.

Yan^[9], on the basis of Wen, improves the five elements of enterprise management, and does some empirical research about one pharmacy industry, while fuzzy synthetical judgment diagnosis methods is applied to financial analysis, then put forward incentive mechanism (water restricts fire) under the diagnosis. Meng^[10] also uses a lot of mathematical analysis to study the mechanism of dynamic balance of five elements.

To sum up, the related theory of TCM, especially the five elements theory solving the problem of enterprise management, has gained more and more theoretical proofs. However, because there are many branch of traditional Chinese medicine theory, research scholars lay particular stress on one of them, and most of them are appearances research, seldom takes the theory guiding enterprise real practice.

Reverse logistics management researches are always on western thinking mode^[11], pay much attention to the application of mathematical model, ignoring the actual national conditions. The government's policy to reverse logistics management is idealized, finally causes the phenomenon "big thunder, little rain" (The government promotes the policy, but the enterprise implements slowly, the citizens don't correspond actively or in a correct way).

2 Introduction

In the light of China's “Drug Administration Law”, “Adverse Drug Reaction Reporting and Monitoring Management Approach” (Ministry of health, order No. 81) and the drug administration principle that “who produce, who is responsible”, the responsibility main body of the medicine reverse logistics in China is a production enterprise, and the government plays a role as the administrative supervisor. Since drugs are closely related to people's life safety, the effective implementation of the enterprise reverse logistics is an important means of social economic sustainable development. According to the tracking survey made by the professional medical logistics management and consultancy study construction, Shanghai Mdt InfoTech Ltd flux, the current medicine reverse logistics in China is almost out of control: Except the storage and transportation requirements made by most pharmaceutical enterprises themselves, the national level almost has no special specifications on the medicine reverse logistics management; In practice, the hospitals often ask no reasons to return goods, such as cold medicine. As it's known, this type of drug demands special temperature and humidity which can be completely lost in the return process. While Medicines Co can do nothing but only receive, and transfer the drugs to the new sales process; Pharmaceutical enterprises are prone to be more casual in reverse logistics management, such as the general cargo operation treatment drugs return process and the low rate of the reverse logistics facilities. The essay tries to explain the reason why the pharmaceutical enterprises are usually dynamic fatigue in the management of reverse logistics and what means the society and the government can adopt to promote the pharmaceutical enterprises on the supply chain management of medicine reverse logistics.

3 Analysis on Economic Benefits of the Medicine Reverse Logistics

The main objective of enterprise management is to obtain economic benefits. The enterprise can continue to operate when the income is more than the cost. In the drug supply chain, how much do these pharmaceutical enterprises, as the responsibility main body of the medicine reverse logistics, obtain economic benefits? On the basis of the theories of drug economics, economic effect can be divided into

direct and indirect economic benefits. Reverse logistics is different from the forward logistics enterprises, since there is no output and no direct economic benefit in the management^[11-14]. However, due to the obedience with the national policies and the promotion of public benefit measures, the indirect economic benefit is the gained reputation that produces the social benefit which is very difficult to be reflected in the income statement in short term. In contrast, during the management of reverse logistics process, on the one hand pharmaceutical enterprises need to invest a large amount of cost in hardware facilities (such as the construction of logistics center, the increase of reverse logistics function zone, and the purchase of special vehicle) and in the management cost; on the other hand, they should undertake the recovery of drug loss. And what's more obviously, the cost of the pharmaceutical enterprises reverse logistics is much greater than the benefits^[15].

Because of the negative effect that the medicine reverse logistics will bring to the overall economic efficiency of enterprises, the pharmaceutical enterprises' enthusiasm to the reverse logistics management is much low so that the government promotes the importance of reverse logistics actively and the social response is positive, while pharmaceutical enterprises, the real subject, can't be adhere to the long-term and effective implementation of reverse logistics management activities.

4 The Relationship Between Benefit Objectives Management Theory and TCM Five Elements Theory

Generally, the business has five main goals: political benefit, economic benefit, culture benefit, social benefit, as well as ecological benefit, these of which influence each other mutually. Only through combining these factors into a symbiosis system can the companies get the evergreen future possible^[16].

The nature of the objectives benefits is closely similar to the Chinese Five Elements, that is, "wood, fire, earth, metal, water". The first mention of the "five elements" theory is in "Shangshu: Hongfan"^[17]. The properties of the Five Elements are described in the book as follows,

"Wood characterized by bending and straightening". Those which the nature and role of things and phenomena extended to growth, transfer, are attributed to wood. In correspondence, culture benefit in the enterprise benefit should be Wood; culture is the source of enterprise management philosophy, and the starting point of all actions.

"Fire characterized by heating and ascending". Those which the nature and role of things and phenomena are warm and rise can be attributed to the fire. In the enterprise benefit, it should be political effect correspondently, which is the key environmental factors that promotes the growth of enterprises.

"Earth characterized by sowing and reaping". Those which the nature and role of the things and phenomenon are biochemical, carrying, storage belong to the earth. In the enterprise benefit should be the ecological benefit correspondently. This is the survival environmental factor of business, which is regarded as the most neglected business goal but the most fundamental one in the development of enterprises.

"Metal characterized by conforming and changing". Those which the things and phenomena are described as settlement and convergence, belong to the gold. In the enterprise benefit, it should be economic benefits. Enterprises gain money by business, and exchange the means of production, which is the main target of the enterprise market.

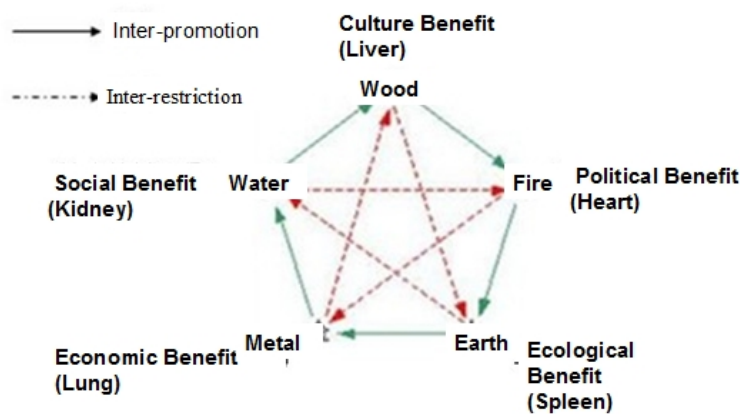


Figure 1 The Analogy Relations Between Five Elements Of TCM and Enterprise Benefit System^[17-18]

“Water characterized by moistening and descending”. Those which the things and phenomena are moisturizing, down, closed reservoir properties, belong to water. In the enterprise benefit should be social benefits. By obtaining social reputation and consumer trust, enterprises achieve sales and long-term market share, the effective communication among staff, managers and the society which makes the enterprise ecological function runs smoothly.

5 The Effect on the Medicine Reverse Logistics Management Due to the Weak Goal “Gold”(Economic Negative Effect)

In the Five Elements, "Metal" corresponding to the enterprises economic benefit. In the relationship of Five Elements, the normal relationship between gold and the other four factors writes as follows: earth generates metal, metal engenders water, fire restricts metal, and metal restrains wood. In Five Elements Theory, five elements reinforce each other to achieve a balanced system. Once some factors' functions are excessively hyperactive or too weak, there will be “over-restriction or counter-restriction” (reverse restraint), that is, once the original balance is broken, the system function will be in disorder. The Five Elements of TCM theory holds that the human body viscera system (five zang-fu organs) corresponds to the five elements, once the balance of five zang-fu organs is broken, human health problems will occur [17]. Applying the analogical thinking principles of Chinese medicine in the enterprise system, the same thing happens in business system. Once some benefits of the enterprise in the operation are poor, benefit system can't keep balanced so that it is also difficult to carry out this operation mode.

Only the balanced five elements can make a dynamic balance. When the metal is too weak, there will be a restriction where fire over restricts metal, and wood counter restricts metal. And in terms of the “mother-organ disorder involving its child-organ”, if metal, as the mother-organ, is too little, it is hard to condensate water, and the earth can't escape too.

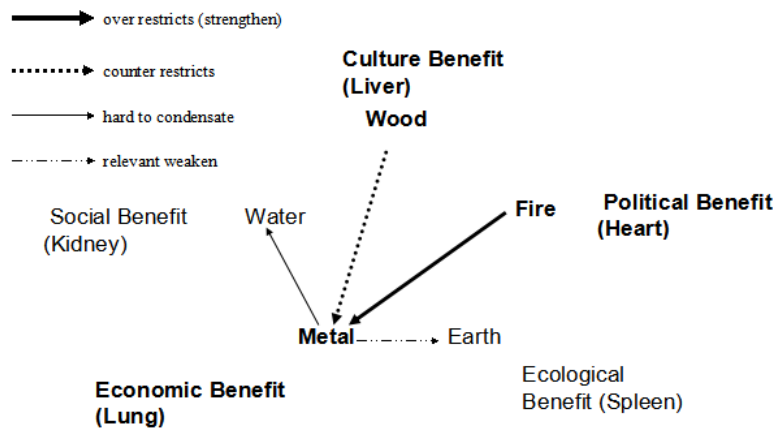


Figure 2 The Effects of the System as If the Metal Is Weaken

Reflected in the five elements of TCM, the point of view is that lung (metal) qi deficiency can cause liver (wood) yang hyperthyroidism, heart (fire)qi blazing (over-restriction), kidney (water) not steady, spleen (earth)qi weak. The negative effect of economic benefit will make the pharmaceutical enterprises lack of motivation when implement government policy. Besides, the introduction of a large number of policy and management made by government will remain on the surface (fire restricts metal), then social benefits will be weakened (metal is too little to condensate water), all of which can make the enterprise ignore or even abandon the management of reverse logistics, and finally make the ecological crisis (the mother organ “promotion element” are also effected by water.).

In 2009, my team conducted an investigation about the residents' attitude towards the abandoned drug, based on the 290 valid questionnaires analysis of Wuchang District in Wuhan City, Hubei Province [11]. We find that residents hold a absolutely high awareness that waste drugs should not be casually discarded due to the government propaganda and the influence of “environmental consciousness” [11]. But the actual environmental processing waste drug reaching rate is not high; what's worse, the measures on the recovery of abandoned drugs made by government are still in dispute, and the

cooperation between government and pharmaceutical enterprises is not smooth. The reason lies that not only the ecological benefit (society) benefits is greater than the economic benefits in medicine reverse logistics, but also the enterprises, as the recycle subject is short of any inducement. Even if the government has issued various instructions and promoted the benefits of reverse logistics vigorously, the implementation is still " Much said but little done ".

6 The Recovery of Balance by Applying TCM Concept “Syndrome Differentiation”

According to the theory of TCM diagnosis, if the deficiency of lung qi exists, the direct way is to enhance the lung qi, and the other way is to make the mother organ (spleen) strong, that is, to enhance the function of the spleen, reinforcing earth to generate metal^[17]. Reflected in the benefit system, it is that to strengthen ecological benefit (earth) research, restrain excessive regulation (fire), at the same time, the most important thing is to promote the achievement of the enterprise economic benefits (enhanced metal element function). Specifically, in order to make the social reverse logistics management effectively, it is necessary to enable the pharmaceutical enterprises gain economic benefits in reverse logistics management first. At the same time, great attention should be paid to the achievement of the five aspects of enterprise's benefit goals. Based on the above analysis, the author put forward the following opinions.

6.1 To enhance the “metal” function, in Chinese medicine, it means to notify lung qi. The government should focus on how to make the whole enterprises in reverse logistics supply chain get the economic benefits.

Economic benefit is the source for enterprise behavior. Economic benefits of enterprise are not obviously high when the enterprise constructs their private reverse logistics system^[11], the author holds the view that reverse medicine logistics in medicine supply chain should be escrowed by those qualified logistics enterprises approved by the government. These enterprises can make profits as the form of the collection of agency fees by taking advantages of scale economy effectively, and meanwhile, they will make the production enterprise free from the unfamiliar business and make a better use of corporate resources to generate more economic benefit.

As the largest pharmaceutical wholesaler in U.S.A, McKesson outsources its drug recovery to the MedTurn (CLS)^[18], which served as the third party medicine reverse logistics operators. Customers return drugs to McKesson distribution center, and then FedEx or UPS experience which has the experience of dealing with drug will transport them to CLS, which produces the most cost. In order to reduce the cost further, McKesson signs a supplier agreement with CLS that customers return drugs to the CLS processing center which is nearest to McKesson directly. The inspection and the management are implemented by the rapid response team that consisted of both sides. The SAP information management system and RFID (RF) are employed in tracking reverse medicine and identifying counterfeit drugs. McKesson has signed return agreement with the downstream customers, so that returning drugs on time is not charged^[18]. According to statistics, through the reverse logistics management, it can reduce 10% logistics cost^[18], which itself has took advantage of a "profit leverage" effect. McKesson plays a “chain master” role in the drug supply chain as a wholesaler: through the integration of drug supply chain resources, the drug supply chain cost is reduced and the efficiency is enhanced, which make the supply chain members liberated from the reverse logistics business.

6.2 To restraint “fire” function, in TCM it means eliminating excessive internal heat. The government should refrain from over publicizing and interfering reverse logistics market.

The government can continue to educate the public treat drug recycling scientifically, promote the development of the third party logistics industry, regulate medical logistics market vigorously, and promote the implementation of the access system. At the same time, the government should avoid the excessive administrative intervention to the market of drug logistics, and prevent some pharmaceutical production enterprise selling products by the government's promotion, all of which prompt consumers to buy and store excessive drug, it will create new waste.

6.3 To enhance the “earth” function, in TCM it means the supplement of the “spleen”. To enhance the study on drug safety influence factors in reverse logistics and harmfulness of environment that the improper treatment of drug recovery brings to.

A lot of data shows that pharmaceutical properties and efficacy changes may occur during transportation because of environmental factors, which may cause drug toxicity or decreased efficacy; discarding drugs is probably to cause environmental pollution^[19]. But these are not studied in depth. With the continuous extension of the pharmaceutical supply chain, the unknown changes of the

pharmaceutical drug efficacy in the logistics will be more and more. Therefore, to know these changes exactly, to control the factors that influence the efficacy and effect of the drugs in logistics, and govern the effect to human beings and the environment, will promote enterprises to manage the reverse logistics to conduct effectively. It has been widely acknowledged in the pharmaceutical industry that drugs need cold chain logistics system to be transported and stored. But the cold chain logistics of reverse logistics has not been given due attention. Since the returned drugs after being inspected and qualified will return to the normal sales channels, these drugs also need cold chain logistics^[20].

7 Conclusion

Medicine reverse logistics management involves many aspects such as enterprises, government, society and etc. In this grand system, the execution process of medicine reverse logistics management by medicine enterprises are more directly affected by their own target benefits. Therefore, there is still a long way to go on how to promote the effective implementation of medicine reverse logistics and to guarantee the people's medicine safety.

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Analysis on the Technological Innovation Dilemma in China's Enterprises

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Abstract: Technological innovation is key power for enterprises to product upgrade and efficiency promotion, which is also fundamental safeguard for an economy in economic structure adjustment, optimizing and development sustainability. According to Schumpeter's theory of technological innovation, this paper has analyzed the model of technological innovation and implementing conditions, explored the power and hindrance factors of technological innovation in China's enterprises under transitional economy, and has also expounded the reasons why China's enterprises are in technological innovation low ebb is on seeking system rents path dependence. Finally, it has put forwards some technological innovation suggestions such as implementing country's innovation strategic planning, industry-policy guiding, cleaning out impediment in economic development and cutting down system rents, and improving market competitive mechanism, enhancing enterprise crisis awareness, intensifying technological innovation management tactics, building division and cooperation atmosphere, making each enterprise exert itself superiority.

Key words: Technological innovation; Innovational mode; Dilemma analysis; policy suggestion

1 Introduction

Logistics, as part of the supply chain process, is the forward and backward control process implementing in order to meet customer demand for goods, services and related information from origin to consumption efficiently, effectively. In today's competitive market economy environment, enterprise logistics is a key link in enterprise production and sales with increasingly highlights its important position and role. Low in specialization, networked and socialization, old in equipment and bad in service, poor in marketing and lack of guidance and industry coordination mechanism, low in informationization and market concentration, small in enterprise scale, inefficient in management and technology, all of which lead to poor competitiveness. This article analyzes the different enterprise innovation path, conditions and confused with the purpose to gain some enlightenments.

1.1 The connotation of technological innovation

According to different links of technological innovation, schumpeter (J.A.S chumpeter, 1912) in the *Economic Development Theory* defined it as the new combination of technological innovation, including five types: new products or services, new methods of production, new markets, new sources of materials and new organization.^[1]

Technological innovation, coming from a new idea, can make new product or service, production method or process, new materials, developing new market and constructing a new organization, especially stressing the guidance of new ideas. Myers and D.G. Marquis (1969) put forward the technological innovation is a complex process, the new ideas, new concepts, by constantly solving problems; end up with an economically-valued and socially-valued new projects.^[2] This concept connotation is narrow, particularly emphasizing the innovation of new ideas.

2 Implementing Condition of Different Technological Innovation New Mode

For a specific enterprise, innovation may be characterized by one or more aspects of the comprehensive implementation. To simplify the analysis, this article, based on innovation main body and the power, discusses the path and conditions of the different technological innovation.

In economic analysis, some scholars believe that demand for change is the main driving force of technological innovation. Through the measure of the investment and invention activities analysis, they found that changes in demand lead to innovation.^[3] enterprise technological innovation follows certain orbit, that is to say by starting market tested the product or service innovation can be achieved. Once the innovation design is appropriate, innovation will leads the enterprise to the development of the unit cost

reducing and production boosting.^[4] But tensile strength of the market demand is necessary and cannot be a sufficient condition of the success of technological innovation. There are still many unsatisfied demand market. Innovation complex scientific knowledge and take in a specific enterprise and time formed by the combination of technological innovation.^[5] With the view that, combining with an efficient market demand and development of science and technology create successful innovation. This article only involves in all kinds of technological innovation subjects, innovation-supported information collection and study, in order to show different path dependence on the pattern of technological innovation.

In the product or service innovation, the product or service innovation success is absolutely significant innovation, which involves the enterprise management in the market competition, customer information collection, sorting and analyzing. knowledge reserves and technology research and development in a product or service innovation, repeatedly market test process In the research and development of a product or service, test the necessary manpower and material resources, funding and necessary preparation technology of huge investment , *etc.* in information support, technology research and development and.

Production method or process innovation is a kind of technological innovation, reducing costs and improving efficiency in the implementation process. The enterprise conducts production technology or technological innovation or improvement. Absolute production method or technique innovation requires totally new thought and scientific knowledge accumulation. Through trial, technical research and development obtain success at last. The most important is to have new ideas and technology research and development personnel reserve, or at least other unit technology for joint research.

Innovation of raw material supply source, invention and production of new materials with certain features, functions to replace the existing material, which are significant innovation. For significant innovations for material source, it needs complete and long development process, and may consume more resources, involved in decision making, information, technology research and development, financial support and many other departments. Also have to amend the existing materials innovation or exploit new supply channels, existing materials to prevent the shortage of material supply and costs rose sharply, and this needs to be associated with technical department, Marketing Department, relatively speaking, cost will less manpower, financial and technical strength.

Significant market innovation is clearly a part of significant product or service innovation. The difficulty of market innovation lies in how to capture the market potential consumer demand information, to form the enterprise feasible new business unit, in order to meet the potential demand of the consumers. It requires acute and long-term vision carefully thinking, higher requirements for market research personnel. The enterprise existing products or services sold to there is no other competition market, the market can only exist in a certain amount of time and space. There is more and more enterprise existing product or service into the competitor's market, occupying the market by comprehensively use of the price and marketing strategy. This requires the enterprise market staff's enthusiasm and efforts to search for information, to analyze the consumer and to find and exploit this opportunity.

The realization of the new organization innovation path depends on the organization of the main leaders' clear strategic thinking. They can carry on the comprehensive and systematic analysis according to the content and characteristics of enterprise business objectives and requirements, advantages and disadvantages of existing organization, and mobilizes all members of the organization to the organization structure, rules, and other fields around the goal of enterprise management. In addition, it calls for junior staff, consistently cooperating actively. It brings bigger impact to the each department of the organization's members. It takes a long time, consumes more resources, and need to formulate reasonable steps to complete innovation gradually.

Therefore, an enterprise must have a positive innovation, technological innovation from the leadership to the staff and have diligently enterprising spirit. The implementation of different innovation must have the manpower, financial and technical basis for guarantee, forming a union between various enterprise departments. Enterprise innovation must capture information such as market, economy development and the policy environment. And it should take the advantage and avoid the negative impact of the environment as far as possible. Last, it should shorten the innovation time and reduce the cost of resources, in order to successfully implement innovation.

3 China's Enterprises Technological Innovation Difficulties

Enterprise technological innovation needs to have certain conditions, such as economy, talent and technology foundation, with fully grasping the role of market, economy and policy environment. Two attributes according to the ownership and scale, the enterprise can be divided into state-owned large enterprises, three types of large private enterprises, small and medium enterprises.

Being large scale, large state-owned enterprises is the dominant force in the national economy stable development, and is the main force of technological progress and the national main tax source, accumulated a lot of technical personnel and management personnel. Because of its large scale, well-funded, sufficient technical personnel, state-owned enterprises have strong economic strength and technical strength to support technological innovation.

Large state-owned enterprise in tax, employment bear the heavy mission. When implementing a great innovation, it need strategic planning and invests a lot of manpower, financial resources, and take a long time which limit its decision-making. And the decision tends to be short, frequent and fast innovation mode, such as the introducing of foreign eliminated but at home temporarily or feasible technology and equipment, enlarging the sales market of existing products, introducing other enterprise or industry product, service, overly diversified management, or five types of innovation in some spots of minor improvements.

Large and medium-sized private enterprises inject vitality of China's economic development and system reform and contribute greatly in the employment and tax revenue to society. Large and medium-sized private enterprises can provide good condition for technological innovation in the economic scale, talent pool and technology basis. Innovative entrepreneurs can make significant innovation positively. This is the only way for private enterprises from small to large and the fundamental guarantee.

Small and medium-sized private enterprises made a significant contribution in the economic and social development to promote the economic growth, convenient people's life and increase the employment. It is an indispensable economic subject in the process of economic development in our country. Private flexible management style, various forms of financing for small businesses, the operation time, such as free and low operating cost has obvious advantages, can capture the market supply and demand information in time, and adapt to the market mechanism of economic subject. These are the advantages of technological innovation in private businesses.

But whether state-owned enterprises or private enterprises, although they are different in their technological innovation conditions, they share some common disadvantages exist in the aspect of technological innovation, embodied in: weak in innovation strategy consciousness, the main management contenting with the status, underpowered progress; Innovation enthusiasm is not high; market competition effect is not strong; the pressure on technological innovation and timing, not to the poor economic situation, suffered persecution, only as a last resort for technical innovation and structural adjustment; Innovation investment dynamics is insufficient, infatuated with eyes have special rights and privileges, seeking rent "system"; Enterprises "internal market" is not sound; the innovative mechanism is not perfect, and not motivate innovation power.

4 Conclusion and Suggestions on China's Enterprises Technological Innovation

Technological innovation is critical factor of the country's economic structure adjustment and industry technology upgrades. Aiming at the advantages and disadvantages of all kinds enterprise innovation conditions, giving suggestions from the level of national and enterprise level respectively.

Firstly, enterprise should strengthen information collection and technology research, develop direction of technological innovation and strategic planning, improve the guidance and the preferential support on technological innovation. In today's information economy society, technology changes rapidly. It is the struggling target for domestic enterprises and research institutions that Studying on the technical gap with developed countries in all walks of life, narrowing the gap and catching up with developed countries. Executing a competitive incentive, the selecting number of fund units, timely to supervise and to give additional support, in order to narrow the gap between our country and the technology of developed countries. Furthermore, it should strive to gradually master the core technology in all walks of life, improve the added value of national economic development in the technology.

Secondly, enterprises should formulate the reasonable policy of industrial upgrading and technological innovation, use administrative, fiscal, taxation and financial means; arouse the enthusiasm of technology innovation of large state-owned and private enterprises. Large state-owned enterprises should bear the mission of technical innovation, but large state-owned enterprises in the innovation

strategy thought on passive, at risk for innovation action concerns. SASAC and other government management department should adjust the management criteria of state-owned enterprises according to the need, increase pressure on large state-owned enterprises in technological innovation, avoid rely solely on policy given the dominance of state-owned enterprises, only by increasing sales and occupying the market low level competition, promote the technical level, product quality, high level competition. By implementing the method of fair, open, cherry-picking technological innovation support, government assists by means of fiscal, tax, financial and other support for breakthrough. It should prize the core technology innovation. the national in respect innovation, positive innovation, and create the atmosphere of respecting innovation.

Thirdly, enterprises should implement the strategy of technological innovation management, maintaining a long-term innovative ideas, strengthen crisis consciousness of in time of peace prepare for war. Our country enterprise excessively pay attention to short-term interests and crowded in a small production, product management. In economic boom period, enterprises usually takes to increase production, expand sales, occupy the market as much as possible to increase short-term sales, maximize profits, ignoring economic boom after the excess must be existing excess production capacity, product, facing the plight of technology, product upgrading. In better-off business period, enterprises do not order the manpower and money for research and development in advance. When the time the poor economic conditions comes, the enterprise capital operation have difficulties in technology innovation, just on economic recovery. In fact, the economy develops more sophisticated rather than simply repeat high - low – high mode, but in terms of technology, product has a lot of improvement on the basis of a Renaissance. Therefore, the enterprises should prepared for the technology innovation in order to win the next opportunity better. When running smoothly, the enterprise shall have the ability to invest more technical innovation, to greet the arrival of the next economic boom.

Fourthly, enterprises should make reasonable allocation policy, people-oriented, weaken the capital owner has too big distribution of privileges, wipe out the system of technology innovation, reduce economic rent system obstacle. Technological innovation to strengthen the role of human capital may weaken the allocation of capital owners. This creates a block the main factors of technology innovation in today's society. Like the late feudal society, the landlord class land ownership is the factors hindering the research on the social progress. "This privilege corrosion will maintain this privileged social vitality"^[6], in a society, enterprise and individual pursuit of pouring system rental hindered the pace of technological innovation forward.

Fifthly, to promote division of labor cooperation between large and medium-sized and small enterprises and technological innovation synergy is by strengthening the construction of standardization of technology products, the realization of technology system decomposition. According to product standardization for technology and function decomposition, many large and medium-sized and small enterprises technological innovation needs the close collaboration between each other. It is advantageous for the industry chain to realize the reasonable division of labor, associated body so as to give full play to the large and medium-sized enterprise research and development power of technology, talent and capital, also transferring the small business vitality.

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The Research on Wuhan Manufacturing Industry Technological Innovation Efficiency Based on Data Envelopment Analysis (DEA) Method*

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Abstract: With the nearly ten years in the development of manufacturing industry in the national economy increasingly prominent position, manufacturing technology innovation related problems are highly noticeable around the world. Based on the domestic and foreign scholars research achievements in the field of technological innovation we have an in-depth study and research, analyzing of the DEA method for manufacturing the applicability of the technology innovation efficiency evaluation. Then we put forward the four technical innovation output indicators and six technology innovation investment index of Wuhan manufacturing industry technological innovation efficiency evaluation system. What's more, we apply the Win4DEAP software to 26 Wuhan manufacturing industry enterprises in 2013 the relevant data for processing of using the method of data envelopment analysis (DEA) to its technological innovation efficiency is evaluated, to explore Wuhan manufacturing industry technological innovation efficiency solutions to problems.

Key words: Wuhan manufacturing; Technological innovation; Efficiency evaluation; Data envelopment analysis (DEA)

1 Introduction

As the national economy material foundation and main industry, manufacturing is developing rapidly in the nearly ten years and plays an increasingly prominent role in the development of national economy. The total output value of Wuhan manufacturing industry enterprises in 2004 was 149.617 billion yuan, in 2013 reached 1.024287 trillion yuan, year-on-year growth rate of 123.83%; And manufacturing industries output value proportion of the total output value of industrial enterprises has increased from 79.71% in 2004 to 98.44% in 2013 [1]. Ruan chengfa in Wuhan in the 12th party congress pointed out that "manufacturing is the cornerstone industry in Wuhan, of china we should attach great importance to the development of the real economy, unswervingly implement the strategy of industrial powerful city, to promote" industrial doubling plan ", to build our city into a national advanced manufacturing center to lay a solid foundation. As for the increasing contribution of Wuhan manufacturing industry in the Wuhan economic and social development, various problems in the development of Wuhan manufacturing, especially the technology innovation problems are more and more noticeable.

2 Literature Review

Abroad, Joseph Schumpeter (J. A. Schumpeter) firstly began to theoretical research on technological innovation, in 1912 he published A book of economic development theory and put forward the concept of technological innovation, for the first time in the book points out that the innovation is entrepreneurs to obtain profit potential and the factors of production new combination [2]. After the theory, represented by Solow, and other scholars believe that the nature of the technology is the same with labor and capital and also an important factor of economic growth. But technological innovation is the endogenous variable [3]. Since the 1950s, many foreign scholars have done a lot of empirical research on technology innovation, in which Mr Brown (1957) published "the innovation of the machine tool industry" in the journal of economics and the university of Sussex in England set up science policy research in this respect is a typical representative.

At home, many scholars from different angles, using different methods to do a lot of research on technological innovation, early Hai Shan Wang (1993) analyzed the UK, Canada, Italy and other foreign technology innovation index, and summarized the research situation analysis, based on the proposed by

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the input index and output index and process indicators of three kinds of index of state (or region) and enterprises (or sector) evaluation index system of technology innovation in terms of comprehensive strength and level of^[4]. Tang Yanzhao, Zou Shangang (1999) on the basis of gray evaluation theory and by comparison method, puts forward the multi-level gray evaluation method of enterprise technology innovation ability, for the objective evaluation, timely adjustment of enterprise technology innovation strategy provides a reliable basis for^[5]. ChaZhiMin, durso double et al. (2004) to build the enterprise technological innovation ability evaluation index evaluation system, by using the theory of analytic hierarchy process (ahp) to China's 2001 large and medium-sized industrial enterprises technical innovation comprehensive ability evaluation^[6]. Yun-fei shao, Justin tan (2006), the formation mechanism of regional technology innovation ability has been discussed in detail the definition, and the connotation of regional technology innovation ability and system structure for the theoretical basis, the forming mechanism of regional technology innovation ability model, the fuzzy mathematical method has carried on the empirical analysis^[7]. Ma Xiandi, ZhuangYu et al. (2007) using DEA method with preference enterprise technological innovation ability to establish a evaluation model, and a case of five representative enterprises, draw a preference model of DEA method which can scientifically evaluate the enterprise's technological innovation status and reasons for diagnosis, conducive to enterprise to make the technical innovation strategy, such as high-level conclusion^[8]. Guo Lei, zhi-ying liu zhi-xiang zhou (2011) innovation in the cross efficiency model of data envelopment analysis is used to the evaluation of regional technical efficiency, and analytic hierarchy clustering method is introduced into clustering similar size of technology innovation investment provinces to study^[9]. NiuZeDong, Zhang Qianxiao (2012), using related industry panel data in 1997-2010 as samples, adopts the output distance function based stochastic frontier analysis method to calculate the technical efficiency of the equipment manufacturing industry in China innovation production activities, and the scale efficiency of it is concluded that by improving the ownership structure. With the conclusion of improve enterprise scale can effectively promote China's equipment manufacturing industry technological innovation efficiency improvement and so on^[10].

Academic circles at home and abroad using a variety of methods in different areas and different fields do a lot of theory and empirical research on technological innovation, is study of Wuhan manufacturing industry technological innovation efficiency, however, very few. This article will combine the current situation of Wuhan manufacturing, selection of Wuhan manufacturing technology innovation of the original indicators, using DEA method of efficiency evaluation, aiming to find the existing problems in the development of technology innovation.

3 The DEA Method to Evaluate the Applicability of the Wuhan Manufacturing Industry Technological Innovation Efficiency

Fuzzy mathematics and analytic hierarchy process (ahp), grey prediction methods of pre-assessment for multi-objective evaluation, because of large amount of calculation, the determination of evaluation index weight with strong characteristics of subjectivity, makes the evaluation result is impartiality. Due to the relatively strict hypothesis test of factor analysis leading to frequent index adjustment, and makes the index classification method and index of economics to explain too far-fetched, the analysis results are often unsatisfactory.

Wuhan manufacturing industry technological innovation efficiency evaluation, need to consider multiple input and multiple output indicators, most of which index formula and the weight is difficult to set up the production in advance. DEA model of evaluation is similar as a frame of reference for comparative analysis, no preset production function and weight, for input and output of technology innovation activity has good applicability, objectivity; Finally, the DEA model of data processing, can not restricted by the input and output indicators dimension selection, without prior to correlation analysis of indicators, making data processing is simple and feasible. In view of the above reasons, this article choose DEA method to evaluate the Wuhan manufacturing industry technological innovation efficiency.

4 Wuhan Manufacturing Industry Technological Innovation Efficiency Evaluation System

For scholars of the selection of the index system of technology innovation are diversified, such as hai-shan wang (1993) to put forward by the input index output index and process indicators of three kinds of index of state (or region) and enterprises (or sector) evaluation index system of technology

innovation in terms of comprehensive strength and level of ^[4]. By the innovation of system, Chen Yufang (2006) design output performance and the performance of the two aspects of innovation process is given priority to with product innovation performance evaluation index system of enterprise technology innovation ^[11]; De-yuan zhang, Zhang Jiexi (2013) built by the environment of technology innovation, technology innovation and technology innovation input-output three categories of agricultural technology innovation capability evaluation index system ^[12]. Follow the scientific nature of the index selection, consistency, and comparability principle, together with the present situation of the development of the manufacturing industry in Wuhan, this article selects six five input index of technological innovation and technological innovation output indicator of constructing Wuhan manufacturing industry technological innovation efficiency evaluation system (as shown in table 1).

Table 1 Wuhan Manufacturing Industry Technological Innovation Efficiency Evaluation System

	Category	index	Calculation method
Technology innovation investment	Science and technology input	R&D spending	R&D Intramural Expenditure(\$one thousand)
		R&D personal input	total staff
		R&D institution input	R&D activities of companies
		Science and technology projects	Number of projects
		Technical renovation expenses	The technical reconstruction spending
	New products input	New products input	New products development spending
Technology innovation output	S&T output	Invention patent output	Effective number of invention patents (items)
	Profit output	Profit output	Total profit(\$one thousand)
	New Product Output	New product sales output	Sales of new products(\$one thousand)
		The output value of new products	New product output(\$one thousand)

5 Wuhan Manufacturing Industry Technological Innovation Efficiency Evaluation

According to table 1 of Wuhan manufacturing industry technological innovation efficiency evaluation system, this article selects the 31 Wuhan manufacturing industry in 2013 as the research object is analyzed. Based on the principle of comparability index study, considering the leather rushes down and its manufacturing, oil processing and coking and nuclear fuel processing industry, chemical fiber industry, non-ferrous metal Smelting and rolling processing industry, resource waste and old materials recycling industry five industries in multiple aspects of technological innovation input and output index of zero, so will the five industries, only for the rest of the 26 industry using DEA analysis software.

Using 26 Win4DEAP software of Wuhan manufacturing industry technological innovation input and output of 10 2013 index to calculate. Selection of investment orientation, scale reward variable DEA (1 - stage) model to calculate and get the analysis results of table 2. According to the calculated data of table 2 for the purpose of intuitive, also made entirely of Wuhan manufacturing industry technical efficiency (as shown in figure 1).

From the above chart shows, the Wuhan manufacturing industry technological innovation rate exist the following problems:

The table 2 and figure 1 shows that in the analysis of the 26 Wuhan manufacturing industry, the comprehensive technical efficiency index of average of 0.852; 16 industry technology innovation efficiency index is 1.00, is in a state of technical efficiency effectively; Technological innovation efficiency index in 0.5 ~ 1 industry has six; But agricultural food processing industry, fabricated metal products, railway, shipbuilding, aerospace and other transportation equipment manufacturing, handicrafts and other four manufacturing industry technological innovation efficiency values are below 0.5, low efficiency of technological innovation, the input and output adjustment needs.

Table 2 Win4DEAP Software Evaluation Results 1

Trade	The comprehensive technical efficiency	Pure technical efficiency	The scale efficiency	The size of the returns
Food manufacturing	1.000	1.000	1.000	The same
Beverage manufacturing	1.000	1.000	1.000	The same
The tobacco industry	1.000	1.000	1.000	The same
Wood processing and wood, bamboo, cane, palm, grass products	1.000	1.000	1.000	The same
Furniture manufacturing	1.000	1.000	1.000	The same
Paper and paper industry	1.000	1.000	1.000	The same
Printing and recording media copy	1.000	1.000	1.000	The same
Cultural and educational sporting goods manufacturing industry	1.000	1.000	1.000	The same
Chemical raw materials and chemical products manufacturing	1.000	1.000	1.000	The same
Pharmaceutical manufacturing	1.000	1.000	1.000	The same
Rubber and plastic products	1.000	1.000	1.000	The same
Non-metallic mineral products	1.000	1.000	1.000	The same
Black metal smelting and rolling processing industry	1.000	1.000	1.000	The same
General equipment manufacturing industry	1.000	1.000	1.000	The same
Car manufacturing	1.000	1.000	1.000	The same
Communication equipment, computers and other electronic devices	1.000	1.000	1.000	The same
Instrumentation and cultural office machinery manufacturing	0.970	1.000	0.970	diminishing
Special equipment manufacturing	0.949	1.000	0.949	diminishing
Electrical machinery and equipment manufacturing	0.802	1.000	0.802	diminishing
Metal products, machinery and equipment repair	0.702	0.702	1.000	The same
Textile industry	0.697	1.000	0.697	increasing
Textile and garment, shoes and hats manufacturing	0.632	0.760	0.832	diminishing
Railway, shipbuilding, aerospace and other transportation equipment manufacturing industry	0.481	0.485	0.993	increasing
Agricultural and sideline products processing industry	0.472	1.000	0.472	diminishing
Fabricated metal products	0.370	0.413	0.898	diminishing
Arts and crafts, and other manufacturing industries	0.072	0.399	0.180	increasing
The mean	0.852	0.914	0.915	

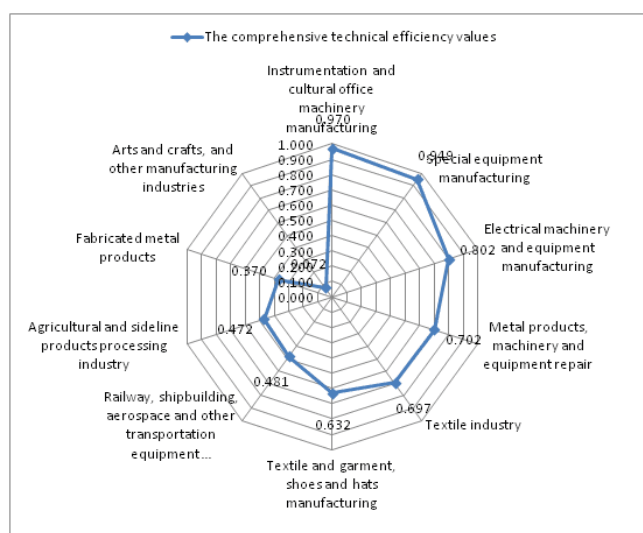


Figure 1 2013 Wuhan Manufacturing Technical Efficiency of Industry Effectively

Table 3 Win4DEAP Software Evaluation Results – 2

Output slack variable values				
trade	Effective number of invention patents (item)	New product sales (\$one thousand)	New products output (\$one thousand)	Profit (\$one thousand)
Textile and garment, shoes and hats manufacturing	0.000	0.000	13193.965	0.000
Fabricated metal products	0.000	0.000	54606.617	0.000
Other transportation equipment manufacturing industry	0.000	0.000	558641.314	0.000
Arts and crafts, and other manufacturing industries	0.000	9693.774	11661.659	115701.263
Metal products, machinery and equipment repair	0.000	11451.526	14211.579	134791.211

Table 4 Win4DEAP Software Evaluation Results

Input redundancy variable values						
trade	R&D spending (\$one thousand)	R&D staffl (a)	R&D Activities companies (unit)	R&D numbers (item)	New product development (\$one thousand)	The technical reconstruction spending (\$one thousand)
Textile and garment, shoes and hats manufacturing	27967.600	180.231	0.835	0.000	12285.750	25490.582
Fabricated metal products	17716.503	371.574	0.000	4.103	0.000	0.000
Other transportation equipment manufacturing industry	24492.186	1418.717	0.000	0.000	0.000	25938.085
Arts and crafts, and other manufacturing industries	5343.947	12.982	0.000	0.000	0.000	0.000
Metal products, machinery and equipment repair	26993.684	124.070	0.281	0.000	20968.509	0.000
Input redundancy variable values	R&D spending (\$one thousand)	R&D staffl (a)	R&D Activities companies (unit)	R&D numbers (item)	New product development (\$one thousand)	The technical reconstruction spending (\$one thousand)

1) technological innovation efficiency of effective industry scale reward have increased

In 10 comprehensive technical efficiency value is less than 1.0 in the industry, textile industry, railway, shipbuilding, aerospace, and other transportation equipment manufacturing, crafts and other three manufacturing industry scale reward, the investment evaluation system in the corresponding input indicators, will be good for the industry to promote the efficiency of technology; Instrumentation and cultural office machinery manufacturing industry, special equipment manufacturing, electrical machinery and equipment manufacturing, textile and garment and shoes manufacturing, agricultural food processing industry, fabricated metal products and other six industry presents the diminishing returns of scale, the need to reduce the corresponding indicators into the indicator system of the inputs to improve the efficiency of technology.

2) the technical efficiency is low industry is faced with the problem of insufficient input redundancy and capacity

The table 3 and table 4 shows that textile and garment, shoes and hats, fabricated metal products manufacturing, railway, shipbuilding, aerospace and other transport equipment manufacturing, handicrafts and other manufacturing, metal products, machinery and equipment

repair 5 low technical efficiency industry are faced with input redundancy and the problem of insufficient capacity, should be listed in the table refer to adjust resource, to improve the efficiency of technology innovation of the five industries.

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Literature Review on the Service Quality in Higher Education for International Students in China Based on Services Marketing

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Abstract: With the rapid development of the international education in China, the quality of education service for international students is drawing great attention for all the parties. By researching related literatures about the current situation of education service for international students in China, quality evaluation models both at home and abroad, and the promotion strategies for the service quality in China, this paper lays a foundation for further research of the quality of international student educational service, from the angle of services marketing.

Key words: Services marketing; International students in China; Quality of higher education service

1 Introduction

In recent years, service management, marketing and other advanced theory of management have been gradually leading the new trend of higher education research. Services marketing theories are frequently applied to higher education research by foreign scholars. How to use the concept and the model of services marketing to carry on the service quality in higher education research has been the focus of attention of the scholars. Under the macro background of the internationalization of higher education, the education for international students has developed rapidly; however, the service quality has not been taken seriously in the process. Although the domestic scholars have done an in-depth research, most of the researches focus more on management and few are about feasible and applied researches in improving the quality. Therefore, the necessity of this research area is determined by the particularity of higher education for international students in China and shortcomings in the current research. Based on services marketing theory, this paper summarizes and analyzes the present situation of the service quality of higher education for international students in China in recent years; meanwhile, it sums up and sorts out the evaluation model of the service quality in higher education overseas and in China. Furthermore, it puts forward some strategies on how to improve the service quality in higher education for international students in China. In this way, it can provide references and enlightenment for future academic study and educational practice.

2 The Present Situation of the Service quality in higher education for International Students in China

2.1 The number of international students increases rapidly, but the origin of student and colleges distribute unevenly

In recent years, the number of international students has been increased more than 20% per year. According to the China Education Yearbook for 2012, the total number of international students studying in China exceeds 290,000 in 2011 for the first time. Compared with 2010, the total number of international students in China increased by 27521, an increase of 10.38% and it has set a new high since the founding of New China. Although the number of international students increases rapidly, but over half of them come from Asia, very few from European and American areas. Therefore, the origin of student distribute unevenly. As shown in Table 1.

Table 1 2009-2011 The Number and Proportion of the Origin of International Students in China

Continent	2009		2010		2011	
	Number	Proportion	Number	Proportion	Number	Proportion
Asia	161,965	68%	175,805	66.32%	187,871	64.21%
Europe	35,728	15%	41,881	15.8%	47,271	16.15%
America	25,486	10.7%	27,228	10.27%	32,333	11.05%
Africa	11,909	5%	16,403	6.19%	20,744	7.09%
Oceania	2,620	1.1%	3,773	1.42%	4,392	1.50%

In addition, there are 544 colleges that are qualified for enroll international students, and there are 76 colleges in Beijing alone. Under the effect of the famous schools, more and more foreign students prefer to choose prestigious universities. As a result, a short supply of students plagues some general universities, even distinctive colleges.

2.2 The whole education level maintains a healthy rate of growth, but the high-level curricula education develops slowly

International students are divided into two categories: degree students and non-degree students. The former includes doctor degree students, master degree students, undergraduates and junior college students; the latter includes senior scholar students, general visiting students and short-term international students. According to the China Education Yearbook, the total number of international students who attend degree courses in China is 118,837, accounting for 40.61% of the total number, a rise of 11,405 compared with 2010 and an increase of 10.62%. The total number of doctor degree students and master degree students is up to 30,376, an increase of 25.57% over 2010, and there are 23,453 master degree students and 6,923 doctor degree students. Thus it can be seen that the whole education level maintains a healthy rate of growth, but the high-level curricula education develops slowly. As shown in the Table 2, The increase in international students mainly results from the growth of students without degrees; furthermore, the growth of students with degree is mainly due to the increase in undergraduates. Therefore, the number of students still remains in a lower-level expansionary phase.

Table 2 Year 2009-2011 The Education level of International Students in China

Level	Year Number	Non-degree Students	Degree Students		
			In Total	Including	
				Undergraduates and Junior College Students	Master and Doctor Degree students
2009		144,734	93,450	74,472	18,978
2010		157,658	107,432	82,566	24,866
2011		173,774	118,837	88,461	30,376

(Source of Processing of Data: China Education Yearbook)

2.3 The management of international students has been gradually improved, but the awareness of quality management remains undeveloped at large.

In recent years, China has kept reformed and innovated administrative system for international students and meanwhile, universities, as the subject of managing international students, have more autonomy increasingly. The management of international students involves many factors, mainly including enrollment, entry and exit procedure settlement, and status management, teaching management, ideological education and daily life management when they study abroad. Although education management models for international students vary from one university to another in China, and both the government and universities have built the corresponding mechanism and management systems to make sure the management of international students to go on smoothly.

Meanwhile, in spite of the increase in the numbers of international students, the difference of the qualification of administrative staff and teachers and management methods, the management of international students in each school is still very mechanical. In addition, quality management is not included in the process of management, so the administrative staff lacks a sense of service and quality.

3 International marketing of Higher Education Services

Considering the current situation of the higher education service for international students, it's urgent to enhance awareness of international marketing of higher education services, built its international brand and improve the market competitiveness.

International higher education service, which is also a typical product, has the same basic features of service products--the invisibility, inseparability, perishability and heterogeneity of production and consumption^[1]. These characteristics put forward some special requirements on the international marketing of higher education. Therefore, firstly, build international brand awareness of higher education services, establish schools' international fame and brand image and pay attention to value-added products of higher education services; secondly, give full play to its price advantages and make scientific pricing on the basis of cost accounting; finally, expand new ways of international marketing of higher education service, for example, how to build teaching projects abroad through

strategic alliance and how to implement transnational distance education by technological medium.

4 Literature Review of Empirical Research on Evaluation Models for the Service Quality in Higher Education

There are mainly two kinds of evaluation models for the service quality in higher education by scholars overseas and in China: one is the SERVQUAL model. This model first was proposed by three academics Parasuraman, Zeithaml and Berry, and its theoretical core is 'service quality gap model' which means the service quality depends on the difference between the service level customers perceived and the service level they expected^[2]; The second is SERVPERF model. This model research shows that it is sufficient to measure directly service quality customers perceived without having to measure expected quality when we measure the higher education service quality, and service quality customers perceived can be measured directly by service performance^[3]. In addition, other scholars have put forward or developed some new evaluation models, such as Brady's perception quality model. The model suggests that service quality is a kind of perception in essence, which is decided by the comparison between customer's service expectation and the actual service. Among the evaluation models of the higher education service quality, the SERVQUAL model and its evolution models are most often used^[4]. Scholars like Kay pointed out that the reason is that the SERVQUAL model has strong practicability and sensitivity in collecting and analyzing education service information of students' perception^[5].

In the empirical study of higher education service quality, the researches of domestic and foreign scholars mainly focus on higher education quality evaluation of Chinese students, but the studies of college students' education service quality evaluation are relatively rare. This paper summarizes empirical study of higher education service quality evaluation model by some scholars both overseas and in China in recent years, as shown in table 3.

Table 3 Empirical Research on Evaluation Models for the Service Quality in Higher Education Overseas and in China

Category	Researchers and Time	Sample	Model	Dimensionalities of the Model	Scale Design
Overseas	Gary Don Schwantz (1996) ^[6]	92 fresh graduates and 116 on job students from the Texas Tech University in America	SERVQUAL Model	5 Dimensionalities: Tangibility, Reliability, Responsiveness, Assurance and Empathy	39 Questions
	Owlia and Aspinwall (1998) ^[7]	205 Students and 40 Teachers from the University of Birmingham in England.	Revised SERVQUAL Model	4 Dimensionalities: Academic Resource, Capability, Attitude and Content	19 Questions
	Martin A. O'Neill and Adrian Palmer (2004) ^[8]	368 Students from a State University in Western Australia	Revised SERVPERF Model	3 Dimensionalities: Procedural, Empathy and Tangibility	22 Questions
	Robert J. Angell (2008) ^[9]	170 Postgraduates from the Faculty of Social Science and Economics at the University of Plymouth in England	Revised SERVQUAL Model	4 Dimensionalities: Study, Relaxation, Employment and cost	20 Questions
In China	Zhu Guofeng, Lan Xingfang (2003) ^[10]	345 Students from Zhejiang Institution of Communication	SERVQUAL Model	5 Dimensionalities: Tangibility, Reliability, responsiveness, Assurance, Empathy	22 Questions
	Luo Changfu (2005) ^[11]	146 Students from the School of Graduate of Chinese Academy of Agriculture Science	Revised SERVQUAL Model	6 Dimensionalities: Tangibility, Reliability, Responsiveness, Assurance, Empathy and Overall Perception Quality	40 Questions
	Gu Jiafeng (2006) ^[12]	288 Students from Peking University	Revised SERVQUAL Model	6 Dimensionalities: Interactivity, Reliability, Value, Assurance, Caring and Appearance	24 Questions
	Hu Zixiang (2006) ^[13]	239 Students from a university	Perception Quality Model	9 Dimensionalities: Brand Image, Employment Service, Curriculum, Emotion, Teaching Process, Reliability, Talent Cultivation, Teaching Conditions and Service for Life	35 Questions
International Students	Tomkovicck Chuck and Al-Khatai Jamal (1996) ^[14]	282 International Students from a S	SERVQUAL Model	5 Dimensionalities: Tangibility, Reliability, Responsiveness, Assurance, Empathy	20 Questions
	Mao Lunhua (2006) ^[15]	61 Students from Shanghai Institution of Physical Education	SERVQUAL Model	6 Dimensionalities: Inputs Quality, Core Service, Ancillary Service, Teacher-Student Interaction, Students Interaction, Outcome Quality	35 Questions
	Rodney Arambewela and John Hall (2006) ^[16]	573 International Students in Victoria, Australia	SERVQUAL Model	5 Dimensionalities: Tangibility, Reliability, Responsiveness, Assurance, Empathy	36 Questions
	Bradley R. Barnes (2007) ^[17]	102 Students from China in a University in England	SERVQUAL Model	5 Dimensionalities: Tangibility, Reliability, Responsiveness, Assurance, Empathy	19 Questions

Through the researches by the scholars overseas and in China on the evaluation model for the

service quality in higher education for local and international students, it can be concluded that both of them adopted SERVQUAL evaluation model that is more widely used, or revised and developed them on the basis of this model. However, the cultural differences, communication and environmental adaptation and other factors were taken into account when designing the model dimensionalities and the items of the questionnaire of evaluation for the service quality in higher education for international students.

5 Literature Review of Ensuring the Service Quality in Higher Education for International Students

5.1 Adhering to the customer-oriented marketing philosophy

Customer-oriented higher education means that the whole staff and relevant personnel of universities should regard customer orientation as the principle and put students at the center of the service, meanwhile, all staff are required to have motivations and skills of serving students, furthermore, they have to improve the service level according to the needs of students. Customers markets of higher education are characterized by customer diversity, exchange network, lifelong customer value, the diversity of student role, and the complexity of the consumer decisions^[18]. Universities in China must change service concept, adhere to the customer-oriented marketing philosophy, and apply the advanced marketing theories and methods to improve the overall quality of the foreign student education service.

5.2 Improving each education service products

From the perspective of students, higher education service products is a relatively broad concept, mainly including the level of teachers, management service awareness, hardware facilities, logistic services and other aspects. For teaching management, universities should integrate teaching resources, attach great weight to the training of teachers for international students' education, and improve the level of English teaching; on the other hand, universities should increase the teaching management, adjust and improve the teaching plans and course arrangement according to the ideological difference of Chinese and foreign education; in addition, universities should be supposed to further deepen the educational reform of the international students, raise the overall level of education and increase its appeal overseas. For infrastructure investment, universities should add the investment on the hardware facilities, improve the learning and living environments for students, especially speed up the utilization and research on multimedia and network teaching through a variety of channels.

5.3 Formulating diversified pricing strategies

Targeted at different kinds of origin of student, pricing of universities mainly formulate the corresponding strategies in terms of tuition fee, scholarships and allowances for learning. The universities in China can formulate appropriate financial aid and scholarship systems by drawing common practices from foreign universities. In the admission process, universities should reward foreign students with good examination results or remarkably comprehensive quality by tuition-fees exemption and providing them with entrance scholarships. Universities should give work-study posts to international students with poor economic conditions according to their personal skills and characteristics.

5.4 Making an all-around marketing promotion

The overseas promotion of universities intends to strengthen international students 'recognition of China and Chinese universities' brand and enhance the reputation of China and Chinese universities, thus making international students customer resources. On the one hand, universities should 'go global' to expand its influence by means of the international education exhibition and the international public welfare activities; try to get more subject authentications by international authorities; try to offer publicity on the media such as broadcasting stations abroad and newspapers; On the other hand, universities realize the transformation of their own resources by "bringing in" strategies, such as making use of alumni effect, keeping in touch with overseas alumni and returned students at regular intervals, or holding a variety of alumni gatherings. In this way, overseas students can be attracted with the help of their positive impact in the industry.

5.5 Expanding diversified enrollment channels

Traditional channels in universities is generally a "admission dicing" model, but as the years went by, delivery channels of higher education service have moved forward in the direction of diversity, networking and internationalization. Overseas recruitment channels can adopt the diversified model, including internal channel, external channel and network. For internal channel, it sends teachers to recruit students abroad and to attract overseas students by using its own advantages; for external channel,

the scale of enrollment is expanded by cooperating with intermediary institutions overseas and in China visiting foreign universities. Network channel means strengthening the website construction of English or other languages at universities, promoting and introducing the history, achievements and characteristics of universities as well as publishing the regulations on admission on the Internet, thus realizing the enrollment online.

6 Conclusion

To sum up, scholars overseas and in China made a detailed research in the higher education service, but the research on the service quality in higher education for international students mainly focused on the marketing theory and education management, and the researches related to service quality are less, not to mention about the research on evaluation for services quality higher education for international students. Based on the limitations of current research, the paper proposes the following suggestions for further research:

1. Increasing the proportion of the service marketing theory in researches on higher education for international students in China. Nowadays, there is little research on the service quality in education for international students overseas and in China; however, with the speeding up of the internationalization of higher education, the service level and the awareness of students have been the focus of universities. Therefore, it is scientific and practicable to introduce the theory of service marketing as well as to evaluate and research the service quality education for international students in China from the perspective of customer perception.

2. Strengthening the empirical research on the evaluation for service quality in higher education for international students in China. Currently, most researches in the field have remained at the theoretical level, so we should make some empirical researches based on the specific circumstances of universities in China, thereby building the evaluation models for the service quality in higher education which are more suitable for the situation of our country.

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Study on Information Security Incidents Management in Automobile Manufacturing Enterprise*

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Abstract: At present, information security incidents in automobile manufacturing enterprise occurs frequently and brings severe consequence. This paper aimed to discuss the reasons and consequences of information security incidents, and build up a synthetic management model of information security incidents in automobile manufacturing enterprise. Firstly, this paper defined and analyzed the definition, classification and grading of information security incidents in automobile manufacturing enterprise. Then, this paper putted forward a set of comprehensive management method, and constructed a synthetic management model of information security incidents in automobile manufacturing enterprise based on the analysis on the reasons and consequences of information security incidents.

Key words: Automobile manufacturing enterprise; Information security incidents; A synthetic management model

1 Introduction

Nowadays, under the background of the increasingly fierce competition in the automotive industry and network security facing serious challenges, the factors which lead to information security incidents in automobile manufacturing enterprise not only include computer management deficiency or network attack, but also include secrets-divulging to unrelated people or even competitors intentionally or accidentally in the process of communication. As long as these anomalies degenerated into information security incidents, they would damage enterprise's business and even influence its existence and development to some degree. Moreover, big automobile manufacturing enterprise often has complicated organization structure, frequent transfer of internal and external personnel, a large amount of rapidly flowing information, and so on. All of these are increasing the difficulty to prevent or control information security events effectively. This paper aimed to achieve efficient and effective management of information security incidents in automobile manufacturing enterprise.

2 Classification and Grading of Information Security Incidents in Automobile Manufacturing Enterprise

2.1 Definition of information security incidents in automobile manufacturing enterprise

Combining with the characteristics of automobile manufacturing enterprises, the definition of information security incidents of automobile manufacturing enterprise can be defined as: the events that would cause damage to the enterprise or have negative impact on society when secret information is leaked, exposed, or stolen for natural, man-made factors or the defect and failure of software and hardware, which would destroy the integrity and confidentiality of the enterprise's information assets.

The form of the information security incidents of automobile manufacturing enterprise is varied, but mainly includes: ①The exposure of product planning information; ②The exposure of product technical information; ③The exposure of product defect information; ④The resale of technical drawings by suppliers; ⑤The diffusion of internal information by employees; ⑥Computer virus and network attack; ⑦The damage of network communication equipment.

2.2 Classification of information security incidents in automobile manufacturing enterprise

Combined with information security incidents that automobile manufacturers' often happen, automobile manufacturing enterprise's information security incidents can be mainly classified into four categories: Information Destroy Security Incidents, Information Content Security Incidents, Information Technology Security Incidents, and Information Facilities Security Incidents (See Table 1)

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Table 1 The Classification of Information Security Incidents in Automobile Manufacturing Enterprise

Number	Type	Description
1	Information Destroy Security Incidents	It refers to the information security incidents that resulting in the information of system has been tampered, counterfeited, leaked, Intercepted, etc. through a network or other technical means.
2	Information Content Security Incidents	It refers to using information networks to publish, transmit the information which endangering national security, social stability and public interests.
3	Information Technology Security Incidents	It refers to harmful program incidents and network attacks incidents. For example, harmful program incidents destroy the system data, or external person use configuration defects, protocol defects, bugs or violent of information systems to attack information systems.
4	Information Facilities Security Incidents	It refers to that the own fault of information systems or the fault of perimeter protection facilities due to natural disasters or the artificial maintenance, so that the integrity and confidentiality of information are destroyed.

2.3 Grading of information security incidents in automobile manufacturing enterprise

In addition to category management, automobile manufacturing enterprises should do grading management for the information security incidents. According to the National Standard GB / Z20986-2007, and combining with the specific circumstances of automobile manufacturing enterprise by considering these three factors (namely the importance of information assets, losses caused by information security incidents and social impact Comprehensively), the information security incidents of automobile manufacturing enterprise can be classified into four grades: special significant events (grade I), grave events (grade II), larger events (grade III) and general events (grade IV).

3 Constructing of the synthetic Management Model for Information Security Incidents in Automobile Manufacturing Enterprise

3.1 Causation of information security incidents in automobile manufacturing enterprise

Generally speaking, the reasons of information security events in automobile manufacturing enterprise are loopholes in management and technology. This paper found that the information in different stages would face different threats by studying various stages of the information after the information generated.

Figure 1 show that information is evoked by management and technical loopholes in different stages, triggering a series of information security incidents in the role of the variables α .

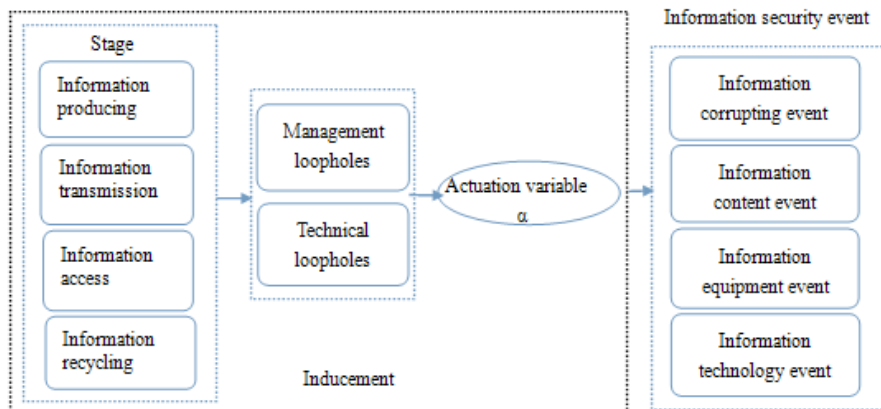


Figure 1 Generating Process of Information Security Events

3.2 Consequences of information security incidents in automobile manufacturing enterprise

Information security events do not cause direct harm to business generally, but may have different effects on the survival and development of enterprises through other ways.

Figure 2 shows how does the enterprise information security event affect corporate image, core competitiveness and profitability through the Intermediate action variable β indirectly. $\beta = \{ \text{Competitors} \}$

to obtain benefits, Negative news and so on } . “Competitors to obtain benefits” refers to competitors get automotive components drawings, key production technical information, product planning and deployment of the company's development of information and so on by various means. “Negative news” refers to the product quality problems and other unhealthy image of corporate and product information content or other similar information out of enterprise’s control.

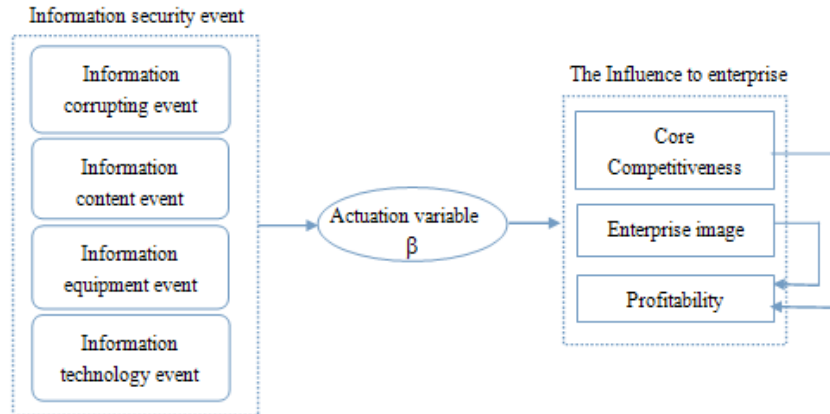


Figure 2 Action Process of the Influence to Enterprise

3.3 Comprehensive management of information security incident in automobile manufacturing enterprise

Based on the analysis of the influence and the causation of the information security incident in automobile manufacturing enterprise. This paper putted forward a set of management mechanism to manage the information security incident in whole Process. That is the total management which contains pre-incident management, in-incident management and after-incident management. Only by this method can the enterprise prevent the happening of the information security incident in earlier stage, control the information security incident effectively to decrease the harmful effects when it happens, analyze, summarize and feedback the merits and demerits of the management scheme to improve and perfect the management.

3.3.1 Pre-incident management

As the earlier stage work, what the enterprise should do firstly is setting up a special organization, for example the Information Security Management Committee to be responsible for the Classification and Grading of information security incidents in automobile manufacturing enterprise; secondly, the organization should Make corresponding information security awareness training plan to improve the security awareness of Secret Related Personnel; thirdly, formulating corresponding classification standard of information security events as a basis for determine how much energy should be paid on it is necessary.

3.3.2 In-incident management

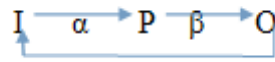
In daily business, the information security incident management personnel should abide by the responsibility according to the arrangement of the information security management agency in the earlier time. Once the information security incident in automobile manufacturing enterprise happened, what the detecting personnel of information security incident should do firstly is collecting the data completely and report to the information security management agency at the first time. Then the management agency should evaluate its levels and categories as soon as possible, and control it with corresponding material, personnel and financial resources.

3.3.3 After-incident management

After the treatment of one information security incident, it's necessary for the information security management agency to analyze every data deeply to find out the source of the information security incident, then feedback to the corresponding department; meanwhile, rethinking about the management mechanism of information security incident management, redesigning the management technology to improve the management technology and perfect the management mechanism; and what could not be ignored is the appropriate rewards and punishments measures to the personnel involved into the information security incident.

3.4 Comprehensive management model of information security incident in automobile manufacturing enterprise

The model used the “IPO” analysis structure that is “Input-Process-Output”.



$O=f_2(P, \beta) = f(I, \alpha, \beta)$, $P=f_1(I, \alpha)$, $I= \{ \text{management-faults, Tech-leak} \}$,
 $\alpha = \{ \text{info-management, personnel management, equipment management, technical support, incident management mechanism} \}$,
 $\beta = \{ \text{obtainen by competitors, negative influenceetc.} \}$,
 $P= \{ \text{enterprise image, core competence, profitability} \}$.

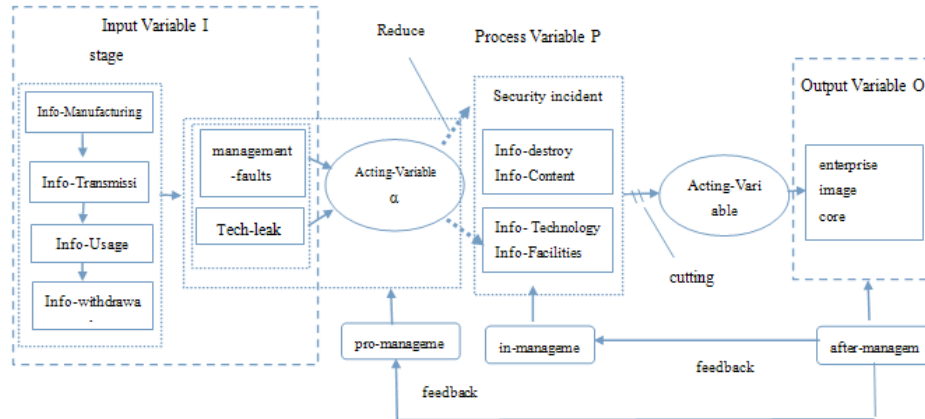


Figure 3 Comprehensive Management Model

The model showed the process that management and technical loopholes induce a series of action variables and threat enterprise throughout the corporation information assets’ life cycle, which eventually lead to information security incidents and damage corporate interests.

4 Conclusion

Aiming to discuss the reasons and consequences of information security incidents, this paper defined and analyzed the definition and classification & grading of information security incidents in automobile manufacturing enterprise. Then, this paper putted forward a set of comprehensive management method, and built up a synthetic management model of information security incidents in automobile manufacturing enterprise based on the analysis on the reasons and consequences of information security incidents.

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Global Risks and Resilience

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Abstract: As global risks are transcending national boundaries, business, governments or civil society alone do not have the tools and the authority to tackle the increasingly interconnected set of risks and actions to build resilience. Nine core drivers comprise the FM Global Resilience Index and are grouped into three categories: economic, risk quality and supply chain factors. The purpose of this article is to analyze the relationship among components of resilience and impacts in relation to global risks in 132 countries. Data was analyzed with factor analysis and multiple linear regression techniques using MINITAB 16 software. The study seems to indicate that regardless of how effective public policies may be in reducing risks, inherent crisis will continue to take place with potentially serious consequences. There however hope that studies on resilience may foster collaboration between the public and private sectors and academia to strengthen joint risk management frameworks that empower communities to build their own resilience to a range of local and global risks.

Key words: Resilience; Economic risk quality; Supply chain factors; Global risks

1 Introduction

Recent fast growing of cities in developing countries and emerging economies represent a great challenge to local authorities that are not able to cope with the infrastructure needed with the influx of so many people in such a short time. This leads to question which measures are suitable at national and international level to raise the resilience of cities towards natural hazards and the impacts of climate change under this fast population dynamics changes.

The resilience of a country is measured by many factors. These include the quality of the government, and governance in general; the strength of its institutions, especially the economic and financial policymaking institutions in the country; the soundness of its banking sector—and the financial sector more broadly; the structure of the economy—including such things as its export dependency and diversity, its openness to global financial markets, and other such factors; and its policy-making space at any given time, particularly in the areas of fiscal, monetary, and reserves policy.

Actually informal settlers in developing countries have taken adaptive measures to respond to threats posed by natural hazards. They are attempting to have budgets provided by the municipal authorities for this purpose. Unfortunately, again and again their proposals are ignored by the authorities. At the same time, there is a need for examples and concepts of how cities may enhance their resilience – in cooperation with the inhabitants.

This study aims to analyze the relationship among economic, risk quality and supply chain factors, to determine the resilience of an economy, and its ability to give policy makers a more clearer insight into the sources of their country's resilience and the specific areas where further strengthening is needed.

2 Theoretical Reference

Preparing and building resilience against global risks is long and complex, something often recognized in theory but difficult in practice.

2.1 Resilience

Resilience is a concept that has been used to explain phenomena that overcome or transcended unfavorable situations. It is an issue of extreme importance, because it implies greater knowledge of how we can strengthen the capacity of resistance of society and nature, learning to deal with the tensions caused by the climate change and other environmental impacts. Cities or countries resilient are those that are prepared to recover quickly from the impact of natural disasters or economic conditions and effects in social unfavorable or external situations such as riots or wars, or extreme events related to unforeseeable situations (black swans).

The concept refers to a set of cognitive competencies and behavioral strategies that may be used to deal with the demands of stressful situations. Adaptive capacity, on the other hand, is understood as a

long-term process that includes structural changes. Moreover, adaptation focuses more on measures and strategies that deal with the negative impacts of natural hazards and climate change in the future.

The 2015 FM Global Resilience Index defines resilience as a combination of the vulnerability of a country to supply chain disruption and the country's ability to recover from such disruption. The index identifies nine key drivers of resilience including, for example, political risk, the quality of infrastructure, exposure to natural hazard and commitment to risk management. These drivers are aggregated into three broad factors – economic, risk quality and supply chain – which, in turn, combine to form the index.

2.2 Economic, risk quality and supply chain

Economic represents political and macroeconomic influences on resilience. Combining to form the economic factor are three drivers: productivity (GDP per capita), political risk and oil intensity. Political risk reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. Oil intensity captures the vulnerability that a country has to an oil shock, – oil shortage, disruption or sudden price hike.

The Risk quality attribute of the index is the ability to draw upon the wealth of data gathered over many years by FM Global's team of property risk engineers who visit and assess over 100,000 locations annually across the world. The data, located in the FM Global's proprietary RiskMark database, has the advantage of being applied consistently across all industry sectors and regions. The factor, risk

Quality, comprises three drivers drawn from the RiskMark database: exposure to natural hazard, quality of natural hazard risk management and quality of fire risk management.

Exposure to natural hazard is the percentage of locations in the country that are exposed to at least one natural hazard: earthquake, wind or flood. Quality of natural hazard risk management is the level of natural hazard risk improvement achieved given the inherent natural hazard risks in a country. Quality of fire risk management is the level of fire risk improvement achieved given the inherent fire risks in a country.

The Supply chain relates to the supply chain itself and comprises three drivers: control of corruption, infrastructure and the quality of local suppliers. The process of identifying for an index a set of core drivers with significant impact on resilience to supply chain disruption is partly heuristic, partly statistical and partly practical. Research into the causes of supply chain disruption highlights common triggers of disruption to global supply chains.

Control of corruption reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests. Infrastructure reflects perceptions of general infrastructure: transport, telephony and energy. Local supplier quality reflects perceptions of the quality of local suppliers

The index offers business executives an additional resource to help in prioritizing supply chain risk management and guiding strategy in four key areas: 1. Selecting suppliers based on the supply chain risk/resilience of the countries in which they are located; 2. Deciding where to locate facilities; 3. Evaluating the resilience of the countries hosting existing facilities; and 4. Assessing the resilience of the countries where customers' facilities are based.

In summary, the index provides a robust, composite view of business resilience to supply chain disruption around the world. Independently constructed, annually updated, and facilitating deeper analysis of the key drivers of resilience, the index aims to offer a fresh perspective to strategic dialogue and informed decision making.

3 Result Analysis and Discussion

For our purpose we'll be dealing with 132 countries divided into 3 Regions that are of our special interest to be compared regarding Resilience levels: the Iberoamerican AIBER (21 countries), the Advanced Economies AVECO (28 countries) and the rest of the 132 countries OTHERS (84 countries). Table 1 shows the means for each one of the 3 Regions (3R) of Synthetic Indicators such as Social Progress Index (SPI), Human Development Index (IDH), and Governance (GOV), as well as the ones concerning Analytic Indicators related to Vulnerability (IVULN), Lack of Coping Capacities (CAPAFRSIT) in difficult situations and lack of Adaptive Capacities (CAPADAP), Resilience Index (RESIND), Economic factor (RESECON), risk quality factor (RESR) and supply chain factor (RESSCH); as well as the Fs of the corresponding ANOVAS.

Table 1 Means and F's for Rescaled (0–100) and positized Variables (the higher the better)

3R	SPI	IDH	GOV	IVULN	CAPAFRSIT	CAPADAP	RESIND	RESECO	RESR	RESSCH
AIBER	64.41	65.62	42.48	58.17	71.56	61.67	34.65	35.72	45.88	35.43
AVECO	90.3	87.36	83.25	86.26	90.51	85.35	73.84	69.03	58.66	75.01
OTHERS	42.63	46.74	33.36	42.56	57.69	42.9	32.15	32.56	50.7	31.57
FANOVA	83.97	43.45	97.02	57.93	97.08	58.52	91.07	99.07	3.98	95.41

The correlation analysis showed a strong, positive and statistically significant relationship between the variables. As it was to be expected Advanced Economies AVECO countries as a whole are doing better than the AIBER countries and these ones doing better than the OTHERS countries.

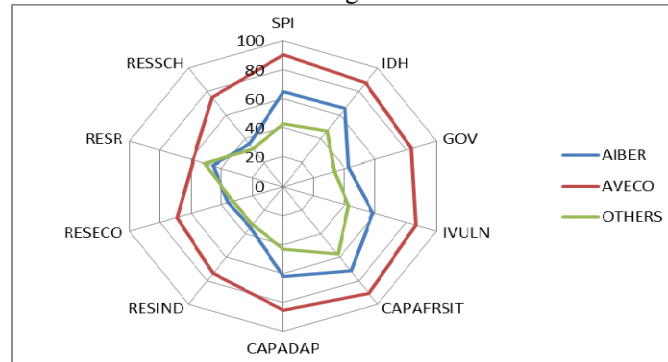


Figure 1 Comparing the 3 Regions Regarding the Basic Indicators

Generally speaking and as indicated by Figure1 AVECO countries have the largest averages in all variables, and in some more that in others. Economics vary among countries due to various factors such as GDP per capita driver, political risk driver and oil intensity driver. The result of such an institutional and historical progress means different structures and different rates at which they can impact social progress. The top-ranking countries are Norway with 85%, New Zealand with 100% and Chad with 100%, respectively.

Actually Norway achieves consistently high scores across the three core factors: economic, risk quality and supply chain and ranks in the top 10 in the world for economic productivity, control of corruption, political risk and oil intensity (a driver that reflects vulnerability to an oil shock). Norway's high score for risk quality depends strongly on minimal natural hazard exposure and excellent management of natural hazard risk at exposed locations. But even in this case it has a chance to improve in absolute terms, especially in the management of fire risk. Switzerland scores very highly on the economic and supply chain factors (where the country leads), and scores best in the world for an extensive and efficient infrastructure.

The highest supply chain factor is seen in control of corruption driver (Denmark 100%), infrastructure (Switzerland 100%) and local supplier quality driver (Japan 100%). There is growing awareness among business executives of the importance of effective supply chain risk management. Common threats to the supply chain often have a territorial aspect and involve the concentration of resources and activities in vulnerable locations, combined with insufficient redundancy and spare capacity.

The countries with the greatest lack of risk quality factor are seen in exposure to natural hazard driver (Ireland 100%), quality of natural hazard risk management driver (Czech Republic 100%), and quality of fire risk management driver (Costa Rica 100%).

Venezuela on the other hand is the worst in the 2015 index, and is the victim of a challenging mix of an unstable macroeconomic environment, high inflation and public debt, and malfunctioning markets. Beyond economic factors, the country scores poorly in terms of risk quality and supply chain factors – little changed in those respects from 2014.

There is nothing one can do about a country's geophysical position and characteristics. However, there are many opportunities for both regulators and business executives to improve a country's resilience through greater awareness of where the exposures lie, and well-targeted investments in improved risk

management activities. Moreover as globalization accelerates, businesses are increasingly moved in

a borderless interconnected and almost invisible way, leading to a potential loss of strategic control. This emphasizes the need for a much more tangible, strategic and proactive approach to supply chain risk management. It is here that the FM Global Resilience Index may make its most powerful contribution.

4 Conclusions

Resilient cities and countries prepare to react to external events or great adversity in an organized manner, reducing damage and loss of life as well as acting synergistically proactive and address the global mega trends and unpredictable events. City leaders from government, civil society and the private sector are ideally positioned to plan rapid urbanization and must act to sustain metropolitan growth.

In many countries, infrastructure has not been taken care well enough to withstand the kinds of catastrophes that could spark such cascading effects. This is often the result of procrastination, the perception that the risk is so small that it is not worth considering overcome by other priorities, and the fact that investing in being prepared for extreme events is rarely immediately rewarded in the electoral process.

With adequate land-use planning and in coordination with the private sector, cities may develop infrastructure in more sustainable, low-carbon ways – but this requires governance, technical, financial and institutional capacities that are often lacking in developing countries. Leadership within local governments is at the heart of both urban mitigation of and adaptation to climate change, but this requires redefining priorities. Well-governed cities with universal appropriate conditions on infrastructure and services have better chances of building resilience to climate change if processes of planning, design and allocation of human capital and material resources are available to take care of emerging climate risks.

To increase investment in infrastructure, a coordinated, global, long-term and multi stakeholder approach is required particularly when dealing with middle and long range strategic planning. Upgrading infrastructure is essential, and may become the backbone of a competitive economy.

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Risk Management of Assets Dependency Based on Copulas Function

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Abstract: Under the hypothesis of normal distribution, the analysis and calculation of portfolio is more different from the actual situation, often underestimates the financial risks; And if only using extreme value theory to study the financial risks, this way will often leads to overestimation of the risk. Copulas-GARCH-t model reflects the correlation of portfolio return, describes the time-varying and independent feature under the state of financial assets yield distribution. Therefore, the model describes time-varying and state-independent for return distribution of financial assets, and solves the portfolio selection problem in risk investment management. And by the empirical study of Baoli and Wanke Real Estate, we can draw a conclusion that Copula-GARCH-t model is the ideal model.

Key words: Portfolio; Correlation analysis; Copulas function; Risk management

1 Introduction

Economic globalization and financial integration greatly enhanced the interdependence between the global economy and financial markets; The synergy of prices in financial markets made local fluctuations of any areas have an influence on other financial markets, triggered the financial crisis. During the Asian financial crisis in 1997, Hengsheng index in Hong Kong dropped from the top of the nearly 16000 point to less than 8000 points. And during the global financial crisis in 2007, the subprime crisis originated in America spread to the global market. A-share index fell from 6200 to 2000, at the same time, Hengsheng index also fell from 30000 to 12000, indicating a strong following up. So the study of the dependent features and risk factors among the assets structure is an ongoing process in the financial risk analysis.

For foreign references^[1,2,4], Frees, Valdez and Embrechts studied simulation and estimation of individual asset dependency structure between among time series, without studying multiple assets dependency structure. Nelsen introduced the Copulas function into the finance, and discussed the limitation of using the linear correlation index to measure the dependency in the financial markets. Furthermore he suggested to estimate the joint distribution with Copulas theory among the random variables. Domestic study of Copulas connection theory started late^[9,10,11]. Zhang Yaoting (2002) theoretically discussed the feasibility of the application of Copulas function in the financial industry, and pointed out that using Copulas technology to analyze the correlation structure between the variables can be more reliable between the variables. Wei YanHua and Zhang Shiyong (2004) applied the Copulas to GARCH model to measure the autocorrelation structure of financial time series.

The above research either concerns with a single portfolio risk, or the static study of portfolio. In order to study the relationship of portfolios, these research has been neither conducted from the perspective of dynamic effect, nor considered assets as additive and independent. This paper will introduce Copulas function to study dependency structure of multiple assets, to measure the correlation between each other, and to verify the correlation with the empirical analysis. Therefore, not only the effective analysis of assets dependency will be achieved, but also the purpose of forecast and control of the financial risk will be attained.

2 The Tail Correlation and Copulas Function

Financial market is full of risk, but Markowitz creatively put forward that diversified investment can reduce risk level under a certain range. In general, investors will choose assets of small correlation to reduce investment risk. So correlation analysis of assets portfolio has great influence on the returns, which needs further interpretation.

Copulas function does not contain any information about marginal distribution, but contains relevant information between marginal distribution. This correlation is often non-linear. Generally we use Kendall's or Spearman's correlation coefficient to measure the correlation of marginal distribution. Because correlation coefficient has a strong robustness, and is strongly resistant to the impact of abnormal data. Therefore it has been used to measure the correlation. T is defined as the difference of two random variables between the same direction and the reverse direction.

Definition: if $(x_1, y_1), (x_2, y_2)$ is the vector of independent and identically distributed,

$$x_1, x_2 \in x, y_1, y_2 \in y, \tau = P\{(x_2 - x_1)(y_2 - y_1) > 0\} - P\{(x_2 - x_1)(y_2 - y_1) < 0\} \tag{1}$$

then τ measures the consistency of the variability of x and y , which proves

$$\tau = 2P\{(x_2 - x_1)(y_2 - y_1) > 0\} - 1, \tau \in [-1, 1] \tag{2}$$

According to research and deduction of Kendall's rank correlation coefficient, we can get the following conclusion: τ changes reflect the extent of consistency of the variability of x and y .

Table 1 shows two Copulas functions with only one parameter, and if the estimated value of τ is calculated, the whole nature of Copulas function is sure to know.

Table 1 The Copula Function Parameters and the Correlation Coefficient

Type	Copula distribution	θ - Range	τ - Parameter
Gumbel	$\exp\{-[(-\ln u)^{\theta} + (-\ln v)^{\theta}]^{\frac{1}{\theta}}\}$	$[1, \infty)$	$\frac{\theta}{\theta + 2}$
Clayton	$(u^{-\theta} + v^{-\theta} - 1)^{-\frac{1}{\theta}}$	$[-1, 0) \cup (0, \infty)$	$\frac{\theta}{\theta - 2}$

3 Single Asset Yield Model(GARCH –T)

When we use Copulas technology to build the model, we can separate correlation structure between marginal distribution and random variable. This will help us to analysis and understand a lot of financial problems; At the same time, for conditional heteroscedasticity and tailing characteristics of the financial time series, the following research will analyze financial time series model of single variable distribution---- building of marginal function.

Traditional fluctuation model believes that exogenous variables, such as the exchange rate or interest rate, can cause yield heteroscedasticity (volatility). But conditions mean and variance may change by time, leading to the change of the variance. So Engel (1982) [2] proposed conditional heteroscedasticity (ARCH) model to describe the time series with the conditions of the second order moment in nature, and describe fluctuations of time-varying and aggregation through the change of conditional heteroscedasticity. In the ARCH model, Engel points out that the mean ϵ_t interference condition do not change by time. But in the ARCH model, variance(γ_2) depends on the time series of past observations. So according to the description of the ARCH model, under the condition of known information, y_t obey normal distribution where $\epsilon_t = 0, h_t$. Thus the ARCH model can be used to describe the condition of variable marginal distribution.

Because in practical application the ARCH model takes a lot of order, leading to deficiency in calculation, Bollerslev (1986) proposed the Generalized regressive conditional heteroscedasticity (GARCH) model, which is an important extension of the ARCH model. The model has faster lagged convergence than the ARCH model, and the similar structure with the ARMA model.

GARCH (p, q) - T model is defined as follows

$$\begin{cases} r_t | I_{t-1} \sim t_v \\ h_t = \partial_0 + \sum_{i=1}^q \partial_i \epsilon_{t-i}^2 + \sum_{i=1}^p \beta_i h_{t-i} \\ r_t = h_t^{1/2} v_t \end{cases} \tag{3}$$

Where, r_t is the series of return, $p \geq 0, q > 0; \partial_0 > 0,$

$\partial_i \geq 0, i = 1, \dots, q; \beta_i \geq 0, i = 1, \dots, p.$ IF $p=0$, GARCH process becomes ARCH(q) process. So you can consider ARCH process as a special case of GARCH process.

4 Multi-Asset Portfolio Model and Parameter Estimation

4.1 Construction of multi-asset portfolio model

Supposing, portfolio have n kind of financial assets, $i(i = 1, 2, \dots, n)$, and build model directly by

using GARCH - t model, according to the latest m phase of the historical data

N for return on assets, $(R_{i,t-1}, \dots, R_{i,t-m})$, the rate for return time series is $r_t = (r_{1t}, r_{2t}, \dots, r_{nt})$, if the prior information set before t moment shows

$I_{t-1} = \{r_{t-1}, h_{t-1}, r_{t-2}, h_{t-2}, \dots\} = \bigcup_{i=1}^n I_{i,t-1}$, $I_{i,t-1} = \{r_{i,t-1}, h_{i,t-1}, r_{i,t-2}, h_{i,t-2}, \dots\}$, h_{it} is conditional volatility for the information set $(I_{i,t-1})$ of singular asset (r_{it}) , $C(\cdot|I_{t-1})$ shows Copulas function for n, $F_i(r_{i,t}|I_{i,t-1})$ is the conditional distribution of i-th component.

Many empirical studies have shown that asset return sequence obeyed the GARCH (1, 1) model. Bollerslev (1987) point out that t-student distribution can reflect more characteristics for financial time series than the normal distribution can do, such as the peak of time series and thick tail. Here we also assumes that r_{it} satisfy the model. After filtered the fluctuation of time-varying about a single series, we propose a time-varying model ---Copulas- GARCH (1, 1) - t (shorthand for Copulas- GARCH - t). The term used to describe the time-varying dependence structure of n assets, and the model is as follow :

$$\begin{cases} r_{i,t} = u + \varepsilon_{i,t}; \\ \varepsilon_{i,t} = \sqrt{h_{i,t}} \cdot v_{i,t}; \\ h_{i,t} = \alpha_0 + \alpha_1 \varepsilon_{i,t-1}^2 + \beta_1 h_{i,t-1} \\ F(v_i|I_{t-1}) = C_{\Sigma} [F_1(v_{1,t}|I_{1,t-1}), F_2(v_{2,t}|I_{2,t-1}), \dots, F_n(v_{n,t}|I_{n,t-1})|I_{t-1}] \end{cases} \quad (4)$$

where, r_{it} is the series for return, u is the average return rate for singular asset,

$p \geq 0, q > 0; \alpha_i \geq 0, \beta_i \geq 0$; $F(v_t|I_{t-1})$ is the joint distribution portfolio on the moment of T, C_{Σ} is Copula function. $\alpha_0, \alpha_1, \beta_1, v$ and Σ are parameters to be estimated.

4. 2 Parameter estimation of Copulas - GARCH function

Parameter estimation of function model includes parameter estimation and non-parameter estimation. Parameter estimation method generally adopts maximum likelihood estimation (MLE) and the torque estimation. The maximum likelihood estimation is the most commonly and most effective method of Copulas function model. Parameters $\alpha_0, \alpha_1, \beta_1$ to be estimated in the model for single asset are obtained through the Eview software, and the parameters of the portfolio will be obtained by maximum likelihood estimation.

If we set random variables x_1, \dots, x_N in the Copula function as $C(\cdot, \dots, \cdot)$, density distribution is $c(\cdot, \dots, \cdot)$, the marginal distribution $F_n(\cdot, \cdot)$, the edge density function $f_n(\cdot, \cdot), n=1, \dots, N$, then the parameters $\theta = (\theta_1, \dots, \theta_N; \theta_c)$ of the logarithm likelihood function is:

$$\ln L(x_1, \dots, x_N; \theta) = \sum_{t=1}^T \left[\ln c(F_1(x_1; \theta_1), \dots, F_N(x_N; \theta_N), \theta_c) + \sum_{n=1}^N \ln f_n(x_{n,t}, \theta_n) \right] \quad (5)$$

We can directly use the maximum likelihood estimation for parameter estimation. But from the logarithmic likelihood function we can find that the marginal distribution density and the density of Copulas likelihood function is separate. Therefore, we can first estimate the edge parameter, then the Copulas function parameter. The estimation of parameter is divided into two phases.

The first phase: $\hat{\theta}_n = \arg \max \sum_{t=1}^T \ln f_n(x_{n,t}, \theta_n), n=1, \dots, N$ (6)

The second phase: $\hat{\Sigma}_c = \arg \max \sum_{t=1}^T \ln c(F_1(x_{1,t}; \hat{\theta}_1), \dots, F_N(x_N; \hat{\theta}_N), \theta_c)$ (7)

First estimate the parameter in the marginal distribution $\theta_n, n = 1, \dots, N$, and then put the estimated value $\hat{\theta}_n$ into Copula function of different kinds, thus estimate the parameter of Copula function $\hat{\Sigma}_c$.

4.3 The empirical analysis

Here we only analyze two stock market index of daily closing price: Baoli Real Estate and Wanke Real Estate; the data range from July 31, 2006 to May 9, 2013. It is important to note that because there may be one day when two stocks are not trading at the same time, in order to accurately describe the correlation of the two stocks, we consider data observed as the data for that day when only one stock has dealings (t stands for trading day). After pretreatment, valid data of observation samples reach 1372, namely $T = 1372$. Secondly, the daily closing price is selected as poor stock index, logarithmic LPR, defined as $LPR = \log(pr) - \log(pr(1))$.

(1) The figure of the return rate of the two stocks, in which bp stands for Baoli Real Estate's daily yield rate, wp stands for Wanke Real Estate closing price.

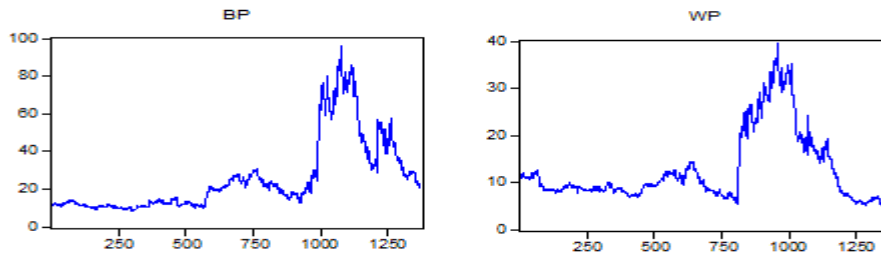


Figure 1 The Daily Yield Rate of the Two Stocks

(2) Descriptive statistics of the two stocks

Table 2 Descriptive Statistics of the Two Stocks

	Mean	Median	Maxi	Min	Std. Dev	Skewness	Kurtosis	J-Bera	Prob
BP	25.715	19.055	96.23	8.52	19.52	1.605	4.654	745.244	0
WP	12.632	9.3	39.5	4.93	7.60	1.578	4.511	699.837	0

From the table, we can draw the following analysis. During the sample period, the mean of bp stands at 25.7, standard deviation 19.5 with 1.6 of skewness, and 4.7 kurtosis. Compared with the normal distribution, bp has the tendency to slide right with rush thick tail phenomenon. JB normality test also confirmed this, with $JB=745.2$, $P=0$, and refused null hypothesis. These show that under the confidence level $\delta=0.05$, Baoli Real Estate significantly differs from those of normal distribution. Similarly, Wanke Real Estate also has the tendency to slide right with rush peak phenomenon and significantly differs from those of normal distribution.

(3) Parameter estimation

Table 3 Two Property Parameter Estimation

	u	$\hat{\sigma}_0$	α_1	β_1	ν	Σ_c
lbp	1.000002 (2525.385)	0.0000134 (3.499094)	0.004938 (2.740976)	0.983879 (239.6179)	3.872199 (12.86543)	[1,0.078442] [0.078442,1]
lwp	0.999609 (1946.871)	0.001052 (9.165047)	0.103511 (2.179955)	-0.00604 (-0.18711)	3.433089 (12.11436)	

From the above table, we know that α_1 and β_1 in logarithm return rate (LBP) is respectively equal to 0.004938 and 0.983879 in the conditional variance equation, and they are significantly different. It shows that the return series has significant volatility cluster. Secondly, in Baoli Real Estate's LBP, the sum of ARCH and GARCH coefficients equals to 1, so the GARCH (1,1) process is stable, that is, the effects of fluctuations in the past on the future is gradually fading. Similarly, we can get logarithm yield values of the parameters for Wanke Real Estate.

(4) Equation residual test

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	-0.000	-0.000	0.0003	0.987
		2	0.004	0.004	0.0221	0.989
		3	-0.002	-0.002	0.0266	0.999
		4	-0.030	-0.030	1.2946	0.862
		5	-0.024	-0.024	2.0710	0.839
		6	-0.002	-0.002	2.0791	0.912
		7	-0.030	-0.030	3.3004	0.856
		8	-0.009	-0.010	3.4130	0.906
		9	0.001	-0.000	3.4140	0.946
		10	-0.020	-0.021	3.9806	0.948

Figure 2 Baoli Real Estate Autocorrelation

The residual test of equation shows Q statistic of the logarithm return rate on Baoli Real Estate, at k=10, p=0.948. It rejects the original hypothesis, namely the residual sequence is independent from each other, which meets the requirements.

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	-0.001	-0.001	0.0006	0.980
		2	-0.031	-0.031	1.3540	0.508
		3	0.011	0.011	1.5218	0.677
		4	0.008	0.007	1.6148	0.806
		5	-0.010	-0.010	1.7591	0.881
		6	0.006	0.006	1.8056	0.937
		7	-0.019	-0.020	2.2974	0.942
		8	0.016	0.017	2.6506	0.954
		9	0.001	-0.000	2.6516	0.977
		10	-0.009	-0.007	2.7562	0.987

Figure 3 Wanke Real Estate Autocorrelation

The residual test of equation shows Q statistic of the logarithm return rate on Wanke Real Estate, at k=10, p=0.987. It rejects the original hypothesis, namely the residual sequence is independent from each other, which meets the requirements.

5 Conclusion

Based on the conditional heteroscedasticity GARCH-t model for portfolio, this thesis attempts to simulate spike and thick tail characteristics, and describes the characteristics of time-varying and state independence of the distribution on financial assets, and solves the problem proposed in the beginning; By using Copulas function, the asset correlation is reflected, and the portfolio selection problem is solved in the risk management. And from an empirical analysis of the Baoli Real Estate and Wanke Real Estate, the following conclusion can be drawn:

Conclusion 1: There are significant GARCH effects in two stocks, namely the conditional heteroscedasticity. Positive risk premium of Baoli is higher than that of Wanke, which reflects the Baoli stock investors are more risk-averse than Wanke investors.

Conclusion 2: There is obvious leverage in two stocks, which the effect of bad news on the stock market will cause more volatility than that of the good news. For example, in 2008, after increasing the stamp duty, there was a sharp decline in stock market. There was two-way spillover effect between the two stocks, which indicates that a stock fluctuations can cause the fluctuation of the other stock.

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Research on Risk-Oriented Internal Audit in Administrative Institution Projects: A Case Study of Changjiang Maritime Safety Administration

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Abstract: This paper provides a study of internal audit which is applied in engineering project from the viewpoint of risk identification and risk evaluation. On the basis of introducing the general theory and basic framework of risk-oriented internal audit, the thesis systematically analyzes project risk within Changjiang Maritime Safety Administration. In order to facilitate the distribution of audit resources and minimize losses, the author adopts quantitative methods to weigh risks and rank risks from high to low. Therefore, in light of risk ranking, recommendations are proposed to improve internal audit technology and strengthen project risk management.

Key words: Engineering project; Risk-oriented; Internal audit

1 Introduction

Risk-based audit was proposed by four international accounting firms as a new audit methodology in late 1990s, which configures audit resources priority to vulnerable areas. Consequently, risk evaluation in financial statements is more comprehensive, proper, and more effective to achieve the audit objectives. In 2004, COSO formally released "the Enterprise Risk Management Frame", which prompted internal control, as a conventional object of internal audit, to enter the stage of comprehensive risk management. In addition, many western multinational companies active in risk-oriented internal audit practice. For example, the Oracle ranks risks before establish the internal audit plan, and then allocates audit resources by a certain percentage based on the importance of risk exposure. Therefore, it will be a tendency to apply risk-oriented internal audit in various areas.

Engineering project is a high-risk area with fraud and corruption in that it involves a huge amount of investment, long construction period and numerous links with a wide range. Besides, more and more complex technology and imperfect regulatory system make it worse. Chinese scholars have conducted a lot of researches of internal audit in this area. Liu Guoyong (2012) pointed out that many problems also exist when strengthen supervisor function of audit in engineering construction. For instance, the management system within construction project is not perfect, some aspects of audit cannot operate effectively, and irregularities often occur during the process. Deng Xiong (2013) believed that internal audit, which is focus on the reasonable control to calculation and budget, affects project quality. As a result, auditors ought to pay attention to both scientificity and availability in auditing methods.

Moreover, the Communist Party and government also concern about this area's internal audit. In July 2009, the central government issued an edict---"Opinions about the special governance work in engineering construction field of outstanding issues", clearly putting forward that audit departments should give full play to project audit with their professional advantages in punishing corruption and enhancing honest political construction.

Considering the strict supervision of public expenditure and a very complicated modern project environment, it is meaningful to apply risk-oriented internal audit into projects. Because this will help internal audit fully perform re-controlling function in internal control and re-managing function in risk management, as well as improve the efficiency and quality, and it is of great significance to guard against risks and deepen the special governance in outstanding problems.

2 Theoretical Framework of Risk-Oriented Internal Audit

2.1 Modern risk-oriented audit mode

Accountability relationship caused by a series of principal-agent is the essential prerequisite for the emergence and development of audit. With the changes of audit environment, auditing mode has experienced the historical evolution from transaction-based auditing, system-based auditing to risk-oriented auditing.

Since 1990s, audit risks have been affected by enterprise inherent risks, internal control risks and the potential risks that a CPA failed to identify material misstatement, thus the international accounting

firm began to conduct a comprehensive study on audit mode with academia. On December 15, 2004, the US Auditing Standards required auditors applying a new audit mode, namely:

$$\text{Audit risk} = \text{material misstatement risk} \times \text{detection risk} \quad (1)$$

This mode, which carries out organizational audit from strategic perspective and is guided by operation risk of the audited entity, is described as the modern risk-oriented audit mode.

Modern risk-oriented audit evaluates the audited entity's internal control and risk point on the basis of operation, market and policy. It focuses the limited time and energy in high-risk areas and controls these areas' risks via a more detailed transaction-based auditing. Meanwhile, by simplifying audit tests in low-risk field, the mode can improve audit efficiency.

2.2 Connotation and characteristics of risk-oriented internal audit

To ensure the security and development of the organization, supreme management authorities generally demand that the internal audit institution can reveal the real risk and the potential risk, as well as offer proposals to prevent or control these risks. In this way, the risk-oriented audit theory also has been applied and developed in internal audit. In a word, the advent of modern risk-oriented audit mode has significant impact on the theory and practice of internal audit and pushes it to a new stage of development.

(1) Connotation of risk-oriented internal audit

Internal audit, according to the Institute of Internal Auditors (IIA) in 2001, is regarded as an independent, objective assurance and consulting activity designed to add value and improve operation, whose purpose is to evaluate, improve the effectiveness of an organization's risk management, control, and governance process by systematic and standardized approaches. Besides, On August 23, 2013, the Internal Audit Association of China issued a newly revised "Chinese Internal Auditing Standards" which also ordains that internal audit is an independent, objective assurance and consulting activity. It examines and appraises adequacy and effectiveness of an organization's operation, internal control and risk management through systematic, normative approaches, so that the organization can improve governance, add value and realize target. In summary, internal audit must pay attention to risks and guide by risks when implement auditing to achieve goals.

Therefore, this paper defines risk-oriented internal audit as a new concept of audit and audit techniques. It starts from risk identification, aims at reducing risks and allocates audit resources after a full risk assessment. Through its identifying and counseling activities, an organization's value is increased and objectives are accomplished.

(2) Characteristics of the risk-oriented internal audit

Risk-oriented internal audit has the following basic characteristics:

1) Focus on the risk. Risk-oriented internal audit not only concerns about audit risk but extends to a variety of risks that an organization cannot achieve its goals during operation process. Based on these risks, audit resources are allocated reasonably.

2) Aim at increasing the organization's value. Internal audit, while not participating in production and sales activities, can add the organization's value via protecting assets, reducing risks, lowering own audit costs, putting forward valuable suggestions as well as increasing profit opportunities and so on.

3) Add function in countermeasure suggestions. Discovering problems is always what internal audit good at. Traditionally, internal audit finished its job merely by delivering those problems to corresponding departments. However, Risk-oriented internal audit is different. When perform audit, it allocates more audit resources in these issues so that proper audit conclusion and feasible countermeasure suggestions can be made on the basis of confirming and evaluating relevant information.

3 Application of Risk-Oriented Internal Audit in Changjiang Maritime Safety Administration Engineering Projects

3.1 Application framework of risk-oriented internal audit in Changjiang Maritime Safety Administration Engineering Projects

To introduce risk-oriented audit mode in Changjiang Maritime Safety Administration projects. Firstly, there must be a process of adjustment in accordance with the purpose and characteristics of internal audit. Secondly, the depth and the breadth of expansion of the audit function in project risk management and the utilization of risk-oriented internal audit techniques, depending on the level of the administration's project risk management and audit resources.

According to the weak situation of project risk management and audit resources, the application of

risk-oriented internal audit in the administration mainly concentrates on the following two aspects (Figure 1):

1) Application in project management. The mode, firstly, identifies and evaluates risks during project management processes, utilizing the result of risk assessment to improve the efficiency of internal audit. Secondly, through cross-sectoral cooperation and participation during the risk assessment process, the mode provides risk warnings to management department. Finally, with the diffusion and feedback of audit reports between related project management sectors, responsible departments are urged to develop and perfect emergency countermeasures in high-risk points.

2) Application in project governance. Many uncontrollable factors are involved in external governance and environmental management. Therefore, the application of risk-oriented internal audit in project external governance is mainly to recognize the risk of selecting participants, while in internal governance, it chiefly about risk evaluation of internal control in engineering projects.

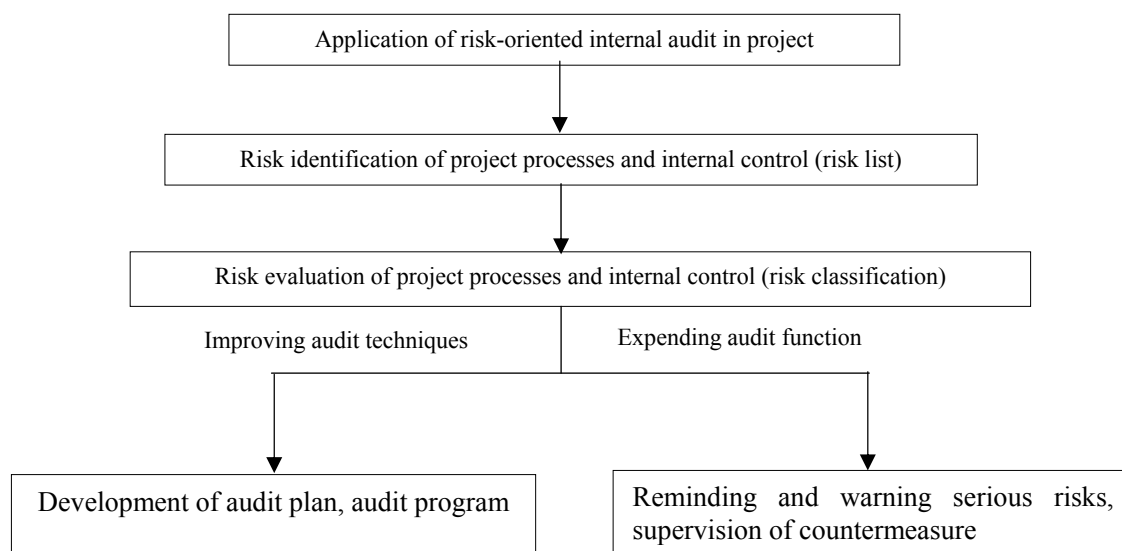


Figure 1 Application of Risk-oriented Internal Audit in Changjiang Maritime Safety Administration Engineering Projects

3.2 Risk identification within project processes

Due to the similar procedures and methods in risk identification and risk assessment, when compared project processes with internal control in project, this paper only discusses risk identification and risk assessment of project processes in detail.

A large number of stakeholders are involved during project construction and operation, for example, project sponsors, construction enterprises (proprietors), investors, consulting companies, designing entities, and construction units (contractors), material suppliers, operators, government, public, etc. In order to discern risks from different stakeholders at different stage of the engineering-cycle, the research undertaken primarily from the following two aspects:

1) Confirm processes of the administration projects. After reviewing a great deal of literature and doing spot investigation, processes of the administration project can be divided into decision-making phase, preparation phase, construction phase, completion and delivery phase.

2) Identify risks from various stakeholders and external environment to form a risk list fit the administration. Initially, 140 risk factors are listed according to literature. After interviewing and enquiring relevant experts, only 94 risk factors which cater the organization's reality are remained.

3.3 Risk evaluation and classification of projects

(1) Risk evaluation of each project phase

Expert advice and risk recording methods are used to assess all risks due to the absence of historical data in Changjiang Maritime Safety Administration project risk management. With questionnaire survey, experts are required to grade each listed risk factor in "large, medium or small". Meanwhile, they have to consider the possibility and influence of these risks in actual working environment.

(2) Risk classification of each project phase

21 valid questionnaires are fed back, these samples are processed as follows:

1) Distribute weight. The risk factor which is graded to "large, medium or small" respectively given "5, 3, 1" weights.

2) Calculate risk expectation.

Expectation of each risk factor = \sum the proportion of each grade risk factor in total copies recovered
× each grade weight (2)

3) Rank the risk. Ranking each risk factor according to expected value calculated above.

4) Classify risk level. Dividing the risk according to Pareto taxonomy and DuPont "boiling pot" model. Namely, calculating the percentage of the expected value of every risk factor accounts for the total risk expected value. The risk level is divided into A, B, C, or D, where accumulated risk value is less than 10%, between 10% to 40%, from 40% to 80%, and among 80% to 100%, separately.

3.4 Application of project risk evaluation

(1) Formulate audit procedure based on risk evaluation

Process of developing audit program according to risk classification:

1) Pre-audit survey. First, auditors investigate risk changes of certain project based on the organization's former risk classification, then, adjustment about the project risk level are made so that a suitable risk classification can be formed.

2) Develop audit program. Confirm the emphases of the auditing field, so reasonable arrangements for the audit team and audit time can be made, which means auditors can work out an economical and effective audit scheme.

3) Adjust audit program. When carry out auditing, auditors should assess risks on audit progress and significant discovery. If the risk is higher and has greater effect on the project according to assessment result, auditors should consider the recommendations to make proper adjustments of the program.

(2) Consultative advice based on risk level classification

1) Suggestions to the project commissioned audit agency

When the project commissioned audit agency is doing follow-up auditing, it should determine the focus of audit to allocate audit resources reasonably and confirm audit mode correctly in light of risk classification of every stage. For instance, to risks grade A, it should implement on-site audit.

Commissioned audit agency should perfect its internal management mechanism, and take hierarchical management strategies to handle different risk factors grade A, B, C, D. For example, A-level risk factors should strengthen audit review in management procedures.

2) Recommendations to the administration's project internal control

Different intensity control should be executed in light of risk ranking and classification of internal control. For A-level risk, high costs and multiple (multi-link, multi-sectoral, multi-level) measures are needed. For B-level risk, measures are slightly lighter than A-level risk. While C-level risk and D-level risk only need implement general risk control measures. In this way, control effect, management efficiency and control costs can be comprehensive taken into account.

Besides, considering complicated interest groups, different categories of control ought to be carried out. The administration should develop countermeasures and form a system if the risk factor belongs to itself. However, when risk elements pertain to relevant interests, the administration should assess and evaluate these entities' risk control measures and control system, and select the appropriate party to participate in the project based on the evaluation result.

In order to make it clear, the paper take A-level risk factors as an example to illustrate how to make specific control suggestions. In A-level risk factors, both design management, tender and bid activities have four factors, project decision-making mechanisms have two factors while quality supervision and material management have one A-level risk factor separately, the rest belongs to the administration itself. Depending on the content of each risk factor, suggestions are as follows:

Establish a sound management system of design units. Apart from considering the design unit's qualification, competence and credibility, more emphasis should be placed on the quality control system in design when choosing a design unit. Such as evaluate the system's integrity and effectiveness of execution, what's more, rewards and punishments as well as major design errors compensation items should be stated in the contract.

Establish and perfect tender management system. To some vital fields, control must be enhanced. For instance, whether procurement of major equipment and bulk materials in accordance with the provisions, whether choosing the appropriate way of tender, whether sign other agreements which against the substantive clause in the contract with the winning bidder, whether procedures of tendering

are legitimate.

Establish and improve decision-making mechanisms and systems. Attention should be put on ascertaining the responsibility for mistaken project decision-making and the security system of effective project feasibility study.

Establish a sound management system for construction supervision. Evaluating the soundness and effectiveness of the quality-management system of the construction supervisor, and utilizing the evaluation result as the standard to select construction supervisor institution. At the meantime, the Engineering Project Office of the administration should also supervise the construction supervisors' capability, work attitude, and vigor contributed at ordinary times.

Implement procedures of infrastructure project management strictly. The formal construction cannot be carried out before obtain legal permission of construction land, urban planning, environment protection, security and other aspects.

4 Conclusion

This paper discusses the basic framework of risk-oriented internal audit, sorts out risk factors and develops a risk list and risk classification according to project processes. Based on this, advice is proposed to strengthen project risk management, which will help to make full use of internal audit in project risk management as well as improve audit efficiency and give full play to the role of the internal audit function.

As a new audit concept, risk-oriented internal audit applied to engineering projects, is still in the stage of exploration. Due to the absence of historical date on project risk management, only qualitative approach of risk assessment used. With the accumulation of data, quantitative evaluation methods will be well applied to enhance the accuracy of project risk assessment.

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Inequality Aversion, Risk and Incentive in Teamwork*

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Abstract: A standard HM model is built on the basic assumptions that agents have no inequality aversion. We introduce inequality into this principal-agent model to study the interaction of inequality aversion, risk and incentive, then compare with the conclusions of the standard HM model. The results of the study are followed. Inequality aversion and the risk of agent's individual task is positively related. High-risk tasks should be assigned to the team and low-risk tasks should be assigned to individuals to reduce the agency costs of incentive. Compared with the conclusions of the HM model, inequality aversion increases agency costs, reduces the incentive for individual performance and has no impact on the incentive for team performance.

Key words: Inequality aversion; Risk; Incentive; Teamwork

1 Introduction

Teams have become increasingly important in work settings in recent years (Che and Yoo, 2001). The growing popularity of teams is driven partly by the increasing complexity of work tasks in a knowledge-driven environment. This increasing complexity means that tasks require the input of many different complementary skills, thus leading to a greater use of teams with some form of output sharing. Equity considerations are likely to play an important role when agents work together in teams. Team members will often be able to observe the performance of other team members. Accordingly, if individual contributions to the team output vary across team members, rewarding team members with an unequal share of the team output may cause feelings of intra organizational inequity (Lawler and Jenkins, 1992).

The inequality aversion is supplement to rational preference of economic agent. Guth(1982) has researched the ultimatum game experiments which showed that agent make decision on the inequality aversion concept, not just to maximize the benefits. A series of related economics experiments have been done in the following decades, the results of experiments can be successfully interpreted by inequality aversion preferences (Charness and Rabin, 2002; Engelmann and Strobel, 2004). Models of inequality aversion have had substantial success in rationalizing experimental data. Both in Fehr and Schmidt (1999) and Bolton and Ockenfels (2000) the agents' utility increases in own profit but decreases if they are better or worse off than others. While in Fehr and Schmidt (1999) agents compare own payoffs to everybody else's payoff, in Bolton and Ockenfels (2000) they compare themselves only to the average in the reference group. Abeler et al. (2010) show that when norms of equity are violated because harder working agents are paid the same as those who exert less effort, the harder working agents start to withdraw effort, even though it would be in their interest to continue to work hard. Bartling(2012) shows that team production incentives can then be muted below the level that results from noisy measurement and risk aversion alone—even though team production does not cause wage inequality. Grill and Stone(2015) show that it's painful for team members to find receive less than their perceived entitlement, while receiving more may induce pleasure or pain depending on whether their preferences exhibit desert elation or desert guilt.

Effects of inequality aversion on incentive have received the focus of research. Risk aversion is the basic preference assumption in incentive theory, but there are few studies on the interaction between the two kinds of preferences. Moreover, the study of inequality aversion is carried out under the background of the agents with single task.

We introduce inequity aversion into a HM (Holmstrom and Milgrom,1987,1991) setting where a principal hires two agent who, by his choice of effort, determines the probability distribution of profit. The existing multi-tasking literature analyzes the impact of differential measurement precision on optimal incentives. We focus on the mutual influence among the inequality aversion, risk and incentive in the team work.

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2 Model Setup

Assumption 1. Agent i has two kinds of tasks: individual task and team task. Individual task is incented by individual performance. Team task is incented by team performance.

Assumption 2. The output of agent i is linear function $x_i = \alpha_i + \theta_i$, where α_i is the efforts of agent i on his individual task, θ_i is the exogenous uncertain of individual task production, $\theta_i \sim N(0, \sigma^2)$.

Assumption 3. The output of team is linear function $g = g_1 + g_2 + \varepsilon$, where g_i is the efforts of agent i on the team task, ε is the exogenous uncertain of team task production, $\varepsilon \sim N(0, \sigma_g^2)$.

Assumption 4. The cost function of agent i is $C(\alpha_i, g_i)$, the cost coefficient of effort is 1, α_i and g_i are independent of each other, then $C(\alpha_i, g_i) = (\alpha_i^2 + g_i^2) / 2$

Assumption 5. The utility function of principal is linear function $V(x_1, x_2, g) = x_1 + x_2 + g$.

Assumption 6. The incentive contract is linear function $W_i(x_i, g) = x_i + \gamma_i x_i + \gamma_g g$.

Assumption 7. The principal is risk neutral and the agents are risk averse. The absolute risk aversion rate of agent i is ρ , ρ is invariable, thus the utility function of agent is $-e^{-\rho W_i}$.

Assumption 8. The agents are inequality averse towards other agents. The negative utility function of agent i is $u_i(\gamma_1 x_1, \gamma_2 x_2)$, which shows that the agent is not only incited by the income, but also impacted by the overall income distribution. Economic agent will compare his own income with other agents one by one to determine whether income distribution is fair. According to the assumption above, the utility function of principal and agent i are

$$\pi_p = V(x_1, x_2, g) - W_1(x_1, g) - W_2(x_2, g) \tag{1}$$

$$\pi_i = W(w_i, g) - C(\alpha_i, g_i) - u_i(\gamma_1 x_1, \gamma_2 x_2) - \rho \gamma_i^2 \sigma^2 / 2 \tag{2}$$

3 Model Analysis

By solving and analyzing the model, we draw four propositions about the interaction of inequality aversion, risk and incentives.

Proposition 1. The negative utility of inequality aversion is positively related to the risk of individual tasks in which the agents are engaged.

Proof. Since the agents are symmetric, $\gamma = \gamma_1 = \gamma_2$. Let $t = x_2 - x_1$, we get $E(t) = 0$,

$D(t) = 2\sigma^2$, $t \sim N(0, 2\sigma^2)$ from the distribution function of x_1 and x_2 . The negative utility of inequality aversion is draw from FS model. Fehr and Schmid (1999) reckon inequality aversion is composed of envy and guilty. Envy is the utility lost from that other's payoff is higher than his own, while guilty is the utility lost from that his own payoff is higher than others. We use α as envy parameter and β as guilt parameter, satisfying $\alpha \geq \beta$ and $1 > \beta \geq 0$. $\alpha \geq \beta$ shows the agent is far more aversive to the disadvantageous inequality than advantage ous inequality. $1 > \beta \geq 0$ shows even the agent owns advantageous inequality, he won't reduce his payoff to be equal to others. According to the symmetry of the agents, the negative utility of agents is obtained

$$U_1(\gamma_2 x_2, \gamma_1 x_1) = U_2(\gamma_2 x_2, \gamma_1 x_1) = \alpha \max(\gamma_2 x_2 - \gamma_1 x_1, 0) + \beta \max(\gamma_1 x_1 - \gamma_2 x_2, 0) \tag{3}$$

$$= \gamma \alpha (x_2 - x_1) \text{prob}(x_2 - x_1 \geq 0) + \gamma \beta (x_1 - x_2) \text{prob}(x_1 - x_2 \geq 0)$$

$$= (\alpha + \beta) 2\gamma \sigma_i / \sqrt{\pi}$$

Thus, $\frac{\partial u_i}{\partial \sigma} = \frac{2\gamma(\alpha + \beta)}{\sqrt{\pi}} > 0$. Proof of Proposition 1 is completed.

Proposition 2. Compared with incentives of standard HM model, the optimal strategy of principal is to cut incentive on individual performance and keep incentive on team performance unchanged.

Proof. According the first order constraint condition of agents, $\partial \pi_i / \partial \alpha_i = 0$ and $\partial \pi_i / \partial g_i = 0$. We get

$$\gamma_i = \partial C / \partial \alpha_i \tag{4}$$

$$\gamma_i = \partial C / \partial \alpha_i \tag{5}$$

The equivalent payoff of agents and principal is summed as

$$TCE = V(x_1, x_2, g) - C(\alpha_i, g_i) - u_i(\gamma_1 x_1, \gamma_2 x_2) - \rho \gamma_1^2 \sigma^2 / 2 - u_1(\gamma_1 x_1, \gamma_2 x_2) - u_2(\gamma_1 x_1, \gamma_2 x_2) \quad (6)$$

The optimal incentive strategy of principal is $\max_{\gamma_1, \gamma_2, \gamma_g} TCE$. Putting equation (3), (4), (5) into equation (6), according to the first order condition $\partial TCE / \partial \gamma_i = 0$ and $\partial TCE / \partial \gamma_g = 0$,

$$\gamma = \frac{1 - 2(\alpha + \beta)\sigma / \sqrt{\pi}}{1 + \rho\sigma^2} \quad (7)$$

$$\gamma_g = \frac{1}{1 + \rho\sigma_g^2} \quad (8)$$

Since $\alpha \geq \beta$ and $1 > \beta \geq 0$, we get that individual incentive $\gamma < 1 / (1 + \rho\sigma^2)$, team incentive is independent of risk. Proof of Proposition 2 is completed.

Proposition 3. Compared with standard HM model, inequality aversion among agents increases the agency costs of contract.

Proof. The agency costs are composed of four parts: the risk cost of agent, the inequality aversion cost of agent, the efforts cutting of agent and the expected income cutting of the principal.

The risk cost of agent is

$$\Delta RC = \rho\gamma\sigma^2 + \rho\gamma_g^2 + \sigma_g^2 \quad (9)$$

The inequality aversion cost of agent is

$$\Delta u = u_1 + u_2 = 4\gamma\sigma(\alpha + \beta) / \sqrt{\pi} \quad (10)$$

The effort cutting of agent is

$$\begin{aligned} \Delta C &= \Delta c_1 + \Delta c_2 + \Delta g_1 + \Delta g_2 \\ &= 2\left(\frac{1}{2} - \frac{1}{2}\gamma^2 + \frac{1}{2} - \frac{1}{2}\gamma_g^2\right) \end{aligned} \quad (11)$$

The expected income cutting of the principal is

$$\begin{aligned} \Delta \pi_p &= \Delta \alpha_1 + \Delta \alpha_2 + \Delta g_1 + \Delta g_2 \\ &= 2(1 - \gamma + 1 - \gamma_g) \end{aligned} \quad (12)$$

Then, the agency costs are

$$\begin{aligned} \Delta C &= \Delta RC + \Delta U + \Delta \pi_p - \Delta C \\ &= \rho\gamma^2\sigma^2 + (\alpha + \beta)\frac{4\gamma\sigma}{\sqrt{\pi}} + 2(1 - \gamma) - (1 - \gamma^2) \\ &\quad + \rho\gamma_g^2\sigma_g^2 + 2(1 - \gamma_g) - (1 - \gamma_g^2) \end{aligned} \quad (13)$$

In equation (13), the first four are the agency cost of individual task, the latter three are the agency costs of team task. The agency costs of team task don't include α and β , so it has no relationship with inequality aversion and keeps unchanged.

Putting equation (7) and (8) into equation (13), we get

$$AC = \frac{\rho\sigma^2}{1 + \rho\sigma^2} + (\alpha + \beta)\frac{4\gamma\sigma}{\sqrt{\pi}} + \frac{\rho\sigma_g^2}{1 + \rho\sigma_g^2} \quad (14)$$

The quality aversion increase the agency cost of individual task, so the total agency cost is increased. Proof of Proposition 3 is completed.

Proposition 4. To reduce agency cost where exists inequality aversion, tasks with high risk should be assigned to the team, while tasks with lower risk should be assigned to the individual

Proof. Suppose two tasks, one's variance is σ_l , the other's variance is σ_h , satisfying $\sigma_h > \sigma_l$. $AC_{\sigma=\sigma_l, \sigma_g=\sigma_h}$ represents that task with variance σ_l is assigned to the individual and task with variance σ_h is assigned to the team. $AC_{\sigma=\sigma_h, \sigma_g=\sigma_l}$ represents the converse.

$$AC_{\sigma=\sigma_l, \sigma_g=\sigma_h} = \frac{\rho\sigma_l^2}{1+\rho\sigma_l^2} + (\alpha+\beta) \frac{4\gamma\sigma_l}{\sqrt{\pi}} + \frac{\rho\sigma_h^2}{1+\rho\sigma_h^2} \quad (15)$$

$$AC_{\sigma=\sigma_h, \sigma_g=\sigma_l} = \frac{\rho\sigma_h^2}{1+\rho\sigma_h^2} + (\alpha+\beta) \frac{4\gamma\sigma_h}{\sqrt{\pi}} + \frac{\rho\sigma_l^2}{1+\rho\sigma_l^2} \quad (16)$$

Thus, $AC_{\sigma=\sigma_l, \sigma_g=\sigma_h} - AC_{\sigma=\sigma_h, \sigma_g=\sigma_l} = (\alpha+\beta) \frac{4\gamma(\sigma_l - \sigma_h)}{\sqrt{\pi}} < 0$. Proof of Proposition 4 is completed.

4 Conclusion

To establish a fair and efficient system of income distribution is the major issues to be solved in the current economic development of China. Exploring the inequality aversion preference and its resulting behavior influence has important practical significance. In this paper, we study the mutual influence among inequality aversion, risk and incentive in the team work using the principal-agent model. The relationship between inequality aversion and risk is that inequality aversion is positively related to the risk of individual tasks. The relationship between inequality aversion and incentive is that inequality aversion increases the agency costs of incentive. Based on the two relationships, we draw the following difference of the optimal incentive strategy between standard HM model and HM model with inequality aversion. Tasks of higher risk being assigned to the team and tasks of lower risk being assigned to the person can reduce agency costs and improve the efficiency of team work. The incentive to individual performance should decrease with the increase in inequality aversion among the agents. The incentive to team performance is not subject to the effect of inequality aversion.

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An Analysis of Risk and Supervision of China's Shadow Banking

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Abstract: Through studying the numerous reports and literature, using the method of comparative analysis, we give a detailed and comprehensive analysis of the development, behavior, risk and regulatory progress of China's shadow banks respectively. It was found that, in 2013, the size of the shadow banking has reached 27 trillion yuan, accounting for about one-fifth of all the assets of the banking, however, due to the low degree of financial innovation in China, the development of China's shadow banking is still in the initial stage, and there is still great room for development. Secondly, China's shadow banking behavior is mainly asset securitization and part of the repurchase agreement or other, in which risk is mainly the former. Finally, according to the supervision of shadow banking which has been strengthened by Chinese government in recent years, we propose for specific types of shadow banking entities shall formulate specific regulatory strategy to promote the healthy development of the shadow banking system.

Key words: Shadow Banking; Securitization; Repo; Risk; Supervision

1 Introduction

Shadow banking was born in the course of the financial markets. When the profitability of traditional business reached a bottleneck, commercial banks will develop high-risk, high-yield business in some areas lack of supervision to seek new profit point and to ease the pressure of downward profitability. In the continuous development, driven by the interests, various non-bank financial institutions have joined to form the shadow banking system. Compared with the traditional commercial banks, shadow banks can adapt to international development, and the assets they hold gradually increase. However, the shadow banking is getting well known in the financial crisis. In 2007, the US subprime mortgage crisis happened and gradually spread to other countries through the global linkage of financial markets, and now even some countries did not recover from it. And people found that shadow banks played a key role in the financial crisis in the process of exploring the causes of the financial crisis. After two or three years, the European debt crisis occur in Greece, Spain and other countries, where the shadow banking affect the stability of the financial system. In China, until 2011, the Wenzhou private lending crisis broke out, people realized shadow banking's risk has begun to have an impact on the country's financial stability.

For the shadow banking risks and financial stability, the domestic and foreign scholars have carried out extensive research. David Longworth (2012) studied the potential risk of shadow banking system and found that the lack of financial regulation and information opaque are two important reason that shadow banking system leads to financial instability. Elias Bengtsson (2013) took the European money market funds for example, studied the relationship between the shadow banking and financial stability, and found that money market funds had greater impact on financial stability and shadow banking supervision should be strengthened. Among the studies of Chinese scholars on this problem, which are more representative are as follows: Ba Shusong(2009) studied the performance of the shadow banking in financial crisis and proposed shadow banking accumulated considerable financial risk, which had the negative effect on the 2008 financial crisis. Wang Zhenggang et al. (2013) analyzed from the perspective of the financial audit of the analysis, raised that the shadow banks have liquidity risk, credit default risk and legal risk, and government should strengthen supervision of shadow banking.

At present, although there is a popular belief that the shadow banking system is infectious, the research on the shadow banking is still limited to the traditional banking risk levels and lack of research on the conduct and risk prevention of the shadow banking in the non-bank system. To understand China's shadow banking, we should not only base on the status quo of China's financial market development, but also need an international perspective, comparing with the shadow banking system of mature Western markets, to clear difference between the two, and thus be able to better grasp the future trends of the shadow banking and take appropriate regulatory measures. Therefore, this paper is based on the comparison of the different features of shadow banks in China and the US, grasp the difference; then analyzes the risk of China's shadow banking from three shadow banking behavior aspect——monetary market fund, asset securitization and repo; finally state the regulation and control

measures which are necessary in the future with China's shadow banking development.

2 The Current Development of the China's Shadow Banking

In 2011, the Financial Stability Board define the broad and narrow shadow banking respectively from the perspective of financial functions: broad shadow banking refers involving credit intermediation activities and institutions outside the traditional banking system, narrow shadow banks means non-bank credit intermediaries which may cause systemic risk and regulatory arbitrage. And later added: Shadow banking has many characteristics such as maturity mismatch, liquidity transformation, leverage operation and credit conversion. Considering the characteristics of China's financial market development, China's shadow banks should belong to the broad definition. The specific definition of China's shadow banking type refer to "Notice on Numerous Issues of the Strengthening Shadow Banking", which include: The first category is those credit intermediaries which has no financial license and totally unregulated, including the new online financial companies, third-party financial institutions; The second category is credit agencies which has no financial license and insufficient regulatory, including the financing guarantee companies, micro-loan companies; the third category is the financial institutions hold a license, but there is inadequate supervision or circumvent regulatory business, including money market funds, asset securitization, financial services and others.

"China's Financial Supervision Report (2014)"¹ pointed out that the size of China's broad shadow banking system was about 27 trillion yuan, accounting for about 19% of all the banking assets. FSB (2014)² shows that in 2013, China's other financial intermediaries' assets increase more than 37 percent, nearly \$ 3.1 trillion, accounting for 4% of the size of the world, and compared with 1% in 2007, China's shadow banking developed rapidly. However, compared with the United States and the European Union respectively accounted for 33%, 34% of the world's shadow banking scale, China's size is still smaller. In addition, the size of the US shadow banking in 2008 has exceeded the size of commercial bank assets, European shadow banks scale is also close to the scale of commercial banks, while China's accounts for only a fifth. The above is a horizontal comparison, and longitudinal comparison is in Table 1: RMB loans as a percent of social financing scale fell, while the entrusted and trust loans have increased significantly, indicating that the share of shadow banking in the credit markets increase gradually and developed rapidly. Overall, China's shadow banks have a lot of room for development.

Table 1 Social Financing Scale Structure (Unit: %)

Year	RMB loans	Foreign currency loans	entrusted loans	trust loans	others
2002	91.86	3.63	0.87		1.48
2003	81.06	1.76	8.99		6.7
2004	79.20	4.82	10.89		2.97
2005	78.46	4.72	6.53		7.91
2006	73.83	3.42	6.31	1.93	12.52
2007	60.88	6.48	5.65	2.85	22.32
2008	70.26	2.79	6.11	4.5	14.19
2009	68.97	6.66	4.87	3.14	14.61
2010	56.67	3.46	6.24	2.76	28.67
2011	58.24	4.45	10.1	1.59	22.07
2012	52.04	5.81	8.14	8.15	22.56
2013	51.35	3.38	14.71	10.63	17.22

Note: The above calculated according to "China Statistical Yearbook 2014"; "Others" include undiscounted Banks' Acceptance Bill, Corporate Debt and domestic Equity Financing of non-financial businesses; The Total Social Financing Scale is 100%.

3 The Shadow Banking Behavior and Risk

¹ Quoted from "the report said the scale of China's shadow banking system is about 27 trillion yuan," China News. <http://www.chinanews.com/gn/2014/05-09/6154444.shtml>, May 9, 2014

² Financial Stability Board (FSB): Global Shadow Banking Monitoring Reporting 2014. http://www.financialstabilityboard.org/wp-content/uploads/r_141030.pdf, October 30, 2014

The shadow banking behavior is that a financial institution regulated attempt to achieve profit by the related activities (such as financial innovation). Shadow banking behaviors include money market mutual funds, securitization and repos.

3.1 Money market mutual funds

Money Market Mutual Funds is a fund which invest solely in money market instruments. Money market instruments generally have good liquidity and short term. Compared with general funds, money market funds have two characteristics: First, money market mutual funds provide a restricted deposit account; second, there is less regulations on money market mutual funds.

Risk of Money Market Mutual Funds mainly comes from the fund holders and where the funds invest into. Before the financial crisis, US money market mutual fund raised money from individual or institutional investors and most of capital are flowing into shadow institutions like structured investment vehicles and investment banking. Money market mutual funds has been the “blood donor” of shadow banking system. Once these institutions investment banking appeared crisis, money market mutual funds would inevitably be affected. When fund holders perceived crisis, they would be upset and worry about money market mutual funds difficult to fulfill the implicit promise of the net assets. Then run occurred and financial institutions would sell assets in order to avoid potential losses, in the end, causing panic throughout the financial system. Bengtsson (2013) found that during the subprime crisis, the US and European money market mutual funds suffered a massive fall in asset prices and investor redemptions, which transmitted to the banking system and caused turmoil in the financial system.

China’s Money Market Fund launch constructed in 2003, then experiencing ups and downs, until the regulator canceled the money market fund investment deposit agreement shall not be higher than the prescribed 30% ceiling in 2011, and meanwhile it’s under the background of cross-integration of Internet and finance, money market funds have a new era of development. Among them, a typical example is the ‘Yuebao.’ Money Market Fund still have great potential for growth and innovation. Although the role of China's money market funds in the shadow banking system is not very critical, the awareness of its risk is also very important.

3.2 Asset securitization

Chinese Asset-Backed Securitization began in 2005, but stopped in 2008, and did not resume until 2012. Its development is full of twists and turns. Figure 1 presents the development of assets securitization from 2005 to 2014 and data comes from the Central Securities Depository and Clearing Corporation Limited. 2005 - 2008, the annual issuing size of asset-backed securities was 4.2, 11.6, 17.8 and 30.2 billion yuan respectively, 2013, 10.9 billion yuan, while in 2014, this scale soared to 255.1 billion yuan. Visibly, since 2014, domestic credit asset securitization entered its prime time for development. As issuer continuously enriches, asset securitization in China has gradually reached the stage of normalization development.

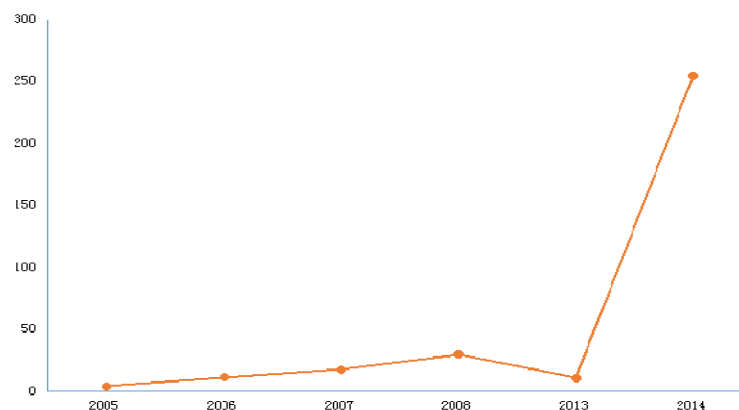


Figure 1 The Size of Asset Securitization (Unit: Billion RMB)

The differences between China’s asset securitization and US’ are as follows: on the one hand, the product structure is relatively simple and transparent. Compared with the United States securitized products such as CDO, China's securitized products belong to a one-time derivative, not repeated, therefore, the information asymmetry is not serious and the risk is not quite high; on the other hand, asset securitization secondary market is not active, the mobility of the products is small, two thirds of that are held by domestic commercial banks. Securitized products was originally used to spread risk, but if it has

been held in the hands of by the banks, systemic risk cannot be dispersed. Above all, China's Asset Securitization may need to build up a vibrant secondary market. Although the history of asset securitization market is relatively short, especially after three successful pilot, there has been initially forming a relatively complete system of regulatory system.

3.3 Repurchase agreements

Repurchase agreement is a contract in which the seller of securities, such as Treasury Bills, agrees to buy them back at a specified time and price. It also called repo or buyback. It's the instrument that finances the short-term fund. Essentially, it is the mortgage agreement and is also the media that transfer to between cash and other complex financial instrument. Currently, the world's largest repo market is the US repo market. We can say that in the United States, the repo has become an important short-term financing tool. Its major participants is mutual funds that have many short-term funds. Moreover, as long as the funds provider agrees, any asset can engage in repurchase transactions. But in China, influenced by the degree of interest rates liberalization and financial innovation, repurchase agreements are strictly limited to Treasury bond, the repo market is still in a primitive stage.

Risk of repurchase agreements mainly come from the quality of its collateral. Due to the spotty quality of collateral, it will produce information asymmetry. As mentioned in Batchvarov (2013), the quality of collateral repo transactions determines good or bad trading results rather than repurchase agreement itself. In a depression, poor quality of collateral defaults may cause large-scale "run", under financial leverage, it will soon spread to the entire repo market, eventually causing the financial crisis. Although the quality of collateral in repo market is excellent and the possibility of causing systemic risk is small, reviewing the development of the US repo market, the market seems to be difficult to flourish if too cautious, so how to develop the repo market is well worth thinking.

According to the analysis of the development in the shadow banking and shadow banking behaviors, China's shadow banking system has the following characteristics: First, China's shadow banking system is dominated by commercial banks. For example, bank financing business, interbank business and entrusted loans are all directly associated with the commercial banks and others like trust companies and other financial companies is also related with the bank in the business process. Second, the major China's shadow banking behavior is securitization. Limited to the extent of securitization, products operated by China's shadow banking is still debt instruments or very junior asset securitization products. Third, China's shadow banking mainly service residents or corporate clients, which is also called retail customer.

The characteristics of mature markets abroad shadow banking are as follows: First, the shadow banks usually are dominated by non-bank financial institutions, especially no commercial banks. Second, the main business of the shadow banking is securitization activity. Third, it is of high leverage. Fourth, shadow banking is wholesale funding (for example, by issuing ABCP), and the major investors who bought the shadow banking products are institutional investors.

Comparison of the two, the current China's shadow banks do not fully "copy" the West Shadow Banks. China's shadow banking changes a lot in a particular environment, even some of the China's shadow banking characteristics are different from the international convention and common criteria. But China, after all, is different, it needs cautious thinking. Strictly speaking, China's shadow banking is different, we cannot simply imitate the development of Western shadow banking.

4 The Regulation Progress of the Shadow Banking

After the financial crisis, the shadow banking supervision has become a consensus of countries in the world. However, according to the features described above, China's shadow banking supervision strategy is required different with other countries. The Assessment of Chinese Economics released by IMF in July 2013¹ gave warnings about the risk of excessive expansion of the "non-traditional financial sector," and stated that shadow banks risk may evolve into Chinese financial systemic, so the shadow banking activities must implement more strict prudential supervision. China's shadow banking initially features regulatory arbitrage, but the leverage is not high, unlike United States, European Union and other economies, therefore the focus of regulation is standardization.

At present, the supervision of the shadow banking has an overall rule, published in 2013 called "Notice on Numerous Issues of the Strengthening Shadow Banking." It establishes the principle of "who approved the establishment of institutions also is responsible for risk management" and implements

¹Cited from "IMF Takes" Pulse "of China's Economy, Warning Shadow Banking Becomes Financial Systemic Risk", CNFOL, July 18, 2013

centralized management. Viewed from design of regulator, the pattern of “horizontal regulatory coordination + two-level supervision” has been formed progressively. The former refers to full regulatory of the “one bank and three commissions”¹, eliminating regulatory vacuum and avoiding regulatory overlap; the latter refers to the central and local supervision.

But with regards to the newly established or slow-glowing shadow banking institutions, our government issues trial measurement for administration. Summarized in Table 2.

Table 2 The Shadow Banking Regulatory Summary

Agency or Business	Regulatory
Whole	“Notice on Numerous Issues of the Strengthening Shadow Banking”
Banking Financial Services	“Notice on Regulating the Assignment of Credit Assets and Credit Assets Financial Business,” “Regulation on Financial Cooperation between Trust and Bank,” “Notice on Regulating Investment Operations of Commercial Bank Financial Services ” “Guidance on Banking Financial Services Supervision 2014” and “Notice on Commercial Bank Financial Products Enter the Interbank Bond Market ”
Trust	“the PRC Trust Law,” “Administrative Rule of Trust Company”, “Regulations for Trust Plan of Assembled Funds”, “Guidance on Supervision of Trust Risk”
Non-bank financial institutions engaged in specific business	“Regulations on Group Finance Companies”, “Regulations on Auto Finance Companies”, “Regulations on Consumer Finance Companies”
Interbank business	“Notice on Regulating Financial Institutions Interbank Business”
Non-bank financial institutions service specific objects	“Guidance on the Small-Loan Company Pilot”, “Regulations on Pawn Shops”, “Temporary Schemes of Financing Guarantee Company”
Asset securitization	“Notice on Managing Credit Asset Securitization Pilot”, “Asset-backed Securities Information Disclosure Rules,” “Accounting Rules of Credit Assets Securitization Pilot,” “Measurement Supervision and Administration of Pilot Securitization of Credit Assets”

Throughout the China’s shadow banking supervision, there is still some shortcomings. For example, some financial institution is regulated by the local, others is regulated by the central, causing problems that the same organization may face different regulation in different regions, coupled with lack of cooperation and coordination among regulators, finally creating regulatory arbitrage. Therefore, China needs to form a complete shadow banking regulatory system, which supervisory duties implemented by only some agencies, with coordination of other departments, forming management practices and special rules of various types of shadow banking.

5 Conclusion

In general, although the size of China's shadow banking now is small, it should be regulated. The major direction of supervision is that while it service the real economy to avoid just transferring risks within the financial system rather than reduce risk, strengthen macro and micro prudential supervision to achieve financial stability. However, financial innovation and financial supervision have the dialectical relations which promotes and restrict mutually. Kane, the supporter of Circumventive Innovation Theorem, thinks that financial innovation will be generated when of that when seeking to avoid a variety of financial controls and regulations while external market forces combined with internal needs. When the financial innovation endanger financial stability and the government's monetary policy cannot achieve the intended goal, it will produce strengthening financial regulatory requirements. And under more stringent financial regulation, people will try to circumvent the new regulations, thereby promoting financial innovation. To some extent, financial innovation and financial supervision are constantly challenged each other and move forward during this challenge. And supervision of shadow banking is an ageless topic. It needs subsequent study to cope with new problem occurring in the later development.

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Discussion about Influence Factors of the Investment and Management Risks of Japanese Companies in Jiangxi Province

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Abstract: This paper presents why, when, and where Japanese companies advance into Jiangxi Province based on the related information provided by Jiangxi Province Commerce Agency and interviews with the companies operating in the Jiangxi Province. The paper investigates the relation between the investment decision and each local city's economic data. The result shows that some economic indexes such as total population at year end have relationship with the number of Japanese company advancing. By comparing the risks which are behind for the corporate overseas activity, and risks which are related to the location to advance, we verify the management risks of Japanese companies operating overseas. It provides some guidance for Japanese companies to invest in Jiangxi Province.

Key words: Jiangxi province; Japanese company advancement; Relation analysis; Influence Factors; Corporate management risk

1 Introduction

At the end of Y1970's the Chinese government started to implement the FDI (Foreign Direct Investment), and in Y1992 it employed Socialist Market Economic System. In the past, for the FDI amount to China, Japan is ranked top or second after the overseas Chinese. On the other hand, due to the rapid Chinese economic growth, the investment environment in China for foreign companies has changed in recent years. This paper focused on influence factors of the investment, the plant location strategy and the management risks of Japanese companies in Jiangxi province during Y1990 to Y2014.

In the past several years, in order to look for the advantages such as labor, human resources, and materials etc., the worldwide borderless corporation's plant localization activity increased year by year. However the overseas advancement is one of the corporate activities in which sometimes management risk is involved. According to Dunning, an England international economist, Ownership-specific advantage(O), Internalization-incentive advantage(I), and Location-specific advantage(L) are three major advantages for foreign company's FDI^[1]. In the theory of Horizontal FDI and Vertical FDI by Shatz and Venables, Helpman and Elhanan, the motivation of FDI by company are the locally competitive advantageous^[2], and the necessity management implementation (labor, raw material, land cost etc.) for low cost operation^[3,4]. Baldwin and Okubo conducted Networked FDI with a focus on new movement of industrial organization such as Global Value Chain^[5]. Johanson and Vahlne, Noisi J. stated that the multinational corporation's globalism has developed from nearest country to farer country, by the standpoint of language, culture, and social system to avoid the risk of unsureness and limitation of information^[6,7]. Wheeler and Mody^[8], Head and Reis indicated that multinational corporations are concentrated in some specific areas^[9,10]. Usually the company selects the plant location at the area where the overseas corporations are gathered. Regarding the Japanese corporation's trend of FDI, Tai Nihyou analyzed the relation between Japanese company's investments in China and economic data^[11]. However, the report on the relation between the Japanese company's investment in China and the Chinese local area economy has not been found. Therefore, this point is discussed here to verify influence factors of the investment and the management risks of Japanese companies operating overseas. It provides some guidance for Japanese companies to invest in Jiangxi Province in the future.

2 The Purpose and Time of Japanese Companies Investment in Jiangxi

Jiangxi Province is located at the south of lower Yangtze River. To the northeast of them is the Yangtze River Delta economic zone which includes Shanghai, of china and to the south there is the Pearl River Delta Economic Zone which includes Guangzhou. Previously Jiangxi Province had many processing type industries using rich resources, but in recent years, with the development of transportation and infrastructure, with the geographic superiority close to the coastal areas and the low cost labor force, their advantage has been reviewed better by business circle.

After the collapse of Lehman Brothers (08), the foreign company preferred further to advance into Jiangxi Province to establish the second plant to complement the production of the coastal areas.

According to the Japanese companies list obtained from Jiangxi Commerce Agency, only 62 Japanese companies have a presence in Jiangxi Province of China.

(1) The investment situation and the timing of advancement of Japanese companies.

We checked the number of Japanese companies advancing into Jiangxi Province, and found the advancement of them converged on the period from Y2006 through Y2010, when exchange was the trend of advancement to the yen in the context of the dollar yen exchange (Figure1).

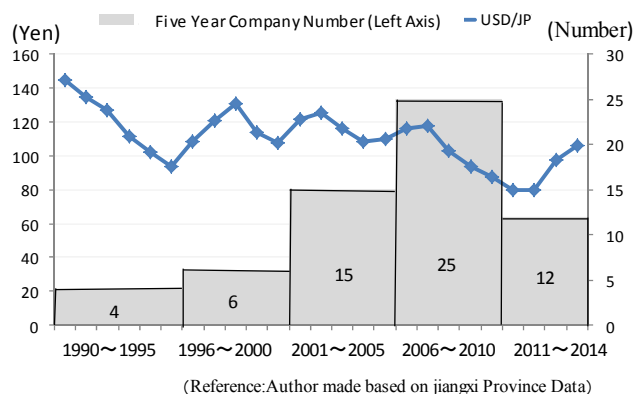


Figure 1 The Number of Japanese Company Advance in Jiangxi Every Five Year

Before Y2000, Japanese companies advanced to utilize the Jiangxi's rich natural resources, but the number was small. From Y2000 through Y2010, Full-scale industrial transfer from the coastal areas. After Y2011, the number of Japanese company advancing is on the decline

(2) Advance location and investment form

They mainly advanced into the area of Nanchang and Ganzhou followed by Jian, Jingdezhen, Jiujiang, and Yichun. From the data, they initially started operating in Nanchang and Jingdezhen, then expanded to Ganzhou and Jian. In particular, by the effect of the tax reform since 2008, it can be seen that the plant location in Jiangxi (especially Ganzhou) has increased.

(3) Investment Corporate Form

In Table 1 the industries and investment form (Wholly owned or not) are summarized. There are many wholly owned companies for the light industries, such as Food, toys, pottery, and sewing cloth. On the other hand, for chemical, rare metals, and environmental industries, the number of wholly owned company is extremely few. It can be said here, Japanese companies may prefer wholly owned company other than joint venture. It can be seen that they choose the joint venture only when it is necessary.

Table 1 Japanese Company Number by Industry

type of industry	Number of Japanese companies	Example	Wholly owned company	
			number	Ratio%
Food	3	Boiled eeel, Shallot pickle	3	100.0
Toy	2	Toy, Lantern Mfg.	2	100.0
Pottery	6	Pottery, Exterior Mfg.	6	100.0
Sewing,Clothing	5	Sewing,Clothing	4	80.0
BuildingMaterial, Furnitur	7	Bamboo work, Buddhist altar, Building material	5	71.4
Metal Processing	6	Plating, Coil, Copper pipe, Metal press	4	66.7
Manufacturing	10	Transformer, Digital camera lens, Air conditioner, Electric parts, Display, Lighter, Toner, Small motor	6	60.0
Auto, Auto Parts	8	Auto, Wire harness, Auto coil	4	50.0
Service	4	Hotel, Trading, Construction design/Auto parts design consultant	2	50.0
Chemical	3	Fluorine Chemical, Medicine	1	33.3
Metal Materials	6	Rare metal, Hard alloy	0	0.0
Environment	2	Sewage & water treatment, Household appliance recycling	0	0.0
Sum	62		37	59.7

(Reference:Author made based on jiangxi Province Data)

3 Influence Factors of the Investment of Japanese Companies in Jiangxi

During November 2014 through January 2015, we had visited 11 Japanese companies in five districts of Jiangxi (Nanchang, Jiujiang, Yingtan, Jingdezhen, and Yichun) for the research. Influence factors of the investment of Japanese companies in Jiangxi are as follows.

(1) Influence factors of the investment of Japanese companies in the past years

Based on this research, the reasons that they have entered Jiangxi Province are as follows.

- ① the availability of material: 5 companies (chemical company 1, wood processing company 1, pottery manufacturer 2, food company 1)
- ② the location of business partner: 1 company (environment company1)
- ③ the good logistics: 1 company (toner manufacturing company1)
- ④ The location of customer: 1 company (gilding company1)
- ⑤ The low cost of labor: 1 company (sewing company1)
- ⑥ Development Zone personal enthusiasm: 2 companies (food chemistry company1, small size motor manufacturing company1)

Regarding overseas destination of Japanese companies, it is said in generally that except the basic infrastructure of electricity, gas, water, transportation, and labor, key factors are ①close to the raw materials or market, which are both ends of production and sales, ② regional income level (cost), ③ the number of Japanese company (or foreign companies) in this area, ④ distance between Japan and the location.

In Jiangxi, the factors of ③ and ④ are not so important as that in other areas, but the factors of ① and ② are more important reasons and more attractive for investment. In our opinion, they selected Jiangxi area due to key factors ① and ②.

(2) Influence factors of the investment of Japanese companies in the future

They expanded their business in China based on two strategies. One is export-oriented type (overseas markets, particularly Japan-oriented) using Chinese inexpensive intermediate input elements while the other one is local market-oriented type aiming China's growth market. Most companies we visited were export-oriented one (eight companies out of 11th).

On the other hand, if you look at the timing of investment, in 90s only one company a year invested, in 2000s and 2010s five companies invested respectively. From 2009 to 2013, when dollar yen exchange advanced less than 100Yen, it came up to six companies out of 11th to make investment. It can be assumed, when Japanese Yen appreciated, Japanese companies established plant in Jiangxi, where the income level is rather low, and preceded the business model to export to Japan.

However, due to recent depreciation of Yen, appreciation of Yuan and the increase of labor cost, the profit of the Japanese export-oriented companies has been down rapidly. There were some companies which have begun to examine the restructuring, including the withdrawal.

Even in this situation, some export oriented companies have made efforts to improve profitability by diversification of sales destinations. In a few years, the difference of the self-help efforts or the business strategy of the company will bring the huge different results for the company direction.

In the meantime, the labor problems have occurred in the four companies out of 11 companies we interviewed. Two companies faced member's strike, one company was sued by the labor arbitration committee for overtime while one company had issue regarding secret information. All of them are Japanese wholly owned companies.

In joint ventures, Chinese management, who had not been interviewed by us, is responsible for personnel and labor generally. So some related problems have not been reviewed. It can be seen the Japanese advance companies are struggling with labor problems.

4 Relation Analyses Between Advancing Timing and Economic Index

On the above we reviewed Japanese companies how and why they have advanced to the Jiangxi. In this section, we further consider about the relation between the Japanese companies advancing and the number of economic indicators of Jiangxi each city. First, we attempt a correlation coefficient analysis as quantitative evaluation, then attempted qualitative analysis. Based on the list of Japanese companies in Jiangxi provided by Jiangxi Province Commerce Agency, the presence of Japanese companies were confirmed by the China nationwide corporate credit information public announcement system (<http://gsxt.jxaic.gov.cn/ECPS/index.jsp>). (Table 2).

Table 2 Economic Indicators of Each City

Year	Total	Nanchang	Ganzhou	Jian	Jingdezhen	Jiujiang	Yichun	Yingtan	Fuzhou	Shangrao	Others
1992	1	1	0	0	0	0	0	0	0	0	0
1993	1	1	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0
1995	2	1	0	0	1	0	0	0	0	0	0
1996	1	0	0	0	0	0	0	0	0	0	1
1997	0	0	0	0	0	0	0	0	0	0	0
1998	2	0	1	1	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0
2000	3	1	0	0	1	0	1	0	0	0	0
2001	2	1	1	0	0	0	0	0	0	0	0
2002	1	1	0	0	0	0	0	0	0	0	0
2003	5	2	1	2	0	0	0	0	0	0	0
2004	3	2	0	0	0	0	1	0	0	0	0
2005	4	1	0	0	1	0	0	0	1	1	0
2006	8	2	3	0	1	1	0	0	1	0	0
2007	4	2	0	0	0	1	0	0	0	0	1
2008	1	1	0	0	0	0	0	0	0	0	0
2009	4	0	0	0	1	0	0	2	0	0	1
2010	8	2	1	2	1	0	2	0	0	0	0
2011	8	0	2	1	0	2	1	1	0	1	0
2012	2	0	1	0	0	1	0	0	0	0	0
2013	2	1	0	0	0	0	0	0	1	0	0
Total	62	19	10	6	6	5	5	3	3	2	3

(Reference: Author made based on Jiangxi Province Data)

Economic indicators of each city were collected from Y1992 to Y2013 from Jiangxi Statistical Yearbook of Y1993 to Y2014. However in the previous data in 2000, the items are insufficient. Therefore we use the data from Y2000 to Y2013 for the continuity.

(1) Quantitative analysis (correlation analysis)

We used the program “SPSS Statistic19” to do the correlation analysis.

① Regression Equation

This paper reviews the relation between “the number of Japanese company FDI” and “Jiangxi province area’s economic index” using the following regression equation:

$$N(it) = A_0 + A_1 * POP(it) + A_2 * D2P(it) + A_3 * GRP(it) + A_4 * GRC(it) + A_5 * GRG(it) + A_6 * IDN(it) + A_7 * FIN(it) + A_8 * ITP(it) + A_9 * FIT(it) + A_{10} * FIU(it) + A_{11} * HSN(it) + A_{12} * PRS(it) + A_{13} * TR(it) + PP(it) \tag{1}$$

Each parameter in regression equation is showed in Table 3.

Table 3 Correlations Analysis Parameter

Number	Parameter	Variable
1	Total population at year end	POP(it)
2	secondary industry population at the year end	D2P(it)
3	GRP	GRP(it)
4	GRP per capita	GRC(it)
5	GRP growing ratio	GRG(it)
6	Industrial company number	IDN(it)
7	FDI corporate number	FIN(it)
8	Industrial total production	ITP(it)
9	Yearly FDI total	FIT(it)
10	yearly actual FDI amount	FIU(it)
11	High school student number	HSN(it)
12	City people disposable income	PRS(it)
13	Tax incentive policy	TR(it)
14	China-Japan political problem	PP(it)

In addition, the sub-index are “i: the timing (year)” and “t: each city”.

② The actual steps of the correlation coefficient analysis

The actual steps are explained as follows using the Nanchang City as example.

First, we examined the correlation between each year FDI company number and each parameter. It is shown as below. (Table 4)

Table 4 Correlation Analysis Sig. & Company Number

	POP(it)	D2P(it)	GRP(it)	GRC(it)	GRG(it)	IDN(it)	FIN(it)	ITP(it)	FIU(it)	HSN(it)	PRS(it)	TR(it)	PP(it)
Sig.(2-tailed)	0.041	0.045	0.063	0.183	0.038	0.079	0.239	0.074	0.084	0.497	0.137	0.036	0.224

Here, the parameters, which the standard deviation is greater than 0.1 (the upper limit for the existence of the correlation), are removed (GRC, FIN, HSN, PRS, and PP). As a result, the remained eight parameters are considered as analysis (Total population at the year end, secondary industry employees at the year end, GRP, GRP growing ratio, Industrial company number, Industrial total production, Yearly actual FDI amount, and tax incentive policy), and we calculate the correlation coefficient in the equation 1.

② Analysis result

As a result, if adopt the Standardized Coefficients (the constant is zero), the relationship between “the companies advancing number each year” and “each parameter in Nanchang City” became as follows.

$$N(it) = 0 - 2.417 * POP(it) + 0.849 * D2P(it) + 2.592 * GRP(it) + 0.852 * GRG(it) - 0.114 * IDN(it) - 0.879 * ITP(it) - 0.459 * FIT(it) - 0.291 * TR(it) \quad (2)$$

For other cities, the number of data is too small, therefore unfortunately it was not possible to obtain a correlation expression. For even Nanchang city, there is stronger correlation with GRP, GRP growing rate, and the secondary industry employee population at the year end. It was the result of the inverse correlation with other parameters. Data number of Nanchang City is only 19, to apply a correlation analysis, it is considered the number of data is too small, therefore it's the result of credit also seems to be low.

(2) Qualitative analysis

Regarding the results of the above quantity analysis, the reliability is seems low due to the small number of data. If you look at the data as qualitatively,

① In the entire Jiangxi, as described in Chapter 5, the influence of "New Enterprise Income Tax Law" in January 2008 and the foreign exchange rate enacted largely.

② Japanese FDI was gathered in Nanchang City, which is the provincial capital, and Ganzhou located nearby Guangdong, which tax benefits was continued. And it was spread over to other cities regardless of the economic indicators. In other words there is a tendency for them to advance in the place where many Japanese companies gathered

(3) The key factors based on relation analyses

From the above, we can say as follows regarding Japanese company FDI in Jiangxi of China.

① Their main business type is export to Japan using the resources of the abundant resources (mineral resources, agricultural resources) and the low cost labor in this area. Especially when the yen exchange rate became stronger, this trend became clearly.

② They were affected by the Exchange rate, the Tax regulation, and the cost difference with the coastal areas.

③ Since Y2000 the advancement has been accelerated, and peaked in 2011, after that, its number was greatly reduced under the influence of the Japan-China relationship.

④ They prefer single advancement (wholly owned corporation) unless they need other corporate model.

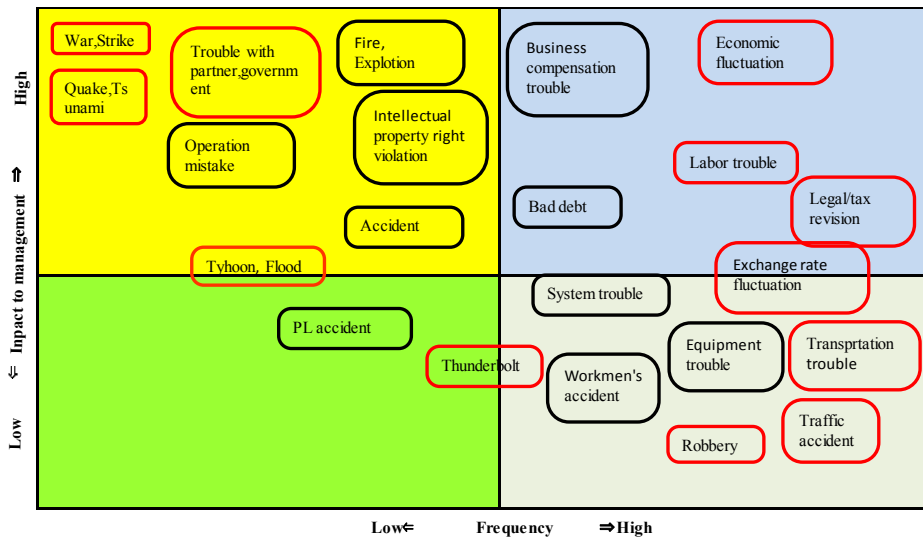
⑤ We attempted the correlation analysis to determine where and when they decided to advance, however the result is not satisfied due to small number of samples. By the qualitatively view, its tendency is to invest in the place where many Japanese companies gathered.

⑥ In order to focus on the pursuit of cost reduction, labor risk measures would be neglected, and caused labor problem for them. There is a tendency that their labor risk measures are insufficient.

⑦ Recently the exchange rate of yen becomes weak. This gave the big impact to Japanese companies' profitability of Jiangxi.

6 Management Risks of the FDI Corporation in Jiangxi

Some management risks are involved in the foreign company investment in Jiangxi. They may face many management risks. To minimize these management risks, the foreign companies consider well when and where they should make investment. The Figure 2 shows the general management risks by impact and frequency. In this map, red squared risks are related to the location they choose and timing they enter in Jiangxi.



(Reference: Tokio Marine Nichido)

Figure 2 General Management Risk Map

7 Conclusion

The result of this paper shows that some economic indexes such as total population at year end are influence factors of the investment and can effect on the number of Japanese company advancing in Jiangxi Province. The changes of these indexes not only affect the number of Japanese company in Jiangxi Province, but also provide some advices to the Japanese companies' investment and development in Jiangxi Province. From the investigation of this paper, it is clear the purpose of many Japanese companies advancing Jiangxi Province were to obtain the low cost labor and raw materials. However, the reversal of the currency exchange trends makes their management more difficult or severe. In addition, their cost oriented management has the weakness of the labor risk management. For Japanese companies it is necessary to prepare to control the corresponding risks. In this regard, we will further advance the investigation.

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Study on the Moral Hazard of P2P Lending Platform in China Based on the Fraud Triangle Theory*

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Abstract: The constant exposure of P2P lending platform running off with investors' capital has aroused great concern from the public and Chinese government. This paper argued that the moral hazard of P2P lending platform is what investors and Chinese government should give priority to especially when P2P lending is still in its infancy in China. Fraud is also a kind of moral hazard, based on the fraud triangle theory, this paper analyzed the reasons for moral hazard of P2P lending platform from the perspective of pressures, opportunities and rationalized excuses and then put forward some corresponding suggestions for Chinese government to prevent and control the moral hazard of P2P lending platform by inhibiting its incentives, reducing its opportunities and weakening its excuses.

Key words: P2P lending platform; Moral hazard; The fraud triangle theory; Run off with capital

1 Introduction

P2P lending platform has been frequently reported to run off with investors' capital in China, causing great losses to investors. P2P lending refers to lending and borrowing between unrelated individuals or peers without going through the bank or other traditional financial institutions. Platform that facilitates such transactions is called P2P lending platform. Investors, borrowers and P2P lending platform are the main participants of P2P lending. Among them, P2P lending platform serves as an information intermediary to connect investors and borrowers, matching transaction amount, period and interest for them, making it the core of P2P lending. P2P lending has been experiencing robust growth in China since 2013 for it satisfies the great unmet financial demands of small and medium-sized enterprises and personal consumer as a result of the long-term financial regulation of Chinese government. However, behind its booming development, the news of P2P lending platforms running off with investors' capital is also frequently seen on the Chinese newspaper and media. According to data from Wangdaizhijia, the first web portal tracking the P2P lending industry in China, the number of P2P lending platforms which vanished without a notice in the first five months of 2015 is 24, 24, 32, 27 and 33, respectively, accounting for 34.78%, 41.38%, 51.74%, 51.92% and 58.93% of the newly exposed P2P lending platforms with problems in the same month, respectively. The increasingly serious moral hazard of P2P lending platform has greatly undermined investor confidence and jeopardized the healthy development of P2P lending. The moral hazard of P2P lending platform refers to egoistic behaviors that P2P lending platform conducts to maximize its own interests by harming the benefits of investors and borrowers, which is usually involved in misleading propaganda, unimaginably high returns, false profiles, bogus borrowers and forged financing projects as well as fake use and flow of funds.

Professor, Roger Melson, the Nobel Prize winner in economics, once pointed out that moral hazard is the risk that all countries, particularly developing countries need most to keep vigilant in the process of economic development. Though the past two years have witnessed its leaping development, P2P lending is still in its infancy in China. The moral hazard of P2P lending platform is extremely difficult to discover in advance for it can hide well. Meanwhile, once it breaks out, investors are usually unable to get any of their principal and interest back, leaving them out of pocket. Therefore, the risk that investors and Chinese government desperately need to guard against is also the moral hazard of P2P lending platform. Many scholars have done researches on the moral hazard of P2P lending. Yum et al. (2012) indicated that P2P lending has the problem of adverse selection and moral hazard because of information asymmetry. Chaffee and Rapp (2012) pointed out that P2P lending has higher level of moral hazard in comparison with traditional lending for it lacks family, cultural or group tie to enforce borrowers to pay back and the lending transactions are not made face to face. Xie Ping, the father of the concept of internet finance in China, indicated in the "report on Chinese internet finance in 2014" that P2P lending platform has the fraud risk in order to increase trade volume. Xu Rong et al. (2014) argued

* This paper is supported by the subject "study on risk transmitting mechanism of private lending in Wenzhou"

that moral hazard exists in P2P lending because of incomplete social credit system and defective operation mechanism. Lin Liping (2014) suggested that rational man hypothesis and information asymmetry act as the internal cause and external cause for moral hazard of P2P lending, respectively. The current studies nearly all focused on the moral hazard of borrowers. There is almost no paper specializing in the moral hazard of P2P lending platforms. Studies on moral hazard of P2P lending platforms are few and superficial. The fraud triangle theory, aimed at finding out the causes of enterprise fraud, is widely used to instruct fraud auditing. Fraud is a kind of moral hazard; therefore, the fraud triangle theory can also be applied to the study on the moral hazard of P2P lending platforms. This paper made further study on the moral hazard of P2P lending platforms in hope of making up for the insufficiency of this research field and contributing to Chinese government's prevention and control of the increasingly serious moral hazard of P2P lending platform and thus promoting the long-term healthy development of P2P lending.

2 The Reasons for Moral Hazard of P2P Lending Platform Based on the Fraud Triangle Theory

The fraud triangle theory articulates that pressure, opportunity and rationalization, together, lead to fraud. Without any one of these three elements, fraud won't occur. Pressure, the incentive of fraud, is what motivates the fraudulent acts. Personal or professional financial obligations, greed and alcohol addiction can all serve as pressure. Opportunity refers to the chance to commit the fraudulent acts without being caught. Typical opportunities for fraud include information asymmetry, insufficient supervision and lack of legal restriction. Rationalization, last but not least, is the excuse fraudsters find to justify their dishonest actions.

2.1 Pressures for moral hazard of P2P lending platform

1) Finance for affiliated enterprises or their own projects. One of the major reasons for the prosperity of P2P lending platform in China lies in its unlimited financing capacity. Many people established a P2P lending platform with the purpose of solving financing difficulty whether for their affiliated enterprises or their own projects, which significantly motivates them to defraud investors by means of forging borrowers, fabricating financing projects and falsifying funds use and flow in order to transfer investors' capital. Typical P2P lending platforms of this kind like "Dongfangchuangtou" and "Wangyinzaixian" which both cheated investors of more than one hundred million RMB ended up with running off with investors' capital. Investors usually take greater risks and are more likely to suffer from huge losses if they invest on this kind of P2P lending platforms.

2) Encircle investors' capital and then ran away. There are many fraudulent P2P lending platforms in China. Money encirclement is their initial and final goal. To circle money, fraudulent P2P lending platforms tend to attract investors by promising unbelievably high returns, releasing false or misleading propaganda, issuing day mark and second mark to perpetrate Ponzi scheme. After encircling enough capital, they just disappeared. It is nearly impossible for investors to retrieve their capital.

2.2 Opportunities for moral hazard of P2P lending platform

Introduced to China in 2007, P2P lending is still immature in this country, which provides P2P lending platforms with plenty of opportunities to conduct fraudulent acts. Opportunities for moral hazard of P2P lending platform are shown in Figure 1.

1) Extremely low entry threshold. P2P lending platform basically has no entry threshold in China since its introduction. A P2P lending platform can be registered with little investment in human and material resources. Compared with the low initial investment, the funds it can attract from investors are exponentially magnified. The fraudulent P2P lending platform named "Youqiandai" only invested 60 RMB for its establishment, but defrauded nearly 50 million RMB and then disappeared. P2P lending, in essence, is a kind of finance. Considering its industry particularity, there should be some restrictions on the entry threshold to screen out those disqualified. Too low entry threshold gives those who want to get something from nothing opportunities to enter P2P lending industry to seek personal gains through improper means.

2) Non-standardized third-party funds trusteeship. There are huge amount of precipitation funds on the P2P lending platforms. Although China Banking Regulatory Commission clearly demanded that P2P lending platform should implement third-party funds trusteeship, yet how and who to trustee, the scope of funds needed to trustee and the qualification of trustee agency are still not be determined. Lacking detailed rules results in non-standardized third-party funds trusteeship. Some P2P lending platforms trustee the precipitation funds to their own or affiliated financial institutions, and some only trustee risk

reserve funds, and some even just don't trustee the precipitation funds. The form of third-party funds trusteeship is over its substance, which enables P2P lending platforms to form huge capital pools that can be withdrawn and disposed freely by them. Capital pools make it easier for P2P lending platforms to illegal transfer and embezzle investors' capital. Lin Caiyi, chief economist for Guotai Junan Securities, pointed out that more than 95% of the exposed fraudulent P2P lending platforms are involved in capital pool. It can be said that capital pool is the hotbed of moral hazard of P2P lending platform.

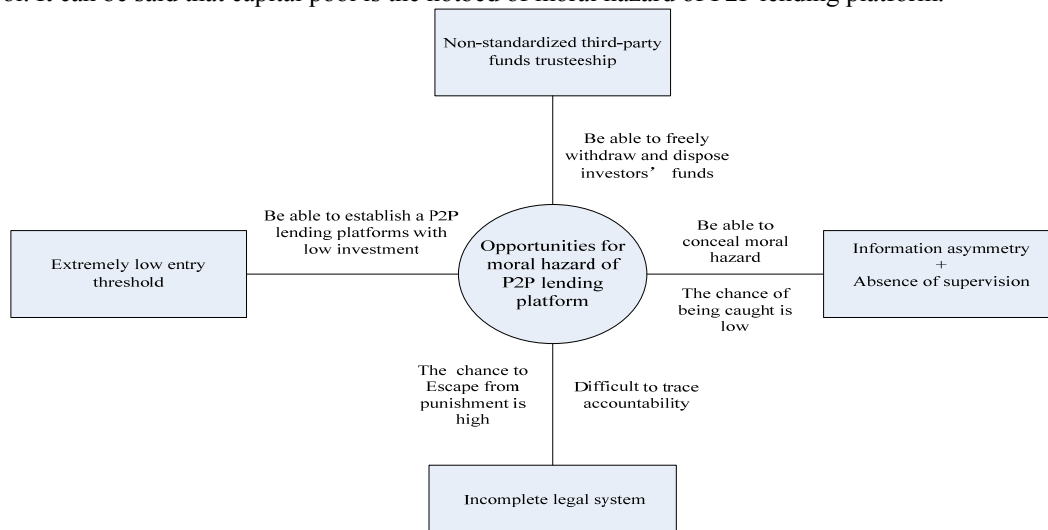


Figure 1 Opportunities for Moral Hazard of P2P Lending Platform

3) Information asymmetry. Investors and supervision departments are at information disadvantage in P2P lending for they rely on P2P lending platforms to get information about their operations, investment projects, credit standing of borrowers and funds flow. Because of lack of compulsory and detailed industrial standard of information disclosure for P2P lending, information disclosure of P2P lending platform is self-disciplined for the purpose of attracting investors, which means that they have great liberty to determine what, how, when and where to disclose. They are able to selectively disclose favorable information, insufficiently disclose or not disclose or even falsely disclose unfavorable information to conceal moral hazard and deceive investors. Meanwhile, there are no audit institutions to authenticate the disclosed information. Investors and supervision departments are unable to gain a comprehensive and correct idea of key information such as funds flow, financing projects, etc, which makes investors unable to prevent moral hazard and supervision departments incapable of supervising timely and effectively. The moral hazard of P2P lending platform has a slim chance of being discovered. Information asymmetry is the primary cause of moral hazard of P2P lending platform.

4) Absence of supervision. As it can be seen from the Figure 2, the supervision of P2P lending in China is blank until April, 2014. Though China Banking Regulatory and People's Bank of China have issued concerning documents to supervise P2P lending, however, from the four "red lines" to "six principles" to "ten principles" to new "seven principles", the supervision of P2P lending is all about official principles which don't possess the power of laws and rules. What's more, the official principles are just too general, no specific and detailed regulations have been made, leading to the absence of government supervision. The regulation of P2P lending largely relies on industrial self-discipline supervision which can only impose limited restraint on the behaviors of P2P lending platforms. Insufficient supervision significantly decreases the likelihood of moral hazard of P2P lending platforms being caught and leads to time lag of moral hazard of P2P lending platforms being discovered, which allows P2P lending platforms to conduct fraudulent acts without worrying about being caught since they have great chance to get away with the monitoring of relevant supervision departments.

CBRC issued four “red lines” on what P2P lending platforms can do or cannot do	CBRC issued five orientations for supervision of P2P lending	CBRC introduced ten principles for supervision of P2P lending	CBRC put forward new “seven principles” for supervision of P2P lending	CBRC established a department named “universal benefits” to supervise P2P lending
April,2014	July,2014	August,2014	September,2014	November,2014
	PBOC released “guidance to promote the healthy development of Internet finance”	Executives of CBRC put forward six principles for the development of P2P lending		PBOC released the five ideas on supervision of Internet finance

Remarks:CBRC stands for China Banking Regulatory Commission and PBOC stands for People’s Bank of China

Figure 2 The Course of Supervision of Chinese P2P lending

5) Incomplete legal system. There are no laws and regulations targeting P2P lending platform in China. Only contract law, property law, etc can place little constraints on P2P lending platform. A great many P2P lending platforms hold the view that anything laws don’t prohibit is legal and can be done. P2P lending platforms taking advantage of legal loophole to engage in business in gray areas is common in Chinese P2P lending industry, some of which can greatly harm the benefits of investors. Furthermore, incomplete legal system makes it hard to trace accountability for there are some difficulties in determining legal characterization of moral hazard of P2P lending platform and gathering evidences, making case filing difficult. According to statistics of Wangdaizhijia, there are nearly 300 fraudulent P2P lending platforms by the end of May, 2015, but less than one third of the cases have been placed on file and less than one tenth of cases have proceeded to the trial phase. The moral hazard of P2P lending platform has a high chance of escaping from punishments due to the incomplete legal system.

2.3 Rationalized excuses for moral hazard of P2P lending platform

Chinese P2P lending industry is at a mess at the present. News about disappearance of P2P lending platform is reported every few days. It seems that P2P lending platforms running off with investors’ capital has become a common phenomenon in China. P2P lending platforms involved in financing for affiliated enterprise or their own projects often find excuses like this: “I’m doing this out of frustration”, “I’m doing this for the company’s sake”, “I will pay back the money once I get through” to rationalize their fraudulent acts. The excuses fraudulent P2P lending platforms find are often like this: “I’m just doing what most people have been doing, if I don’t do as they do, I’m kind of losing money”. An industry environment prevalent with moral hazard of P2P lending platform and a social environment lacking professional ethics are the best excuses to rationalize P2P lending platforms’ dishonest practices.

3 Suggestions to Prevent and Control Moral Hazard of P2P Lending Platform Based on the Fraud Triangle Theory

3.1 Inhibit the incentives of moral hazard of P2P lending platform

Whether the moral hazard of P2P lending platform will occur or not depends on the evaluation of its costs and benefits. Only when the benefits outweigh the costs will P2P lending platforms conduct dishonest behaviors. The reason P2P lending platforms degenerated into a tool to finance for affiliated enterprise or encircle money lies in its low entry threshold and unlimited leverage. No restriction on the leverage ratio of P2P lending platform makes the benefits of moral hazard way too much more than its costs. Therefore, inhibition of the incentives of moral hazard of P2P lending platform can be achieved by setting an appropriate maximum leverage ratio to limit its benefits or raising the entry threshold and imposing stiff penalties to increase its cost.

3.2 Reduce the opportunities of moral hazard of P2P lending platform

1) Set an entry threshold for P2P lending industry. As an integral part of Internet finance, P2P lending has degenerated into a free-for-all because of its low entry threshold. More emphasis should be attached on its qualification approval. Government should set threshold for registered capital especially contributed capital, founding team’s credit standing and professional background, places of business, qualification of business, organizational structure and the security of information system to screen out speculators and those with poor credit record, controlling its moral hazard from the first beginning.

2) Standardize third-party funds trusteeship to completely eradicate capital pool. Considering the serious damages capital pool can do to the benefits of investors, it is urgent for government to come up with feasible concrete rules to standardize third-party funds trusteeship, defining trustee agencies, way of trusteeship, and qualification, scope and duties of trusteeship. It should be required that both investors

and borrowers must open an account in the same independent third-party trustee agencies with trusteeship qualification like banks, respectively. The capital goes directly to opposite account rather than account of P2P lending platforms when doing transactions. In this way, P2P lending platforms are deprived of free access to investors' capital, which makes it more difficult for them to transfer and embezzle investors' capital.

3) Reduce information asymmetry to prevent and control moral hazard of P2P lending platform. The inadequate and false information disclosure largely accounts for the information asymmetry among investors, supervision departments and P2P lending platforms. The key to preventing and controlling moral hazard of P2P lending platform is to monitor the funds flow and guarantee the authenticity of financing projects. Therefore, to reduce information asymmetry for the purpose of preventing and controlling moral hazard of P2P lending platform, just as is shown in the Figure 3, Chinese government, on the one hand, is suggested to establish compulsory and standardized information disclosure system to make sure that the information P2P lending platforms disclosed is sufficient and reasonable, on the other hand, it is also expected to discover and correct false information disclosure timely by developing monitoring platforms using big data, improving complaints mechanism for financial consumers, establishing third-party information sharing platform, implementing registration system for P2P lending products and introducing third-party audit institution and rating agency.

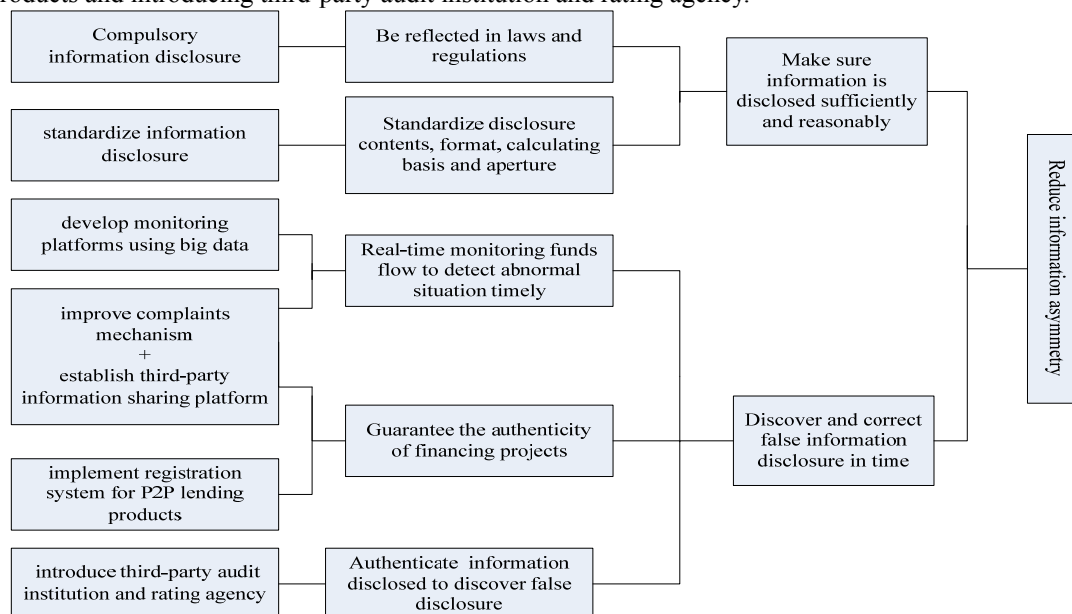


Figure 3 Ways to Reduce Information Asymmetry Regarding Moral Hazard of P2P Lending Platform

4) Develop and perfect supervising system to strengthen supervision for P2P lending. One important reason why P2P lending develops rapidly yet still orderly without the phenomenon of P2P lending platforms vanishing with investors' capital in America lies in that American supervision departments take P2P lending seriously and step in timely to formulate industrial supervising standards. Chinese government should issue relevant supervising policies and concrete rules as soon as possible to strengthen government supervision, identifying supervisory duties and scope and prohibiting related-party transaction, false propaganda and forgery of financing projects and funds flow; promote the establishment of industry associations, self-regulatory organizations and self-discipline standards to reinforce the industrial functions of guidance and regulation; introduce third-party audit and rating institutions to give full play of market supervision. More efforts should be made to supervise intermediate fund accounts, funds flow, related transactions and information disclosure.

5) Improve legal system to impose legal restraint on P2P lending platforms. Chinese legislature needs to enact laws aimed at P2P lending platform to identify its legal characterization, business scope and responsibilities, making case filing and trial legally well-founded. A special court can also be set up to accelerate the settlement of fraud cases of P2P lending platforms.

3.3 Weaken the excuses of moral hazard of P2P lending platform

To weaken the excuses of moral hazard of P2P lending platform, on the one hand, Chinese government is expected to strengthen professional ethics education, honesty education and social

responsibility education for P2P lending practitioners to enhance their moral levels and increase moral self-restraint, making them less willing to find excuses. On the other hand, it also needs to create a healthy and positive industrial environment to make P2P lending platforms shamed of their dishonest behaviors and guide P2P lending platforms to the right direction.

4 Conclusion

The moral hazard of P2P lending platform has become a serious problem hindering the development of P2P lending in China. Low entry threshold, non-standardized third-party funds trusteeship, information asymmetry, absence of supervision, incomplete legal system and an industrial environment prevalent with dishonest acts largely account for the moral hazard of P2P lending platform. To prevent and control the moral hazard of P2P lending platform, Chinese government can adopt leverage management to inhibit its incentives; set an entry threshold, standardize third-party funds trusteeship, reduce information asymmetry, develop and perfect supervising system and improve legal system to reduce its opportunities; strengthen professional ethics education, honesty education and social responsibility education and create a healthy and positive industrial environment to weaken its excuses.

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Research on Risk Analysis and Countermeasure of Vertical Integration Strategy of Enterprise

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Abstract: According to the phenomenon of some domestic enterprises actively “opening up the industrial chain”, this paper analyzes the risk of vertical integration strategy of enterprise, and on this basis, two measures are proposed: the first is properly handling the relationship of industrial chain extension and management standards, the relationship of corporate capital and investment-financing capacity, and the relationship of core business and supporting business; the second is forming the critical resources advantage of high concentration, the competitive advantage of core competitiveness transferring cross-industry, the industrial chain cost advantage under industrial policy conditions, and the market advantage of coordination and linkage of upstream and downstream of the industrial chain; hoping to provide reference for the strategic decisions of some enterprises.

Key words: Enterprise strategy; Industrial chain; Integration; Strategic risks

1 Introduction

The whole industry chain model first proposed by COFCO is sought after by domestic enterprises^[1], and theorists have given it a great deal of attention. Feng Changli, Lan Ying, and Zhou Jian (2012), on the basis of theories of industrial chain and value chain, with COFCO Corporation as case study object, systematically and logically demonstrated the development process of "whole industrial chain" strategy, and mainly analyzed the close relationship between the creation of enterprise's own value and public value and strategic activities^[2]. Xu Zhenyu, Li Bingqian, and Yue (2014), on the basis of "whole industry chain" theoretical analysis, with COFCO as example, sorted out the construction and implementation process of its "whole industrial chain", mainly analyzed the implementation effect of the strategy, and draw relevant conclusions^[3]. Liu Shan (2005) put forward that under the conditions of relatively stable market environment, companies' using vertical integration strategy can bring many benefits. But as the market becomes increasingly competitive and market's dynamics and uncertainty are particularly conspicuous, the negative effects of enterprise's vertical integration business model can not be ignored^[4]. Teng Binsheng(2010) made it clear that the "whole industrial chain" is not omnipotent^[5].

The whole industrial chain strategy, also called enterprise integration strategy or vertical integration strategy is type of organization in which enterprise breaks the industry division and industrial chain division, while involving in a number of links in the upstream and downstream of the industrial chain and forming a certain internal supply-demand relationship. This strategy puts production, marketing or other activities with different techniques under control of the same ownership, and resists uncertainty of external market by means of internal administration.

Recently, some companies have been changing the development model according to the needs of development. Among them, many enterprises actively "open up the industrial chain", and form the corporate function of "whole industrial chain", in order to control risks and achieve rapid development. However, is there no risk in the vertical integration strategy?

2 Risk Analysis of Vertical Integration Strategy

While the implementation of integration strategy can optimize the enterprise's industrial structure, expand the scale of the enterprise's market, stable enterprise's resource supply, reduce enterprise's transaction costs, control the price of enterprise's transactions, enhance enterprise's market position, and form the enterprise's core strengths, but there are also certain risks.

(1) Capacity risk. Since the ability distribution of the links in the enterprise's industrial chain is not balanced and professional collaboration is inconsistent, in the implementation process of vertical integration strategy, it may lead to problems of insufficient business professional and fragmentation of enterprise's core competence. Moreover, the higher the degree of vertical integration, the more enterprise's internal special assets, and the weaker external flexibility will be. The loss of this kind of flexibility will reduce the ability of enterprise to cope with external change.

(2) Competitive risk. Generally speaking, the supplier should not become a competitor of its customers. In the implementation of vertical integration strategy, enterprise is bound to go into other links of the industrial chain, squeezing the market share of upstream or downstream enterprises in the industrial chain, which will intensify competition. Whether the enterprise has the competitive advantage of industrial chain, namely whether the enterprise has core competencies of industrial chain has become the key competitiveness of enterprise.

(3) Information Risk. In the enterprises implementing vertical integration, market demand information is likely to be misinterpreted in the process of passing along the supply chain, which will lead to information asymmetry among enterprises and among departments in the enterprise. This is the “bullwhip effect” led by information transformation. Bullwhip effect is a variation and amplification phenomenon of supply chain demand. When the information flow passes from the client in the downstream to the supplier in the upstream, if the information cannot be effectively shared, information distortion will be stepwise larger. This amplification in the graphics is much like a swinging bullwhip, so it is aptly called the bullwhip effect. Thus, the risk of vertical integration comes from the ability of enterprise to cope with external shocks, and also increases the risk of enterprise’s internal collaboration and linkage.

The industrial chain integration involves many elements inside and outside the enterprise. Besides the above risk, enterprise may also be subject to customer risk, financial risks, policy risks, personnel risks, technical risks, economic environmental risk and so on, which comes from the different stages of development. They are interrelated and interact on each other.

3 Internal Control Strategy for Preventing the Risk of Vertical Integration Strategy

In the implementation process of enterprise integration strategy, according to the above possible capacity risks, competitive risks and information risks, in order to prevent risks, enterprises should handle the following three relationships in the internal control strategy.

3.1 Relationship between core business and supporting business

In the implementation process of integration strategy, many enterprises tend to extend the industrial chain as much as possible, master and control related resources in the upstream and downstream of the chain, in order to prevent instability of the supply of resources caused by market volatility, thus leading to the production fluctuations of enterprise. Therefore, many companies become large or small all-round enterprises. Although in the case of market imperfections, this approach is normal, but it is clearly inefficient. Therefore, how to deal with core business and supporting business is also a very important issue in the implementation process of the integration strategy.

3.2 Relationship between industrial chain extension and management level

With the extension of the integrated industrial chain, the type of company's available resources continues to grow, allocation of resources changes from the original external market regulation into enterprise’s internal management, which is bound to increase the difficulty of business management and raises higher demand in management level. Expansion of enterprise’s scale increases the difficulty of monitoring employees. As the enterprise levels and the number of sectors increase and business range extends, the smoothness of channels of internal coordination and information communication is bound to decline, which will reduce enterprise’s sensitivity to the market response, and timely business decisions will also not be properly guaranteed. All of these require enterprise to pay attention to raising the level of management and changing the management style in the implement process of integration strategy.

3.3 Relationship between enterprise capital and investment-financing capacity

The expansion of enterprise’s business scale and continuous extending boundary need strong capital support, so there must be a considerable investment and financing capacity for guarantee. Once there is a shortage of funds, it will affect the normal operation of the industrial chain, and even break it.

Strategic value is the result of many factors. When enterprises are value-oriented, they should take full account of the relationship of the various aspects, the establishment of risk early warning mechanism, to ensure the enterprises’ sustainable value in the expansion.

4 Advantageous Conditions for Controlling the Risk of Vertical Integration Strategy

The successful implementation of vertical integration strategy, in addition to prevention of risks, but also needs to meet specific conditions, including industrial policy, industrial characteristics and transferability of the enterprise’s core competence in the value chain, etc.^[6].

4.1 Forming cost advantage of industrial chain under conditions of industrial policy

The formation and development of the industrial chain will inevitably be affected by the relevant state industrial policies. How to make use of industrial policy to build a scientific and rational industrial chain, or to transform existing industrial chain, and form unique advantages, is the project that vertically integrated enterprise should study. Our country's coal-electricity-aluminum industrial chain developed mainly due to the adjustment of national industrial policy and complying with the social environment of recycling economy and ecological economy. Such as East New Hope, its business includes bauxite, coal, feed and dairy farming and other seemingly unrelated businesses, investing in the construction of pit power plants, aluminum plants, bio-engineering company, and contacting the company's business with a line. By shaping alumina, aluminum, power generation, lysine, feed and other products chain in upstream and downstream, enterprise integrates the industrial chain, reduces procurement costs in all links, avoids price controls and activates the synergy between the various business^[7].

4.2 Forming critical resources advantage of high industry concentration

Enterprise with an industrial chain of high industry concentration has the ability to negotiate pricing. In the building process of industrial chain integration, based on the principles of critical resources, on the basis of analyzing the advantages and disadvantages of the whole industrial chain, by means of self-support, self-building, self-development, annexing, and purchasing, etc., enterprise raises the industry concentration and form core competitiveness in core business. Meanwhile, in the supporting business link of the industrial chain, by means of procurement outsourcing, financial shares, strategic cooperation and cross-shareholdings, etc., enterprise improves the industrial chain structure, bind together business interests from beginning to the end of the industrial chain to reduce industrial risks due to the scarcity of resources in upstream and downstream. For example, Japan's Mitsui group intervenes in the whole process from mining resources in Brazil, to the port, to ocean transportation, then to steelmaking and profile production in the industry's downstream and until the final consumer products manufacturing. Iron ore mining adopts the way of financial shares, ocean shipping uses Mitsui merchant ships and vessels, steel production are in the charge of Nippon Steel, and final consumer products are produced by Toyota, Sony and other top brands. The advantage of critical resources in the whole industrial chain is highlighted, and industry risks of all sectors in the enterprise brought by resource scarcity are relatively low^[8].

4.3 Forming competitive advantage of core competitiveness transferring cross-industry

To some extent, the market competition has evolved into the competition between industrial chains. The so-called core competencies transferring cross-industry, is that the unique technology, product or service capabilities in a certain link in the upstream or midstream of a certain chain, can transfer to some links of the downstream of the industrial chain, forming unique competitiveness in the market. For example, Tyson Foods Inc. integrates the feed, feeding and the production, and revolutionizes the management structure of the poultry industry. Tyson's own production of chicken feed with a unique formula helps the chicken flesh become tender. This feed becomes Tyson's unique competitiveness, and passes to the downstream links. Good feed coupled with efficient farming and processing, Tyson produces chicken with higher quality than competitors, and achieves higher prices and margins.

4.4 Forming market advantage of synergies and linkage of upstream and downstream of the industrial chain

Business in an industrial chain can be divided into the core business, supporting business and derivative business, where the derivative business is a parasitic business form on the core business and supporting business. This is the business linkage effect in the industrial chain. Industrial chain combines and makes supporting business compatible relying on core business, which is business synergies effect in industrial chain. Disney's industrial chain model is the one relying on television and film business and theme park business to support further development of derivative business. Film and television production is Disney's core business, which is boosting the consumption of Disneyland, clothing, toys and other derivatives. Its links of industrial chain include book publishing, animation, television and film issue, theme park resorts, toys, home furnishing and other consumer goods. This model promotes the development of other business with film and television, achieving the synergies and linkage effects in industrial chain^[9].

5 Conclusion

Industrial chain integration requires a balanced development of all links of the industrial chain; otherwise it is difficult to form synergies. Extension of industrial chain is bound to increase risk of the

business system. This risk exists in two levels, one is whether it is able to become a holistic enterprise, i.e. whether integration is to bring "synergies"; the other is whether the ability of resisting external risks of the integrated enterprise is to reduce. To reduce the strategic risk of enterprise integration, in addition to the countermeasures in management level, investment-financing capacity and the core business, etc., there should be efforts to create conditions for enterprises as much as possible, to form resource advantage, cost advantage, competitive advantage and market advantage, enabling enterprise groups with integration strategy in industrial achieve more and more success.

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Study on Relations and Differences Between Internal Control and Risk Management

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Abstract: This paper proposes the comparison between the Chinese and foreign theory and practice in the internal control and risk management with literature research and descriptive analysis. Through the analysis of the development process and characteristics of both, the conclusion is the internal control and risk management reach an agreement on the ultimate goal, but there are differences in the application environment etc. It builds the model of historical development process of internal control and risk management respectively. In order to make better development of enterprise, we must build enterprise internal control system combined with risk management based on the risk management of enterprise internal control system.

Key words: Internal control; Risk management; Relationship; Similarities and differences

1 Introduction

In recent years, cases that enterprise got failed because of failure on internal control occur frequently, then the traditional internal check and internal accounting control has far cannot satisfy the needs of the enterprise risk control. Therefore, it has been a problem that domestic and foreign enterprise needs to solve which is how to strengthen the construction of enterprise internal control, to build a comprehensive risk management as the core of risk management system, to improve the level of comprehensive risk management. And it is also the trend of the times for the change of enterprise management. This article attempts to expound the related concepts, sorting results, analysis and summaries of internal control and risk management from the current situation of the development of internal control and risk management of our country,

2 Literature Review

In September 2004, the American COSO committee widely absorbed the research of theory and practice, and then it published<Enterprise Risk Management-Integrated Framework>to guide the comprehensive risk management activities of the enterprises. Internal control of Chinese practice and theoretical research started relatively late. In 1986, the ministry of finance issued the<Guidelines for Fundamental Accounting Work>which made specific provision to the internal control system for the first time. In June 2008, the ministry of finance issued<Enterprise Internal Control Basic Norms>to emphasize the basic methods for the enterprise to implement risk assessment. The researches of internal control based on the risk management are more. The relationship between the two, how to make the mutual fusion and promoting enterprise development are the key to the researches. But in the development of the research process, the differences between theory and practice are often neglected, which is the basis.

Today internal control and risk management are no longer within the enterprise, while it is the corporate governance behavior with high transparency under the government's supervision and the investing public's widespread attention. It has become the important guarantee for the enterprise to prevent risks and develop. Although there is a certain distance between the domestic and overseas in the risk management system, from the gradual encroachment of experts and scholars' attention to this aspect, the improvement of the system is just around the corner.

3 Development History

Table 1 Internal Control Development Process

Period	Stage	Represent events	Concern point	Technology method	Aim	Factors
Forming stage	Internal contain Rules	Parallel recording system	Account	Division of duties, interactive tests	Accounting fraud	Account system
Formative period	Internal control rules	Robinson company case	Accounts, entity, management activity	Organizational structure, responsibilities, personnel condition, business processing procedures, inspection standards and Hard control of internal audit, etc	Financial objective, management objective	Account system, control activities
Evolution period	Internal control structure	Watergate affair	Management and administration activity	Hard control, focus on senior managers Want to morality construction	Financial objective, management objective	Controlled environment, account system, control activities
Mature period	Internal control integrated framework	COSO report	Resources and activities	Add soft control based on hard control	Working efficiency goals, financial reports standard, law-abiding goals	Control environment, risk assessment, control activities, information and communication, supervise
Elongating stage	Risk management framework	Enron event	Risk factor	Add soft control based on hard control	Strategic goals, working target, financial results goals, law-abiding goals	Internal environment, setting goals, events recognition, risk assessment, risk response, information and communication, supervision

Table 2 Risk Management Development Course List

Year	Big event	Stage division
1705	Bemoulli build Law of Large Numbers	Traditional risk management stage
1720	The world's first insurance company was founded in the UK	
1921	Kinght published < Risk, Uncertainty and Profit >	
1952	Marlowitz published "portfolio selection" theory	
1956	Snider put forward the concept of "risk management"	
1962	The first book about risk management published	
1973	Risk management, association of insurance combined with economy was established in Geneva	
1979	IBM established	
1980	SRA established	
1986	Financial derivatives trading for the first time in the world	
1987	The U.S. stock market suffered "black Friday"	
1993	Title of CRO was used in the U.S. for the first time	
1995	Bahrain bank closes down, the world's first enterprise risk management standards came on	
1996	The first global risk management association (GARP) established	
1998	LTCM, long term capital management in financial derivatives trading lost \$4 billion	
1999	The new capital accord revised (BasselO)	
2000	The concept of "comprehensive risk management" has been widely accepted	Comprehensive risk management stage
2001	9. 11 terrorist attacks	
2002	Collapse of Enron	
2004	The COSO issued < Enterprise Risk Management - Integrated Framework >	

4 The Relationship Between Internal Control and Risk Management

The relationship between internal control and risk management refers to the internal control and risk management. Combining with the international authoritative definition of internal control and risk management, there are the following three kinds of representative opinions on the relationship between the internal control and risk management. They are risk management includes internal control, the internal control includes risk management, the internal control is just the risk management.

Among them, the first idea that comprehensive risk management is the extension and expansion of the internal control framework gets more consensus. For example, “the enterprise risk management - integrated framework” made clear that risk management includes internal control. The content of the internal control structure includes three aspects: control environment, accounting system and control program. Risk management, in addition to these three goals, adds strategic goals. Eight elements of risk management include not only the three elements of goal setting, event identification and risk countermeasure, but also the five elements of the internal environment: internal control, risk assessment, control activities, information and communication, internal supervision. Obviously, the risk management’s concept has wider extensions.

5 Similarities Between the Internal Control and the Risk Management

5.1 The ultimate goal is consistent

Though there are differences of primary goal between the internal control and the risk management on establishment and implementing, the internal control and the risk management are consistent on the final goal of preventing enterprises’ interests from damage and promoting the enterprise’s value creation.

5.2 The main body of implementation is consistent

Both in the internal control and risk management need the staff in the enterprise to cooperate and join in actively. It’s not the preserve or exclusive content of a certain level. If you can't mobilize the staff in the enterprise to participate in internal control and risk management fully, the implementing effect of the plan will be discounted.

5.3 Risk management is the developing direction of the internal control

The COSO risk management framework is built on the basis of the original internal control framework, and it is an extension and segmentation of the original internal control framework. In the new complex environment of market economy, enterprises face enormous internal and external all kinds of risks. The internal control management model that risk management oriented will be more conducive to the development of the enterprise. Enterprises need to bring more proactive risk management in enterprise internal control account, and change passive to active.

6 Differences Between the Internal Control and the Risk Management

6.1 The difference of the goal in a narrow purpose

Internal control is just a function of management, reach their goals only through control in process and afterwards. Its purpose is to provide reasonable assurance for the legitimacy and compliance of the enterprise management, the security of asset, the authenticity and integrity of financial accounting information relying on the systematic and standardize operation process so that they can promote the enterprise’s business efficiency and performance and facilitate the enterprise to go forward in an established development strategy direction.

Risk management is throughout all aspects of the management process. The means of control is not only reflected in inwards and afterwards control, what’s more, when setting goals in advance, it gives full consideration to the existence of risk. Its purpose is to prevent the risk, control risk at the source or forecast the incidence of the risk and try to make it to the lowest, even benefit from risk management.

6.2 The difference in application environment

Formulation and implementation of internal control is mainly in an internal environment. According to the different characters, different characteristics and different development stages of enterprises, managers set different internal control systems and apply it in the daily operation of enterprises. Internal control is not responsible for the specific establishment of enterprise management goal, but simply to evaluate target formulation process, especially on the target and the strategic planning of risk assessment. And risk management needs comprehensive consideration on the risk in the internal and external environments. Furthermore, it integrates the risk management requirements into enterprises' management and business processes.

6.3 The difference of the constituent elements

According to the COSO report, internal control mainly includes five elements: internal environment, risk assessment, control activities, information communication and supervision. While risk management newly increases three elements: goal setting, matter identification and risk response on this basis. And the elements of the same also have different connotations. Elements of its overall risk management have more extensive connotation, increasing the measurement and inspection for the risk.

7 Conclusion

Based on the review of related theory and practice in Chinese and foreign enterprise internal control and risk management on the basis of the historical development process, we explore the relationship between internal control and risk management, which has important theoretical and realistic significance. Specifically, the main research results include:

1) By straightening out the developing process of internal control, we find that it roughly experienced internal control rules, internal control structure, internal control integrated framework, risk management framework as a whole and comprehensive risk management six stages.

2) Borrowing the COSO <Enterprise Risk Management - the Intergrated Framework>, it thinks the comprehensive risk management is the extension and expansion of the internal control framework. The internal control and risk management have distinction and connection. They supplement each other and are indispensable. The goals of risk management and internal control are consistent. In order to protect the interests of investors more effectively, under the condition of new technology and the market, we need to develop more active and comprehensive risk management on the basis of the internal control.

The main contribution of this paper is to establish an internal control system for the enterprise and provides a new train of thought: combining the internal control system and risk management. Based on risk management of enterprise internal control system, it can reflect the requirement of risk management to the enterprise internal control better. Hope this article can provide certain reference for our country's enterprises to establish scientific internal control system in accordance with own needs.

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Risks and Evading Measures of Overseas Mergers and Acquisitions of Chinese Financial Institutions

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Abstract: By the method of literature research and case analysis, this paper firstly did cases retrospect regarding overseas merger and acquisition of domestic commercial banks, insurance companies, security companies and sovereign wealth fund. Afterwards, the risks of overseas merger and acquisition, which China's financial institutions are facing, are concluded by qualitative analysis, including strategic choice risk, timing of M&A choice risk, political risk and legal risk at pre period, financing risk and anti-M&A risk at while period, possible operational risk and integrating risk at post period. Last, some measures about risk evading are proposed based on the level of both China's financial institutions and government, including formulating suitable oversea M&A strategy, valuing the impact of financial period and economic and financial environment home and abroad, strengthening the power of financial institutions, emphasizing the integration of strategy, culture, staff, administration after M&A, formulating relative national strategies and implementing supervision mechanism.

Key words: Financial institutions; Overseas mergers and acquisitions; Risks; Evasion

1 Introduction

Researches done by scholars home and abroad concerning financial institutions cross-border M&A risk mainly includes:

Through the research on bank's cross-border M&A risk and profit, the risks are classified as general risk and system risk. Researchers found that there is neither increase nor decrease on general risk and system risk, compared with acquirer's domestic market M&A. Although the abnormal returns of acquireris negative, it could be increased by slightly raisingbuyer's risk. Yakov Amihud, DeLong, Anthony Saunders(2002).

By collecting bank's mixed merge and international activity in the past hundred years, expansion risk and system risk were found in the process of bank M&A. After further research on financial data of famous international banks M&A from 1991 to 2002, it was found that the risk tendency of bigger bank was not lower than smaller one's, especially after the year of 2000. It was also found that the potential system risk of a more concentrated bank would be higher than a less concentrated one. Gianni De Nico, Philip Bartholomew, Jahanara Zaman and Mary Zephirin(2003).

In practice, the key to bank merging is a suitable balance between the speed of institutions integrating and the speed of concept combining. Researches done by domestic scholars concerning financial institutions cross-border M&A risk are mainly based on international researches and combined with China's national conditions as supplements. The practical policy formulation is still under exploration, however, a great theoretical breakthrough can be seen regarding China's financial system reform. Haspeslagh(2005).

2 Previous Cases of Overseas Mergers and Acquisitions of Chinese Financial Institutions

Recent years, especially since financial crisis in 2008, witnessed the trend of steady growth in overall size of Chinese enterprises in overseas mergers and acquisitions, and the fields it involves are not just limited to resources.

In order to serve overseas expansion of Chinese enterprises better, and break through the bottleneck of market share to gain target company and technology with underestimated value, financial institutions in China accelerated their pace of overseas mergers and acquisitions. According to Dealogic, the overseas mergers and acquisitions of Chinese financial institutions reached 30 cases with a total amount of \$ 4.8 billion in 2014. Although the amount is less than \$ 5.1 billion of 2013, the number almost doubled compared with that of 2013, and overseas acquisitions are more inclined to acquire the controlling stake. Nowadays, commercial banks, insurance companies and sovereign funds are the major acquiring firms in overseas mergers and acquisitions of Chinese financial institutions. Commercial banks and insurance companies, take their core business as orientation, mainly focus on equity acquisition of institutions like foreign banks; while sovereign funds have a wide range of

merging objects, including not only equity of foreign funds, but also that of investment bank.

2.1 Overseas mergers and acquisitions of commercial banks

Take Industrial & Commercial Bank of China (ICBC) for example, it kept itself ahead of other Chinese banks among overseas mergers and acquisitions. When did overseas mergers and acquisitions, a cautious strategy has been adopted by Industrial & Commercial Bank of China and the construction of overseas branches were taken as its primary goal.

On August 29, 2007, ICBC paid \$ 46.83 million patacas to purchase totally 119,900 shares of common stock of Seng Heng Bank, which accounted for 79.93% of its issued capital. After the transaction, ICBC became the largest shareholder of Seng Heng Bank.

Then on October 26 of the same year, ICBC purchased shares from existing common shareholders of Standard Bank of South Africa at the price of 136 Rand per share, and those have been purchased is equal to 11% of the existing issued common stocks. At the same time, ICBC subscribed common stocks at the price of 104.58 Rand, with which the number is also 11% of issued capital before transaction. Immediately after the mentioned transaction, ICBC again bought 20% equity held by Standard Bank at the average price of 120.29 Rand per share, becoming its largest shareholder.

On June 4, 2009, ICBC and BEA (Bank of East Asia) established an agreement on equity transaction between Canada Branches of BEA and ICBC-BEA Financial Holding Co., Ltd. According to relevant agreement signed by the two parties, ICBC paid BEA C\$ 80.25 million to purchase 70% equity of Canada Branches of BEA. One year after the transaction, ICBC possessed call option which can make its stake increased to 80%, while BEA held put option which can make its remaining shares transferred to ICBC. Meanwhile, ICBC sold 75% equity of ICBC-BEA Financial Holding Co., Ltd to BEA with an amount of HK\$ 372 million. These two transactions are mutually premise. Upon completion of the two transactions, ICBC and BEA conducted joint operation and management for Canada Branches of BEA, while ICBC-BEA Financial Holding Co., Ltd will become a wholly-owned affiliated company of BEA.

The day of April 21, 2010 witnessed the completion of ICBC's voluntary tender offer for Thailand ACL Bank Public Company Limited, and both parties completed the delivery of shares and funds on the following day. ICBC collected about 97.24% shares of ACL Bank through this kind of voluntary tender offer. ACL Bank was subsequently delisted by ICBC on the basis of reasonable procedures.

2.2 Overseas mergers and acquisitions of insurance companies

When it comes to this topic, Anbang Insurance, as a good example, was intended to obtain a full financial license and set up financial holding groups in overseas mergers and acquisitions. It has accelerated its overseas mergers and acquisitions since the fourth quarter of 2014. On October 13th, Anbang Insurance acquired the Belgian Insurance Company--FIDEA with a history of almost one hundred years, which cost more than 220.9 million euros, namely RMB 1.7 billion yuan. On December 16th of the same year, it spent 219 million euros to purchase 100% equity of the Delta Lloyd's Bank in Belgian. Anbang Insurance also acquired VIVAT, a Holland insurance and asset management company which has operated for more than 100 years on February 16, 2015. The next day, it announced the acquisition of Korea Tong Yang Life Insurance and the maintaining of its listing status. In May, Anbang Insurance was negotiating with bankrupted Germany Mortgage Bank Hypo Real Estate AG for the acquisition of its large real estate subsidiaries. If this deal of 1 billion euros can be made successfully, the asset purchase scale of Anbang Insurance in global will see great expansion.

2.3 Overseas mergers and acquisitions of security companies

In December 2014, Haitong Securities spent 379 million euros to purchase investment banking business of Banco Espirito Santo which is the largest investment bank with a history of 144 years in Portugal. Taking Europe as its home market, Banco Espirito Santo established branches in London, New York and Hong Kong. And its operating profits reached 76 million euros in 2013 with an net profits of 7 million euros. However, the parent company of Banco Espirito Santo, the Santo financial group, was reported to have financial crisis in July 2014, which lead to the slump of share prices. Haitong Securities' acquisition of Banco Espirito Santo suggested that it has internationalized layout and also has the intention to develop into a company with comprehensive and mixed operation.

2.4 Overseas mergers and acquisitions of sovereign funds

Take China Investment Corp. (referred to as CIC), the Sovereign Fund as an example, it paid The Blackstone Group ---the largest private equity firm in the world---\$ 3 billion to subscribe 9.9% shares of the Group in the initial public offering in June 2007, but up to October 2008 since its listing in June 2007, the share price of The Blackstone Group has dropped nearly 70%. In October 2008, CIC has increased its stake from the original 9.9% to 12.5%, which cost \$ 250 million.

In order to improve long-term earnings of foreign exchange investment, CIC has established a deal agreement with U.S Morgan Stanley on December 19, 2007. In line with this agreement, CIC paid about \$ 5 billion to purchase a kind of Convertible equity units issued by Morgan Stanley and shall be converted to common stock after the expiration. The share price of Morgan Stanley was \$ 48 at that time, in that way, the corresponding shares that \$ 5 billion bought in were 9.8%, while according to terms of the deal, the conversion price at expiration shall not exceed 120% of the reference price. Before the investment converted into common stock in 2010, an annual ROI of 9% ---5% higher than the cost of financing---can be guaranteed for CIC. CIC indicated that this investment was just for the long-term financial investments, not involved in daily management of Morgan Stanley.

3 Risks of Overseas Mergers and Acquisitions Faced by Chinese Financial Institutions

Take sustainable development of commerce into consideration, Chinese financial institutions can expand the business scale of overseas mergers and acquisitions, increase points of profit, improve its management and competitiveness, but we should not ignore the fact that there existed many failed cases of acquisition in the past few years. Risks which should be noticed in overseas mergers and acquisitions are as follows.

3.1 Risks before overseas mergers and acquisitions

3.1.1 Risks faced when choosing a strategy

To make a successful strategy, most of the buyers inclined to choose those merger targets who are highly related with itself and take notice of the control of transaction exposure in overseas mergers and acquisitions. Taking main business as the subject of acquisition, on one hand, can consolidate traditional advantages and enhance global competitiveness, on the other hand, can make it easier to control risks due to familiarity for the business. However, the failure of many overseas mergers and acquisitions is directly related to the lack of clear strategic objectives, some of them have nothing to do with the improvement of these companies' core competitiveness.

3.1.2 Risks caused by time of mergers and acquisitions

Experiences have shown that great chances of success for overseas mergers and acquisitions can be seen in financial downturn, while in the period of financial boom, institutions faced with high barriers to entry and the valuation of asset is also relatively high. In financial downturn, the regulatory authorities will generally relax overseas investment restrictions due to the need for external capital inflows generated by the liquidity contraction of the capital, thus providing convenience for overseas mergers and acquisitions. In addition, the downturn period see the decrease of asset valuation, pessimistic expectations covered with the original shareholders, it is the right time that the acquirer can effectively reduce the cost of mergers and acquisitions. For example, in early 2008, it cost China's Ping An insurance company \$ 2.15 billion to purchase 50% equity of Fortis Asset Management Company, but until October 2 of the same year, Ping An's investment has a deficit of RMB 15.7 billion yuan, with its net profit of the year decreased by 95.6% when compared with that of 2007, because the financial crisis in 2008 made Fortis Group suffered from heavy pressure of capital liquidity, making its share price plunged.

3.1.3 Political and legal risk

Usually, Chinese financial institutions suffered political risks from the host country during overseas mergers and acquisitions, including political unrest, policy adjustment and political boycott. Due to the acquisition in financial industry has bearing on the financial stability of host country and affected its economic artery, so the policy constraint is the most strict. Many countries formulated strict approval procedure for cross-border mergers and sharing equity of financial institutions, making the cost and difficulty of acquisition increased.

Chinese financial institutions will also inevitably suffered legal risk in overseas mergers and acquisitions, such as the restriction of the host country's Securities Law, Antitrust Law and Foreign Investment Law. Take the Securities Law as an example, in terms of information disclosure, the Securities Laws of the United States, Japan and Australia are specified, when shares of the target company an investor holds reached or exceeded 5%, it should be disclosed, even every change of 1% shares is included in the disclosure. When it comes to principle of purchase for listed companies, just as Williams Act specified, if the acquisition company launched a one-time acquisition of a listed company by providing a tender offer, the relevant forms must be submitted to the U.S Securities and Exchange Commission for filing, the target company and the Stock Exchange that the stock listed should be informed at the same time. The acquisition company should send the tender offer to all the shareholders

of the target company, and the purchasing price should be higher than the stock price before the announcement of the offer, in addition, the tender offer should effectively last for no less than 20 payday. After shareholders of the target company made a commitment to the offer of the acquisition company, they have the rights to withdraw its commitment within 15 days after the start of the offer.

As finance has something to do with national security, the 873(a) paragraph of U.S. National Defense Authorization Act for the Fiscal Year of 1993 even specified that buyers should be controlled by government of foreign countries, or should be investigated when they carried out activities on behalf of foreign government.

3.2 Risks during overseas mergers and acquisitions

3.2.1 Risks of financing

Financing risks of financial institutions in overseas mergers and acquisitions include the risk of raising funds, the debt risk of overseas target financial institution and the risk of increasing price during the acquisition competition. Usually, it will cost a huge amount of money for financial institutions to conduct overseas mergers and acquisitions. For instance, ICBC paid \$ 5.6 billion to purchase Standard Bank of South Africa. It also cost CIC \$ 3 billion to acquire common stocks of The Blackstone Group in 2007. The use of the financial institutions' own funds in overseas mergers and acquisitions will take up the cash flow and increase the risk of investment. If conducted high leverage by borrowing, it will suffer from the risk of exchange rate under the fluctuation of it, especially in the current appreciation cycle of U.S. Dollars, these highly leveraged financing will bring huge debt pressure to the financial institutions.

3.2.2 Risks of anti-mergers & acquisitions

When conducted mergers and acquisitions for overseas financial institutions, Chinese financial institutions generally enter into management of the target financial institution in the host country and gain its control rights. Sometimes, the original management make endeavor to fight against mergers and acquisitions for the sake of its own interests and for resisting foreign culture. They may lobby the antitrust division to stop the acquisition, collect evidences which is possibly in violation of Company Law, Securities Law, Antitrust Law and other relevant laws and regulations to file a suit to the court or increase the potential cost of acquisition and send the tender offer at higher price, intentionally increasing the difficulties of acquisition. Moreover, finance is the lifeblood of the modern economy, if overseas mergers and acquisitions of Chinese financial institutions posed a threat to the control rights of financial lifeline in the host country, it will result in psychological resistance of the host country, raising the transaction cost and integration difficulty in later times.

3.3 Risks after overseas mergers and acquisitions

3.3.1 Operating risks

If the overseas mergers and acquisitions of Chinese financial institutions can not bring about operating, financial and management synergy effects as well as market share effects, it is difficult to achieve economies of scale and complementary advantages, or it can not create economies of scale due to large span of management and fail to reach the expected acquisition goal, all these can give rise to operating risk.

3.3.2 Integration risks

Most of Chinese financial institutions have a relatively short history of carrying out overseas business, they also had little chance to cooperate with foreign financial institutions in the past, unfamiliar with their management style and pattern. The core brain drain caused by poor integration after mergers and acquisitions actually means the failure of financial institutions' overseas mergers and acquisitions, because the core talent is the core competitiveness of financial institutions. For example, after China Citic Bank's acquisition of CLSA, the quit of the best investment manager in CLSA made the once favored acquisition greatly reduced. Some insiders even directly said: "the investment manager is the most valuable asset of CLSA, but the acquisition led to the loss of the most valuable asset."

4 Conclusion

Facing the above risks, Chinese financial institutions can take the following measures to evade them.

4.1 Develop appropriate strategy for overseas mergers and acquisitions

Firstly, in terms of the choice of location for the acquisition, areas deeply affected by crisis and which have development potential should be given priority, while focus should be given to those Chinese financial institutions who have strong strength of acquisition, such as overseas financial non-performing assets and banks. Secondly, from the point of view of specific acquisition targets, full

investigation and analysis should be made before the acquisition. One of the most complex aspects in the process of enterprise acquisition is valuation and pricing. Only through investigation of the target company can the valuation be more accurate, not resulting in the exorbitant valuation.

4.2 Attach great importance to the influence of financial cycle and the economic & financial environment at home and abroad

First of all, we should maintain the stability of domestic economy and financial environment to create a good internal environment for overseas mergers and acquisitions of financial institutions. The corresponding financial supervision also should be improved to avoid excessive overseas expansion of the financial institutions in the bubble expansion period and the excessive contraction of the financial institutions in overseas financial markets after the bubble rupture. Then financial institutions should pay attention to the use of the international financial cycle. After the subprime crisis, the U.S. Economy recovered through quantitative easing policy, while the European economy was stuck in the quagmire of debt crisis. Chinese financial institutions can take advantage of the international financial cycle, and choose target financial institutions in those areas with a relatively low cost, conducting overseas financial mergers and acquisitions.

4.3 Strengthen financial institutions themselves

At present, traditional interest income is still the main source of income for banks of our country, there are less than 30% banks take non-interest income as their main source of income, the proportion of non-interest income in a considerable number of commercial banks is lower than 10%. Recently, non-interest income in large international banks accounted for more than 50% of the total income, some banks even reached 80%. It suggests that Chinese commercial banks which have not strong enough overall strength and relatively low level of financial innovation, with serious homogeneity and low-tech, carried out more absorbing and imitative innovation, less independent innovation. Before overseas mergers and acquisitions, Chinese financial institutions should firstly enhance their own strength and continuously make financial innovation.

In addition, our financial institutions must introduce or cultivate a group of compound professionals with high-quality for overseas mergers and acquisitions who can reasonably judge the market trends, asset pricing and the level of risks.

4.4 Pay attention to the integration after mergers and acquisitions

Several aspects are included in integration, such as the integration of strategy, culture, people and management. As we all know, overseas mergers and acquisitions involve different countries, each of them has different national and enterprise culture. Due to this kind of cultural differences, it's easy to generate disagreements and obstacles during the communication of both parties. So our financial institutions should fully understand history, style and reputation of the target company before mergers and acquisitions, giving priority to choose those who have similar cultural backgrounds and goals with themselves. Communication and exchanges between two parties should be strengthened and special attention should be paid to internal control and moral hazard issues existed in foreign financial institutions.

4.5 Corresponding support policies from government

Firstly, the government should develop and implement national strategies for overseas mergers and acquisitions of domestic financial institutions as soon as possible. Strategy should include the strategic objectives, strategic focus, embodiments and assessment indicators.

Secondly, the government should be good at supervising several departments of overseas mergers and acquisitions and establishing a regulatory mechanism for the whole dynamic process to ensure interests of state-owned assets. Meanwhile, the government also should optimize relevant environment of overseas mergers and acquisitions, promoting foreign investment and acquisition legislation to make clear the investment access, the forms of mergers and acquisitions, the supervision and management as well as allocation of revenue.

Finally, the government should further develop strategies to support overseas mergers and acquisitions of domestic financial institutions. By introducing relevant rules and regulations to simplify relevant approval procedures, and reducing some taxes and fees, it can serve for overseas mergers and acquisitions of domestic financial institutions. Additionally, the transaction costs and uncertainty of acquisition can be lessened through supportive policies and administrative service of multi-sectors.

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The Risk Evaluation Management of Open Innovation*

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Abstract: At present, enterprise's innovation model is transforming from the closed innovation to the open innovation. In the process of open innovation there are four kinds of risk which caused by the uncertainty. They are the risk of capability, the risk of technology, the risk of project and the risk of market, and each kind of risk displays for certain aspects. Based on the innovation risk evaluation system of Japanese industrial research institute, this paper proposed a better risk evaluation system of open innovation.

Key words: Open innovation; Uncertainty; Risk evaluation; Risk management

1 Introduction

At present, enterprises only rely on internal innovation cannot respond to increasing pressure from suppliers consumers and competitors. So enterprise's innovation model is transforming from the closed innovation to the open innovation, and the competitive advantage comes from the more efficient use of other people's innovation. Open innovation is an innovation model that consciously uses the inflow and outflow of knowledge to accelerate the enterprise internal innovation, and take advantage of external innovation to expand market. This innovation model assumes that when enterprises want to improve technology, they can and should use the internal and external ideas, and through the internal and external two paths to move towards the market (Chesbrough, 2003, 2006). Open innovation helps to overcome the professor Clayton Christensen proposed "innovation dilemma", that is in the closed innovation model, enterprises will be difficult to survive if without innovation; but if innovation, it will face the huge risk, even in trouble (Christensen, 1997).

However, any innovation models have some defects just as we open the doors and windows will also enter the fresh air and annoying flies. Four remarkable features of open innovation (open innovation environment, open innovation subject, open innovation resources and open creative development) and the imperfection of internal and external environment determines many risks in the process of open innovation (Gassmann, 2006; Rigby & Zook, 2002). If those risks cannot be well controlled and resolved, they will give enterprises a deadly blow. Because of open innovation implementing late in China, researching on open innovation and risk management have important theoretical and practical significance of some aspects, for example, effectively carry out innovation activities and successfully commercialize innovation knowledge.

2 The Source and Performance of Open Innovation Risk

Since the 1980s, many changes have taken place in the internal and external environment. Innovation resources and capability from centralized to decentralized, so that everyone can innovation, everywhere can innovation, and anytime innovation; the mobility of human resources is more and more frequent, so the innovation resource distribution changes more and more rapidly. "Small and specialized" enterprises increasing, and "dogs economics" gradually beat "zebra economics". There are more and more integrated innovation, and the proportion of breakthrough innovation is becoming smaller. Innovation is not worthless, and we cannot find the opportunity to achieve innovation but meet the increasing opportunity of innovation to achieve value. Consumer and supplier business era is gradually coming. The life cycle of technology and product becomes shorter, thus the request of the innovation speed is more strict than that of the innovation quality. Business model itself is more important than technology and products, how to sell is more important than to sell what. All these changes make enterprises meet many risks of open innovation, that is the basic risks (market risk, technical risk and management risk) and the specific risks (process control risk, internal creative outflow risk, project assessment risk, knowledge sharing control risk, strategic partner selection risk and so on).

This article argues that the risk of open innovation (short for ROI) is due to various uncertain factors (Lichtenthaler & Ernst, 2009). Overall, the defect of open innovation model and the imperfection

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of enterprise's internal and external environment will lead to innovation risk. Specifically, the following uncertainty factors that lead to many risks of open innovation.

2.1 Capability uncertainty leads to the risk of capability (short for RC)

The first is the complementary ability to innovation participants, and the uncertainty of balanced situation, which includes whether the capacity of partners just what innovators need, whether the innovation ability of the participants will appear shortage or waste (the shortage is essentially synonymous with waste, the shortage of innovators' capacity necessarily mean the waste of partners' ability, and vice versa. The most ideal situation is the ability of innovation participants with the change of internal and external environment at the same time, increase or decrease in proportion). The second is the uncertain ability of innovation coordinator, which includes business leaders' powers of foresight (whether they can find the development trend of innovation), ability of insights (whether they can grasp the essence and the difficult points of innovation), capacity of management (whether they can make organization members agree with and involved in the innovative behavior; whether they can prevent brain drain and loss of creativity; whether they can manage the entire chain from idea generation to product sales; whether they can influence innovation networks and industrial environment in favor of their own direction of development), innovation capacity (whether they can flexible change the traditional management ideas and methods; whether they can conduct business model innovation) and coordination capacity of innovation network coordinator (whether they can promote innovation participants' knowledge sharing; avoid opportunism; balance the investment and return of the participants; and guide the healthy development of innovation networks). The third is the uncertain ability of enterprises to collect a wide range of innovation resources, which previously means to find useful resources in a limited capacity of innovation resources, and now mainly refers to identify useful resources in excess capacity of innovative resources. Finally is the uncertain ability of commercialization of innovation resources. The seller dominated market mainly refers to the ability of successful manufacturing product, and the buyer dominated market mainly refers to the ability of selling products and making a profit, also include the ability of selling their useless innovation resources to earn profit.

2.2 Technology uncertainty leads to the risk of technology (short for RT)

The first is the uncertain leading technology degree (West & Gallagher, 2006). Firstly, enterprises are not familiar with competitors' leading technology degree; secondly, enterprises are not familiar with leading technology degree of the new technology which emerges in the same period of time (mainly referring to different technical standards); thirdly, it is not easy to grasp the leading technology degree when a new technology launches. Enterprises should not only consider the new technology that can profit as soon as possible, but also consider new technology that can continue to profit. A backward technology is difficult to profit; also an excessively leading technology may become an obstacle to sustainable development of enterprises. The second is the uncertainty of the complexity of the technology, one characteristic of the new economic era is the continuous integration of the science and technology. Now many technologies are integrated high-tech, enterprises may lack the ability to understand technical mechanism. The third is the uncertain speed of technical replacement. It's difficult to grasp rivals' speed of the upgrading of technology (passive update), it's also difficult to grasp their time on technology upgrading (active update). We can learn experience "marginal revenue is equal to marginal cost, that initiative update chip technology when profit maximization is achieved" from Intel. Finally is the uncertain development situation of complementary technology and alternative technology. If complementary technology development falls behind, it will lead to the development of new technologies is very difficult to expand the scale (for example, the development of mobile phone battery technology will limit the pace of development of mobile phone technology, and one main reason for the rapid development of the netbook is the rapid development of a large-capacity battery invention which make laptop battery greatly extend a period of time), and if alternative technology is developing rapidly, it is difficult for enterprise to recoup advanced R&D investment and make a profit.

2.3 Project uncertainty leads to the risk of project (short for RP)

The main point is the uncertainty of value of the project, including short-term commercial value (the project can bring much benefit to the enterprise, which is not determined by the individual enterprises, but also consider the profitability of competitors), the mid-term industrial value (it is difficult to assess how much benefits the project can bring to the industry, some projects can make the whole industry profit, some projects can make individual enterprise monopoly profits, and some projects make the whole industry more difficult to profit), and long-term social value (it is more difficult to assess how much benefit the project can bring to society. For example, "Ractopamine" has been

vigorously promoted as a new technology initially, but research shows that it's too toxic and has been banned 20 years later. DDT has been initially applied to agriculture due to the effect of magic pest control, but it is prohibited because of harming the entire ecosystem 30 years later). So the commercial value, the industrial value and the social value can be taken into account in rare cases, in most cases three are conflicting.

2.4 Market uncertainty leads to the risk of market (short for RM)

The first is the uncertainty of market positioning, whether it relates to consumers who can quickly recognize the value of innovative products. The second is the uncertainty of the early customer and the later customer who can accept the innovation product, and enterprises are likely to sell a good product to an inappropriate customer. The third is the uncertainty of the important customer, and enterprises may spend a large amount of human, material, and financial resources in maintaining the unimportant customers, so we can use Customer Lifetime Value to evaluate the importance of customer. Finally is the uncertainty of our market capacity. It's not only difficult to assess the overall capacity of the market, but also the market share of an enterprise in the overall capacity of the market. For example, the failure of "Iridium plan" in Motorola company is unable to form a stable customer base.

These uncertainties appear single or together, both will fail to achieve the expectation aim in innovation activities, so it will bring a lot of risk in the innovation process.

3 The Risk Evaluation Management of Open Innovation

3.1 The innovation risk evaluation system of Japanese industrial research institute

Japanese industrial research institute proposed a set of open innovation risk evaluation system in 2003 (Gerybadze, 2004):

1) Inflows of external innovation resources. In the past several years, what is the percentage of sales revenue which adopt external patent technology to produce product or service that accounted for total sales revenue of enterprises? The percentage is increasing or decreasing? If the percentage changes abnormally, it may represent higher uncertainty of enterprises' ability that control the external innovation resources.

2) Outflows of internal innovation resources. In the past several years, what is the percentage of net revenue which licensed to other enterprise patent royalties that accounted for total revenue? The percentage is increasing or decreasing? If the percentage changes abnormally, it may represent higher uncertainty of enterprises' ability that sell the internal innovation resources.

3) The ability of enterprises which makes internal innovation transfer inward. How long does it take to transform the enterprise's interior patent creativity into products or services? In the past several years, what has changed during this time interval? Which direction? If this time interval changes abnormally, it may represent higher uncertainty of enterprises' ability that commercialize the innovation resources.

4) The ability of enterprises which makes internal innovation transfer outward. What percentage is produced by the internal creative in those provide external enterprise patent technology? How long does it take from patent creative to external patent? If the percentage and this time interval changes abnormally, it may represent higher uncertainty of enterprises' ability that provide the outside need innovation resources.

5) The ability of managing innovation project. How many projects have been broken off over the past several years? How many stopped projects have been revisited? And how many stopped projects have been provided to the external organization for a further provided to the external organization? If these abilities are not regular, it may represent higher uncertainty of enterprises' ability that manage innovation project.

6) The ability of enterprise management "false negative" project (it refers to the projects which look worthless early but have developing value in fact, and it missed R&D and profitable business opportunities because of the poor evaluation or no prospects that the project is difficult to adapt to the enterprise business model. In addition, some projects achieve their value in new markets rather than in traditional market, or even achieve double values because they can cooperate with other projects, and combine with technology) (Rothwell, 1994). Referring to the fifth point of the project, are there any projects to develop fast in the technology, or grow more rapidly in the market than expected? Are there any projects to raise external funds for further development? What are the main customers they have signed the agreement? The ability of a project to raise external funds or to sign important customers should be considered as a strong signal that may produce "false negative". If the quantity of "false

negative” project changes abnormally, it may represent higher uncertainty of enterprises’ ability that identify innovation resources.

3.2 The risk evaluation system of open innovation

It is not difficult to find that the innovation risk evaluation system of Japanese industrial research institute in fact is mainly capability risk of open innovation. Based on the innovation risk evaluation system of Japanese industrial research institute, this paper proposed a better risk evaluation system of open innovation (See Table 1).

Table 1 The Risk Evaluation System of Open Innovation

Risk of Open Innovation (ROI)	Risk of Capability (RC) (Weight r1)	RC1: Uncertainty of innovation participants’ complementary ability (Weight r11)
		RC2: Uncertainty of innovation participants’ balanced ability (Weight r12)
		RC3: Uncertainty of enterprise leader’s ability (Weight r13)
		RC4: Uncertainty of network coordinator’s coordination ability (Weight r14)
		RC5: Uncertainty of innovation resources’ collection ability (Weight r15)
		RC6: Uncertainty of innovation resources’ commercial ability (Weight r16)
	Risk of Technology (RT) (Weight r2)	RT1: Uncertainty of technology’s leading degree (Weight r21)
		RT2: Uncertainty of technology’s complex degree (Weight r22)
		RT3: Uncertainty of technology’s upgrading speed (Weight r23)
		RT4: Uncertainty of complementary technology’s development (Weight r24)
		RT5: Uncertainty of alternative technology’s development (Weight r25)
	Risk of Project (RP) (Weight r3)	RP1: Uncertainty of short-term commercial value (Weight r31)
		RP2: Uncertainty of mid-term industrial value (Weight r32)
		RP3: Uncertainty of long-term social value (Weight r33)
		RP4: The conflict degree of three kinds of value (Weight r34)
	Risk of Market (RM) (Weight r4)	RM1: Uncertainty of market positioning (Weight r41)
		RM2: Uncertainty of the earlier customers (Weight r42)
		RM3: Uncertainty of the later customers (Weight r43)
		RM4: Uncertainty of the customers’ importance (Weight r44)
RM5: Uncertainty of market volume (Weight r45)		

The risk of capability (RC) in open innovation expression as follows:

$$RC=RC1 \times r11 + RC2 \times r12 + RC3 \times r13 + RC4 \times r14 + RC5 \times r15 + RC6 \times r16 = \sum_{i=1}^6 RCi \times r1i \quad (1)$$

In equation (1), $\sum_{i=1}^6 r1i = 1, 0 \leq r1i \leq 1$.

The risk of technology (RT) in open innovation expression as follows:

$$RT=RT1 \times r21 + RT2 \times r22 + RT3 \times r23 + RT4 \times r24 + RT5 \times r25 = \sum_{i=1}^5 RTi \times r2i \quad (2)$$

In equation (2), $\sum_{i=1}^5 r2i = 1, 0 \leq r2i \leq 1$.

The risk of project (RP) in open innovation expression as follows:

$$RP=RP1 \times r31 + RP2 \times r32 + RP3 \times r33 + RP4 \times r34 = \sum_{i=1}^4 RPi \times r3i \quad (3)$$

In equation (3), $\sum_{i=1}^4 r3i = 1, 0 \leq r3i \leq 1$.

The risk of market (RM) in open innovation expression as follows:

$$RM=RM1 \times r41 + RM2 \times r42 + RM3 \times r43 + RM4 \times r44 + RM5 \times r45 = \sum_{i=1}^5 RMi \times r4i \quad (4)$$

In equation (4), $\sum_{i=1}^5 r4i = 1$, $0 \leq r4i \leq 1$.

Synthesize equation (1) (2) (3) (4), the risk of open innovation (ROI) expression as follows:

$$ROI = RC \times r1 + RT \times r2 + RP \times r3 + RM \times r4 = \sum_{i=1}^6 RCi \times rli + \sum_{i=1}^5 RTi \times r2i + \sum_{i=1}^4 RPi \times r3i + \sum_{i=1}^5 RMi \times r4i \quad (5)$$

In equation (5), $\sum_{i=1}^4 ri = 1$, $0 < ri < 1$.

4 Conclusion

Since the 1980s, open innovation as the main model of innovation, is not only widely used in high-tech industries (for example, Intel often adopt “take-ism” strategy of external technology internalization), but also be well welcomed in the traditional industry (for example, since the implementation of open innovation, the efficiency of R&D has increased nearly 60% in P&G, and the innovation rate has increased more than two times, and the innovation costs has decreased 20%. Although P&G is a traditional company, it ranked the sixth in 2007 the world’s most innovation enterprises). Open innovation has been applied to our enterprises relatively late, but has been rapidly expanded in China. For example, the Midea company began to implement open innovation model called “national innovation” from 2004. On the basis of “national innovation”, the Midea company launched more than 20 fan products with special health functions, and has won many favors in the eyes of consumers especially high-level consumers. In the annual domestic sales of nearly 10000000 units of products, those new products accounted for 30%. For the weak innovation capability of Chinese enterprises, it is necessary for them to grasp the essence of open innovation as soon as possible, and master their risk assessment and method of control, which is an effective way to shorten the gap between Chinese enterprises and international advanced enterprises.

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Study on Early Warning of University Mass Emergency Evolution Based on SIR

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Abstract: Currently, complex social environment pushes great impact into universities. Meanwhile, the universities also reflects the social problems. Maintaining stable and harmonious environment in universities is a time request. To prevent and identify the occurrence and evolution of the university mass emergency, the paper uses SIR model, combines with double field drive structure of the university mass emergency, constructs a university mass emergency early warning method, gets university mass emergency evolution parameter relational tables, helps to identify development trend and form a quick reaction mechanism in university.

Key words: University mass emergency; Early warning; SIR; Simulation

1 Introduction

In recent years, with the changes of social life and the deepening of higher education reforms, the outer world that universities are confronted with becomes more complicated. Many social problems thereupon reflecting universities caused the views on world, life and values of some university students to be impacted at some extent. The 2013 Blue Paper released by the Chinese Academy of Social Sciences said that the unstable and uncertain factors in international economic and social environment remain pronounced. China still faces many problems and challenges in many aspects including the employment, labor relation, income distribution and social management, etcetera. For the past few years, occurrences of mass disturbance over all kinds of social contradictions are up to tens of thousands and even more than a hundred thousand^[1]. The body of universities is special. They are mostly young people, concern a lot about the social focal issues, highly sensitive about the demands of justice, passionate as well as impulsive. Under the guidance of the existing emergency management mechanism in university, problems such as separation of departments, lack of coordinated command and poor overall correlation are likely to emerge^[2], thereby seriously affecting the response capacity of emergency management, raising more uncertainties to universities in the transition during development. What's more, with all kinds of crises triggered by social environment, rates of occurrences of university mass emergency will be greatly raised.

The university mass emergency management is mostly based on the theory of public crisis management. The early studies of public crisis management are confined to military and diplomatic matters. As the years went by, they gradually extend into enterprises and social organization fields. Despite its late start, emergency management and public crisis management enter the stage of rapid development after the SARS in 2003. Thereinto, public crisis management in university is becoming a locus. With the development of society, the potential risk of university students' community crisis has a tendency to further expand^[3]. To effectively control the university mass emergency, scholars have studied the prevention of university crisis or emergency from multiple perspectives. Some of them tried to probe into university mass emergency early warning in new perspectives. Scholars have approached from qualitative analysis angle such as association rule^[4], sensitive nodes^[5], prevention mechanism^[6], causes and countermeasures^[7], psychological crisis^[8] and government management^[9]. However, most of these studies are summaries of past experiences, with no quantitative analysis as a base of decision reference as well as lacking of dynamic analysis and simulation modeling studies of influencing factors. In this article, I proceeded with university mass emergency early warning, based on double field drive structure, utilizing SIR, to construct a university mass emergency early warning method a quantitative analysis method, which can provide us a basis for emergency decision-making.

2 Double Field Drive Structure of University Mass Emergency

The university should adhere to the principle of "Put Teachers and Students First, construct a harmonious campus" and build a university mass emergency early warning method during the process of the construction of a harmonious campus. When public incident happens, it endows the university with the capacity of unified command, rapid deployment, rapid response and makes the early warning

mechanism functions of detection, prediction and defense to play a positive leading role in dealing with emergencies. To implement the early warning of emergency, data acquisition is a essential basic requirement. Because the information covers a wide range of subjects, it's conducive to emergency dealing unless the information collected are valuable. Using the value measure of information as the starting point, under the influence of propagation characteristic, the time, the content and the form of information will have a significant impact on its quality. Therefore it is necessary to measure the information in accordance with there dimensions including time, content and form in order to determine its value. Information's value can be determined according to three dimensions including time, content and form^[10,11,12,13], though in terms of mass emergency, it is even more complicated to determine the value of information because the evolution of university mass emergency is influenced by group emotion. In the process of university mass emergency, the group emotion will go through three stages: cognition-emotion-behavior^[14]. Thereinto, public cognition includes cognition of the trigger event, the impact of the trigger event to the group they belong to and responsive thoughts of the trigger event; the cognition of the impact of the trigger event to the group they belong to will emerge emotional thinking and be affected by the cognition of the trigger event, thus breeds group emotion; responsive thoughts of the trigger event are formed under cognition of the trigger event and group emotion. In the new era, the development of group emotion is influenced by physical and information field in the process of university mass emergency.

(1) the Physical Field

Physical field refers to under the influence of some trigger events, a certain number of people gathered in a relatively short time in a same physical space. It is the basis of university mass emergency. When mass crowd emerges in a same physical space, persons present will feel the “group pressure” of “going with the flow and avoiding isolation”, easy to be affected by the “opinion leader”, and finally lead to mood expansion.

(2) the Information Field

Information field mainly refers to public opinion, which is the emotional cognition and political attitude that populace as the subject hold toward social manager or event organizer as the object in a certain social space and also the beliefs, attitudes, opinions and emotions that most people express about all kinds of social phenomena and problems.

3 SIR Model of University Mass Emergency

Nowadays, it is hard to explain the law of evolution of many social economic phenomena through traditional linear or differential dynamical system. Zhao Lei(2011)^[15] illustrated the mechanism of “The Butterfly Effect” in mass emergency. In epidemic dynamics, the mainly used mathematical model is so called “the warehouse” model which is based on the two classic models developed by Kermac and Mckendrick ---- SIR and SIS. Scholars have developed many epidemic models closer to real problems based on them^[16,17]. With the coming of information era, the occurrence of university mass emergency is no longer only the on-the-spot mass emergency, but also the emergency on the net. And two kinds of emergency are likely to jointly push the evolution of the event in their combination. Given this, this paper discusses the university mass emergency and its evolution under double fields.

(1) Assuming that when a certain trigger event outbreaks, there are two groups of people that are respectively gathering in the campus and the net, the respective numbers of people are N1 and N2. In the process of event evolution, these two groups of people are not independent from each other, but competing with and affecting each other, and the competition intensity coefficients are m and n. Hence with the interaction of the physical field and virtual field, the evolution law of these two groups of people are shown in Equation 1.

$$\begin{cases} \frac{dN_1}{dt} = \left[r_1 \left(1 - \frac{N_1}{K_1} \right) - mN_2 \right] N_1 \\ \frac{dN_2}{dt} = \left[r_2 \left(1 - \frac{N_2}{K_2} \right) - nN_1 \right] N_2 \end{cases} \quad (1)$$

(2) In physical field, the quantity of susceptible people on the spot is S_1 ; the quantity of affected people on the spot is I_1 ; the quantity of (emotionally) freed people on the spot is R_1 ; the rate of (emotionally) freed people on the spot is γ_1 ; the rate of (emotionally) freed people on the spot

reentering susceptible people on the spot is δ_1 ; the rate of susceptible people on the spot turning into affected people on the spot is β_{11} ; the wastage rate of people on the spot is $d_1 + (1 - \alpha_1) \frac{r_1 N_1}{K_1}$; People in physical field are not only affected by the emotion on the spot, but also affected by the emotion on the net. Assuming that the rate of people affected by the emotion on the net is β_{12} , therefore the process of the emotion evolution of people in physical field is shown in Equation 2.

$$\begin{cases} \frac{dI_1}{dt} = (N_1 - I_1 - R_1)(\beta_{11}I_1 + \beta_{12}I_2) - \gamma_1 I_1 - \left[d_1 + (1 - \alpha_1) \frac{r_1 N_1}{K_1} \right] I_1 - mN_2 I_1 \\ \frac{dR_1}{dt} = \gamma_1 I_1 - \left[d_1 + (1 - \alpha_1) \frac{r_1 N_1}{K_1} \right] R_1 - \delta_1 R_1 - mN_2 R_1 \\ \frac{dN_1}{dt} = \left[r_1 \left(1 - \frac{N_1}{K_1} \right) - mN_2 \right] N_1 \\ N_1 \geq I_1 + R_1; r_1 = b_1 - d_1 > 0; 0 \leq \alpha_1 \leq 1 \end{cases} \quad (2)$$

(3) In information field, the quantity of susceptible people on the net is S_2 ; the quantity of affected people on the net is I_2 ; the quantity of (emotionally) freed people on the net is R_2 ; the rate of (emotionally) freed people on the net is γ_2 ; the rate of (emotionally) freed people on the net reentering susceptible people on the net is δ_2 ; the rate of susceptible people on the net turning into affected people on the net is β_{22} ; the wastage rate of people on the net is $d_2 + (1 - \alpha_2) \frac{r_2 N_2}{K_2}$; People in net field are not only affected by the emotion on the net, but also affected by the emotion on the spot. Assume that the rate of people affected by the emotion on the spot is β_{21} , therefore the process of the emotion evolution of people in information field is shown in Equation 3.

$$\begin{cases} \frac{dI_2}{dt} = (N_2 - I_2 - R_2)(\beta_{21}I_1 + \beta_{22}I_2) - \gamma_2 I_2 - \left[d_2 + (1 - \alpha_2) \frac{r_2 N_2}{K_2} \right] I_2 - nN_1 I_2 \\ \frac{dR_2}{dt} = \gamma_2 I_2 - \left[d_2 + (1 - \alpha_2) \frac{r_2 N_2}{K_2} \right] R_2 - \delta_2 R_2 - nN_1 R_2 \\ \frac{dN_2}{dt} = \left[r_2 \left(1 - \frac{N_2}{K_2} \right) - nN_1 \right] N_2 \\ N_2 \geq I_2 + R_2; r_2 = b_2 - d_2 > 0; 0 \leq \alpha_2 \leq 1 \end{cases} \quad (3)$$

Synthesizing the impact of net field and physical field as well as the competitive relation of the groups, the evolution of university mass emergency is shown in Equation 4^[18].

$$\begin{cases}
 \frac{dI_1}{dt} = (N_1 - I_1 - R_1)(\beta_{11}I_1 + \beta_{12}I_2) - \gamma_1 I_1 - \left[d_1 + (1 - \alpha_1) \frac{r_1 N_1}{K_1} \right] I_1 - m N_2 I_1 \\
 \frac{dR_1}{dt} = \gamma_1 I_1 - \left[d_1 + (1 - \alpha_1) \frac{r_1 N_1}{K_1} \right] R_1 - \delta_1 R_1 - m N_2 R_1 \\
 \frac{dN_1}{dt} = \left[r_1 \left(1 - \frac{N_1}{K_1} \right) - m N_2 \right] N_1 \\
 \frac{dI_2}{dt} = (N_2 - I_2 - R_2)(\beta_{21}I_1 + \beta_{22}I_2) - \gamma_2 I_2 - \left[d_2 + (1 - \alpha_2) \frac{r_2 N_2}{K_2} \right] I_2 - n N_1 I_2 \\
 \frac{dR_2}{dt} = \gamma_2 I_2 - \left[d_2 + (1 - \alpha_2) \frac{r_2 N_2}{K_2} \right] R_2 - \delta_2 R_2 - n N_1 R_2 \\
 \frac{dN_2}{dt} = \left[r_2 \left(1 - \frac{N_2}{K_2} \right) - n N_1 \right] N_2 \\
 N_i \geq I_i + R_i, r_i = b_i - d_i > 0, 0 \leq \alpha_i \leq 1, (i=1,2)
 \end{cases} \tag{4}$$

In equation 4, N_i is the total number of people in field i ; S_i is the quantity of susceptible people in the field i ; I_i is the quantity of affected people in the field i ; R_i is the quantity of (emotionally) freed people in the field i ; m and n are the respective competition coefficients of the people in two fields. β_{ii} is the internal emotional contagion rate in two fields; $\beta_{ij} (i \neq j)$ is the mutual emotional contagion rate in two fields; γ_i is the ratio of (emotionally) freed people in the field i ; δ_i is the ratio of (emotionally) freed people turning into susceptible people in the field i .

4 The Evolution Simulation of University Mass Emergency

Computer simulation methods were adopted to demonstrate the nonlinear mechanism of the university mass emergency early warning method ---- SIR model and to seek the possible laws in it and accordingly providing some technical references for the prevention of university mass emergency. Given that a university mass emergency happened, and due to that, the initial quantity of people gathering on the net is $N_1(0) = 400$; the initial quantity of people gathering on the spot is $N_2(0) = 500$. Thereinto, the respective quantity of susceptible people are $I_1(0) = 120$ and $I_2(0) = 100$; the respective quantity of (emotionally) freed people are $R_1(0) = 40$ and $R_2(0) = 60$; the relevant parameter of the natural wastage of crowds are $\alpha_1 = 0.91$ 、 $\alpha_2 = 0.91$ 、 $K_1 = 400$ 、 $K_2 = 500$ 、 $r_1 = 0.08$ 、 $r_2 = 0.05$ 、 $d_1 = 0.0001$ 、 $d_2 = 0.0001$; the competition intensity of people in two fields are $m = 0.001112$ and $n = 0.001261$; the mutual emotional contagion rate in two fields are $\beta_{12} = 0.003$ and $\beta_{21} = 0.003$; the internal emotional contagion rate in two fields are $\beta_{11} = 0.004$ and $\beta_{22} = 0.004$; the ratio of (emotionally) freed people are $\gamma_1 = 0.18$ and $\gamma_2 = 0.15$; the ratio of (emotionally) freed people turning into susceptible people are $\delta_1 = 0.01$ and $\delta_2 = 0.01$. Based on the above parameters, this emergency can be stimulated and the result is shown in Figure 1.

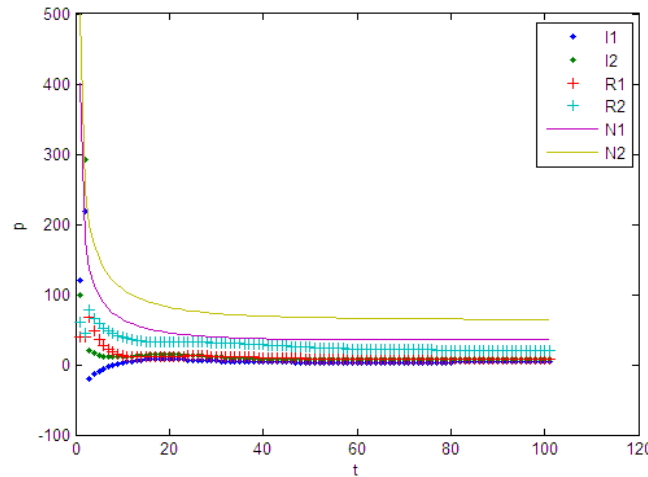


Figure 1 The Evolution of University Mass Emergency

Figure 1 shows that in the evolution of university mass emergency, there is a complex transaction between on-the-spot emotion and network emotion. They jointly influence the development of university mass emergency and have similar development trend. The event will settle down as time go by, but there are differences between the waves and span of the evolution curves. Stimulation correlation were adopted item by item to the parameters of university mass emergency evolution model SIR suggested in this article, which is shown in Table 1.

Table 1 The Parameter Correlation Stimulation of University Mass Emergency Evolution

Parameters	Evolutionary Path	Evolution Trend
The rate of (emotionally) freed people on the spot γ_1	0.16→0.18→0.2	When γ_1 increases, the quantity of affected people on the spot I_1 and the quantity of affected people on the net I_2 decrease; meanwhile, the quantity of (emotionally) freed people on the spot R_1 and the quantity of (emotionally) freed people on the net R_2 also decrease.
The rate of internal emotional contagion on the spot β_{11}	0.0038→0.039→0.004	When β_{11} increases, the quantity of affected people on the spot I_1 and the quantity of affected people on the net I_2 decrease; meanwhile, the quantity of (emotionally) freed people on the spot R_1 and the quantity of (emotionally) freed people on the net R_2 also decrease.
The ratio of (emotionally) freed people turning into susceptible people on the spot δ_1	0.02→0.06→0.1	When δ_1 increases, the quantity of (emotionally) freed people on the spot R_1 decreases, the quantity of (emotionally) freed people on the net R_2 increases; meanwhile, the quantity of affected people on the spot I_1 and the quantity of affected people on the net I_2 increase.
The rate of (emotionally) freed people on the net γ_2	0.14→0.15→0.16	When γ_2 increases, the quantity of affected people on the spot I_1 and the quantity of affected people on the net I_2 decrease; meanwhile, the quantity of (emotionally) freed people on the spot R_1 and the quantity of (emotionally) freed people on the net R_2 also decrease.
The rate of internal emotional contagion on the net β_{22}	0.0038→0.039→0.04	When β_{22} increases, the quantity of affected people on the spot I_1 and the quantity of affected people on the net I_2 decrease; meanwhile, the quantity of (emotionally) freed people on the spot R_1 and the quantity of (emotionally) freed people on the net R_2 also decrease.

The ratio of (emotionally) freed people turning into susceptible people on the net δ_1	0.02→0.06→0.1	When δ_1 increases, the quantity of (emotionally) freed people on the spot R_1 and the quantity of (emotionally) freed people on the net R_2 decrease; meanwhile, the quantity of affected people on the spot I_1 and the quantity of affected people on the net I_2 increase.
When the competition intensity coefficient of spot to net m	0.00111→0.001112→0.001115	When m increases, the quantity of (emotionally) freed people on the spot R_1 、the quantity of affected people on the spot I_1 、the number of people on the spot N_1 decrease; the quantity of (emotionally) freed people on the net R_2 、the quantity of affected people on the net I_2 、the number of people on the net N_2 increase.
When the competition intensity coefficient of net to spot n	0.00125→0.001261→0.00127	When n increases, the quantity of (emotionally) freed people on the spot R_1 、the quantity of affected people on the spot I_1 、the number of people on the spot N_1 increase; the quantity of (emotionally) freed people on the net R_2 、the quantity of affected people on the net I_2 、the number of people on the net N_2 decrease.
When the rate of people on the spot affected by people on the net β_{21}	0.0028→0.003→0.0031	When β_{21} increases, the quantity of (emotionally) freed people on the spot R_1 and the quantity of affected people on the spot I_1 decrease; the quantity of (emotionally) freed people on the net R_2 and the quantity of affected people on the net I_2 decrease.
When the rate of people on the net affected by people on the spot β_{12}	0.0026→0.0028→0.0033	When β_{12} increases, the quantity of (emotionally) freed people on the spot R_1 and the quantity of affected people on the spot I_1 decrease; the quantity of (emotionally) freed people on the net R_2 and the quantity of affected people on the net I_2 decrease.

After refining by Table 1, we obtain the parameter relationship map of university mass emergency evolution, which can contribute to fast query in practical application.

Table 2 The Parameter Relationship Map

Parameters	I_1	I_2	R_1	R_2	N_1	N_2	Relation
$\gamma_1 \nearrow$	\searrow	\searrow	\searrow	\searrow	--	--	full inverse
$\beta_{11} \nearrow$	\searrow	\searrow	\searrow	\searrow	--	--	full inverse
$\delta_1 \nearrow$	\nearrow	\nearrow	\searrow	\nearrow	--	--	R_1 inverse
$\gamma_2 \nearrow$	\searrow	\searrow	\searrow	\searrow	--	--	full inverse
$\beta_{22} \nearrow$	\searrow	\searrow	\searrow	\searrow	--	--	full inverse
$\delta_1 \nearrow$	\nearrow	\nearrow	\searrow	\searrow	--	--	R_1, R_2 inverse
m \nearrow	\searrow	\nearrow	\searrow	\nearrow	\searrow	\nearrow	I_1, R_1, N_1 inverse
n \nearrow	\nearrow	\searrow	\nearrow	\searrow	\nearrow	\searrow	I_2, R_2, N_2 inverse
$\beta_{21} \nearrow$	\searrow	\searrow	\searrow	\searrow	--	--	full inverse
$\beta_{12} \nearrow$	\searrow	\searrow	\searrow	\searrow	--	--	full inverse

Note: "--" in the table means the relationship is unknown.

There are many evolution maps, but the space is limited. So, we only show the process of how the rate of (emotionally) freed people on the spot influences the university mass emergency (Figure 2).

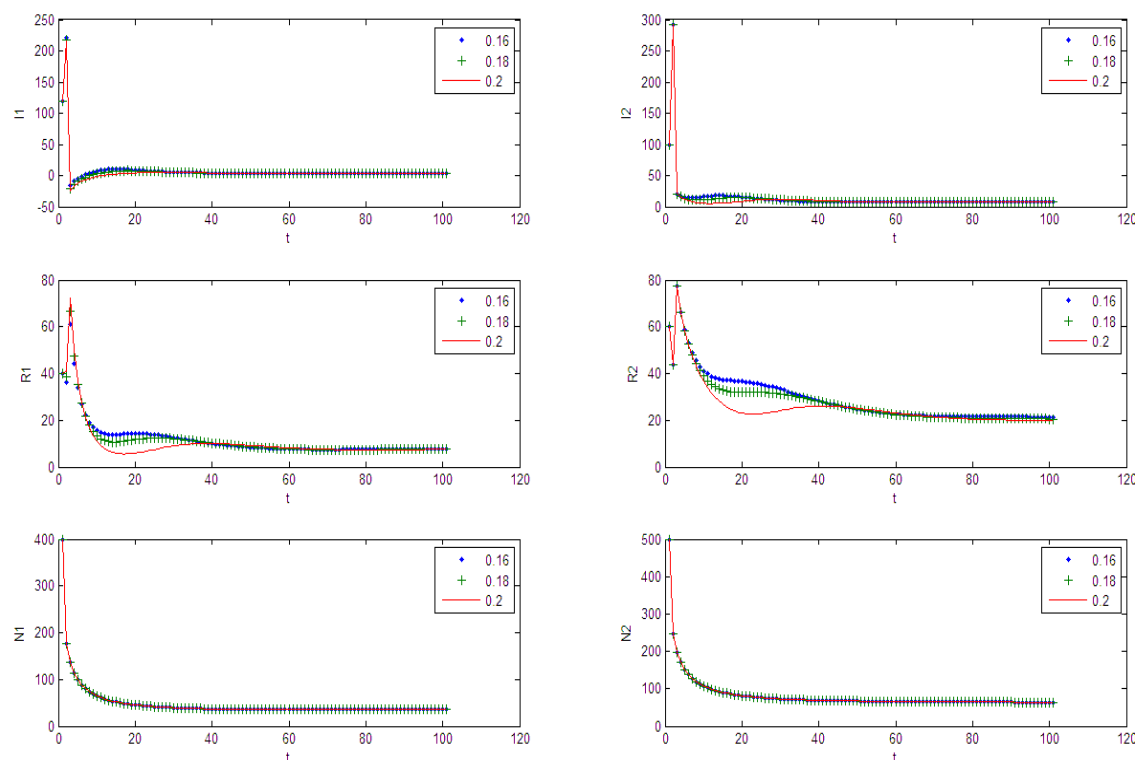


Figure 2 the Evolution of Emotion Affected by the Rate of Freed People on the Spot

Through simulations above, I probed into the relationship between university mass emergency and alarming index, including the emotional contagion rate of people present, the rate of emotionally freed people present, the ratio of emotionally freed people present turning into susceptible people present, the emotional contagion rate of people on the net, the rate of emotionally freed people on the net and the competition intensity between people of two fields.

To build an emergency early warning platform, a warning analysis system should be included, the general setups of which are mainly alarming index and threshold value. Alarming index is used to measure the change target in social operation and the threshold value is a critical point of alarming index in order to draw lines to tell all kinds of risk ranks apart. Once the alarming index surpasses a certain threshold value, the warning system should send a signal of a certain level. The specificity of university mass emergency is shown in the combination of its burstiness and group character, whereas with time lag, the index of burstiness are not always subsequent. Through evolution stimulation in this study, we can deal with the highlighted index in advance and estimate the subsequent evolution trend.

5 Conclusion

Mass emergency early warning can be used to refine huge amount of data bits, judge criteria basing on index system, predict the event in time and confirm its rank and severity, which can provide decision information for relative departments and be better targeted, therefore guaranteeing the accuracy and effectiveness in dealing with events. An university mass emergency early warning method is built based on SIR, which can be applied to the university mass emergency management. And also, a parameter relationship map is proposed through the calculation and simulation for facilitating identifying development trend, which can help form a quick reaction mechanism in university.

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Research on Information Dissemination and Response Mechanism of University Emergencies in the View of WeChat

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Abstract: At present, WeChat has become the important channel to communicate voice opinions and accept information for teachers and students in universities, but also makes new challenges to universities coping with emergencies. This paper introduces the categories and characteristics of universities emergencies, studies WeChat's development situation and the characteristics of information dissemination, considers universities in the environment of WeChat facing the challenges that strong interpersonal relationship easy to cause public attention, information transmission quickly and difficult to grasp, difficult to clarify rumors and unequal information dissemination. According to Stephen Fink's stage analysis theory of crisis event and the characteristics of WeChat information dissemination, the paper constructs response strategy of university emergencies in the view of WeChat.

Key words: University emergencies; WeChat; Information dissemination; Response mechanism

1 Introduction

The definition of emergencies in *Emergency Response Law of People's Republic of China* is as follows: Happened suddenly, causing heavy casualties and property losses, environmental damage and serious social harm, endangering public safety emergencies. Synthesized many scholars' opinions, according to *Emergency Response Law of People's Republic of China*, the paper defines university emergencies as follows: Happened suddenly, causing casualties of college teachers and students, significant damage to property, impact on the order of university, impact and harm the image and stability of the universities.

China Internet Public Opinion Analysis Report 2014 shows that WeChat, replaced MicroBlog, has become the premier public information channels and social networking platforms in the current economically developed regions. Teachers and students in universities are often at the forefront of technological development, have strong ability to accept new things and active thought. It is likely to become more complicated and more difficult because of the spread of WeChat in the stages of prodromal, breakout, chronic and resolution of university emergencies. Therefore, it is a new topic for universities managers that research on information dissemination and response strategy of university emergencies in the View of WeChat.

Scholars studied public opinion dissemination (*Shi Minfeng, 2012*), warning mechanism (*Feng Hongqi, Wang Juanlin, Liu Yumeng, 2013*) and management mechanism (*Zhou Qiang, Chen Shaoping, 2013*) of university emergencies under network environment, but there is no research on university emergencies in the view of WeChat.

2 The Categories and Characteristics of University Emergencies

2.1 The categories of university emergencies

Similar to emergencies, university emergencies can be divided into four categories according to procedure occurred, character and mechanism:

a. Natural disasters, mainly caused by earthquakes, typhoons, floods, fires, storms and other natural disasters, which posed a serious threat to the life and property of university teachers and students.

b. Security incidents, including the safety and security emergencies and students psychological crisis, are currently the most common and multiple emergencies in the universities.

c. Public health events, including infectious diseases and food safety, are seriously affecting the health and safety of university teachers and students.

d. Political security and stability events, often caused by conflicting national interests, international political crisis, domestic social conflicts, ethnic and religious issues, etc.. In addition, if the vital interests of the students are directly affected when universities provide management and service, emergencies is likely to break out.

2.2 The characteristics of university emergencies

Due to the special nature of participants and space, compared with the social common emergencies, university emergencies have significant features.

(1)High concern. The participants in university emergencies are teachers and students. Even in a local university, the emergencies also affect thousands of families all over the country so that university emergencies once occurred, it will inevitably lead to a high degree of concern.

(2)Great harm. University emergencies can cause varying degrees of harm to universities' property and reputation as well as personal and property security of the teachers and students, and do great damage to normal order of work, study and lives. Meanwhile, because students stay at the stage of being-educated whose life, values, world view is not mature, the improper management of university emergencies can easily affect the students from forming the correct ideals and beliefs, moral character and life goals, even affect the development of student's whole life.

(3)Fast spread. University students live together in the dormitory and have more consistent daily routine, in addition, university teachers and students belong to new media groups that spread information fast and diversely, so university emergencies spread rapidly, and tend to spread among different universities.

(4)Periodicity. All the works in university have a significant cyclical characteristics, which makes university emergencies, particularly safety accidents own cyclical characteristics.

3 The Characteristics of WeChat Developments and Information Dissemination

WeChat is launched by Tencent in early 2011, which can sent a graphic information, voice and video information, support multi-user voice intercom and other functions. Users also can share life with real-time in Moments. As of the end of March 2015, WeChat monthly active users have reached 549 million, covering more than 90% of the Smartphone. WeChat has not only an innovative features of mobile application, but also become the representative of Chinese electronic revolution, known as indispensable for daily use tools in humans life.

WeChat, under the background of mobile internet, is a kind of We Media, whose earliest aim is to build a new type of interpersonal communication tool. But after continuous development, a variety of services and function are added to WeChat, such as People Nearby, Moments, Public ID, payments, games, etc., which make its propagation properties become more diversified (*Jing Ming, Zhou Yan, Ma Danchen, 2014*). Compared with MicroBlog, Blogs and other media forms, the information dissemination of WeChat has the following features:

(1)Strong interpersonal and community-based

The start point of WeChat is a kind of IM, whose main function is communication between acquaintances, including friends in mobile phone address book, QQ friends, etc. WeChat Moments integrate QQ instant messaging, mobile phone address book and "People Nearby", to some extent, which has realized the effective combination of the network virtual community and realistic community. In WeChat Moments, only the distributors and mutual friends can see comments and "Praise", which enhance the authenticity of the virtual community.

(2)Immediacy and Weak traceability.

WeChat is a kind of instant communication, when users posting messages, the others can receive information instantly. Because of WeChat only used on Smartphone, the limitation of the screen size determines communication content easy to be covered by real-time information. In addition, a great part of information is voice, information is difficult to search and trace.

(3)Point-to-point transmission, low openness and high credibility.

WeChat includes 3 kinds of transmission, which are transmission between friends, Moments, and information push. When receiving information, users can share to Moments and friends; the contents in Moments can be simply discussed and "Praise", but not transmitted; WeChat Public ID also only push information to who have focused on, therefore, information transmission way of WeChat is point to point. Transmission patterns of point to point, limiting number of groups and limiting information transmission frequency of Public ID greatly reduce openness of the information transmission, increase privacy and credibility.

4 The Challenge of University Emergencies under WeChat Environment

China New Media Development Report No.6 (2015) points out that the WeChat platform has less source of fake news, only about 7% in new media fake news. However, it is difficult to address rumors as the closed WeChat communication environment with weak self-correcting capability. Unlike the

hedge between different information in MicroBlog square, human relationship and keeping face has built a strong relation-chain in WeChat platform. For example, though the fake news of “Hebei province will be split after APEC” is first appeared in 2011 and afterwards netizens and mainstream media clarify the rumors, it appears again in WeChat with obvious periodicity in 2014 as the fake news communicators comprehends the public psychology.

University is a relatively closed environment and higher attention compared with the society, but teachers and students have more active thinking. WeChat has become a standardized mean for exchanging information and ideas in daily life, as 45.4% users are in the age of 18 to 25 and 19.7% users are students according to WeChat User Data Report published in 2015. The present situation results in great challenges when dealing with university emergencies. The main challenges can be summarized into four aspects, listed as follows.

(1)The strong interpersonal relationships lead to more public concern. When the university emergencies occurred, undergraduates become the first reporter to spread the event. Possibly, they released the information to Moments to draw attention of WeChat friends. More important, those friends include parents, schoolmates and colleagues in different areas, their secondary transmission further enhanced the public awareness, which increased the pressure for universities to manage unexpected events. Moreover, most colleges have known little of the world with more radical thinking, once the emergency is handled improperly, it is easily to enlarge or distort the influences of event.

(2)The closed communication environment leads to a difficult grasp of information propagation. Communications among acquaintances are sealed and fast spread from online to offline. Nevertheless, the relatively closed university environment has intensified this situation. WeChat is a widely used chat software with images, text and voice in interactive group, searching and tracking information is more difficult outside the group.

(3)The higher believability among interactive group members leads to more difficult in clarifying the rumors. As WeChat is built with quasi-real-name mechanism, the believability among WeChat friends is higher than any other online commutations. When a rumor is spread out among friends in WeChat, the rumor is more durable, and of even more trusty (*Liu Gaoying, 2015*).

(4)The unequal information exchanging leads to resolve emergency with more efforts. When the emergency occurred, the university director should be issued the progress and solutions timely in order to eliminate adverse effects. Different from MicroBlog, the efficiency of information dissemination for universities WeChat Public ID is much lower than Moments of teachers and students, which results in unequal information exchanging between official and private and more passive to deal with the university emergencies.

5 Response Strategy of University Emergencies under WeChat Environment

According to Stephen Fink’s stage analysis theory of crisis event (*Rcarn Banks K, 1996*), university emergencies can also be divided into four stages, namely, prodromal, breakout, chronic and resolution. It should be carrying out the corresponding work in accordance with the four stages that coping with university emergencies under WeChat Environment, as shown in Figure 1.

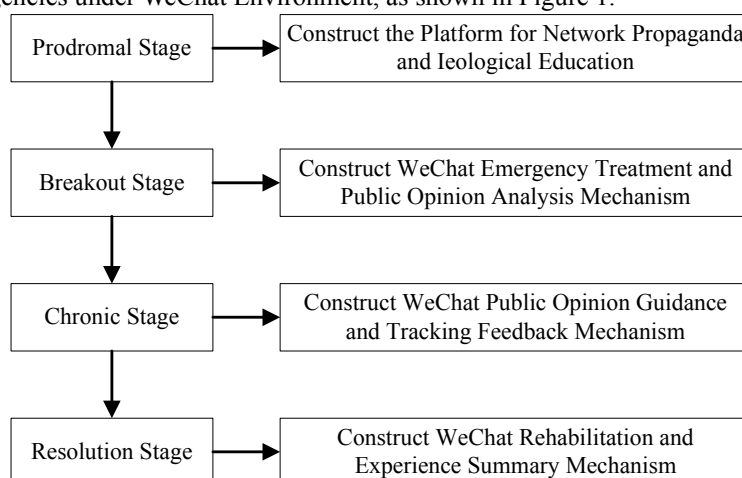


Figure 1 Response Strategy of University Emergencies under WeChat Environment

(1) Prodrimal Stage-construct the platform for network propaganda and ideological education.

In prodromal stage of university emergencies, it should be to put WeChat under the platform of network propaganda and ideological education, and do a good job to prevention. It can work from the following four aspects to construct platform:

1) Build the network platform of multi-sectoral coordination and daily propaganda education, set up network publicity leadership team including propaganda, student affairs, security, academic, regularly research network propaganda theme and public opinion direction, let the teachers and students find effective solutions when they have problems, eliminate the contradiction in infancy.

2) Develop a network education elite team, including party and government cadres, teachers, counselors and student cadre. Through training and exercise, the team has high political theory accomplishment and network using ability, able to shoulder the daily network propaganda and ideological education, and emergency management ability during university emergencies.

3) Cultivate network opinion leaders, which should be online and offline. They can be respected teachers, can be campus "influential person" who has many fans, also can be counselors familiar with students' situation. Improving their media literacy, moral level and discernment ability, can guide positive network public opinion.

4) Set up network messengers, strengthen public opinion monitoring. In accord with "university-school-grade-class" realistic organization structure, university should be set up network messengers of corresponding levels, strengthening public opinion monitoring.

(2) Breakout Stage - construct WeChat emergency treatment and public opinion analysis mechanism.

In breakout stage, WeChat is the important channel of information dissemination. Public opinion crisis once erupted, it must immediately start WeChat emergency treatment and public opinion analysis mechanism, strengthen information openness, analysis the trend of public opinion.

In the process of public opinion occurrence and development in emergencies, opening information actively and fast can effectively control the formation of negative public opinion. According to British crisis public relations specialist Michael Regester's 3T principle, which is "tell your own tale", "tell it fast" and "tell it all", university should constantly released comprehensive and real information as soon as possible, firmly grasp information release initiative when crisis breakout (*Michael Regester, Judy Larkin, 2001*).

(3) Chronic Stage - construct WeChat public opinion guidance and tracking feedback mechanism.

When rumors spread, university WeChat public number must response as soon as possible, stabilize students emotion in time, and guide public opinion quickly. At the same time, WeChat should steadily track and roundly report emergencies, and construct benign interaction with traditional media to guide public opinion direction persistently. After comprehensively analyzing WeChat public opinion information, clear the key of public opinion, to provide decision basis for university.

(4) Resolution Stage- construct WeChat rehabilitation and experience summary mechanism.

In resolution stage, university must overcome psychological paralysis, consolidate stability situation in time, continue to track WeChat public opinion, to prevent emergencies come back. University WeChat public ID should take full advantage, publish university emergencies as cases for discussion, which can make students to learn and grow in the emergencies, and guide university managers to reflect emergencies prevention, treatment and rehabilitation.

6 Conclusion

WeChat provides convenient for teachers and students to communicate, voice opinions and accept information, but also gives a transmission platform for rumors and bad information, which makes challenges for university to cope with emergencies. According to Stephen Fink's stage analysis theory of crisis event and the characteristics of WeChat information dissemination, the paper constructs coping strategy of university emergencies in the view of WeChat, so as to provide some references for university to cope with emergencies. As the new media form appear constantly, universities should keep pace with the times, capture the position of network propaganda actively, play the positive role of network public opinion direction, and promote sustained, coordinated and healthy development of the universities.

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A Conceptual Model for Children's Websites Using E-CRM

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Abstract: In this research it is aimed to provide a conceptual model for designing and administrating children's website. In this research we extracted factors that are important for designing a successful websites by analyzing the content of 50 websites that have good ranking among children websites. We applied qualitative content analysis. We designed a conceptual model by classifying factor into three levels: awareness, expansion and commitment. The main factors of awareness stage are: brand, communication and community. In expansion stage; design, responsibility and technical issues are main factors. Format of content, customization and complementary services are the main factors of commitment stage.

Key words: Children's website; E-CRM; Awareness level; Expansion level; Commitment level

1 Introduction

Designing a successful website has been a key issue over years and a good literature has been evolved but children websites are different. This difference rooted in the online behavior of children and their threads. Online behavior of children is different from adults. According Kaiser family foundation study, children react to different stimuli in other way ^[1]. Children like big font and prefer voice and animation. They have some physical limitation like typing slowly. Children use the internet more for game and chat ^[2]. The first reason is the age of audience. The threads for children are different from adults. The most important thread for adults is virus but children face different threads: Almost 50 percent of the children have had a negative experience on the internet ^[3]. Children most frequently reported encountering pornography, followed by violence, computer viruses and/or their computers crashing. Approximately 80 percent told someone else about their negative experience, and, although it might be expected that this was a parent or a teacher, 45 percent of the children shared their experience with a friend. So they are more fragile and for designing a successful website, we need a different model. In this research we are going to designing this model.

2 Methodology

In this research we used qualitative content analysis. We selected 50 children's websites that according Alexa.com have good ranking among children website. We analyzed these websites and extracted about 78 items and labeled them to 9 factors. Then we classified these 9 factors to three levels. These factors are resulted through analyzing the web sites:

Table 1 Extracted Items and Categories

Design	vocal and pictorial navigation, animism, presence of animals, attractive design, context music, happy mood, kindly characters, promotional animations, contriving a character as main character, bright and attractive colors, larger site and fonthan usual, using imaginarybeings, bookmark feasibility, using adventure in games, having site map, having site tour, feasibility of translating into different languages, print and download feasibility of content, simple design, chat room
Responsibility	without non-moral issues, classified games, having instruction for parents, introducing the site to the users, FAQs, explain about site security, securing the information of users, having privacy statement, having user care officer, without violent, content for parent
Communication	IMC, having banners, introduced and linked by other sites, giving the award, presentation feasibility to user's friends via email, links to other sites, designing a network of sites, having chat room, blogging feasibility, collaborating with other sites
Technical issues	Site technical support, fast navigating, using backup sites, high speed download
Personalization feasibility	feasibility of signing in as a member, automatic personalization, categorizing plays and other content based on age, feasibility of writing the story, feasibility of sharing the content, feasibility of composing music
Brand	Proper logo for children, easily remembered name, the name fits with the children, short and simple name, the name fits with the content, positive connotations, meaningful name, easy to pronounce
Complementary options	Sale of educational products, providing the products online, educational materials for parents,
Community	Users' community
Format of content:	Play, painting, animation, video, music, story, puzzle, photo, essay, pastime, poem

3 Discussion:

Relation between the website and audience has four stages: awareness, expansion, commitment and dissolution [4]. In the awareness stage the audience would get inform from the existence of the website. At the next stage, expansion, check the website and the content. At the third stage, the audience would make decision that continues the relation or not. We categorize extracted factors based on these stages.

Brand, communication and community have the most important role in attracting and informing audiences. is not just ID and name of site but in the beginning ID is more attended. ID or the name of site is very important and some criteria are important for name selection. These criteria are: short and simple, easy to pronounce, positive connotations to potential users, easy to recognize and remember, memorable, fit with content and potential users. Community is a space that sites devote to their users. They can deal with each other through this space. They can ask and answer question and share their experiences. Users who get familiar with site via community are more possible that refer to site because users trust in other users easily. Communication in children website is a little different by common websites. Important communicational tools used in children's site are:

- Link: lot of sites of schools, libraries, cities and states have a part that introduce and make link to safe sites for children. Introduction of these sites is a strong advertisement tool. Content of the site is very important for introducing and making link. For instance schools make the link to educational sites. "starfall.com" is a good example that has been made link by a lot of sites.
- Integrated marketing channel (IMC): some sites use various channels for awareness. Most famous of these sites are which collaborate with TV channels for instance "pbskids.org" or "torahtot.com" that put their recorded live performance on sites.
- Presentation feasibility to user's friends via email (viral marketing): viral marketing is a valid tool in commercial sites as well as children's sites. This is a very important tool because the site is introduced to another person by a user who is more reliable.
- Designing a network of sites: It's through designing a network of sites or a site as mother and others as its subsidiaries. They can be designed all for a specific or various age groups.
- Collaborating with other sites: collaboration with websites that have similar activities and have same target group is one tactic to attract more new audience.
- Giving award: it can be in various forms: Electronic present, permission to play, a piece of music after winning, etc.

At the second stage, expansion, design, responsibility and technical issues play important role. Design of children's sites is completely different from design of adult's sites. Some differences that extracted from analyzing the sites are:

- Vocal and pictorial navigation: since children aren't able to read and pictures are more attractive for them and they notice them more, children site's navigation shouldn't be through text.
- Presence of animals: all sites utilize the animals to attract more users.
- Animism: one of the children's psychological traits is animism. So they will communicate better if there are some animated objects in the site.
- Context music: listening to music while navigating site can increase the site attractiveness.
- Happy mood: animals and objects with happy posture are tools for making a site mood happy.
- Kindly characters: presence of animals and animated objects is a trait of children's site. Presenting these animals and objects as a kind and nice character is another tool sites utilize.
- Promotional animations: some sites contrive promotional animation on homepage. In addition to attractiveness, promotional animations increase potential user's awareness.
- Contriving a character as main character: some sites are designed based on a main character. For instance starfall.com that has used turkey for educating "t". It's because of children's psychological traits. As previously explained children animate objects and animals and communicate with them so contriving a character cause better communication.
- Larger size and font than usual: the size of icons and the font of texts in children's site are larger than adults one.
- Print and download feasibility of content: the content of site should be printable and downloadable.
- Simple design: the navigation of adult's sites is through text and they are full of text and essays. But children's sites are very simple.

- Site map: site map is the outline of the site that helps users to assess the site easily and find what they want.
- Search engine: help users to seek their favorites in the site.
- Imaginary objects: based on children's psychological traits imaginary objects are interesting and attractive for them.
- Site tour: touring in the site is an option that some sites have made through putting animation on the homepage.
- Feasibility of translating into different languages: translating to different languages can make the site more attractive.
- Bookmark feasibility: children don't choose the sites by themselves. Their parents evaluate and select the sites, and then they bookmark the sites for their children so bookmark feasibility is very important in children's sites.
- Using adventure in games: adventure will make the plays and other hobbies more lovable for children.
- Blogging feasibility: site devotes a space to users and they can design it by themselves.
- Responsibility shows commitment of site to its users. If the site has commitment, it will communicate to its users and understand their needs and answer their requests and preserve children from negative experience such as pornography, virus, etc. herein we mention some items:
 - Instruction for parents and teachers: young children can't navigate sites by themselves so their parents or teacher do that. Presenting an instruction help them to use the site better and communicate easily. Being aware of capabilities of site and its content is another instruction advantage.
 - Without non-moral issues and violent: pornography, violent and other non-moral issues have adverse effects on children so responsible sites preserve children from these negative experiences.
 - Introducing the site to the users and FAQs: answering users question distinctly and giving information about designers of site and its sponsor can make users to put their trust in site.
 - Insuring the security of site: security of site, preserving users' information and protecting against virus are security issues that are important for every user. Insuring users, therefore, is a very important factor for attracting users' trust

Technical issue is third important factor in expansion stage. Site technical support, fast navigating, high speed download are considerable elements that should be mentioned. Online behavior of children is different from adults. For example they are looking for quick satisfaction and don't wait a lot for loading the website. So technical issue is very important in this stage.

Format of content, personalization feasibility and complementary options have significant role in commitment stage. Designing and all activities to launch a site are for presenting the content. Content presentation can be done in many formats: Play, painting, animation, video, music, story, puzzle, photo, essay, pastime, and poem. Personalization takes place through customizing content, format or both of them. It means they change according to user's favorites or traits. Personalization can increase user's loyalty to site. Personalization can be provided through:

- Membership
- Automatically via classifying the content based on age, nationality, language, etc.
- Enabling the user to make his/her favorite content such as story, music, etc.

Complementary options are serving services and products suitable for children. Depending on strength of relation and trust in site, complementary options will be more important. Presenting content for parents is one of these services. Putting some material for parents about children and children's psychology is a service that is served by a lot of sites.

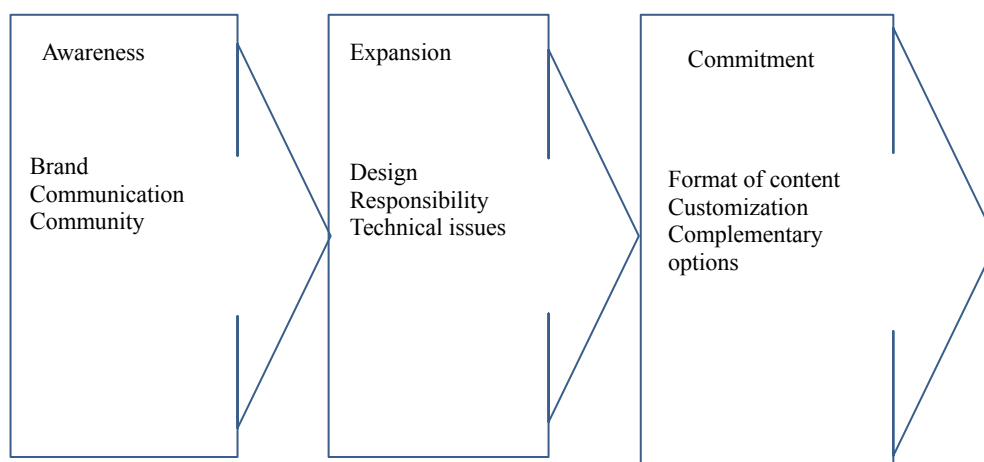


Figure 1 Conceptual Model for Children's Website Using E-CRM

4 Conclusion

We focus on children's website in this research. We provided a conceptual model for designing and managing website by using e-CRM. In this research we apply qualitative content analysis and after extracting items and categorizing, classified them in three stages that audience would pass them to feel commitment to a website. These stages are: awareness, expansion and commitment. In awareness stage the audience gets inform from the existence of the website. In expansion stage the audience checks and make decision that continues his/her relation or not. In the commitment stage, the audience create a continues relationship with website and use the content frequently. The criterion for a successful website is the number of committed clients. Brand, communication and community are the most important factor for awareness stage. In expansion stage; design, responsibility and technical issues are main factors. Format of content, customization and complementary services are the main factors of commitment stage.

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Process Analysis and Implication of 2014 Shanghai Stampede Incident

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Abstract: This paper exams the timeline and causes of the deadly stampede which occurred on December 31, 2014 in Shanghai, near Chen Yi Square on the bund. The study find out that people must have good safety awareness of the public, try to avoid exposure to the crisis, learn to self-help and mutual aid at the same time. The relevant departments also need to cultivate good safety awareness of the public, to avoid the lack of preparation which can lead the incident happen.

Key words: 2014 Shanghai stampede; Process analysis; Implication; Crowd stampede

1 Introduction

Public activities, which are rapid growing in the number and expanding in the scale at the same time, its public safety risk issues are also increasingly prominent. Security incidents showed in a high frequency with public activities and one of the most serious incidents are Crowd Stampede. It is becoming formidable challenges of the modern urban governance to avoid crowd stampede from public activities because crowd stampede occurred due to the population congregated and the characteristics of public activities is a lot people gathered in a place.

At present, many domestic and foreign researchers studied the causes and the countermeasures of crowd stampede. For example, R. S. C. Lee(2005) and R. L. Hughes first proposed the formation mechanism of crowd stampede. Helbing(2000) studied group behavior during irrational panic in emergency escaping and proposed a “social power” model. Zhang Qingsong(2007) backed a crowd stampede forming conditions and established a crowded microscopic simulation model. There are a large number of studies and theories and these theories play an important role in guiding Crowd Stampede warning pre-control.

Based on these theories, this paper reviews the deadly stampede which occurred on December 31, 2014 in Shanghai, near Chen Yi Square on the bund, and tries to get some revelation of it.

2 Process Analysis of 2014 Shanghai Stampede Incident

2.1 The timeline of 2014 shanghai stampede incident

Shanghai Stampede can be divided into three stages: Pre-Event Stage, In-Events Stage and Post-Event Stage.

2.1.1 Pre-event stage

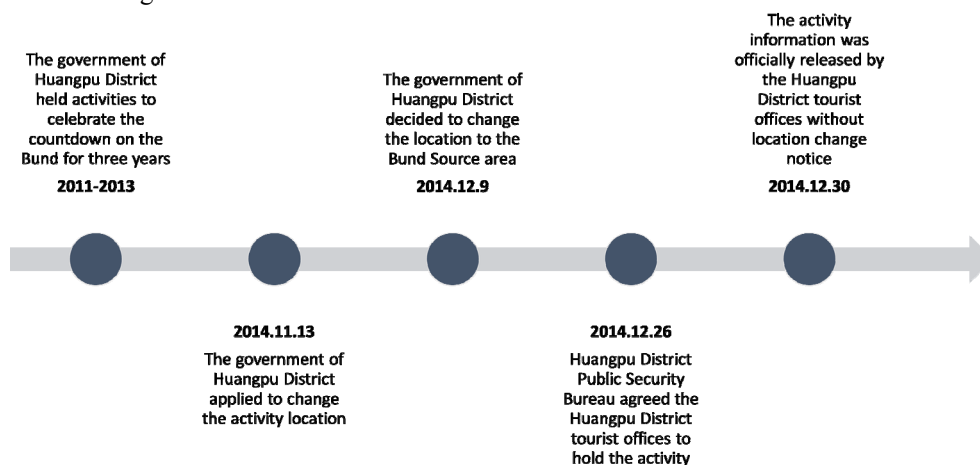


Figure 1 Pre-Event Stage of 2014 Shanghai Stampede

Huangpu District Government has held New Year's countdown event for three years since 2011, and it becomes a routine for the local people to celebrate the New Year. However, in 2014, for some reason, the district government applies for location changing with themunicipal government on November 13. On December 9, the Huangpu District government decided to change the location to

“Bund Source” area from “Bund” area. December 26, Huangpu District Public Security Bureau agreed the Huangpu District tourist offices to hold the activity. On December 30, Huangpu District Tourism Bureau officially released in the New Year countdown event information without special alerts and publicities for the distinction between “Bund” and the “Bund source”.

2.1.2 In-event stage

In the evening of 31 December 2014, tens of thousands people gathered in Shanghai Bund, full of joy waiting for activity. They don't know the activity has been moved to another place. Since 20:00, the attendance of the Bund was rising. At 22:37, a large number of tourists rush into the viewing platform of Chen Yi Square after perimeter was broken. From 23:23 to 23:33, the downflow of people who wish to exit the viewing platform met the upflow of people who want to see the 5D lights, they stalemated in the middle of the stairs and finally formed a “surge”. At 23:35, someone who are in the bottom of the staircase was unbalanced fall, causing many other people fall and resulting in crowded stampede.

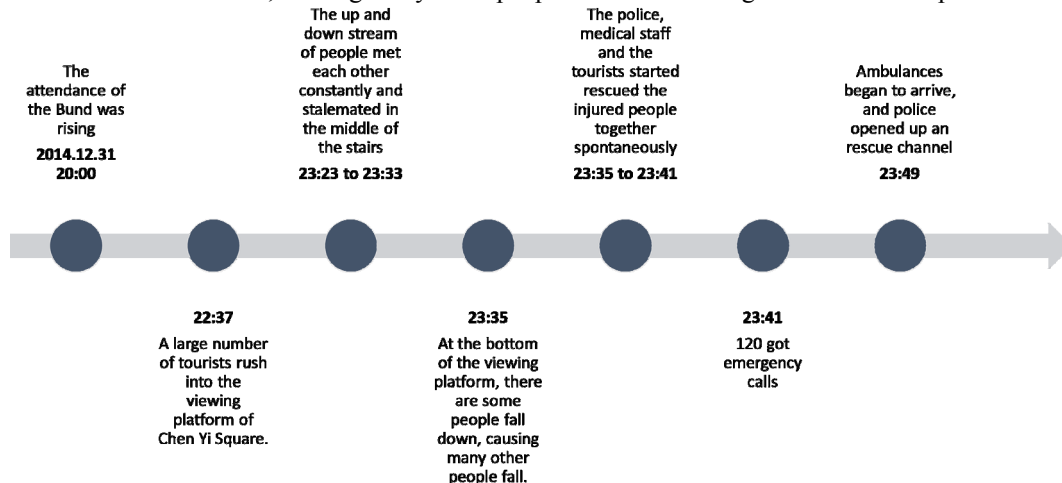


Figure 2 During-Event Stage of 2014 Shanghai Stampede

Police at the scene immediately tried to maintain order and medical staff and tourists tried to rescue the injured people together spontaneously. At 23:41 Shanghai “120” Emergency center began to receive emergency calls. Since 23:49, there have been 19 ambulance arrived Chen Yi Square. Shanghai and Huangpu Public Security Bureau quickly opened up an emergency channel for rescue.

2.1.3 Post-event stage

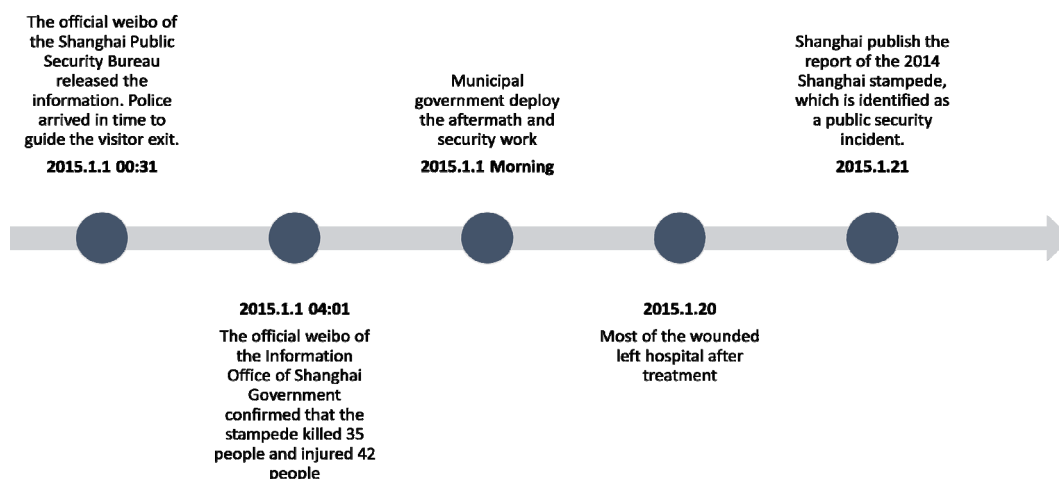


Figure 3 Post-Event Stage of 2014 Shanghai Stampede

At 0:31 on January 1, 2015, the official weibo of the Shanghai Public Security Bureau released the information. Police arrived in time to guide the visitor exit. At 4:01 in the same day, Shanghai Municipal Government Information Office official weibo confirmed the stampede, causing a total of 35 people

were killed and 42 others injured. In the same day's morning, the municipal government held a meeting to deploy the aftermath and security work after the accident. January 20th, 46 of 49 injured people left hospital after treatment. January 21, Shanghai publish the report of the 2014 Shanghai stampede, which is identified as a public security incident.

2.2 Cause analysis of 2014 Shanghai stampede

By analyzing the timeline of 2014 Shanghai stampede, we can see five factors that causes the accident:

(1) No risk assessment for the changing of New Year's countdown event

New Year countdown event has been held for three years in the bund scenic area and a large number of public visitors thought it will be last in 2014 without notice. Huangpu District government hasn't assessed the security risk of place-changing for the event. It leded resulting in a series misjudgments..

(2) Inadequate information publicity for the changing of New Year's countdown event

After the change of New Year's countdown event, the organizers should notice the public in advance. However, until December 30, Huangpu District Tourism Bureau was officially released the information that New Year countdown event will take place in the "Bund" instead of the "Bund source". It turned out that a large part of the tourists do not know the activity has changed Location.

(3) Lack of preparation for prevention

During New Year's Eve events in previous years, there are nearly 6,000 police near the Bund area. Police will maintain order at the scene and also conducted road blockade to limit the number of people. But at New Year's Eve 2015, there were only about 600 police officers. With the significantly reduce of police, the Bund area is free to enter without control. The crowd can easily aggregate and format stampede.

(4) No warning when Personnel flow changes be monitored

Since 20:00 to the time when the incident happened, the Bund scenic personnel flow rise. Faced with the gradual increase of the flow, site security department did not promptly report situation, but also failed to take effective measures to warning the public.

(5) Improper dealing with the accident

According to the increasing flow of tourists, with insufficient police force on site, Huangpu Public Security Bureau was only deployed few people as the adjustment. There is no effective measure, nor safety assessment.

3 Implications of 2014 Shanghai Stampede Incident

Public activities such as major cultural and sports activities, holiday gatherings are hard to assess the event risk, neither to ensure public safety. It is a worldwide problem. 2014 Shanghai stampede exposed the lack of domestic public safety governance. On the other hand, the incident also gave many revelations for domestic public safety governance in the future.

1) Develop an emergency plan for the event

A feasible emergency plan can ensure the preparedness and monitoring and early warning work go well. Additionally, when risk factors begin to accumulate or incident happens, emergency plan can also ensure the emergency treatment can be done.

2) Do risk assessment

Risk assessment is an important basic work to prevent the occurrence of unexpected events. At each stage of activities, risk monitoring and evaluation help us notice the potential risk factors in the activity scene.

3) Limit the participant

Stampede most likely to occur in crowded public places. Therefore, the event organizers must put enough manpower and material resources to limit the participant to strictly control the density of personnel within the grid area.

4) Monitoring the personnel flow and early-warning

Crowd stampede foundation is the large population density. To prevent the stampede, we should start from the crowd control. It based on personnel flow monitoring. When the monitoring data show that the flow of people will exceed the safety capacity of the site, we should take measures and warning the participant.

5) Effective information release

Government should notice public the exact location, time, and other relevant information of every

mass activities in advance via major media and make sure that there was no misunderstanding. If something is easily to get wrong, like “Bund” and “Bund Source” area, government should be more careful.

6) Enhancing the capacity of the police at the scene

Police at the scene is the most important power of emergency power. They should be sensitive for any risk factor and warning the public to get away from potential danger. When there is a chance to erupt a crowd stampede, police should have the ability to block the dangerous zone and evacuate crowd safely.

7) Improving public safety awareness and capacity

People's awareness of public safety, is not only knowing how to self-help when incident happen but also be sensitive to the potential risk. The most basic method of prevention of stampede is to avoid crowded places. When exposure to the crowded crowd and hear the sound of the alert, be calm and do not push others is the basic thing you need to do.

8) Strengthen coordination

Public security is responsible for easing and controlling the incident filed, rescue the wounded and medical personnel was responsible for treating the wounded. These works in the wide area are not difficult. But in the case of Crowd Stamped, rescue is often very difficult. Every department can only save life efficiently when they can be in an effective coordination.

4 Conclusion

Strengthening public safety management of urban public activities, constructing efficient preventive preparation, monitoring and early-warning and emergency rescue mechanism can ensure the safely urbanization of China. We can learn from the Shanghai Stampede that people must have good safety awareness of the public, try to avoid exposure to the crisis, learn to self-help and mutual aid at the same time. The relevant departments also need to cultivate good safety awareness of the public, to avoid the lack of preparation which can lead the incident happen. The increase number of the urban public activities should not be the reason for increasing number of Crowd Stampede. To make the city safe and the life better, government should continue to improve and strengthen the urban public security and social order governance. In that case, tragedy may become a revelation for a new start point of progress.

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The Research about the Emergency Management Thought of the Fourth Generation of Central Collective Leadership of the Party and State: By the Response to Major Public Health Emergencies as Example*

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Abstract: The emergency management thought of the fourth generation of collective leadership of the party and state has been mature gradually through response to major public health emergencies like SARS, Sanlu milk powder event and A (H1N1). This paper takes crisis management thought of the fourth generation of central collective leadership response to major public health emergency as example. Adopting case study method. Inducing and summarizing the emergency management thought and main content that include emergency preparedness thought with the emphasis on normalized crisis preparation, emergency early warning thought with the emphasis on information transparency, emergency rescue thought with the emphasis on the people-oriented concept, and post-emergency rehabilitation thought with the emphasis on restoring social order. And then putting forward the perfecting policy suggestions for major public health emergency management, so that provide ideological reference and theoretical reference for the new generation of collective leadership responding to major public health emergencies.

Key words: The fourth generation of central collective leadership; Major public health emergencies; Thought of emergency management

1 Introduction

When comrade Hu Jintao as the core of the communist party of china(CPC) and the state of the fourth generation of central collective leadership(FGCCL) was in power, many major public health emergencies has happened, such as SARS, Sanlu milk powder event(SMP), A (H1N1). Under the management of the CPC central committee's collective leadership, the response to all these events has made great victory, and the thoughts on how to response to the major crisis event has been more mature day by day.

Academics for the FGCCL thought of emergency management research mainly concentrated in the field of thought, thought content, thought subject these three aspects. In the field of thought, the thought with Hu Jintao as general secretary of the CPC central committee of natural disaster emergency management system of the construction always be discussed (Wang Yongbin, 2009; Hu Huan, 2013; Dai Gangshu, 2011). In terms of thought content, such feature of the FGCCL emergency management thought that summarized like Humanization, Scientization, Legislation, Internationalization, and Transparency(Qu Ting, 2012; Hu Huan, 2012; Huang Jiansheng, 2011).In the meantime, the three remarkable characteristic should be embodied in emergency management thoughts, which is time characteristic, national conditions characteristic, and system characteristic (Yang Lixin,2011).In terms of thinking subject, academic circles more is discussed in Hu Jintao's crisis management thought, who is the core comrade of FGCCL (Huang Xiaolin, 2008; Wang Qing, 2011; Wang Lingyun, 2012).To sum up, the academia for the FGCCL crisis management thought more focus in the field of natural disasters, while relatively few studies in the field of public health, in addition the research from overall the FGCCL of on its crisis management thoughts also does not see more.

So, following by the major public health emergencies as example to do some research on the main content of the thought of emergency management formed during the fourth generation leadership was in power, which is of important experience for the public health security work of Xi Jinping as general secretary of the CPC central committee leadership and our country's current public health emergency

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management.

2 Methodology

For the research on the fourth generation leadership crisis management thought, this paper adopts case study method. According to the level characteristics of major public health emergencies, we choose five typical cases, that is SARS, Fuyang inferior milk powder incident (FIMP), H5N1, SMP, and A(H1N1). All five cases are spread so fast, harm greatly, and influence wide. Besides, all they are particularly important or special major public health emergencies, which are typical cases concentrated reflect the emergency management wisdom of fourth generation of leadership. According to the disaster cycle theory (Mileti, 1999) and emergency management work requirements of the *Emergency Response Law of the People's Republic of China*(ERL), this paper shall adopt to such analysis framework of emergency management process as Emergency Preparedness, Emergency Early Warning, Emergency Rescue and Post-emergency Rehabilitation for the five cases. From the early stages of the fourth generation of leadership to response to SARS to their ruling late response to A (H1N1), for the fourth generation leadership case evidence of each phase of emergency management thought, this article is based on time sequence to show the development of his thought,by this way we induce and summary the crisis management thought and main content.

3 The Emergency Management Thought Content of the Fourth Generation Leadership

3.1 Emergency preparedness thought with the emphasis on normalized crisis preparation

In the emergency management practice of the FGCCCL, the thought which emphasized the normalized crisis preparation about emergency preparedness has been formed. Before the outbreak of A (H1N1), our country has established two sets of relatively perfect crisis management mechanism, that is command coordination mechanism and the legal safeguard mechanism. Since the SARS outbreak in 2003, six years had passed, we had formed command coordination mechanism from central to local. The ministry of health had established the national public health emergency expert advisory committee. Specialized emergency department had been set up at provincial and ministerial levels, and health emergency office had been founded in local grassroots. Top-down by the central government unified leadership and coordinated command. During the six years, China has promulgated *Regulations on Preparedness for and Response to Emergent Public Health Hazards*, *Master State Plan for Rapid to Public Emergencies*, *Emergency Response Law of the People's Republic of China*, *Regulations of the people's Republic of China on Government Information Disclosure*, etc. A set of comparatively complete legal emergency safeguard mechanism had been set up. On the principle of high attention, active response, joint prevention and control, statutable and scientific treatment. China actively carry flu prevention and control work, when the A (H1N1) raging abroad. Making plans to prepare, improving emergency supplies production and reserves, strengthening human A (H1N1) control techniques propagation mode and vaccine development, rapid diagnosis, clinical treatment methods to enhance the ability and level of scientific control. Since the establishment of the normal management of crisis management mechanism, the CPC and the government in response to A (H1N1) in stride.

3.2 Emergency early warning thought with the emphasis on information transparency

In the emergency management practice of the FGCCCL, the thought which emphasized the information transparency about emergency early warning has been formed. The social impact of SARS is so wide, a very important reason is that opaque epidemic information. Due to official conceals information, making social rumors, greatly hindered the epidemic control, Meanwhile that China has also suffered strongly condemned by the international community because of withholding information. Since then, the FGCCCL attaches particular importance to the communication of information in response to the crisis. According to *Regulations of the people's Republic of China on Government Information Disclosure*, China's epidemic information to establish a communication mechanism, including that establishing an international information exchange mechanism, establishing a national epidemic information release mechanism, and establishing local governments at all levels to perfect the epidemic detailed information disclosure system (Zhang Wenli, 2010). Information exchange mechanism plays an important role in the A (H1N1) outbreak control, at the same time, delivering transparent information Chinese government has won wide acclaim from the international community. Disaster information work will be throughout the entire process of crises, among this should paying special attention to information which high transparency in the alert stage. So as to provide a practical basis for the development of emergency management every step of the work.

3.3 Emergency rescue thought with the emphasis on the people-oriented concept

Comrade Hu Jintao at the 17th national congress of the CPC proposed the concept of scientific development is based on people-oriented as the core. And in the emergency management practice of the FGCCCL, the thought which emphasized the people-oriented concept about emergency rescue has been formed. Wen Jiabao made three important instructions in response to FIMP, which is incident investigation, the accident responsible to punish and rectifying the market order to ensure food security and people's health (People.cn, Apr. 22th, 2004). "For the people in charge of" requirements for responding to SMP was powerful. On the one hand, the Central People's Government of the People's Republic of China asked the children suffered calculus a free, timely treatment. On the other hand, Government requirements for the country's infant milk powder production enterprises to carry out comprehensive quality testing, and to implement for recalling system, rectifying the dairy industry. Universal vaccination of A (H1N1) effectively improve people's ability to resist disease. State Council executive meeting Sep. 7th, 2009 the emphasis on strengthening vaccine and antiviral stockpiles, actively and steadily good vaccination. Sep. 15th, 2009, People's Republic of China Ministry of Health issued *Guidance on the prevention of influenza A (H1N1) influenza vaccine in the fall and winter of 2009*. In the face of a catastrophic disaster for the people requires time to time, to maximize the reduction of people's losses, which is the people-oriented concept connotations.

3.4 Post-emergency rehabilitation thought with the emphasis on restoring social order

In the emergency management practice of the FGCCCL, the thought which emphasized the restoring social order about post-emergency rehabilitation has been formed. An important guarantee to restore social order is to continuously improve the social system, which the legislation is one of an important way. After SARS, China's established emergency response legalization construction direction. Premier Wen Jiabao speech that, for the effective prevention and timely control and eliminate hazards to public health emergencies, and China is an urgent need to establish a unified, efficient and authoritative public health emergencies emergency response mechanism, perfect relevant laws and regulations, which in the "Implementation of the *Regulations on Preparedness for and Response to Emergent Public Health Hazards* forum" (People's Daily, May. 16th, 2003). China in the post-emergency rehabilitation stage of SARS successively promulgated the *Regulations on Preparedness for and Response to Emergent Public Health Hazards* and *Management Method for the Prevention and Treatment of Infectious Atypical Pneumonia*. Then the SMP also contributed to revise and perfect the food safety legislation. Another important way to restore social order is to recover industry production. The source of infection of H5N1 from poultry, therefore, the poultry industry suffers major blow, then the production of the poultry industry recover to get the attention of the FGCCCL. For poultry production and market recovery, Hui Liangyu made important instructions that, intensify policy support to maintain the health of poultry and its products normal circulation order, to actively promote the breeding pattern change, and promote the sustained and healthy development of the poultry industry (People's Daily, Nov. 7th, 2005).

4 Conclusion and Discussion

Through the analysis of five typical cases, clarify the connotation of the fourth generation leadership of crisis management thought that include emergency preparedness thought with the emphasis on normalized crisis preparation, emergency early warning thought with the emphasis on information transparency, emergency rescue thought with the emphasis on the people-oriented concept, and post-emergency rehabilitation thought with the emphasis on restoring social order, which is of great experience to our country current emergency management policy-making, and help to further promote the government emergency management ability.

4.1 Perfect the normalized construction of emergency preparedness

The emphasis of emergency preparedness work is through the rational allocation of people, goods, content as well as the scientific and reasonable analysis of system, technology, information so that full and deadly preparations are made for the next crisis management. One Case and Three Systems (OCTS) as the core of emergency management system has been fully improved the emergency preparedness capacity in our country. But there are still many problems of it, including the legal construction, which has always been the weak item in the system. Perfecting emergency legal system developments is extremely urgent and necessary, and the perfection of legal system cannot leave with summarizing experience and lessons of each public crisis response. Perfecting OCTS as the core of emergency management system is necessarily to be a long-term and arduous task, and which also helps to perfect the normalized emergency preparedness.

4.2 Enhance information transparent awareness in emergency early warning

The key emphasis in work of emergency early warning stage is the disaster information, besides, promptly collecting, sorting and analysis of disaster information are important. So improving leaders' information high transparent warning awareness is very necessary. On the one hand, leaders need to improve awareness of emergency. The government leaders must identify crisis in development from vague, ambiguous and contradictory signals. They must have an accurate assessment to the threat of disaster and find out what kind of crisis to limit the crisis may lead to harm (Arjen Boin & Paul Thart & Eric Stem & Beng Sundelius, 2010). On the other hand, we need good information communication mechanism. Such relationships as the Domestic and the Abroad, the Central and the Local, the Government and the Nongovernment, in the communication of information are required to deal with. The media information must achieve industry self-discipline as well as government supervision so that rumors caused by the error message which will increase the difficulty that crisis management work can be avoided.

4.3 Highlight the people-oriented concept in emergency rescue

Emergency rescue work should be first to control the losses of people and objects in time. The next step is to gradually control the expansion trend of disaster until eliminating crisis. From Marxist theory to Mao Zedong thought and a series of theory which belongs to the sinicization of Marxist theory, and then to the FGCC of the concept of scientific development, to today's China Dream, people-oriented has always been the foundation of CPC ruling. In the whole stages of crisis especially pay special attention in emergency rescue phase, getting rid of the crisis must be put in priority position, the interests of the people must be placed in the front. Emergency rescue must closely around the interests of the people, must be responsible to the people, which is the core principle to all emergency response measures and emergency response actions.

4.4 Guide the restore social order in post-emergency rehabilitation

Post-emergency rehabilitation priority is to reach people and materials as well as the order recovery, and the restore of social order is extremely difficult. In order to reach the recovery of the social order, we should guide the boost of the social confidence, including the boost of confidence in personal life as well as in the government and the market after a disaster. Timely and effectively recovery also helps to boost social confidence. The concrete actions are to actively guide the recovery of industry production through policy support, industry itself, the recovery of industry consolidation and other means. By the meantime, we should summarize the experience of responding the disaster and dealing with the rest problems to actively guide the revise of social system.

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Exploring Investment Risks for Chinese Manufacturing Industry in Bangladesh

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Abstract: The explanatory power of institutional and macroeconomic variables for capital stock accumulation and related risks in Bangladesh is investigated. In addition, the risks of foreign investment in Bangladesh have been explored for Chinese manufacturing companies those are going to invest in Bangladesh or developing country. Hypotheses are tested by means of pooled least squares regressions to support the logic of associated risks for investment. The results found that the institutional variables such as political risk and macroeconomic variables are strongly relating the risks for investing in Bangladesh. To invest in developing country like Bangladesh, inflation risk, operational risk, and appreciation of host country's currency, and lower inflation rate stimulate the investment risk for manufacturing company. It is well established that foreign investment company must conform to mitigate strategically those risks in the host country in order to remain competitive.

Key words: Investment risk; Manufacturing investment; Country risk; Developing country

1 Introduction

Investing in any country, there have risks associated with return of the firm's investment. Countries differ on a wide range of attributes which may influence firm performance. Investment flows to developing countries dramatically increased; Bangladesh is not also beyond of that part of risks. Recently, China's direct investment in Bangladesh has also grown significantly in the recent years where Bangladesh is increased by 24.42% to USD 1.13 billion in FY 2012. Investment inflows into Bangladesh by Chinese investors are 53% in Textile and Wearing; 31% in manufacturing (Source: Statistics Department of Bangladesh Bank). So textile and manufacturing industry is the thrust sector for Chinese investors' investment.

The advantages for multinational corporations investing in foreign countries have been explained by theories such as stages in the product life-cycle, location-specific advantages, and strategic rivalry, the shortcomings of other entry modes such as exporting and licensing (Knickerbocker, 1973; Vernon, 1966: 211-226; Dunning, 1988). This study is going to analyze of the factors that drive direct investment to Bangladesh and associated risk factors. Multinational companies are entering foreign markets to adapt their overall strategies to environmental conditions in host countries. Faria and Mauro (2004) concludes that a variety of factors stimulate foreign investment in developing and emerging markets, sound macroeconomics, natural resources, institutional quality and educational levels.

Empirical research on investment using the institutional approach has mostly emphasized the impact of incremental risk, e.g. political risk (Bailey & Chung, 1995), bilateral investment treaties (Heinrich & Konan, 2001), corruption (Jain, 2001), trade regulations, capital market. Events like the end of the Cold War and developments like globalization have led to broad institutional changes in political economies, including market and economic liberation and democratization. The first reduced barriers to international trade and investment; the latter created a business environment attractive to FDI inflows owing to higher levels of transparency, continuity and predictability. If episodic changes address opportunity, then incremental changes, or even the lack thereof, refer to threats or risk. Slow changes to political instability (macro-political risk) and intrusive market regulation (micro-political risk) remain at the heart of the risk profiles of host countries (Howell & Chaddick, 1994: 70-91; Root, 1972: 345-365; Fatehi & Safizadeh, 1994: 65-73; Kobrin, 1976: 29-42).

The rationale for this paper is threefold: first, the analytical focus will be on developing countries, then determining the risk factors for Chinese manufacturing company in Bangladesh. Finally, this paper implies to investigate the risk and mitigate the risks for foreign investment development in Bangladesh.

2 Literature Review

The liberalization of trade and the spread of the free market philosophy have created business opportunities; it led to firm activities like acquisitions, mergers, and green field investment in host country investment markets. The spread of representative and accountable to political governance in

developing countries has lowered instability and strengthened investment confidence in the emergence of more transparent business environments (Rafael, Luiz & Flávio, 2011). Moreover different types of risks effect on the investment of any country. Chinese investment in Bangladesh is concerning in risk factors and country institutions policy. In literature review, we have discussed in terms of the different types of risk and factors of risk those are associated with the investment of Chinese company in Bangladesh and constitute the hypothesis for this research paper.

Political risk not only constitutes a threat for multinational enterprises but can also be a source of opportunities. For foreign investors, the primary concern about political risk (PR) in host countries is the adverse impact it may have on a firm's profitability. Exposure to and accumulated experience dealing with political risk allows firms to better implement a wide set of political actions such as negotiation of entry conditions, lobbying, litigation, campaign contributions and coalition formation, leading to preferential conditions, reduced environmental uncertainty, reduced transaction costs and increased long-term sustainability to the firm (Alfredo, Isabel, Diana, 2014). These advantages facilitate investments in countries with higher and more diverse levels of risk and make political risk to be positively associated with the firm's scope of internationalization. The literature indicates that PR is an impediment to investment and those foreign companies are more likely to avoid host countries with a high political risk profile (Erramilli & Rao, 1993) and higher transaction costs (Nigh, 1985; Schollhammer & Nigh, 1984). Grosse and Trevino (1996) and Bailey and Chung (1995) attribute this to the inability of host countries to reduce political risk as well as their failure to alleviate investors' uncertainty about unanticipated costs and reduced ROI associated with long-term capital investments.

Razin (2003: 415-428) argued that direct investment in more risky countries provides firms with direct control over operations rather than relying on indirect control, e.g. licensing or exports. Pan (2003) and Pan and Li (2000) show that investment inflows into China, despite the country's high political risk profile, is driven by long-term strategic advantage rather than short-term risk exposure. Companies those are investing in developing country face a range of operations risks (OR). operations risks is common in countries that have no clear, accurate, easily discernible and widely-accepted practices governing the relationships among firms, investors, governments and courts. This refers to micro political risk, i.e. government policies aimed at market restriction (Balasubramanyam & Mahambare, 2002). According to Kurtzman, Yago and Phumiwasana (2004), operations risks is largely informed by opacity, i.e. insidious and incremental small-scale risks like fraudulent transactions, bribery, legal and regulatory inefficiencies, unenforceable contracts and negative attitudes towards foreign investors, rather than dramatic risk events (macro political risk) like revolutions, major acts of terrorism, interferes with commerce, adds costs and interfere the growth and hampers prediction about the future. The developing world characterized by fragile democracies and markets, there is macroeconomic instability. Risks include instability of prices, interest rates, exchange rates, and economic output, as well as unemployment. Inflation is caused by excessive growth in the money supply. Companies invested less in developing countries like Bangladesh with high inflation rates (Schneider & Frey, 1985). Grosse and Trevino (2005) found that inflation did not add significantly to the explanation of FDI flows into the CEE countries.

Currency valuation may impact on MNE's decision to invest in developing country in various ways. Currency depreciation introduces uncertainty in long-term planning and exposes long-term investment to increased risk. Erdal and Tatoglu (2002) found, in a study of locational factors on the level of FDI flows to Turkey, that the lack of exchange rate stability hindered Turkey's efforts to attract a much higher volume of investment. Esuola and Adeleke (2006: 219-224) found that exchange rate is the strongest macroeconomic driver of capital inflows in Nigeria. The impact of capital investment on DCs' balance of payment (BOP) is an important policy issue for most host governments. Reinvesting in local manufacturing facilities may also improve the competitiveness of local producers and boost a host nation's exports, thereby improving its BOP position (Wild, Wild & Han, 2006).

3 Methodology

The dynamic nature of foreign direct investment or Chinese company's investment in Bangladesh activities lends itself to time-series analysis as a robust way of capturing trends in multinational enterprises investment choices. To capture a sufficient number of observations, we choose Chinese investment in manufacturing sector in Bangladesh of last nine years (2005-2014) investment panel dataset. We have observed 127 companies for our sample data set most of the companies are textile and lite machineries. To examine the causes of Foreign Direct Investment (FDI), we postulate the following:

FDI = f(Market size, Rate of Growth of GDP, Inflation Rate, Current Account Balance, Exchange Rate, Political Risk, Operational Risk, Economic Freedom)

Based on our initial estimation results, we decided to use the log-linear functional form to estimate the causes of FDI. Finally, we have used our formula to find the risk factors results as below:

Log(Investment of Chinese firm)=constant + alog(G05 or PCG14) + blog(GDP) + clog(CPI) + dlog(CB) + eelog(ExR) + flog(PRISK) + glog(OPRISK) + hlog(EF) + error term

Where, Exchange rate denotes as Local currency per US\$: ExR; Political Risk as PRISK; Operational Risk as OPRISK; Economic Freedom as EF; Inflation Rate as CPI and Current Account Balance coded as Export of Goods and Services /Imports of Goods and Services: CB

The advantage of using log formulation is that it enables easy interpretation of the data as coefficients associated with independent variables or parameter estimates measure respective elasticities.

4 Result Analysis

As stated in the introduction, the objective of this analysis is to examine whether the level of capital investment inflows into a panel of developing country may be attributed to institutional and macroeconomic variables and to explore the risk variables for Chinese manufacturing companies those are investing in Bangladesh. To determine the presence of multicollinearity, correlation was run with the independent risk variables and autocorrelation is tested for testing the hypothesis of risks variables.

Table 1 Regression Output of Models

Variable	Coefficient	T-Statistic	Probability
Log(PCG)	0.50*	2.02	0.04
Log(GDP)	0.31*	4.19	0.00
Log(CB)	-0.09	-0.98	0.33
Log(ExR)	-0.13*	-3.01	0.00
Log(PF)	0.02	0.33	0.74
Log(EF)	0.36**	1.72	0.09
AR(1)	0.95*	67.54	0.00
R Squared	0.96		
Adj R squared	0.96		
Durbin-Watson Stat	1.81		
Total Observations	127		

*Significant at 5 percent level

**Significant at 10 percentage level

As outlined in correlation analysis, we found that two independent variables are indeed strongly correlated. PRISK is strongly correlated with another institutional variable, OPRISK. OPRISK was therefore omitted from our analysis. We also found a positive correlation between ExR and CPI. Hence, we have one or the other in our estimation. However, Commercial political and operational risk assessments differ in their prowess to predict risk (Howell & Xie, 1996). So, for Chinese manufacturing firm, those risks are strongly correlated for investing in Bangladesh. As outlined in correlation analysis, we found that two independent variables are indeed strongly correlated. PRISK is strongly correlated with another institutional variable, OPRISK. OPRISK was therefore omitted from our analysis. We also found a positive correlation between ExR and CPI. Hence, we have one or the other in our estimation. However, Commercial political and operational risk assessments differ in their prowess to predict risk (Howell & Xie, 1996). So, for Chinese manufacturing firm, those risks are strongly correlated for investing in Bangladesh.

In Table 1, we present the best estimation results. We used pooled least squares and, to take care of the problem of autocorrelation of first degree, we added AR (1) term to our model and finding the significance of risk variables for Chinese Investment Company. A number of important results were obtained.

First, market size, measured as per capita GDP, in the base year 2005 leads to higher inward investment. The coefficient is significant at 5 per cent level. The findings indicate that the initial size of

the market is more important than the rate of GDP growth.

Second, higher ExR leads to lower inward FDI. In other words, depreciation of the local currency (host country) or appreciation of US\$ (as measure of home country currency) leads to lower inward FDI. As indicated above, high collinearity between ExR and CPI led us to estimate only one of the two independent variables at a time. Collinearity between ExR and CPI is to be expected, as *ceterisparibus* higher inflation rate should lead to the depreciation of its currency. When CPI was used in place of ExR, a higher percentage growth in CPI or higher inflation leads to a lower inward investment. The coefficients for both ExR and CPI were significant at 5 per cent level. Higher inflation rates in host countries will lead to lower investment in Bangladesh from any country.

Finally, the findings also confirm that a deficit on the current account of the Balance or payment of host countries will have a negative impact on capital inflows. However, the correlations were not measured at a significant level. Because of its high collinearity with PRISK, institutional change, on the macro political, bureaucratic and economic levels, points to the strengthening of the investment climate investment country. This finding is consistent with previous studies related to the market disequilibrium in DCs (Grosse & Trevino, 1996; Klein & Rosengren, 1994). It is also in line with location theories of FDI that weaker currencies in host countries lower the costs of investment factors like capital, taxes and operations (e.g. labour, facilities) (Dunning, 1988).

5 Conclusion

The findings provide some support to assessment of risk related to investment in Bangladesh. It implies that such related risks would need to be cared when Chinese manufacturing companies invested in Bangladesh. They also imply that country-level efforts to attract capital investment will favor governments in Bangladesh with strong institutions, i.e. sound monetary policy, liberalization of institutions that reduce uncertainty and foreign direct investment-related transaction costs for foreign investors, as well as a level playing field for both foreign and domestic investors. Also that commercial political and operational risk assessment differs in their prowess to predict risk (Howell & Xie, 1996). Others have pointed to the limitations of the qualitative or subjected indices of political risk assessment (Cosset & Roy, 1991; Oetzel, Bettis & Zenner, 2001). At the end, managers should develop an integrative risk management strategy based upon various sources, whether outsourced or developed in-house. Risk assessment should involve managers from both the parent and subsidiary levels of the firm.

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Guiling New Music and Tian Han During the Anti-Japanese War

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Abstract: New music movement launched by the Communist Party of China (CPC) is very important in the history of music in modern and contemporary China. The art to eulogize the country developed slowly in KMT-ruled area at 1940s, the time of Stalemate stage. Guiling has become the important area to develop the new music. This paper based on the literature and used the method of historiography, and this paper discussed the contribution made by the Tianhan. According to the reference of CPC, Tianhan leads the career of promoting the new music, assists to develop Guiling new music, and takes part into compose the new music.

Key words: Tianhan; Guilin; New music; New music group

1 Introduction

New music movement launched by the Communist Party of China (CPC) is very important in the history of music in modern and contemporary China. The art to eulogize the country developed slowly in KMT-ruled area at 1940s, the time of Stalemate stage. Guiling has become an important area in the new music development. Dramatist Tian Han related deeply to the new music movement; is the sponsor and the leader of the music group “Friends Of the Soviet Union” and the Left-wing Dramatists Association, and the tutor of Nie’er and Zhangshu, the delegate musician of new music movement. After the outbreak of the Anti-Japanese War, Under the leadership of Zhou Enlai and Guo Moruo, he “trained out artist soldier of three thousand”¹ in Wuhan. He is a forerunner to concern the development of new music in the time of the anti-Japanese war. Tian Han frequented in Guiling 3 times after the outbreak of the anti-Japanese war, during the periods respectively from Apr. 20. 1939 to Sep. 21. 1939; between the Feb. and the Mar. 1940; and from Aug. 23. 1941 to Sep. 1944 (*Xiang-gui retreat*)⁴^[1], his words and behavior has a deep significance to the development of Guiling anti-war music. There are lots of research on the Left-wing Union and Guiling anti-war art, and on Tian Han together with Guiling anti-war drama. However, much attention was not seen in the researches about Tianhan and Guiling anti-war music which have effect on the Guiling “New music movement”. In my opinion, During the Anti-Japanese War, Guilin is an important fortress in the “New Music Movement” led by CPC, and Tian Han played an important role in that development.

2 Guilin is the Place of Strategic Importance on the “New Music Movement” During the Anti-war.

Before we talk about the relationship between Tianhan and “New music” in Guilin, I think I should reiterate that Guilin is the place of strategic importance on the “New music movement” launched by the Communist Party of China in KMT-ruled area during the anti-war.

After Wuhan was occupied by the enemy, Zhou Enlai arrived in Guilin three times during Dec. 1938 to May. 1939, and he implements the party's united front policy, makes the reports to insider and outside the party, and meets and encourages the people of literary and art circles, he also take part to organize anti-war cultural movement. He points out the orientation. The Communist Party of China has led consistently the art career in Guilin. The Office of the Eighth Route Army in Guilin has been established, which leads the business of New Cultural in about 2 years until the Jan. *National salvation daily* Founded in Jan.10 1939, and it acted an important publication in this time with powerful promotion. After the Southern Anhui Incident, The Office of the Eighth Route Army and *National salvation Daily* retreated one after another. The united front committee lead the business of revolutionary art work in Guilin, and the association of literary and art circles to resist the enemy Guilin branch is an organization in Guilin art circle launched by the Communist Party of China, and it is the

¹ excerpted in the poetry written by Tao Xingzhi, Comes from Wuhan, living on Wuhan, trained three thousand artists, Tianhan is a good man, drink up the last drop wine, stick to the last minutes; toast three wine at the mid-autumn festival, and celebrate the exciting news.

core of the literature and art organization in Guilin and the sign of the foundation of the united front in Guilin art circle.

The Deployment of the new music movement is the screws of the machine of revolutionary work in this background. The national government military commission the political department of the third hall retreat to Guilin to reorganize in Guilin. at the same time, many artists were reserved at Guilin. In addition, the third hall included in art group is also the important place, and these groups are also the part of *new music movement* launched by the Communist Party of China. When we talk about *the New Music Associations*, *New Music Monthly* is inevitably to be talked. However, the foundation, development of the association and the publication, the prosperity of the paper relate to the Guilin. *New Music Monthly* was published in Jan.1940, there are Vol.5, Phase 29 during the anti-war, which is hosted by Lilin and Published in Guilin. Stop publication happened in Aug. 1943. This newspaper provides many songs, and it became the base to carry out the discussion of music theory, which issued about Thirty thousand. It has the most huge Volume of sales and the most influence. *The New Music Associations* established by Lilin, which aims to associate all people, to set up branch and to improve the New Music Movement.^[2]So, *the New Music Associations*, *New Music Monthly* provide the support to develop *New Music Movement* during in the anti-war.

In conclusion, Guilin is the place of strategic importance on the “New music movement” launched by the Communist Party of China in KMT-ruled area during the anti-war.

3 Tianhan and his Activity of Anti-war Singing Song in Guilin

Frequented three times in Guilin during the Anti-Japanese War, Tuian Han, focused his attention mostly on drama. Though the things are like that, his music activities during this period are not to be ignored by our music theory field. The following fact is not to be neglected. That is, he also mostly possibly participated in the Anti-Japanese Song-sing activities in Guiklin and is a sticker and leader at that difficult time.

On May.7.1939,Tian Han presented the award presentation ceremony of anti-war song-singing held in Guangxi province and wrote the article *Drama, Opera and others*, which praised enthusiastically the achievement in Guiling Anti-Japanese War Song-singing and the musician Wu Bochao. The article reads: “Today people as well as army need very much music. They like very much music. These popular songs ,and the children songs-singing movement in peculiar, due to the many musicians and instructors like Wu Chaobo especially those kinds of anti-war art. These activity hold by musicians like Wu Bochao, has achieved a very considerable achievement.”^[3] And then, cooperated with Wu,wrote *‘July 7’ to memorize two-year anniversary tribute song*; for the commemoration of 2-year Anniversary of “July 7” Song-sing Meeting, calling the people “to devote ourselves for the victory of tomorrow!” and he also co-operated with Anti-Japanese Union and composed *new solider songs*.

The most successful activity which Tian organized is Southwest Drama Show. 1944, the seventh year of Anti-Japanese War,the hardest period, Tian Han, together with other artists like Ouyang Yuqian successfully held the Southwest Drama Show at Guilin. During 90 days,this activity has viewed roundly thedrama, opera and music since the outbreak of the anti-war, at the same time, which leads the climax of anti-war art in KMT-ruled area! This activity has a great significance onto the drama-circle, and it is the same to the music-circle. The festival opens in a warm atmosphere and lasted till to the May, Tian Han wrote for the festival and acted as the judge. In June, he initiated in establishing The Propaganda Committee of Guilin Cultural Circles for Expanding Anti-Japanese War Mobilization to set up the propaganda week of Defend the south-west (June 14-20), he also set up music day: and the sound of the patriotic was spread on the street, tea bar, radio station, music hall in Guilin. Guo Moruo said Flag was extended everywhere, as like heavy rain in the three days, and Shouchang is the Pioneer both in the theatre and in the cultural circles.^[4]

4 Tianhan and the New Music Associations, New Music Monthly

When we talk about *the new music movement*, we must refer *the New Music Associations* and *New Music Monthly*. So the young and inexperienced Liling started to establish the publication from Yanan to Chongqing, and sought advice from Tian Han to learn how to establish a publication, and organized song-singing movement around the country; the first issue of *New Music Monthly* was published in 1941, Tian Han, Huang Luofeng, Liling were present, and they invited the musicians in Chongqing like Zhang Hongdao, Jiang dinxian, Miu Tianrui, Li Baocheng, Chen Tianhe, Li Yuanqin, Fan Jiseng, Liu Xuean to take part in the meeting, Tian Han made a speech to call upon everyone to unify; thereafter, Tian Han

always provided help to Liling in *the New Music Associations* and *New Music Monthly*. For example, he agreed with Liling to set up *the music school communication*, which was a help to develop the art skill. He also argued that “we should choose some people from our team, and send them into school to learn and to develop their art literacy”, as the result, the conductor Yan Liangkun, the composer Wang Zhengya, the singer Huang lie, Xu wei, Zhang yun were all sent into Chongqing Qianmuguan National Conservatory.^[5]

Furthermore, Tian Han led lots of musicians who endorsed the new music to memorize Nie'er and Zhang Shu. The death anniversary of Nie'er in Jul.7.1942; *the Wild Festival* to memorize three years death anniversary of Zhang Shu in Dec.12.1942; *the Rally Commemorate* to souvenir eight years death anniversary of Nie'er in Jul.1943 and so on. These commemorate activities are to interpret Nie'er and Zhang shu's paths, and to interpret the thought and the significance of new music movement.

5 Tianhan's Songs Composing in Guilin

The Guilin period was the high time of Tian Han's creative activities. One of the features in his drama writing is the adding of the new music into his dramas. Tian Han also composed lots of dramas which are related to the historical background and historical circumstances, such as the modern opera *Jianghan fisherman's song*, the drama *Ode to the Autumn Sound*, *Roar! Guilin* and so on.

In the dramas Tian Han paid much attention to the combination between melody and plot. The melody has become the systematic part of the whole drama, and it is the confessions of the character. Like the songs *Lijiang chantey*, *Shoeshine song*, *The Song of the Fallen Leaves*, *Xiaoxiang Nocturne*, and *Ying Heqiu's Sonata*, these are all excerpted from the drama *Ode to the Autumn Sound*. And the theme song like *Welcome back! Hong Kong, always stand together are all speared within Guilin even in the KMT-ruled area* intellectual, which also lead the singer Yaomu¹ going into the road of song-writing. In addition, Tian Han also concentration on the drama *Roar! Guilin*, which includes six songs, they are *wake up! rear areas*, *Contributions song*, *Lakeside month*, *the flower song*, *song for the second front*, and *Roar! Guilin*, written by Tian Han, An'e and composed by Feike, Wang Tiandong. The lyrics are very Passionate and epic. The release of the drama mobilize the messes, it was called “*A bomb thrown into the citizen in Guilin!*”^[6] These compositions combine the music with the plot instead of drama adding singing, and they enhance the cultural meaning of the song as well as rich the drama itself.

6 Conclusion

Hengyang was lost at Jun. 27. 1944, and two days later, Tian Han organized *Guilin Cultural Anti-war Working Association* to follow the method used by Shanghai at the early period of anti-Japanese War to set up a propaganda. Beside above, Tian Han was the last one to retreat until the government announce the last evacuation order, which could be called the last artist. At the third time Tian Han arrived in Guilin, there happened the Southern Anhui Incident. Also that time was also his Guilin cultural and art career turn into bottom. It makes people to ponder about, that Tian Han, which was called the democratic personages by KMT, would come to Guilin. And the influence he brought about also let us to research seriously. Although Tian's activities in Guilin are less than Wuhan in the early years of anti-Japanese War, they have the same significance. This kind of significant influence is both to Guilin cultural and to the new music movement. He grasped fully the united front policy set by party during the anti-Japanese War. He played the key function to maintain the Party's rule, he protected the Party's art troops, and he reached a climax of Guilin anti-Japanese War art movement again and again during the hard time. In composing, he combined the current situation with art to interpret the enthusiasm and confidence of winning the war which people have, this king of anti-Japanese War musical thoughts is just the goal the “new music movement” seeks.

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The Coupling Mechanism and Decoupling Strategies of Safety Risk in Airport Flight Area *

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Abstract: The main factors of safety risk in airport flight area include personnel factors, equipment factors, environment factors and management factors. Using system dynamics model, the coupling mechanism of multiple risk factors, especially the coupling path between the airport flight safety risk factors, is discussed. Combined with the actual situation in the airport flight area management, the decoupling strategies for airport flight area safety risk are put forward, so as to enhance the level of airport security management, effectively protect the security of civil aviation.

Key words: Airport flight area; Safety risk; Coupling model; System dynamics; Decoupling strategy

1 Introduction

Airport flight area is the special field for airplanes takeoff, landing, taxiing and parking, including runway, lifting belt, runway end safety area, taxiway, apron and area around airport with limited obstacles. With the development of air traffic, the pressure of the safety management of civil aviation airport in our country is increasing, and the safety risk management is urgently needed to be strengthened. In practical work, the occurrences of airport flight area security risks are not caused by a single factor, but one factor often inextricably linked with others, which leads to the coupling mechanism between these risk factors.

The domestic and foreign scholars have carried out researches about airport safety risk management, designed the risk assessment index^[1-2], and discussed the methods of risk evaluation^[3]. The research team in Wuhan University of Technology chose four representative airports in central-southern China, conducted questionnaire to 208 airport personnel. Main safety risk factors of airport flight area were extracted through exploratory factor analysis and confirmatory factor analysis, including human factors, equipment and facilities factors, environment factors and management factors^[4]. There are few domestic and foreign scholars researching on aviation safety risk coupling mechanism, Liu Tangqing analyzed constitution and coupling relationship of air traffic safety risk^[5], but none of the research results is about airport security risk coupling mechanism. As to decoupling control strategy, Yang C designed an intelligent controller based on expert rules and fuzzy control to realize the compensation decoupling between coke oven^[6]; Hunt J K designed multivariable decoupling control scheme, combining PID neural network with RBF fuzzy neural network^[7]. However, these studies were not involved in decoupling control strategy of the security risk coupling. In this paper, the safety risk factors of airport flight area are selected as the research object, the coupling mechanism between the main factors is discussed and the decoupling strategies are put forward.

2 Connotation of Flight Area Safety Risk Coupling

The security of airport flight area is affected by both internal and external environment, especially by the impact of growing traffic flow leading to great uncertainty, which makes it faced with the complex and changeable risk. In the safety management system of flight area, the security risks of various subsystems are constantly evolving, conducting, or spreading, the mutual influence and interaction between subsystems has a combined effect, changing the flow and characteristics of safety risk, and this combination effect is called the coupling effect. The forms of coupling interaction are not the same, the matching degree between the risk factors and the correlation degree of the system function nodes are different, thus there are different coupling states resulting in different influence to the flight area safety risk. From a macro point of view, coupling of airport flight area safety risk is in a dynamic evolution in the civil aviation safety management system, having a direct impact on the security level of airport. From the meso and micro perspective, the coupling of risks exists in the internal system of the flight area, such as the coupling of management factor and human factor and etc.

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3 Flight Area Safety Risk Coupling Mechanism Based on System Dynamics

Influenced by the nonlinear complex factors, the security risk management system of the airport flight area is dynamic, which is suitable for the study of system dynamics. The system dynamics model decomposes the system according to the internal characteristics, which is divided into several interrelated subsystems. Using system dynamics to study the main risk factors affecting the safety of airport flight area, each risk factor is divided into several sub systems, mutual relationship between the main risk factors and between each subsystem was set up, the causal loop diagram of interaction was depicted, and on the basis of reasonable inference, a SD model of safety risk management in flight area was constructed. According to the coupling situation, the security risk of the flight area is divided into the coupling of two risk factors and the coupling of multiple risk factors; this paper mainly analyzes the latter one.

Multiple risk factors coupling refers to the risk caused by coupling of any three or more than three in four factors of security risks in airport flight area, that is, human risk, equipment risk, environment risk and management risk. The human- equipment- environment risk coupling, for example, one path is: the change of social environment → ineffective team cooperation → human factor risk → low work performance → lack of professional ability → lack of risk identification → management factor risk → ineffective risk control → security risks in the equipment → equipment factor risk. See Figure 1.

Multiple risk factors coupling includes human- environment- management risk factors coupling, human- equipment- environment risk factors coupling, human- equipment- management risk factors coupling, equipment- environment- management risk factors coupling, human- equipment- environment- management risk factors coupling, as shown in Table 1.

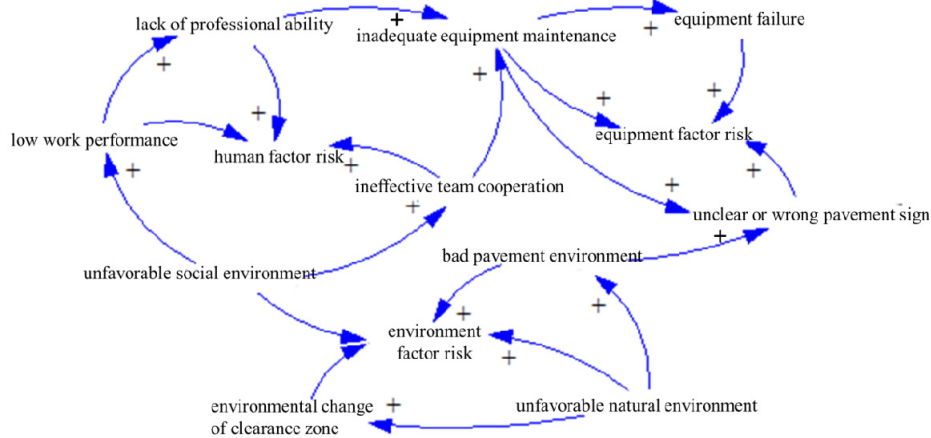


Figure 1 The Coupling Relationship Between Human Factor Risk, Equipment Risk and Environment Risk

Table 1 The Coupling Relationship of Multi Risk Factor of Field Service

Coupling factor	Risk coupling path
Human-equipment-environment coupling risk	Unfavorable natural environment → bad pavement environment → unclear or wrong pavement sign → equipment factor risk; unfavorable social environment → ineffective team cooperation → human factor risk
Human-equipment-management coupling risk	Management factor risk → lack of risk identification → insufficient risk assessment → ineffective risk control → unclear or wrong pavement sign → equipment factor risk; incomplete institutional construction → low work performance → human factor risk → lack of professional ability → insufficient risk monitoring → inadequate equipment maintenance → equipment failure → equipment factor risk
Human-environment-management coupling risk	Change of natural environment → change of social environment → ineffective team cooperation → human factor risk → low work performance → lack of professional ability → lack of risk identification → management factor risk
Equipment-environment-management coupling risk	Unfavorable natural environment → ineffective risk control → management factor risk → insufficient risk monitoring → flight area system failure → equipment factor risk
Human—equipment—environment—management coupling risk	Change of social environment → ineffective team cooperation → human factor risk → low work performance → lack of professional ability → lack of risk identification → management factor risk → ineffective risk control → security risks in the equipment → equipment factor risk

4 Decoupling Strategies of Security Risk in Airport Flight Area

In contrast with coupling, decoupling is to deal with the problems by using some methods to separate the coupled motion form or system, and the tight coupling relationship can be transformed into a loose coupling relationship to reduce the relative density of the related system. Scholars have discussed the methods of inertia decoupling, elastic decoupling and excitation decoupling. Inertial decoupling essentially belongs to the pre control decoupling principle, the decoupling term is added in the process of risk coupling to reduce the strength and speed of risk coupling, or the risk coupling chain is blocked by decoupling term, thus coupling and spreading of risk is effectively controlled. For example, two kinds of risk factors are coupling, one of which meets the decoupling item when flowing in the risk chain and the decoupling item will block the risk flow. If the risk is within the scope of the decoupling control, it will disappear; if not, the risk will be weakened. When both of the risks are decoupled from the intervention, the possibility of risk coupling is reduced. Just like that, when multi risk factors coupling encountered decoupling, it will happen, so that the risk can be reduced or even avoided. Based on the principle of decoupling, decoupling strategies can be taken that maintain normal state of the various safety subsystems of the airport flight area, change the risk tolerance limit of safety system and change the risk flow rate, which inhibit and delay risk flows from static to dynamic to finally burst, stop the coupling process and before affecting the safety of flight area, the risk will be resolved, or the effects caused by the risk will be delay.

4.1 Establish a grid information system of flight area safety risk

A grid system is formed with storage information and processing capability on the network of the security risk information system integrated in a scientific and reasonable way. The risk chain can be cut off by the grid, thus effectively reducing the risk. The key to grid safety risk information system in flight area is to master enough information to identify the risk, and the system should be constructed by the joint efforts of three parts: firstly, at the level of process and institution, staff of flight area must be in accordance with the provisions of the procedures for reporting unsafe information, to provide relevant information for safety management; secondly, at system check level, management staff in the flight area should promptly inform all kinds of implicit or explicit problems found in safety inspection, so that other people could know the information and try to correct their own behavior; the third is the personal level, staff in the flight area report the work of the security information and recommendations in a conscious way. Taking the human- equipment- environment risk coupling factor as an example, the grid information system of security risk can separate the mutual relationship between the three factors. Before the coupling of human factor and equipment factor, if training process is added here, team spirit and professional ability can be strengthened, and then forces of all parties can be used in the process of maintenance, which will reduce the possibility of equipment risk factors; and if equipment procurement standards are improved before the risk coupling of equipment factors and environmental factors, the possibility of equipment failure in bad environment can be reduced.

4.2 Maintain internal stability of flight security subsystem

Only when the stability of internal state of the subsystem is ensured, can subsystem hidden risks be limited in the control range, so that external risk can be resisted. First is to establish a grid risk management organization system, which is complementary to the current flight operation pattern, reflecting in the three levels of setting up the risk supervision center, risk command center and risk acceptance center. In airport flight area safety management process, after collecting information corresponding center will identify the risks and inform to its supervisor about the risks. Risk disposal plan will be set and followed, after getting result feedback and paper verification, it can be closed. Second is to attach importance to staff in airport flight area, to achieve people-oriented. As the main part of the risk control, staff should be cared in the grid risk management program. Decoupling of human risk factors, for example, staff with lower work performance should be given guidance timely, in case of mistake, missing and forgetting, as well as phenomenon that equipment are not inspected and maintained in time. The guidance will help the staff to adjust work load to the appropriate level and to carry out their career planning, improving their working enthusiasm, which is most important part of risk control in airport flight safety area.

4.3 Block the external risk into the internal security system

There are risk source in both external environment and internal environment of flight area. In the process of movement, they are stimulated by other risk events, flowing, spreading and coupling with the dynamic changes in the safety chain of flight area. External factors are the key factors, to delay or even inhibit the release and the risk flow, it should be stopped outside the security door of the flight area.

Decoupling of human factors and environment factors as an example, combined with the coupling path of harsh environment→ pavement freezing or ponding→ environmental risk factors→ incomplete institutional construction→ insufficient risk assessment→ ineffective risk control→ management risk factors, first, the competent authorities of the flight area should strengthen the supervision of the safety, such as security checks, internal audit, security, etc., reduce the environmental risks to acceptable level; The second is to strengthen monitoring dynamic changes in the external environment, set up a monitoring system aiming at the political and legal environment, economic environment, social environment, technology environment and other aspects, and equipped with specialized staff analyzing favorable and unfavorable environmental factors, identifying and evaluating external risks and take effective measures to meet the challenge of external environment.

5 Conclusion

Based on the research team in Wuhan University of Technology, the main factors of safety risk in airport flight area include personnel factors, equipment factors, environment factors and management factors. Using system dynamics model, the coupling mechanism of multiple risk factors is probed into, and next step should be case study in the actual situation in the airport flight area management. The decoupling strategies for airport flight area safety risk are put forward, but effectiveness will be tested and verified in the future.

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Study on Safety Early Warning Management System of Ship Navigation

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Abstract: Based on the principle of early warning management system and “man—machine—environment—management” ship navigation systems, this paper constructs safety early warning management system of ship navigation. Through those steps of acquiring ship navigation warning information, constructing the evaluation index system for early warning, taking effective pre - control measures, optimizing emergency rescue plans, shortening recovery time, ensure the implementation of early warning and pre-control management, in order to reduce or stop the ship navigation accidents and improve the safety of ship navigation.

Key words: Ship navigation; Safety early warning management; Ship navigation system; Water transport

1 Introduction

Chinese Orient Star sank is the highest mortality in large passenger ship wreck under the non-war situation in the history, and capsizing and wrecking the fastest large ships sailing disasters. Its harm great and impact profound. To some degree, this calls on the community to strengthen the focus on navigation safety. Meanwhile, with the development of international and domestic shipping industry and the progress of shipping technology, the requirements of navigation safety are increasing, and the establishment of safety early warning management system of ship navigation is imminent.

1.1 Study on early warning of transportation

In the 1960s, American scholars formally presented the early warning management on the basis of crisis management and risk management, and expanded it into each microscopic fields.

In the transport area, the early warning mainly focus on freeway disaster warning, aviation disaster warning, railroad disaster warning and water transport disaster warning and so on. In comparison, research on waterway transport sector are especially inadequate. Todor BAČKALIĆ*, Marinko MASLARIĆ (2012) indicated risks in water transport are perhaps an under researched area and proposed a structured framework for characterizing risk in inland water transport chains. Wang Chao, She Lian (2004) proposed the concept of water transportation disasters, and constructed the destructive mechanism of water transport disasters based on the four elements of human, ship, environment and management, and proposed the early warning management measures of water transportation disasters. Xu Kaijin (2005) used the theory of crisis management to explore and describe the basic contents of water safety early warning management. Wang Chao, Fan Hongye (2005) built maritime accidents safety early warning system combining the analysis of Yangtze River water traffic accidents.

1.2 Safety early warning management

The theoretical foundation of study on early warning management include system of non-optimal theory in the system theory, system control theory and safety science. The purpose of the safety early warning management is to relieve the system from “non-priority” as soon as possible, to make it into “good” condition, so that it can make an evaluation system in detail to reflect the system “of non-optimal” state, and through early warning management tools makes the system from “non-priority” status back to “good” condition, shorten the time of the system in “non-priority” states and reduce the probability of accidents. Safety early warning management mainly involves early warning analysis and pre-control measures. Scholars have basically reached the consensus on the content of safety warning management, mainly related to early warning analysis and pre-control measure.

Overall, the studies of early warning management have made abundant achievements, but the development in the transport sector is imperfect. In the field of water transport, the discussion on waterway safety early warning only conduct preliminary study from the angle of the channel depth, the interdisciplinary research of water traffic safety and early warning management is also in its infancy, and the systematic studies of theory and method of water safety early warning management are also lack of systematicness.

2 Principle of Safety Early Warning Management System of Ship Navigation

Principle of safety early warning management system of ship navigation applies safety warning management theory to the process of ship navigation. By building the evaluation index system for early warning can implement real-time monitoring, diagnosis and pre-control for various factors in the ship navigation process, and correctly determine safe state and unsafe condition, and prevent, deter and correct unsafe behavior in the system, so that the ship navigation is always in the safe and controllable state. As is shown in figure 1, the contents of safety early warning management system of ship navigation include early warning analysis and pre-control measures.

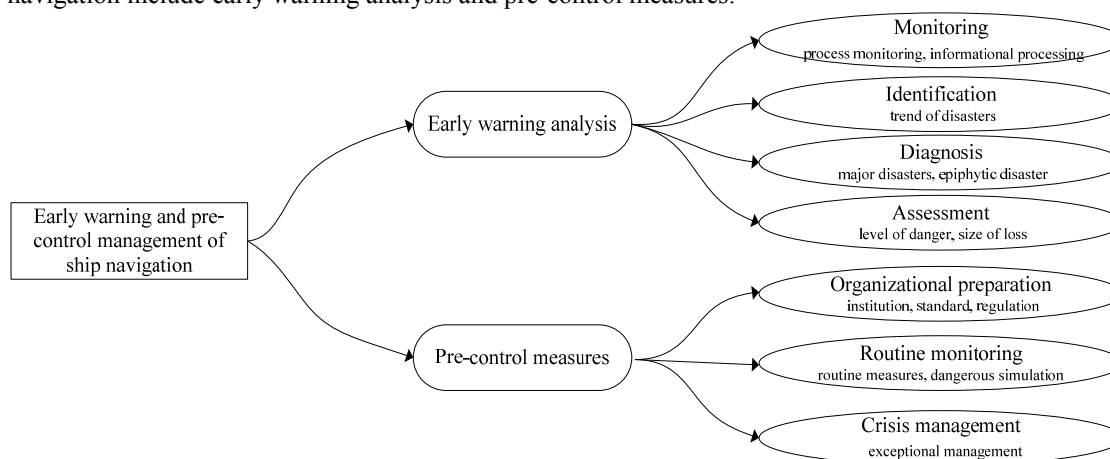


Figure 1 The Contents of Safety Early Warning Management System of Ship Navigation

2.1 Early warning analysis of ship navigation

The early warning analysis of safety early warning of ship navigation includes four states, referring to monitoring, identification, diagnosis and assessment.

(1) Monitoring

Monitoring is the basis of early warning activities of ship navigation, and the premise of the entire early warning system operation. The first step of implementing monitoring is to determine the monitoring objects, and the second is monitoring the whole process, and the third is processing the obtained information that may be stored in information archives.

(2) Identification

Through the comparison of the processed information and the evaluation index system for ship navigation safety warning identifies the factors that have impacts on ship navigation safety. Meanwhile, it is determined whether there will occur mutation and chain reaction in the management activities of ship navigation.

(3) Diagnosis

Diagnosis is a comprehensive analysis of the identified risk factors and identify major risk factors. It require in-depth analysis of risk factors, and find the reasons for its occurrence, to timely formulate corrective and preventive measures.

(4) Assessment

Assessment is to estimate the identified risk factors, confirm the danger rating and size of loss of hazardous occurrence. Accurate assessment is the basis of pre-control measures proposed and implemented.

2.2 Pre-control measures of ship navigation

The pre-control Measures of ship navigation safty warning include organizational preparation, routine monitoring, emergency management.

(1) Organizational preparation

Organizational preparation is the organizational support activities for conducting the safety warning activities of ship navigation, and its destination is to provide good environment for the early warning management activities. Organizational preparation includes regulations, institution and development and implementation of specific measures about early warning activities.

(2) Routine monitoring

The main task of routine monitoring is to track and monitor risk factors, including routine measures and dangerous simulation. Routine measures is the measures that deal to the safety problems in the ship

sailing process. And its aim is to restore the ship sailing to a normal state. Dangerous simulation is to assume and simulate the possible dangerous situations and propose appropriate measures.

(3) Crisis management

Crisis management is a particular emergency management that was conducted after the accidents. Its function is used to complete the crisis tasks beyond the control of routine monitoring. If ship navigation can back to the controllable state after emergency management, routine monitoring will continue to implement pre-control task.

3 Safety Early Warning Management System of Ship Navigation

The establishment of safety early warning management system of ship navigation, is based on existing technology of ship navigation and safety management system of ship navigation. As is shown in figure 2, safety early warning management system of ship navigation mainly includes the following aspects.

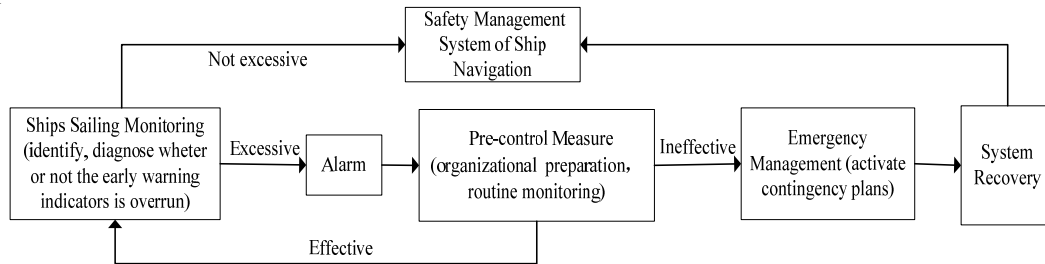


Figure 2 Safety Early Warning Management System of Ship Navigation

3.1 Acquiring ship navigation warning information

The accurate acquiring of ship sailing information is the basic premise of ship navigation safety warning. As is shown in figure 3, ship navigation system is a system composed of four areas "man - machine - environment - management"(Liu Wen yuan, 2010). Therefore, the entrance of acquiring relevant information about ship sailing is focused on the four aspects. The human factors are when people complete a specific task, their behaviors produce the adverse effects on the proper function or successful performance of this system. At this time, human factors are mainly emphasized crew factors, primarily involving the crew of professional skills, education level, physiological state. Environmental factors include three aspects, natural conditions, navigable waters, traffic conditions. Machine factors refer to the ship and equipment factors, including the ship's structure, ship's equipment, ship's performance and ship's age and other aspects. Management factors mainly involve ship management companies and maritime regulators that bear the responsibilities for safe navigation of ships' supervision. This mainly relates to the supervision of seaworthiness, safety inspection, the comprehension degree of the trade area of information, manning check and the monitoring tracking of maritime regulators.

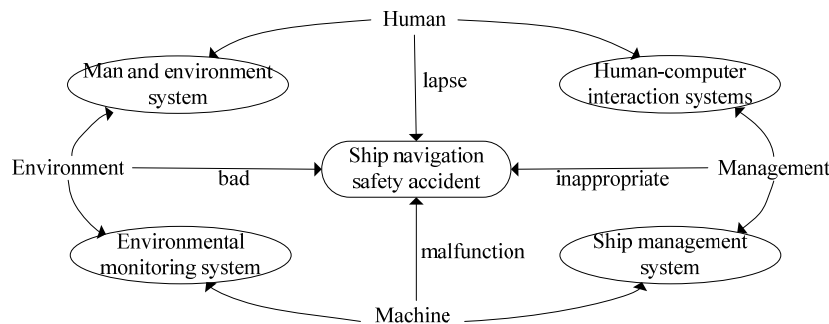


Figure 3 Ship Navigation Systems Made of Man—Machine—Environment—Management

3.2 Constructing the evaluation index system for early warning

The evaluation index system for safety early warning of ship navigation is the standards of these activities of monitoring, identification, diagnosis and evaluation. The construction of early warning indicator system is based on the four aspects of ship navigation systems, each indicator given different weights, as seen in table 1.

Table 1 The Evaluation Index System for Safety Early Warning of Ship Navigation

Primary index	Secondary index	Tertiary index
Human factor	professional skill	the rate of illegal operations, the number of turnovers ship safety inspection, the number of inappropriate emergency treatment
	education level	the proportion of college education
	Physiological status	continuous ship time
Machine factor	ship itself	the failure rate of the ship and equipment, maneuverability, vessel size, ship age
	ship management	the error rate of ship and equipment maintenance, the nonattainment rate of ship and equipment maintenance quality, the oversight rate of technical standards
Environment factor	natural Environment	the severity of weather during ship navigation, the mutational number of weather during ship navigation, the risk index of routes
	social environment	the rate of meteorological false alarm rate, the failure rate of maritime command device, the turnovers of navigation command
Management factor	ship management company	distortion of information communication, the frequency and intensity of inter-group conflict, the reasonableness of the organizational structure, the oversight rate of management standards, the inspection of the ship manning, the supervision of seaworthiness, the level of understanding of navigation area information
	maritime regulatory management	the technology of coverage

The construction of evaluation index system for safety early warning of ship navigation not only be able to achieve real-time monitoring of the security status of navigation itself, but also to achieve the monitoring of human and management factors that may lead to the safe navigation accidents. By the evaluation index system for early warning conducting single factor and comprehensive evaluation, we can get the security status of the ship navigation. Then according to the related information on the existence of hidden dangers in the process of ship sailing goes on governance or rectification, in order to achieve the prevention of ship safe navigation.

3.3 Taking effective pre - control measures

Pre-control measures are the management activities that correct and control the early signs of the major security crisis in the process of ship sailing. We can proceed ship navigation safety prevention and pre-control from the following.

(1) the establishment of ship navigation information management system. Establishing an information management system that government as the leader, and transport, maritime, port, ship inspection, ocean, VMS, border, news and other units as the participants. These units through the communication of needed information on ship sailing develop the early warning force, in order to build safe ship navigation.

(2) to strengthen the construction of training mechanism for ships sailing practitioners. With the worsening of navigation system's environment, ship navigation safety ask its employees to enhance their ability. Continually elevated training mechanism should be based on the different positions and quality requirements to go on focused training, and ultimately enhance the safety awareness of relevant staff.

(3) to strengthen the safety system of ship navigation. Ship management company and ship navigation safety regulators should establish close contact. The aim of monitoring the whole process of ship sailing by safety system is to handle navigation safety accidents in the first time. In order to ensure the effective operation of the security system, ship management authority may establish incident reporting system and ombudsman system, to ensure safe navigation of ships carried out.

3.4 Optimizing emergency rescue plans

Emergency rescue plan which aims to reduce accidents and reduce the impact of disasters, is an important part of the safety early warning management system of ship navigation. This requires ship management authorities to develop on-site rescue plans according to different situations, to establish the systematic level plans, to define the implementation path of action programs, as well as to periodically evaluate and improve plans. At the same time, the flexibility of rescue needed resources must be guaranteed. Moreover, we should pay attention to different levels and scope of practical exercises, definite each departments' and everyone's responsibility, to improve the real rescue capability and ensure the accidental scene rescue work quickly and efficiently.

3.5 Shortening recovery time

After the handling of ships sailing security accidents, what measures can be taken quickly and

effectively to restore ship navigation safety warning management system remains an important task. The length of the recovery time of the ship navigation system will become an important indicator that measures the resilience of safety early warning management system of ship navigation. In order to strengthen the anti-risk property of early warning system of ship navigation, this requires ship management authorities to summarize ship navigation safety incidents, and continue to make up for the defect of warning management system and the inadequate of early warning indicator system, to continuously improve the safety early warning management system of ship navigation.

4 Conclusion

This paper studies on the present constructional situation of the safety early warning of ship navigation, and constructs safety early warning management system of ship navigation based on the principle of early warning management system and ship navigation systems. The system can be summarized as five areas, the acquisition of ship navigation warning information, the construction of evaluation index system of early warning, the adoption of effective pre-control measures, the optimization of emergency management plans, the shortening of recovery time. It has some practical value. Given the imperfection of the current basic theories and methods of safety early warning management of ship navigation, the system still exists a lot of shortcomings, such as the evaluation index system of early warning management and the connection among the system's all sectors need to be further improved, further work to be done to improve the system in the future.

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Innovative Case of Patent Circumvention Application in Automotive Industry

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Abstract: Cost reduction efforts in the product system have not been supporting innovation. This contradiction becomes a great challenge for any type of industry in order to improve the competitive level and this was solved using the Theory of Inventive Problem Solving (TRIZ) that was integrated into the Design to Cost Innovation framework. This research focused on the application of TRIZ tools on reducing cost for patented parts. From the case study, the results show that the magnitude of cost improvement and innovation achieved is substantial. These change the limitation of mindset in cost reduction without compromise or trade-off, and open up new possibility of research for reducing cost in processes and services for various industries.

Key words: TRIZ; Automotive; Design to cost; Patent circumvention

1 Introduction

Competition in industry, particularly in automotive industries focuses critically on product cost and technology advancement. The biggest challenge is the contradiction to achieve a win-win situation for both the product manufacturer and the customer. The conventional approach to balance between the new technology for customer and the incurred cost from the manufacturer is known as “trade-off”. TRIZ methodology is proposed to bring higher value to the customer by eliminating trade-off or compromise. TRIZ methodology has been adopted in the automotive industry in various areas such as product design [1], product performance [2] and technology management [3]. However, every industry will always relate improvement activity with cost impact in business processes. In parallel, many companies recognize that a well-crafted patent portfolio may be used for a variety of objectives, including winning market position, protecting R&D efforts, generating revenue such as from licensing agreements [4]. Using Design-To-Cost (DTC) framework integrated with TRIZ [5], the industry could achieve higher improvement in driving cost down.

This research presents patent circumvention in DTC case study, applying TRIZ methodology to generate innovative solutions. The common four phases of the DTC program are ‘Prioritization Phase’, ‘Idea Generation Phase’, ‘Idea Evaluation Phase’ and ‘Implementation Phase’. Each of the DTC phase requires a systematic approach to ensure that innovation in the product design can be executed and simultaneously achieving cost reduction. An implementation framework (DTCI) where TRIZ methodology as a systematic innovation is integrated with DTC framework is adopted as shown in Fig.

2 An Example

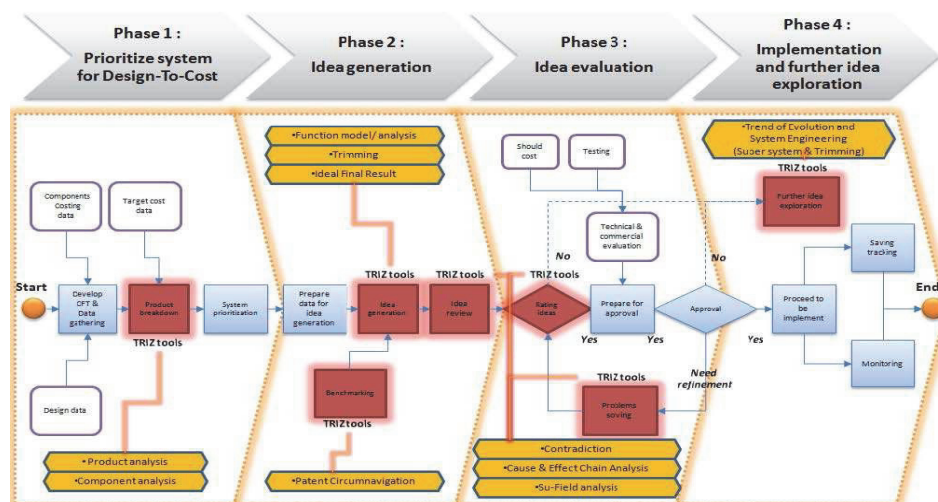


Figure 1 Design-To-Cost-Innovation (DTCI) Framework [5]

3 Case Project for the DTCI Framework Using TRIZ

The implementation of the proposed framework has been executed upon several breakthrough cases in the automotive industry. Previously, there was a research on complexity planning for automotive components through this framework^[6]. In this study, a case project that explored new tool from TRIZ known as ‘Patent Circumvention’ is presented. In the automotive industry, patent plays a critical role in securing new findings and discovery that bring high impact to product competitiveness^[7]. It aims to create an opportunity to develop own patent, alongside cost reduction on the benchmarked systems.

The case project in adopting the integrated framework DTCI was conducted in an automotive OEM. The company was selected because of their capability in conducting a full cycle product design process. The duration of the case study was around 3 months to be completed at the conceptual level, and further 6 to 12 months to actually implement the concept into the product for market. The cost improvement results were recorded after the case implementation was completed.

4 Patent Development with Cost Reduction Methodology

Patent triggers a new level of competitiveness, especially in the automotive industry. Innovative Benchmarking may open up a new possibility to create another innovation. This can be achieved using Patent Circumvention. There were several tools used that were based on TRIZ theory that opened up new possibility to bring innovation from the competitive patent without issues of infringement^[8]. This tool is used in creating several possible new patents to avoid any infringement issue. Within the patent circumvention process, there are trimming activities. Therefore, it gives opportunities for the patented system to reduce the numbers of components or change the function of the system radically^[9]. However, in the real situation, things may be more difficult when cost reduction is also a part of the target, which people normally compromises for the long-term goal. DTCI was used to explore this situation and to demonstrate how sound results can be achieved, and later a comparison was made to the normal patent development process.

A team that specialized in the automotive powertrain and transmission was selected and explored the patent on a cylinder deactivation system. The research target of this study is to develop new cylinder deactivation system.

4.1 What is cylinder deactivation system?

- 1) Deactivation of internal combustion activity in the specific cylinder.
- 2) Both valves are shut off after the combustion is completed (the piston at the lowest position).
- 3) Keep the exhaust gas trapped inside the cylinder.
- 4) The trapped gas works as air spring during the engine operation.

4.2 Technical contradiction in conventional engine:

If more cylinders are active, then engine power increase, but fuel consumption and CO₂ emission also increase.

4.3 The Physical contradictions:

4.3.1 Solution of physical contradiction

1) High load and variable speed: cylinder activates – engine power increases, fuel consumption increases.

2) Low load and constant speed: cylinder deactivates – engine efficiency increases, fuel consumption reduces.

4.3.2 Separation in Time: cylinder deactivation engine

Cylinder deactivation of the engine is controlled at each power demand conditions. Several mechanisms of cylinder deactivation system are as follows;

- 1) Cam shaft mechanism (solenoid locked rocker arm)
- 2) Pushed rod mechanism (solenoid locked pushed rod)
- 3) Valve collapsed mechanism
- 4) Cam shifted / slide mechanism
- 5) Piston deactivation mechanism

Three steps are recommended for executing this task. The first step was to identify the problem that was within the system itself. The Cylinder Deactivation Engine System considered as a contradiction “separation in time”. Through benchmarking, the potential patents of cylinder deactivation engine systems by several companies were selected to further analysis. Using the Independent claims from the

patent, a function model was created in order to visualize the components and their function in the system.

The second step was the problem solving process. With the establishment of function model based on independent claims, the “Trimming” process was required to take out potential components and managed the function within the system. The trimming rules were used to help manage the functions after the selected components were discarded from the system. Furthermore, the effect from trimming process gave secondary problem that might affect the performance of the system. Several TRIZ tools were used, including a few Inventive Principles, to solve the problem.

The third step was the “concept substantiation” process. With the achievement of solving contradiction and having fewer components compared to the previous system, this new proposed system is ready for patent filing process. It also includes the prototyping process that was needed to develop and validate the new system and its performance. Figure 2 showed the process flow for this assignment.

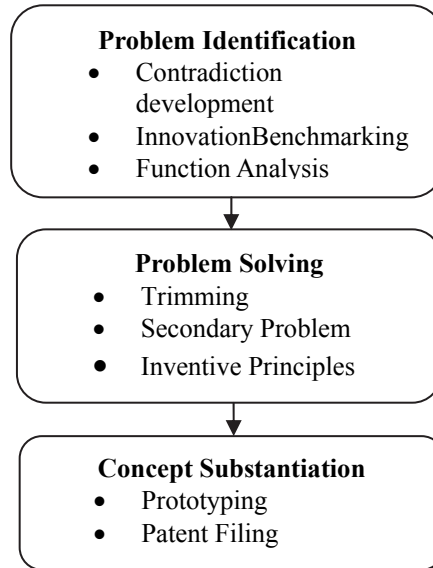


Figure 2 Guidelines for Patent Circumvention on Developing Engine System.

Four types on patents related to cylinder deactivation system were benchmarked by the team, which included patents filed by Bentley, Audi (cylinder on demand), Bosch and Volkswagen. The activity requires a strong teamwork between the group of designers and the group from the legal unit, from the very beginning of the project.

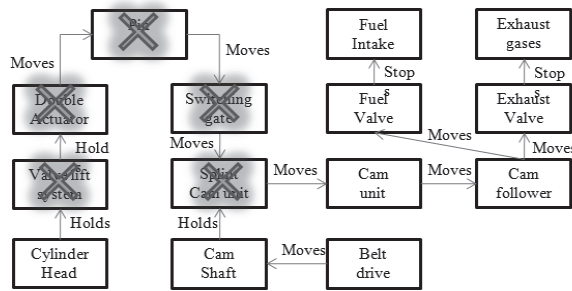
Using the detail description provide by the patent selected, the DTC-TRIZ team starts to develop function model for analysis.

Function analysis is an analytical tool that identifies functions, their characteristics, and the cost of system and ‘supersystem’ components. Function analysis is significantly more powerful than a component focused approach. It opens many innovation possibilities by developing a function model of the system. This leads to multiple design options that significantly increase the ability to improve the system.

4.4 Results and Discussions

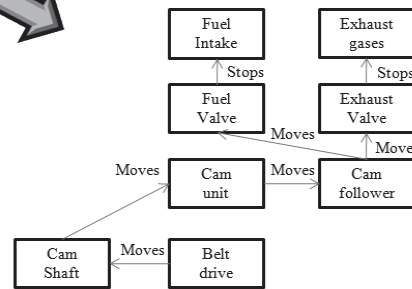
Based on the mechanism of the selected system, the patent circumvention process used was trimming, and the secondary problem was solved using Technical Contradiction. Figure 3 shows the process of TRIZ application for patent circumvention.

• Function analysis current system



*Trimmed double actuator, pin, switching gate, splint cam unit, valve lift system.

• Function analysis new system



*Cylinder head is taken out from the function analysis because there is no direct function provide to the system.

Figure 3 Trimming Process on the Current Patented Engine

Trimming is based on improving a system by reducing the number of components and simplifying the system. Eliminating components, thereby reducing costs and preserving or improving overall functionality increases system value. Trimming offers multiple options for eliminating the same component. These options represent a spectrum of possible innovations - from incremental to more radical and fundamental design.

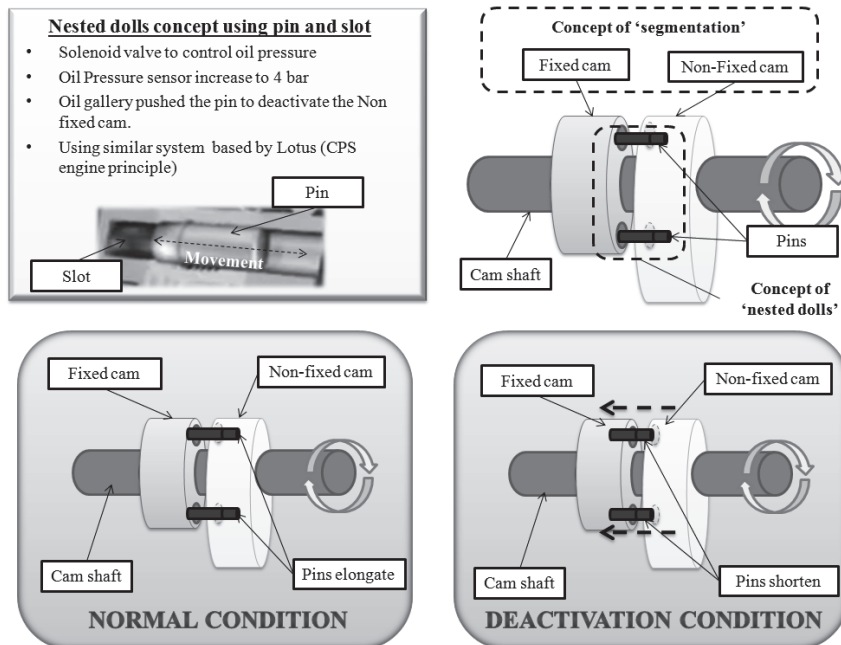


Figure 4 Deactivation Mechanism Developed

Using the feasible concept generated, a new system of cylinder deactivation was developed as shown in Figure 4. However, the concepts need to be further refined in terms of technical ground and

also legal perspective. This creates a patentable solution that is different from others competing patents.

The result from the case project shows that the application of TRIZ methodology in the DTC generates a significant impact towards cost reduction (in the region of RM 18 million) in the automotive engine components together enhances the innovation level of the existing system [10]. TRIZ methods change the thinking process to extract more innovative ideas and expand new inventions that produce a significant impact on cost reduction. In the same financial year (2011/2012), the OEM company demonstrates significant results in cost reduction performance. Continually adopting the proposed framework further cost reduction achieved in the following financial year.

5 Conclusion

The case project explains the central importance of the DTCI framework that adopted TRIZ to enhance the result of cost improvement through innovation. The present study was designed to determine the effect of adopting TRIZ in cost strategy and compared to any existing available method. One of the more significant findings that emerge from this study is that contradiction in reducing cost at the product design level can be solved using the DTCI. The result of this research supports the idea that the cost reduction achievement can be better enhanced using the TRIZ method^[10]. The findings of this study have a number of important implications for future practice beyond product design, for example, process design or service design in cost reduction initiatives.

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Policy Value Chain of Making Regulation in ICH S7B/E14*

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Abstract: This paper explores rule making process in ICH S7B and E14 by boundary organization (BO) framework to find essential factors for making rules between regulators(regulatory agency) and innovators(scientists and engineers). There is few research analyzing a rule making process from boundary organization point of view which mediate different communities. The research shows ILSI Health and Environmental Science Institute(HESI) from US and QT Interval Prolongation: Project for Database Construction Team (QT PRODACT) from Japan worked as boundary organization and played important role in making regulations but there are some difference in works between two. Important factors are specialty and continuity of BO. Specialty helps providing scientific data to endorse possibility of technology and making a strategic decision. Continuity cultivates network and reliability among stake holders.

Key words: Innovation; Regulation; Boundary organization; Policy value chain

1 Introduction

A market of new pharmaceuticals and medical devices cover whole world. Especially, in order to spread them in OECD countries, rules should be revised to have enough safety and effectiveness or new guidelines should be drafted as quickly as possible under an international harmonization. Taking initiative in the making of the international rule affects application of technologies, development of products, and creation of new markets. This paper explores the case study of International Conference for Harmonization (ICH) among Japan, the US, and EU related to ICH S7B, the Non-clinical Pharmaceuticals, and ICH E14, the Clinical Evaluation of QT/QTc Interval Prolongation and Proarrhythmic Potential for Non-Antiarrhythmic Drugs using the analytical frame work of boundary organization.

2 Precedence Research and Methods

2.1 Objectives

The international market of pharmaceutical products and the medical equipment is large. However, in the international rule composition, Japan seldom takes initiative and tend to adapt the guidelines that have been approved by Europe and the U.S. The Japan's trade deficit of the pharmaceutical products is approximately 19,640 million dollar in 2012, and imported from EU countries most followed the US. Since Pharmaceutical and Medical Device Act (PMD Act) to support the development of a new medicine and the new medical technology was enacted in November 2014, development environment of pharmaceuticals and medical devices have been improved. The strategic and quick global rule formation is essential to create a new market for an emerging new products. Therefore, this study examines initiative of the international rule composition using the boundary organization framework.

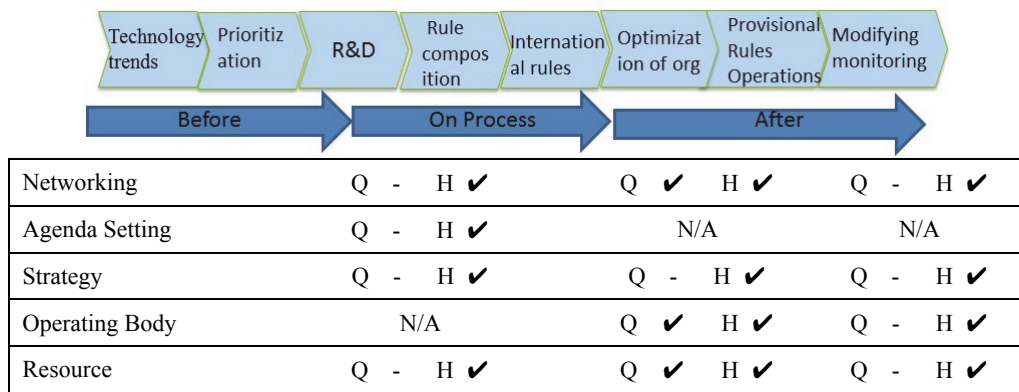
2.2 Analysis method - policy value chain and boundary organization

We have proposed policy value chain (PVC) with eight phases in a rule composition process of medical field^[1]. A rule making proceeds through these eight phases, "prediction of technology trends", "prioritization and recognition of issues on rule", "research and development for the rule", "rule composition", "international rules setting", "optimization of organization for operating rules", "provisional rules operations" and "modify monitoring of rules operating condition". It proceeds sequentially, sometimes non sequentially and sometimes occurs simultaneously. Furthermore, we divided eight phases into three parts "before", "on process", "after" like the "PDCA cycle". "On process" means that rule making is on process. The stage of "before" is preparing and planning for "On process". The stage of "after" is checking and correcting stage. The result of checking and correcting causes a revision of an existing rule or a new rule making.

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We use boundary organization framework to observe the PVC of rule composition. When a new technology or concept comes out, boundary organization is formed around/between different organizations and communities to mediate them. A boundary organization is the organization which takes responsibility for both different communities and mediate them. It has a role to stabilize relations of organizations/communities by absorbing temporary works and ambiguous jobs^{[2][3][4]}. We found important functions of a boundary organization to mediate different communities and adapted the functions to rule making process. Main functions are these five; Networking, Setting Agenda, Organizing a operating body, Securing research resources, and Setting strategy. In addition, a boundary organization is categorized two types, One of which is a multitask organization and the other is a single task organization. Multitask ones, such as Science councils and think tanks, are conducting several researches on various fields while single task ones, such as working groups for certain issue, are doing a research on very restricted field. We explore works of boundary organization in each stage of PVC and try to find missing functions. In the United States, ILSI HESI mediated as a boundary organization. HESI was established in 1983 aiming at identifying and solving health and environmental issues to link researchers and scientists in academia, government, industry, other research institutes and NGOs^[5]. In Japan, QT PRODACT project team of JPMA constituted a member of EWG and worked as a boundary organization (BO). So, both of BOs in Japan and the US will be compared to be found mediate functions in a process of the making S7B/E14.

3 Result of Case Study on ICH



*HESI: H QT PRODACT: Q

Figure 1 Result of Analyzing PVC

3.1 Before

In the late 1980s, fatal arrhythmia caused by QT interval prolongation with the drug except antiarrhythmic such as terfenadine became the problem after marketing. It was revealed that the drug which caused QT interval prolongation controlled the rapidly activating delayed rectifier potassium current, IKr, and it became the urgent business to establish an evaluation method about QT interval prolongation^[6].

Japanese researchers made a presentation on this risk in Japan Pharmacological Society in 1996, but, in Japan, the arrhythmia caused by pharmaceuticals was not recognized as a critical issue.

On the other hand, in 1997, Committee for Proprietary Medical Products (CPMP) of the European Agency for the Evaluation of Medicinal Products (EMA), located in London, indicated these problems on non-clinical and clinical trials as Points to Consider^[7]. ICH S7A, Safety Pharmacology Studies for Human Pharmaceuticals, was agreed in November 2000^[8], but the details were entrusted to S7B, because there was not an international unification standard on methodology about the evaluations of electrocardiogram data and others. HESI establishes a task force to investigate QT interval prolongation by scientific evidences. Scientists in HESI put the high priority on safety of cardiovascular, so HESI organized a working group on cardiovascular safety committee and convene the first working group among industries, academics and government to establish a scientific method and collect data for safety. This WG made it possible to share information of difference of the data on plasticity and stability of the hERG assay in each laboratory^[9]. S7B started to be discussed in STEP1 in May 2001, and E14 in February 2003.

3.2 On Process

In August 2001, a committee meeting was held in the ILSI headquarters of Washington D. C. In the latter half of 2001, HESI started a experiment program of the non-clinical model about the potential possibility of QT interval prolongation.

Japan, the United States and EU formed Expert Working Group (EWG). From Japan, Medical Devices Agency (PMDA) and Japan Pharmaceutical Manufacturers Association (JPMA), and NIH joined the EWG. In 2001, QT PRODACT project team was established among JPMA and more than 60 companies joined and 18 companies joined from JACL. There was no support from government, so that companies supported fund and personnel.

Data collected systematically for rule making by HESI ,QT PRODACT, FDA and Georgetown university and the collected data was provided with ICH ^[1]. These data endorsed the importance of preclinical researches which were related to clinical researches so that a joint meeting with S7B and E14 was held for integrating both data in 2003. In May 2005, Japan, EU and the US signed an agreed document on S7B and E14^[10]. Although participated in ICH, Japan decided to introduce E14 and S7B when the compulsion right was exercised in October 2009. Japan introduced them as domestic rules in November 2010, five years later than EU and the US.

3.3 After

In 2008, after integrating various cardiac committees, HESI establish multifocal cardiac safety technical committee with 21 companies and 23 academic and government institutes of US, EU and Asia from various cross sectional fields including clinical medicine, pathology, imaging, safe pharmacology, physiology, toxicology and bioinformatics. HESI established a joint think tank on the troponin as a translational biomarker in 2008 and introduced HESI/FDA combination database in 2009. The committee provided workshops, many scientific publications, presentation, and meetings. 257 compounds were reviewed and 150 was included in a database of HESI/ FDA^[9]. The Committee discussed safety of new technologies considering the possibility that new technologies such as in-silico and pluripotent stem cells might be introduced to a preclinical researches and clinical researches.

The workshop of pluripotent stem cells was formed in HESI in 2013, and as technological possibility has increased, a revision plan of S7B in 2015 and an abolition plan of E14 in 2016 were proposed by the CSRC-HESI-FDA Meeting in July, 2013. This critical change was proposed just three years after Japan was accepted E14/S7B as a domestic regulation.

In Japan, QT PRODACT team was dissolved after S7B and E14 finished and did not join the stage of “After”.

4 Conclusions and Implications

Both HESI and QT PRODACT worked as boundary organization, but there are some different features between two. Through the observation, two factors are very important; Specialty and Continuity of BO.

Specialty: As HESI’s work suggested, specialty of BO helped providing scientific data to endorse possibility of technology and making a strategic decision. HESI secured specialty by networking specialists in industry, academia and government. Data HESI provided help making rules endorsed by scientific evidence in ICH.

Continuity: HESI is a multitask organization and work continuously to intermediate industries and government. HESI could joined the very beginning “before” stage through “after” stage and could help strategic decision making. Continuity cultivates network and reliability among stake holders including regulators and enable to make it easier to secure research resources and organize operating body. As QT PRODACT was temporally formed, it joined only “on process” stage and in “before” and “after” stages, there was no boundary organization to mediate regulators(regulatory agency) and innovators(scientists and engineers).

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The Application of Stag Hunt Game to Business Cooperation of Industrial Complexes in Japan

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Abstract: In my proceeding, I analyze the application of “Stag hunt game” to business cooperation of industrial complexes in Japan, and declare the meaning of the framework. Stag hunt game is one of models in game approach and was named by a topic of “Discours sur l'origine et les fondements de l'inégalité parmi les hommes”, written by Jean-Jacques Rousseau. The framework of this game approach clarifies the case that persons do not collaborate when cooperative works are clearly advantageous. This model's application is based on historical examples of business cooperation in Japanese petrochemical complexes. Furthermore, I practically replace this model with more realistic one with regard to differences of big or small extent of their scale and profits. And I exhibit a model of stag hunt game added the balance of transfer gains. Then I explain that a third party organization coordinate both interests to establish business cooperation in industrial complex. The third party is in a neutral position and make arguments and adjustments as a mediator. And it proposes a compromised transfer gain after serious consideration of their gains of business cooperation.

Key words: Industrial complex; Oil and petrochemical industry; Group operation; Business cooperation; Game approach; Stag hunt game

1 Introduction

I will utilize the framework of "Stag hunt game" to explain business cooperation of companies with different capital¹. Stag hunt game is one of models in game approach and was named on the basis of the story that early human being was distracted by the prospect of immediate gain, which was explained in "Discours sur l'origine et les fondements de l'inégalité parmi les hommes", written by Jean-Jacques Rousseau.

There are two hunters (A, B) at first. Each hunter can choose either in two. The one is "to catch a stag in cooperation with each other (gain of 2 points)". The other is "to catch a rabbit alone (gain of 1 point)". However, they cannot catch a stag only in one. If they independently try to capture a stag, his gain becomes 0 point. These are stories of the game.

In this game, hunter A and B will choose which one in two in this game: (a rabbit, a rabbit) is (1, 1), or (a stag, a stag) is (2, 2). This result is Nash equilibrium.

When the one hunter is more likely to choose a stag, the other hunter may choose a stag, too. Two hunters want to aim at a stag. However, it doesn't necessarily happen. His gain of the one becomes 0 point if the other chooses a rabbit. Then, two hunters will choose a rabbit safely because they strongly want to avert a risk². The framework of this game approach clarifies the case that persons do not collaborate though cooperative works are clearly advantageous.

Table 1 The Basic Framework of Stag Hunt Game

		B	
		a rabbit	a stag
A	a rabbit	1, 1	1, 0
	a stag	0, 1	2, 2

2 Application of Stag Hunt Game to Business Cooperation of Petrochemical Complexes

I can apply framework of stag hunt game to business cooperation with some companies of different

¹ The application of “Stag hunt game” to business cooperation is an idea of Nguyen H. Phuc and Y. Matsuura (Yamaguchi university). See Nguyen H. P., Y. Matsuura, M. Kubo, “Efficient Exploitation Of Waste Heat: Coordination Management for a Waste Heat Utilization Project from Economic Perspectives”; IAEE 2009 PROCEEDINGS, refereed, page: 420, Austria, 2009.

² On the premise of this framework, it is important to design the case of aiming a stag together to promote business cooperation.

capitals in petrochemical complexes. On the premise, company A and B can get gains more than conventional operations when they cooperate each other and execute group operations. But company A or B get a conventional gain when they do not have a collaborative relationship and continue independent business operations. Suppose that company A or B take an action alone for business cooperation and one company does not perform any cooperation. Then the one gets a conventional gain, and the other who took a cooperative action loses a gain.

We can apply the previous framework of stag hunt game to logic of business cooperation. For example, there is the case that both companies are going to replace independent and old electric power generation plants with the latest facilities. When the efficiency of generation is proportional to the scale of generator, it is clearly more effective for them to purchase joint facilities than to rearrange it alone. However, they often invest in independent plants in practice¹.

In following table 2, I replace this case with more realistic model with regard to differences of big or small extent of their scale and profits.

Table 2 The More Realistic Stag Hunt Game in Business Cooperation

		B	
		independent business	business cooperation
A	independent business	3, 2	3, 0
	business cooperation	0, 2	8, 3

I suppose that company A and company B have any differences of their gains when they conventionally operate businesses alone in industrial complexes. And their gains are not equal, even if both companies collaborate group operations. In the case of independent business, (company A, company B) is (3, 2). In the case of business cooperation, (company A, company B) is (8, 3). When company A or company B aims at business cooperation alone and the other company continues conventional independent business, the company, which adopts business cooperation without cooperation of the partner, gets gain of 0 point.

I expect the result of game approach of this case. When business cooperation is carried out, company A largely gets more gains than those of independent business. It is desirable for him to implement business cooperation with company B. But company B doesn't increase gains of independent business so much in this case. He worries about uncertainty of partner's cooperation and the cost of investment. And company B does not positively have a motive to push forward business cooperation. It is less likely for company A to obtain business cooperation, unless company B adopt group operation. If company A execute it alone, he will lose all the gains. Therefore, company A will hesitate to advance to group operation. As a result, company A and company B get conventional gains and continue to implement their businesses alone. After all, business cooperation is not performed and ordinary activities are still continued. Nothing happens in this situation. They will keep preservation of the status quo.

But there is a method to change the situation. A historical resolution is observed in Japanese petrochemical complexes. In this case, a third party organization, which coordinate interests between company A and B, is necessary to establish business cooperation in industrial complex. It is in a neutral position and make arguments and adjustments as a mediator. The third party calculate and propose a compromised transfer gain after serious consideration of their gains of business cooperation. I show an example of stag hunt game added the balance of transfer gain on next table 3.

Table 3 The Adjusted Stag Hunt Game in Business Cooperation

		B	
		independent business	business cooperation
A	independent business	3, 2	3, 0
	business cooperation	0, 2	8-1, 3+1

I suppose that company B won't advance cooperation positively. This is why he worry about big risks such as heavy investment, noncooperation and small increase of gains after group operation. In this situation, introducing a system of a third-party organization to adjust interests is effective for them. They

¹ This decision is a selection of intermediate organization between market transaction and internal market. The form has been analyzed by transactions cost economies. We can examine it totally to adopt the framework of stag hunt game.

may justify the means economically in order to promote business cooperation. The third-party is likely to integrate the whole gains and transfer suitable gains to implement cooperative activities. Then, it have to increase gains of company B from those of company A by negotiation. In this example, it subtract 1 point from 8 of gains of company A and add 1 point to 3 of gains of company B.

3 Conclusion

I point out an example of business cooperation in compromised interests. However, the result of 7 points and 4 points in this case is one of adjustments. Neither big nor small number of gains is so meaningful to business cooperation. Cases of petrochemical complexes in Japan prove that it is important for business partners to establish a relationship of trust. If differences between conventional gains in dependent business and total gains in cooperation business are so small, historical examples demonstrate that a third-party organization play more tremendous role. It is more essential to calculate accurate transfer gains to promote business cooperation than quantity of profits.

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Assessment of Services in Higher Education Courses in Brazil

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Abstract: The need to assess quality of services in the area of education has been increasing not only because of the need for continuous improvement, but also because of more competition and a relative market saturation; moreover, due to huge proliferation of graduate *latus sensu* courses in general; hence it's becoming clear the need for more research to improve ways to assess the quality of these courses in order to find out to what extent possible targets of improvement have being met. One important reason for this kind of research is that the time students of these different courses spend is relatively short in relation to normal *strictus sensu* graduate courses; so there is a need to measure the benefits of such programs to see to what extent they are actually suitable. This work actually represents an additional contribution to research related to quality of service evaluation, analyzing the relationships between expectations and perceptions of students and their profiles; and may serve as guide in terms of a strategic plan for the improvement of educational services. Results show some of the benefits for the students, and indicate that multivariate statistical tools may be useful for achieving the proposed objectives, even though may have certain limitations.

Key words: Higher education; Quality of services; Assessment

1 Introduction

Brazilian higher education courses have shown an increasing demand in recent years. Higher education recorded 6,4 million of enrollments in 2009, almost the triple of those 2,3 million recorded ten years ago. (LEITE, 2011). It is estimated that in the last ten years the number of graduating students has tripled in the country. There are several programs in the Brazilian market and with the increase on the demand at the undergraduate level is leading to a natural increase on all kinds of graduate courses, as students look for deeper knowledge and professional improvement on specific fields : "The data on Brazilian graduate courses indicate that all areas of knowledge show significant growth over the years with some oscillations and that the trend is clearly positive." (PNPG, 2010).

Due to the proliferation of graduate courses by different institutions, there is a need for assessing the quality of these courses to verify whether improvement goals are being achieved since: "*There is low frequency to the courses, low learning assessment and low quality of education.*" (NISKIER, 1997, apud CANOPF et al, 2005).

The Brazilian Education Federal Council 977/65 report mentions two types of graduate courses: *latus sensu* and *stricto sensu*. The first ones are about graduate courses focused on technical training and professional development, directed to those that search update and practical knowledge for their activities; whereas *stricto sensu* are also graduate courses focused on graduating professors and researchers (Masters and PhD's).

Typically courses to graduate professors and researchers have demanded strict control, they are regulated by very specific legislation, whereas *lato sensu* courses lack guidance and direction for managing or development. The University Reform Law number 5540/68 has provided an improvement in terms of broadening the possibilities of offers of differentiated courses, as the case of the Top of the Market EAESP/FGV that segmented graduate students and developed an alternate program specifically focused on the student who works for companies. (BANDEIRA et. al. 1998; OLIVEIRA, 1996).

Because of the strict control that extended over undergraduate courses, in the nineties Brazil went through several types of assessments. The Brazilian University Institutional Assessment (PAIUB) assessed qualitative and quantitative experiences on the institutions. In 1995 it was implemented the Brazilian exam of courses with institutional and offer assessments. Undergraduate education and training also went through several assessment processes among which CAPES has been in place for over 30 years.

Especially for that reason and by the strong influence and pressure over educational institutions, some researchers have studied the institution in terms of the assessment process. One of the topics of interest is related to opinions of those professionals involved in the process and one of these studies showed a trend to identify the opinion of the faculty over the assessment practiced by Central Educational Agency CAPES at Brazilian universities. It was concluded that the institution's assessment

criteria was considered as higher quality by those interviewed, however three principles would be necessary to improve results: veracity, coherence and justice. The latter one was recommended due to risks in relation to the assessed programs.

Other studies aimed at collecting the opinion of program coordinators, and one of them was conducted by Targino (1999). A different and more broaden study tried to check both the opinion of consultants from MEC (Brazilian Education Ministry) and program coordinators who underwent the assessment process. In that case, it was recommended that the institution should have a more friendly and lighter criteria resulting into a more open and participative CAPES (SPAGNOLO; SOUZA, 2004). In the study, however, the authors did not clarify what more friendly and lighter criteria should be enhanced.

Horta and Moraes study (2006) also considered the opinion of program coordinators from graduate courses on the assessment criteria. Some of them criticized the process's quantitative assessment as well as the length of the course, the number of scientific articles produced etc. The suggestion was that the institution should be more concerned about qualitatively assessing the course and its results. Several coordinators show difficulties in dealing with the strict criteria to which they are submitted. The authors inquired if those involved in the assessment process had heard the opinions of professors and program coordinators as a critique to their one sided acting. By reviewing the data from the assessment of the graduate courses it was noticed a concerning about the re-assessment of the criteria to which the institutions are submitted, and the recommendation is that other evaluators are included in the process both professors and students, similarly to what is made in the undergraduate courses.

In this line of research but extending the context, some researchers attempted to assess the impact these courses may have over the society. One study from education has historically assessed the actions from CAPES, and all the adjustments the institution has made to reach the current book assessment process within the criteria of scientific production. One of the conclusions that the authors reached was that social impact of programs is not being contemplated in the assessment criteria from CAPES. Considering a strong trend to use quantitative methods to assess the scientific production, the suggestion made was the use of both criteria, subjective and quantitative for a more appropriate assessment (HORTA; MORAES, 2005).

As Villardi and Vergara (2011) have observed in the *stricto sensu* graduate course, it is expected that within 24 months master's degree students have developed the capability of research and abstraction of studied concepts, however the complexity of the learning process does not seem to have been considered in the teaching methods or research and not even by pedagogical projects that are based on positivist epistemology that traditionally guide Business master's degree courses.

Whereas there are studies focusing *stricto sensu* graduate programs, a large amount of scientific publications have dealt with assessment of programs for *latu sensu* graduate courses. One of these studies seek to assess the effects of the business administration course at MBA level on the alumni from the Accounting and Actuarial Science schools mainly regarding to competences acquired and professional improvement in their career. In this case it was observed that 58% of the interviewed alumni from the program demonstrated progress in their career and approximately 70% provided a positive assessment on the impacts from the course on their career. These data helped to notice that the institution obtained positive results however other results in the same study also showed that there is room for improvement towards the learning of these professionals that are more concerned with the job market. Similar research by several other authors have studied professors and students at this level of education (FREZATTI ; KASSAI, 2003).

Regarding graduation from higher education, Godoy, Santos and Moura observed that the studies over quality assessment are fundamentally centered on incoming and outcome data from the system (GODOY et al. 2001). Regarding incoming data there are usually analyses on the social economical profile of inbound students whereas the outcome data refer to the verification of success of the process education/learning mainly concerning the acquisition and application of knowledge and basic skills of those graduating from the course. In the assessment data for higher education courses both incoming and outcome data have been the focus of academic studies.

In addition a review of some of these studies basically replicated the methodologies that demonstrated to be adequate on a specific research. It is believed that this is a very positive way of assessing as it allows validating the method and testing on several situations providing it with more credibility and opportunities to make it deeper.

In Syntheses we notice that higher education assessments, both for undergraduate and graduate, shows a trend to students opinions in the process, as well as the use of qualitative assessments and not

only quantitative as observed in some cases, besides the concern on analyzing the social impact and knowledge transfer for the job market.

Moreover several criteria may be used by institutions to assess their programs allowing more freedom for marketing actions and students' preparation. The interest in graduate courses at the level of specialization also resulted into a great proliferation of offers all around the country. Besides, the participation of researchers as professors in such courses also pointed out certain needs because of the observation method used in these interactions. In addition including the point of view the customers of an institution and other stakeholders may help to prepare more suitable strategies for educational marketing, and the method to be presented in this paper may be used as a tool so that these institutions are able to improve their results.

The purpose of this work is then the developing and application of an statistical assessment method for a higher education graduate course. The questions that guided this research were: How a methodology addressing the identified pre-requisites may be applied to *Latu Sensu* graduate courses, and what relevant information may be obtained as signs of contributions of a graduate course? The choice was the replication and adaptation of a pilot study because of the benefits mentioned before, and for the additional reasons that the criteria used addresses the requirements pointed in the studies in the references, such as the participation of students and other extra-class evaluators as for example, as well as the social impact of their activities. Initially, a theoretical development was performed around the theme and then the students' responses were analyzed from a certain institution and finally we presented the educational conclusions.

2 Theoretical and Methodological Aspects

2.1 Educational service assessment: a marketing vision

In a Marketing study performed by Shostack, in 1977, products which were predominantly tangible were plotted on the top of the scale and those products which were predominantly intangible were placed at the bottom. Shostack then observed the more the services were away from goods, more differentiated would be the marketing of such commercial offers. In this *continuum*, educational services were placed in the extreme end and considered professional services in which predominantly intangible offers were traded. In this case, the efforts of making offers tangible and evident have become a fundamental guidance for the trading of these types of services. As a consequence, the quality and the image turned into major aspects for the building up of values for customers of a certain target-public (CRONIN; TAYLOR, 1994).

As observed by Aaker, in the last decade a significant progress was made to measure degree of satisfaction, partly because of pressure from the total quality movement. This trend led to the development of several dimensions of satisfaction which differ among goods and services and from industry to industry (AAKER, 1996).

Many studies now adapted to Brazilian reality also supplied important contributions. One author checked the application of a simplified scale that produced good results in the assessment of bars and restaurants with the possibility of being extended to other sectors. In the proposed methodology, the assessment of the perception and expectation is considered before the interaction with the supplier what eliminates the bias of later responses. In addition, the assessment form is built from a specific customer need, and due to its simplicity it is very easy to adapt. In the longitudinal study it was verified that the tool serves as thermometer (indicator) of the assessment rates (LAS CASAS, 2008).

Several other authors have proposed assessment methodologies for the quality of services (PARASURAMAN et al, 1988; BROWN et al., 1993). In general, a customer measure of satisfaction may be done through direct and indirect methods (BATESON; HOFFMAN, 2001). An institution uses indirect measures when assessing the rate of satisfaction through monitoring of data from sales, profits and customer complaints. On the other hand, the direct measures of data collecting are not standardized among evaluators. Bateson e Hoffman (2001) observed that the scales used to collect data may vary in different aspects, such as questions made to the respondents, the method to collect data vary from personal interviews to data collection without the interference of third parties. According to these authors, the information system about satisfaction may be determined as a current process of research which supplies data to make decisions. The guidance is that an information system should be used along with other measures of satisfaction at different times to assess the overall performance of an institution. Such concerning has spread to different parts of the service sector, and education is one of them. Viegas e Titanegro (2008) commented that at education institutions the standard of quality of services should be

assessed from several factors such as market, institution, challenges and customers.

Some authors state that the identification of the most important attributes for the perception of quality may start up and push processes that focus on the improvement (LOURENÇO; KNOP, 2011).

Lourenço and Knop (2011) assessed the perception of quality in higher education courses of Business Administration applying the scale of SERVQUAL. As a conclusion the authors recognized some limitations in the scale and proposed that the empiric effort should be improved by new researches that inquire the relevancy of the proposed variables as per the dimension of the scale.

Educational services have been assessed in a broadly manner as well as their impact varied on institutions, pedagogical projects faculty and alumni. The need of assessing the customer/students has led the assessments in the educational sector to further developments. (BANDEIRA et al., 1998; MAINARDES, DOMINGUES, 2009; FIEBIG, 2006).

2.2 Assessment of lato sensu graduate courses

The growth in the demand for graduate courses had several causes. One of them that favored the demand for lato sensu graduate courses in Brazil was the failure of undergraduate education to follow social changes and the requirements for professional qualification of for an up-graded job market and technological advances. (BANDEIRA et al., 1998).

Oliveira (1996) apud BANDEIRA et al. (1998) state that the role of graduate courses is fundamental in the context of changes, and its role should grow even more due to the requirements from companies for these courses with a modern professional background.

Graduate courses have a minimum length of 360 hours and should be offered to students who completed their undergraduate courses and their extra-class studies should not be included as well as the time needed to prepare their background paper. They usually have a specific proposal that is technical-professional and do not cover the whole field of knowledge in which it is inserted. The operational procedures that rule the course assessments, programs and individual performance of Higher Education Institutions (IES) are set by Brazilian Decrees number 2406/97, 3860/01, 302/98, 972/97 and 2297/98 (SOARES 2002, p. 49).

Several operational changes took place at this level of courses and most recently, the resolution dated June 8 2007 re-states that such courses offered by the accredited institutions are not dependent on prior authorization when offered by accredited institutions. The second article of the referred standard sets that at the moment of renewal of the accreditation the institution will be subject to the assessment performed by proper and competent bodies (MINISTÉRIO DA EDUCAÇÃO, 2007).

Higher education courses may have different parameters for assessment such as analysis, appreciation, diagnosis, control, among others. The assessment functionality allows us to improve the methods and techniques or even the material used by the professor as well as ensuring students are properly assessed, in order to contribute with the growth of the learning process. Similarly, upon assessment results, institutions may improve their practice of educational marketing, addressing the needs of customers and others involved in providing the service. However, for the assessment process to be effective it should emphasize not only the final result but also the process as a whole in order to reach the target. (OLIVEIRA; SANTOS 2005).

Not only the assessment process is important for the practice of marketing, but it is also important for an adequate service and so this is the main focus of this study. Taking into account the assessment of graduate courses as a whole and in accordance with what has been proposed by Oliveira and Santos (2005), these would be distant from the entrepreneurial issues and not addressing the targets of managerial background partly because of the complexity in the business environment. Despite the fact that some institutions have been searching to develop more modern methods, such as simulations and lab classes, they are still far from developing the needed competences. *“There is an issue in the process of knowledge transfer and adaptation of results in the background, in the work environment, by the participants of such courses.”* (ANTONELLO; RUAS, 2005)

A very old discussion about this subject refers to the need of adapting Higher Education Institution to the conditions and requirements of the market and therefore we have the proliferation of different approaches. (TOMASSINI et al., 2008).

As mentioned before, many researches have been led to assess lato sensu graduate courses. One of them had as target to develop a tool to assess quality of graduate courses using as a base the analyses of three higher education institutions in the Brazilian city of Belo Horizonte. The scale is based on the idea of quality of service as well as in the knowledge of those professionals involved with graduate course teaching (BANDEIRA et al., 1998).

Another study sought to analyze the quality of the course by building up a hybrid tool targeting at

education and teaching at accounting graduate courses. The format was based on a research document by CAPES; with information regarding the surveyed institution, open questionnaire and semi-structured interviews. According to researchers the hybrid model was able to integrate internal and external perceptions taking into account a valid and legitimate model, among other benefits. (IGARASHI et al., 2007).

Godoy et al. (2001) adopted in their replica the study performed by Kuh (1997). Kuh observed that the university environment and culture may either favor or harm the development of students both inside and outside of the classroom. Once the research with 12 institutions and 149 scripts was done and factor analysis was applied, there was a reduction to the following five main factors that may be followed along the time: personal competence, cognitive complexity, knowledge and academic skills, practical competence, altruism and cultural appreciation.

The choice for this paper was the tool developed by these authors as it was more complete to analyze factors that interfered with the students' development. The questionnaires were adapted to the graduate courses, master's degree level and doctorate by other authors (BEZERRA. In: CORRAR et al., 2007). However, it was observed the absence of the application of the tool for lato sensu graduate courses. The final version of the assessment tool with new adaptations was applied in the present study.

2.3 Methodological procedures

This work was based on Kuh's approach tested by Godoy et al. (2001) in undergraduate courses in order to assess graduate courses and called Assessment Questionnaire for Graduation Effects – QUEG. The questionnaire was tested initially on a sample of 58 students attending their last (senior) year of an Accounting and Business undergraduate course at a private college in the city of Sao Paulo in the year of 2000.

QUEG consist of three parts: the first one describes the respondents profile in terms of gender, age and undergraduate course; the second one consists on five open questions, two of them being aimed at identifying the reasons why students chose a certain school and undergraduate course. The third one refers to identify the respondent.

On this paper there were some changes involved; so now the first part consists on three open questions aiming at identifying the reasons to enroll in the course, strengths and weaknesses and improvement suggestions.

In addition to the open questions, the second part of the questionnaire included 16 items in a Likert type scale indicating the relative importance of each of the mentioned items.

The third part of the assessment tool is the identification of respondents. The base for building up the tool was the 14 categories of learning and personal development recommended in the research made by Kuh (1997 apud GODOY et al., 2001).

The adapted questionnaire then was applied in the nonprobability sampling of 227 graduate students at a Higher Educational Institution in the city of Sao Paulo in April 2010. The questionnaires were distributed in different rooms by the interviewers to be filled out and delivered at the location. The institution coordinates its offers in an integrated manner allowing extending the analysis in other disciplines besides those directly related to Business courses since it aims at testing the assessment tool and the courses benefits of a graduate course from the perception of students. In this way it may be even possible a comparison between the results and along with a multidisciplinary view will allow us to have a better assessment on the adequacy of the tool used.

3 Descriptive Analysis

3.1 Students' profile

The data shows that the students are proportionally distributed into three groups of age up to 40 years of age and the most sought areas are finances (25%) and law (22%), as shown in Table 1.

Table 1 General Profile of Students

SEX (0 = F, 1 = M), AGE (1 < 26 YRS OLD; 2 of 26-30; 3 of 31-40; 4 > 40), TERM (1 = 1; 2 = 2; 3 = OTHERS), MSC (Most Sought Courses : C1 = Finances; C2 = Law; C3= MBA Entrepreneurial Management; C4 = People Management)							
SEX	%	AGE	%	MSC	%	TERM	%
0	65,33	1	29.33	C1	24.67	1	8.44
1	34,67	2	24.89	C2	21.59	2	25.33
		3	33.33	C3	14.10	3	66.22
		4	12.44	C4	11.45		

The focus of this analysis was on the benefits acquired in the courses that were filled in the

questionnaire with closed questions. For the purpose of this study and because of the great variety of items, we only considered the answers with a percentage higher or equal to 10 %.

The first part of the questionnaire consisted of open questions trying to identify specific aspects regarding a Higher Education Institution (HEI) that included the reasons why the university had been chosen, strengths and weaknesses; as well as recommendations for improvement.

3.1.1 Motivations

Table 2 refers to the answers about the main drives shown by students regarding their search for professional background organized from higher to lower.

Table 2 Motivation Ranked as Most Important
(0 = NO; 1 = YES)

MT1=Improve the career; MT2= Acquire Knowledge ; MT3=Update;
MT4=Professional Growth ; MT5 = Deepening in the area

Motivation	% YES
MT1	40.97
MT2	38.33
MT3	25.55
MT4	15.86
MT5	10.57

3.1.2 Strengths

Table 3 shows students opinion regarding major strengths ranked as most important.

Table 3 Major Strengths
(0 = NO; 1 = YES)

PF1=Professors; PF2=Updated Content; PF3=Learning

Strengths	% YES
PF1	47.14
PF2	25.11
PF3	11.45

3.1.3 Weaknesses

Table 4 shows students' opinion regarding major weakness detected and ranked as most important. It is relevant to observe that the percentages referring to major strengths are considerably higher than major weaknesses what may represent a good result.

Table 4 Major Weaknesses
(0 = NO; 1 = YES)

f1= Low load of hours; f2=Teaching techniques of some professors;
f3=Infrastructure

Weaknesses	% YES
f1	22.03
f2	14.10
f3	13.22

3.1.4 Recommendations for Improvement

Table 5 shows the main suggestions and recommendations for improvement ranked as most important. It is interesting to observe that the percentages related to suggestions of "improvements" are not high. Therefore, if the institution targeted at applying the results for implementing operational improvements, best policy would be to reinforce the better assessed strengths and also improve some of the weaknesses.

Table 5 Suggestions for Improvement
(0 = NO; 1 = YES)

ML1 = Review hour load; ML2 = Improve Infrastructure; ML3 =
Dynamic/Practical Classes

Improvements	% YES
ML1	14.98
ML2	11.98
ML3	11.45

3.1.5 Questions

The Variables were coded for statistical and graphical purposes:

ANSWERS (R) and QUESTIONS (QI, QII,QXVI):

RQI – Acquired responsibility regarding my own learning.

RQII- Started to attend other cultural locations such as exhibits, museums and theaters.

RQIII- Learned to manage my time sharing it into leisure activities, work and study.

RQIV- Acquired posture, behavior and skills needed to perform the career I have chosen.

RQV- Became a critic person with capabilities to analyze and confront different points of view and opinions.

RQVI- Started to understand and deal with management and bureaucratic systems.

RQVII- Started to read more books about general subjects.

RQVIII- Started to read more books about subjects related to the course I have chosen.

RQIX- Learn to examine and summarize several types of information and experiences.

RQX- Started to attend libraries and bookstores.

RQXI- Developed a capability of relating with other people and work in teams.

RQXII – Started to apply in my practical life the things I learned in the classroom

RQXIII- Became a more independent person with my own thinking.

RQXIV- Broadened my knowledge about the subjects taught.

RQXV- Developed skills of speaking and verbal fluency that make my communication easier with others.

RQXVI – Learned to study and research in an independent manner.

Regarding these 16 items, table 6 shows a relative influence on habits according to area of the graduate course; and Table 7, which is a comparative frame for the Variance Analysis regarding these relative impacts shows us for instance that in average students are feeling the impact (influence) significantly higher in relation to certain items like QI, QIV, QV, QVIII and QXIV as compared to QII which is the question about attending cultural places and events, that is, the respondents stated that they did not start to attend museums and theaters as an outcome from the graduate course.

Table 6 Results for Background Influence Regarding Questions

(Absolute numbers out of a total of 227)

	Strong	Average	Little	None
RQI	94	73	42	18
RQII	19	45	70	93
RQIII	66	63	59	39
RQV	73	101	33	20
RQVI	37	75	65	50
RQVII	45	75	65	42
RQVIII	105	78	31	13
RQIX	61	104	40	22
RQX	25	56	88	58
RQXI	47	64	68	48
RQXII	64	86	51	26
RQXIII	48	57	55	67
RQIV	121	80	18	8
RQXV	51	69	65	42
RQXVI	64	69	55	39

Table 7 ANOVA for Course Relative Influence Regarding Habits and General Development
(Influence Code: 0 = none, 1 = little, 1 = average, 3 = strong)

ONE-WAY ANOVA (QI a QXVI)					
Source	DF	SS	MS	F	F
Factor	15	485.654	32.377	33.38	0.000
Error	3616	3507.401	0.970		
Total	3631	3993.055			

S = 0,9849 R-Sq = 12,16% R-Sq(adj) = 11,80%

Confidence Intervals for means (95%) based on overall standard deviation (Pooled StDev)

Level	N	Mean	StDev	-----+-----+-----+-----+-----
QI	227	2.0705	0.9567	(-+--)
QII	227	0.9559	0.9721	(-+--)
QIII	227	1.6872	1.0701	(--+)
QIV	227	1.9736	1.0259	(-+--)
QV	227	2.0000	0.9072	(--+)
QVI	227	1.4361	1.0084	(--+)
QVII	227	1.5419	1.0096	(--+)
QVIII	227	2.2115	0.8871	(-+--)
QIX	227	1.8987	0.9098	(--+)
QX	227	1.2115	0.9497	(-+--)
QXI	227	1.4846	1.0448	(--+)
QXII	227	1.8282	0.9692	(--+)
QXIII	227	1.3789	1.1199	(--+)
QXIV	227	2.3833	0.7804	(--+)
QV	227	1.5683	1.0341	(-+--)
QVI	227	1.6960	1.0602	(--+)

-----+-----+-----+-----+-----
1.00 1.50 2.00 2.50

Pooled StDev = 0.9849

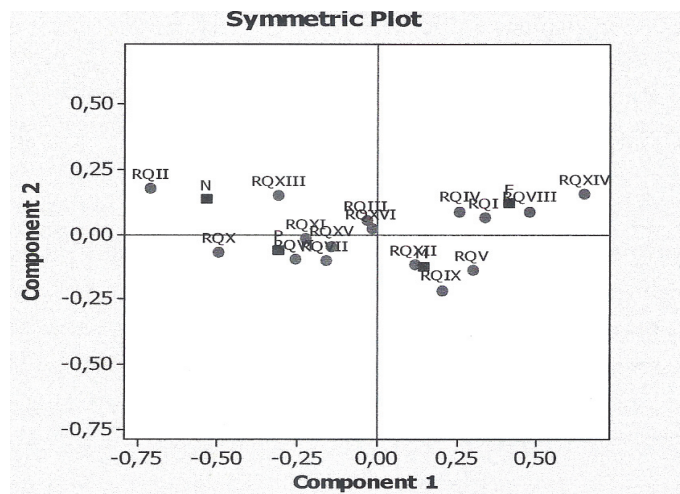


Figure 1 Correspondence Analysis

Note. Clearly the horizontal axis is related to the degree of influence.

In order to present a general map based on tables 6 and 7, it was used Correspondence Analysis as shown in Figure 1 that shows how answers RQI, RQIV, RQVII e RQXIV are very close among each other and are located closed to the category of strong influence (F). Answers to questions RQV, RQVII and RQIX form another group that are also close to category F (Strong Influence). Group RQV, RQVII and RQIX is close to category M (Average Influence). Questions RQVII, RQXI and RQXV build a group and are close to category P (Little Influence); and finally RQII and RQX are more loose and a little to the left where category N (No Influence) is found. In fact, Figure 1 confirms Table 7 for the Comparative Analysis made by ANOVA.

4 Relationships Between Profile Variables and Questions

In order to proceed with the analysis of relationships between the variables related to profile and its possible impact, the following variables were grouped:

RQI to RQXVI (Question Approval: Strong Impact = 3, Average = 2, Little = 1, Others = 0)

AGE (0 = up to 30 Yrs. of age, 1 = Higher than 30yrs of age).

CMP (Most sought courses: C1 = fin, C2 = law, C3 = mba, C4 = gpes).

A chi square test was used based on contingencies tables in order to analyze the differences regarding the respondents' profile. The values of relative significances that are shown in Table 8 demonstrate that basically to a higher or lower degree (a lower "p" value means a stronger relationship) there are differences. As may be seen most responses have a relationship which are statistically significant with several features from the students' profile except for gender (SEX) which makes no significant difference in any of the cases except for RQVIII, RQXII E RQXIV.

Table 8 Relationships Between Responses and the Features Listed in the Students' Profile
(p-values for a chi-square test; the lower the higher relationships)

	SEX	AGE	CMP	TERM
RQI	0.141	0.075	0.020	0.005
RQII	0.595	0.009	0.331	0.065
RQIII	0.311	0.095	0.000	0.030
RQIV	0.391	0.037	0.001	0.010
RQV	0.244	0.019	0.021	0.044
RQVI	0.670	0.108	0.013	0.027
RQVII	0.019	0.911	0.738	0.049
RQVIII	0.057	0.379	0.129	0.892
RQIX	0.297	0.166	0.294	0.009
RQX	0.425	0.425	0.428	0.093
RQXI	0.093	0.056	0.000	0.124
RQXII	0.070	0.426	0.002	0.525
RQXIII	0.804	0.139	0.034	0.109
RQXIV	0.022	0.832	0.068	0.609
RQXV	0.732	0.048	0.185	0.320
RQXVI	0.458	0.231	0.010	0.213

Note. In the case of RQXIV there were cells regarding CMP and TERM with a number of events lower than 1, we modified them joining responses 0 and 1 of RQIV, to be able in a way to find chi-square.

More specifically in the first question, RQI, the feature that makes the most significant difference is the term in which the student is in TERM (p = 0,005), that is, as the student progresses he/she has more reasons to approve QI, that means, he/she becomes more responsible for their own learning. The second feature that makes some difference is the course CMP (p = 0,020) that presents a higher approval by students from Finances than from Law – and the age ID (p=0,075) with younger students approving QI more often.

In the case of RQII it was observed that the age makes the most significant difference ID (p = 0,009), however, curiously in the opposite way to RQI; that is, older ones are those who approve QII more often. The term is the second aspect with higher influence TERM (P=0,065) and then again the opposite of what happens in QI, that is, as time passes less students approve of QII.

Regarding RQIII, Table 8 shows us a more significant difference regarding courses CMP (p = 0,000) and this may happen due to the fact that only half of the students from finances approve of QIII. In

continuation, the approval will depend on the Term TERM ($p = 0,030$) – however, curiously here the approval increases in the second term and then drops again. With age something similar happens in the case of QI, in the sense that QIII has more approvals among the younger ones ID ($p = 0,095$).

For RQIV it is observed a similar behavior to that found in the prior case of RQIII in the sense that the most significant difference shows in regarding to courses CMP ($p = 0,001$), however the continuation in this case appears in age and then again the younger ones are those mostly satisfied with this new item ID ($p = 0,010$); and then right after Term TERM ($p = 0,037$) revealing a good approval from the second term on.

In regards to questions that were best assessed we observed some similarity between RQI and RQV, what may occur because of the proximity of the questions. Regarding RQVIII, just the item sex had a significant difference GEN ($p=0,057$) – women were most strongly influenced regarding to reading the subjects specific texts.

In a similar manner, in question RQXIV, sex is what makes the biggest difference GEN ($p = 0,022$) – women who demonstrated to be significantly more optimistic; followed by CMP ($p = 0,068$) – apparently because of the low valuing given by students from finances regarding the acquired knowledge.

5 Conclusion

The purpose of this work was mainly adapting, improving and testing an assessment method for Quality Service of a graduate course. Due to the need of assessing results from undergraduate and graduate higher education courses, several studies have been developed in order to improve the assessment system. Some methodologies have been tested at different levels. For instance, an institution may assess using a methodology in undergraduate courses and then later use the same methodology in graduate courses. The advantage of this procedure is that it makes possible to assess the method in different situations enhancing the credibility of results. In this work the replication and adaptation of a methodology tested in the undergraduate course, and then later adjusted to *stricto sensu* and *lato sensu* graduate courses.

What was noticed in the application of this assessment tool is that it was adequate to measure the effect of courses in the behavior and the results obtained by the students. Besides being a useful tool to identify the strengths and weaknesses, recommendation for improvement as well as drives for the establishment of a course at this level, it also reveals the perception students have over the acquired benefits. Therefore, the first part of the questionnaire allows us to assess and improve the quality of education as any other course assessment tool, as it may become a common practice in this type of graduate course. Moreover, the second part of the questionnaire, with questions prepared in a more broadly manner covers most of the suggestions provided by the data.

One of the benefits from this assessment was to allow emphasizing the process as a whole (OLIVEIRA; SANTOS, 2005). The tool assesses the benefits acquired in their personal, professional and social areas. Among the acquired benefits in the course, from a professional standpoint, we observed a strong influence in item RQIV that means, in the acquisition of a posture, behavior and needed skills to perform the job. However, the response to question 12, about the application of learning into the practical life demonstrated influence which was just about average. This means that a graduate course is developing positive demeanor towards work, but is not meeting the requirements from the market at the level of knowledge. Nevertheless, the statement that there are issues in the knowledge transfer process and results adaptation in building up a work environment (ANTONELLO; RUAS, 2005), the results show that in spite of the limitations in knowledge transfer, courses are helping for the development of behavioral competences what may be considered as an important contribution.

In addition, it was noticed that by the scope of topics, the tool meets the most broaden requirements being used as an assessment criteria (GODOY et al., 2001). However, as in this study the assessment was focused in the assessment tool; in order to obtain more reliable results we would need also to assess professors, considerations about the pedagogical projects, results at companies or aspects either more broaden or more hybrid. (IGARASHI et al., 2008). Direct and indirect assessment methods as suggested by Bateson e Hoffman (2001) would certainly be a great contribution for the assessment of results (sales data, profits and customers complaints).

The questions seem to be adequate, despite interpretation problems, with certain caution on assessment within a given context. One of them for instance, approached the influence over the specific aspect of book reading, a habit that may be considered as positive. The result was a strong influence,

that is, there was a positive effect on several students. However, the result may have been a consequence from the course own requirement which demands the preparation of background papers forcing students to research specific subject on the fields they have chosen, that may not mean the acquisition of the habit of reading after the conclusion of the course. A suggestion would be to replicate the questionnaire after a determined period of time to check if revealed habit and knowledge remained.

Therefore it is possible to conclude that the selected assessment method may bring many benefits to the evaluation of *Lato sensu* graduate courses. It meets some requirements mentioned by other researchers on changes of behavior and knowledge and social and educational aspects among others mentioned in the 16 questions of the assessment tools. However, as it was mentioned before, a more reliable response may be obtained if other ways of assessment are also included (SPAGNOLO, SOUZA, 2004; HORTA, MORAES, 2006; HORTA, MORAES, 2005; FREZATTI, KASSAI, 2003).

Other suggestion is that questions may be adapted to every type of course. Questions about sustainability and social responsibility that have not been included in this questionnaire should be added because of the importance for education and learning in any area or field nowadays.

As to the methodology used for the data analysis, the study of Godoy et al. (2001) used Factor Analysis. The attempt here was to add techniques for data analysis such as Correspondence Analysis, ANOVA, and chi-square tests to find and test relationships.

All techniques used showed to be adequate and very profitable; and allowed the analysis of other aspects as needed. The results allowed statistical comparisons (ANOVA), regarding the impact or relative influence of the 16 items in the questionnaire about the benefits perceived in the students' background as well as the possible differences by gender, age, course term and course type; showing these differences and general relationships in a map based on a Correspondence Analysis. Hence it could very well be used in a strategic development plan by area as in the case of Villardi and Vergara (2011); and also to help preparing indicators that may allow to monitor the relative improvements in this major sector of services related to higher education an area so vital for the development of the country.

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Challenges of Longevity and Retirement Policies in Brazil

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Abstract: Longevity is becoming an issue of increasing relevance almost everywhere. This paper presents a study regarding the conditions faced by a majority of retired Brazilian in the context of increasing life span and governmental social policies which affect, directly or indirectly, this growing number of the population. Begins by presenting the emergence of programs for the retired people and people about to get retired, considering the Projects of Preparation for Retirement - PPRs, showing the economic, social and current policies experienced in Brazil and the impacts on the topic studied here. It shows the profile of interest and risk, taken along 2,066 civil servants, men and women, regardless of marital status, academic level, or professional position, surveyed through a questionnaire composed of 20 questions answered on a scale from 1 to 4, focusing on: the financial aspects, changes in interpersonal relationships, physical and mental health and various interests. The results of the analysis indicate that the flattening of the amount paid in pensions and retirement may drive a large number of retired people to a state of survival, close to the conditions of social, financial and cultural poverty, which proves the urgent need for the various actors of the process to look at a country - Brazil that is getting old with the elderly population doomed to general impoverishment, and consequent need to generate sustainable policies for the millions of beneficiaries, who may increase dependence on the state, families and the community.

Key words: Retirement policies; Retirement future; Increasing impoverishment; Insecurity in Post-retirement

1 Introduction

1.1 The emergence of programs for retired people or people about to get retired in Brazil

Programs for civil servants were applied in Brazil the 80s for the municipal, state and federal levels in different states of Brazil. For 35 years now, these programs have been following the format, which was defined for an economic and political environment in crisis, when the Brazilian people were under the impact of military dictatorship. In the 80s, there was the civic movement "Direct Elections Now", which involved various strata of society. Some expressive political parties were founded, as PT, PMDB and the PSDB, which claimed for democracy. A civil president was elected, Tancredo Neves, who did not actually take over, by health problems which lead him to death. The transition to democracy was then led by his deputy, José Sarney, who was appointed president.

We had inherited the high debt ratios from periods of previous development plans, with great difficulties to rollover debt from creditor institutions. From orthodox economic policies - which means cutting government costs and increasing revenue - with Sarney's mandate government starting in 1985, policies started to become heterodox, different from those advocated by the International Monetary Fund IMF.

High inflation rates and economic stagnation of the period generated a very troubled context, with attempts to make a monetary reform and adoption of various plans – Cruzado, under Bresser's mandate and Summer, which showed insufficient economic results. For these reasons, the 80s became known as the lost decade from an economic point of view, considering growth and development, which ended with hyperinflation.

In the political sphere, the 1988 Constitution was promulgated, materializing the end of dictatorship. Conditions were created for increased civic participation of elections, which brought to power Fernando Collor de Melo in the first direct election after the military regime, with the Salvationist speech against the 'Marajás', nickname by which civil servants were appointed, for their had high wages and pensions. All the expectations placed on him were frustrated in his government that ended with impeachment.

By the late 80s, neither Brazil nor the world were the same. With the end of the Cold War took shape the neoliberal model of governance around the world took shape, leveraging the economic globalization process. And Brazil, a rich country, but still very poor in social welfare, encouraged civil servants to discontinue their work by offering huge amounts of money for retirement,

Through a Plan of Voluntary Dismiss, or Early Retirement Plans. There was a strong movement

offering privileges to the younger, considering that the older people over the loyalty value of older, consisted a category people considered 'disposable', because of their undesirable high wages, that 'burdened businesses and the public purse'.

1.2 Favorable context for the projects preparing retirement - PPR

Accelerated in the first PT government, which pressed for new positions and jobs to be filled by young people and recent graduates, at the expense of the elderly, privileges changed hands: from the elderly to the younger, resulting in greater intergenerational competitiveness, currently with three generations in fierce and unequal struggle in the labor market.

With new technologies, the governmental and private companies, not being allowed by law to press and encourage older employees to discontinue their jobs, they coined the expressions: "no profile". Until the beginning of this century, in the Brazilian context, dismissals, as well as voluntary and involuntary dismissals took place with the appeal of conducting the 'surplus and older undesirable' to leisure practices and to a retirement organized for the idleness to fill with pleasure and meaning the 'free time conquered'. Now most of them try to survive on less than half the pension provided in a technological world by which they were not absorbed and for which they have not been prepared to enter. In addition, being subject to bullying, from which few really recover later, so painful are the moral and psychological wounds that shake their confidence in life, their personal and family security, and their overall health, when inadequately addressed by authorities unprepared to bring them back to the life 'out there'.

The PPRs were devised in critical times, 35 years ago. Now, in 2015, crises are even more virulent. A political opening was expected to take away the evil rulers of power and place the elderly into the universe of the global economy. Nowadays, after some lost decades in terms of education, public health, greater investment in infrastructure, housing and public transport, with the air being more polluted and the climate going through a devastating change, with a recession crushing the acquisition power, the PPRs have to cope with a social - financial education, which collides with previous decades stimulus to reckless consumption without guaranteed savings and no decent future vision.

2 Changes in Retirement Conditions in a Country with Economic and Political Crisis

In the past, there was a dream of a peaceful and desired retirement. Nowadays is the nightmare of survival and hopelessness of a country which did not know how to generate prosperity. A country whose unemployment rates grow at an alarming rate and whose entire population is already under pressure from population aging, even not coping with policies for children and youth people which, when formulated, are very poorly implemented.

It is rather staggering to know about the pension funds of public and private companies had the money deviated in amounts which certainly surpass what is still being raised and quantified in the 'Petrolão' corruption process. All this is caused by mismanagement of public money and the deviation of funds due to corruption. The private pension system is about to collapse under the supervision of politicians who are not committed to public policies for sustainable growth and development.

This panorama of huge amounts of money being deviated from the original purpose, leave taxpayers unassisted, who besides the disappointment for the poor results obtained, will add to big groups of people in poverty, as a result of corrupt governments. There is a growing number of Brazilians in the process of impoverishment largely orchestrated by excesses of insensitive rulers to the needs of retirees and pensioners.

The number of public and private companies that currently maintain the PPRs in their official agenda do it under three conditions: outdated working model, lack of vision of future and dignified social insertion, in addition to closed market for the elderly who wishing and / or need to undertake some working activity. Still, without being preparing for the changes that follow after dismissals, elderly people are offered insufficient programs, as a great rite of dismissal, which at times may be honorable, but in most cases is painful.

3 A Response to the Questions and Perplexities of the Working Population about to Retire

The PPRs was started with the presentation of their content and working conditions for those who accepted the invitation to join; and as a result of our experience in the field in a great extent of the country, having communicated with over 10,000 people in seminars and workshops that we have been

offering in the past 30 years of work to retired people or people about to retire, we list some key issues and interests they raised and discussed. A full document shows us a series of reflections and decisions about the personal and professional future.

4 Number and Profile of the Population Covered by the Data Mapping below

This paper presents a profile of interests and risk, taken along with 2,066 civil servants, men and women, regardless of marital status, academic level or professional position. Respondents were addressed in auditoriums before the beginning the presentations of content through a questionnaire consisting of twenty (20). The questions should be answered on a scale of 1 to 4, showing: 1.) high preparation / readiness to retire in good conditions. 4.) little preparation to retire well - in case they will leave the company in a short time - from 01 to 3 years .

A common characteristic is the fact that they are civil servants, working for at least ten (10) years as civil servants, on the dates the survey was conducted.

All received the same instructions and had the freedom to respond spontaneously, even taking some questions in plenary. The groups were formed with 40-260 people, from those present in the same auditorium, during the morning or afternoon.

Data was obtained in the period 2002-2012, with the: Chamber of Deputies in Brasilia; House of Representatives from Salvador, BA; Ministry of Labor and Employment - MTE in Brasilia, DF; Regional Electoral Court – TRT, in Brasilia and Aracaju-Re; Court of Justice - TJ, in Belo Horizonte-MG, Aracaju-RE and Manaus-AM; Council of São Luiz, MA; Council of Joinville, SC; State Departments of Labor and Social Welfare - SETAS, in Cuiabá-MT and Aracaju-SE; Secretary of Social Development and Fight against Poverty - Headquarters in Salvador-BA, and Department of Public Safety, with the prison system of São Paulo, in several of its units.

5 Mapping the Risks to Which the Newly Retired People are Exposed

The questions posed at the beginning of the program we implemented in connection with the civil servants were related to their vision of the future: 5 years prior to their dismissal to five years after their dismissal, an estimated range of 10 years, during which people have performed adjustments to the new conditions, as well as to their lifestyle.

This data has as an immediate effect the following:

- Introduce the program as a whole and its main objectives;
- Get a critical and conscious adherence from the civil servants to its preparation;
- Start a broader reflection regarding the positive and / or negative-impacts on their lifestyle;
- Adjust our arguments and knowledge to the interests and needs of each particular group;
- Map their realistic prospects, or not, related to the 20 topics, namely:
 - (1) Changes that occur after leaving the company'
 - (2) Conscious preparation or lack of preparation in relation to the future in a short time and future time, a projection of up to 05 years after retirement, be it voluntary or compulsory
 - (3) Possible conversations on issues that directly affect their decisions on that
 - (4) State of the current financial situation
 - (5) State of the expected income for post-retirement
 - (6) Current savings / bond conquered
 - (7) Current profession and future professional occupation
 - (8) Projected changes and desired changes in family relationships after leaving company
 - (9) Changes in the relationship with the spouse / partner
 - (10) Quality of sex life expectancy for a period of 10 to 15 years
 - (11) Entertainment, activities kept and / or learned for post-retirement
 - (12) Specific cultural activities and / or comprehensive
 - (13) Interest in politics, participation as a citizen
 - (14) Changes in social life
 - (15) Update of general and / or specific knowledge
 - (16) Practice, interest and development of spirituality
 - (17) Physical health
 - (18) Mental health
 - (19) Stress resulting from adaptation and management of the quality of free time
 - (20) Venture plans for the future

6 Interpretation and Analysis of the Results

The frequency of responses was compiled as notes, among the individuals surveyed, with option for multiple choices options.

Data was divided into five broad categories:

- (1) Expectations regarding the discontinuation of work in the company
- (2) Financial aspects
- (3) Changes in interpersonal relationships
- (4) Various interests
- (5) Physical and mental health

Regarding the discontinuation of work in the company, it can be said that more than half of the answers given by the public researched points to the fact that they were not prepared to leave the company; they did not stop to design their plans for the future and believed that the changes would not be very significant; in addition, they do not consider themselves well informed about what would happen with them in the short run - within a few months up to five years.

As for the financial aspects, the vast majority was satisfied with what they had and, as long as nothing unexpected happens in their lives, they consider they had enough. But for the future, they would still need to capitalize. Considering that the country is getting older, it transfers to the individual and families the responsibility to provide for general care, health, education, and housing for all four generations: the old-old, the own, the children and grandchildren. The government has flattened the top limit amount for retirement - from ten to less than seven minimum wages along the past three decades, and has encouraged the use of pensions as a warranty to pay loans, thus, running the risk to become hostage of the retired people's growing debts, which will never be paid with their work.

As for the changes in interpersonal relationships established in the governmental company / public agency environment, less than half of the answers express a tendency to retain contact with the few friends made at work, as there is feeling of low social network identification and belonging. With regards to the family environment, expectations are not very optimistic, with about 60% of the answer expecting that the quality of marital relationship to get worse.

With regards to Various Interests, almost 40% say they do not want or have expectations of great achievements while working in the company. Leisure, entertainment and some cultural activities seem to be their personal fulfillment, denoting a demotivating framework and lack of interest in keeping high productivity and engagement in work projects, while they remain in the job. Similarly, they show low engagement and interest with regards to politics and only half of the number of people researched stated they would seek for new knowledge, to keep up to date in ways. Spirituality was a subject that does not mobilize even half of the number of people taking part of the research.

On the issue of physical and mental health, expectation is quite optimistic, with almost 83% believing they would preserve their active sexuality, depending much more on the willingness of individuals than the physical aging and affective relationships. About 40% of the answers reveal that they do not take as much care as they would in the future. Nearly in half of the answers, their mental health was considered to improve, according to the activities engaged in the future. Sixty percent of the answers show there is a wish or desire regard to improve their emotional aspect of life: to be more balanced, and have more self-control and patience, for example.

Thus, there is a large number of people unprepared for the future, which are not updated from the standpoint of education, general interests and plans for the future, not the professional point of view. They did not cultivate great expectations on personal fulfillment during the time they keep working, while they believed that your health would improve after they stopped working, and they were aware they might not have enough money to face emergencies and contingencies with negative impact. They did not know how much there would get when retired, neither when. Their journeys follows without security, nor information and knowledge to face "the outside world", which is in crises of all social institutions, making their plan for long, dignified and healthy life seem more dismal.

7 Longevity and Related Conditions Around the Globe

As mentioned before similar conditions as the ones in Brazil may be going on all around the world particularly on developing countries like the Latin or Iberoamerican ones. For this reason, it's interesting to have a picture of how are we doing on this Region in relation to the rest of the world; so using data from Knoema we'll be dealing with 132 countries divided into 3 Regions that are of our special interest to be compared regarding Longevity: the Iberoamerican AIBER (21 countries), the Advanced

Economies AVECO (28 countries) and the rest of the 132 countries OTHERS (84 countries). Table 1 shows the means for each one of the 3 Regions (3R) of Synthetic Indicators such as Social Progress Index (SPI), Human Development Index (IDH), Governance (GOV), Corruption (CORR), Longevity (LONG) and Age Watch Index (AWI); as well as the ones concerning Analytic Indicators such as Survival of Females to more than 65yrs.(SURF65) and Survival of Men to more than 65 yrs. (SURVM65), as well as the Fs of the corresponding Analyses of Variance ANOVAS.

Table 1 ANOVAS Comparing Means and F's Were all Variables Were Rescaled (0–100) and Positized Variables (the higher the better)

3R	SPI	HDI	GOV	CORR	LONG	AWI	SURF65	SURVM65
AIBER	64.41	65.92	42.48	37.21	68.75	52.94	84.81	75.25
AVECO	90.3	87.36	83.25	74.94	91.09	73.15	91.33	83.53
OTHER	42.63	46.74	33.36	30.7	44.43	44.49	71.19	61.73
F	83.97	43.45	97.02	81.65	62.34	54.18	29.33	40.67

No doubt, as its clearly shown in Figure 1, we at the Iberoamerican Region (AIBER) are still a long way to go in relation to the Advanced Economies Countries (AVECO) particularly in critical issues like Governance (GOV) and Corruption (CORR) that, as mentioned before, end up having an impact on retirement conditions; and moreover this may be even more critical at the OTHERS countries. So this work may help as a warning signal for the purpose of strategically planning and developing more humanly concerned sustainable development policies all around the world.

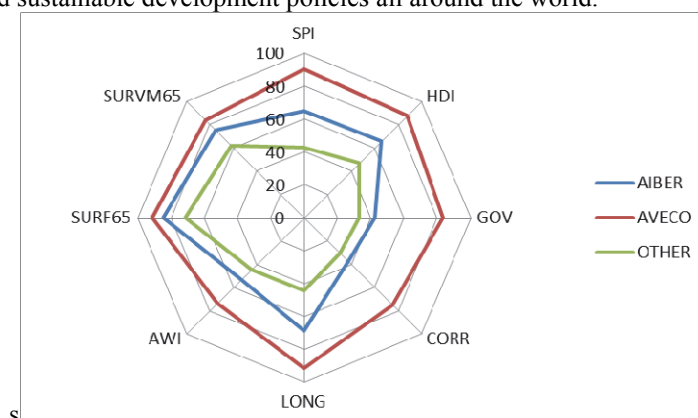


Figure 1 Comparing the 3 Regions Regarding the Basic Indicators

8 Conclusion

The Flattening of the amount of pensions going on in Brazil will leave retired people in a critical state of survival, and almost social, financial and cultural poverty. The lack of preparation to face the intergenerational competition is already a fact. Pension funds, institutions that have managed to keep to the present, are under interventions to expose corruption due to promiscuity with the physiological, governmental powers. It is time we look to a country - Brazil – that is getting old and leaving the population to general impoverishment, and in great need to develop sustainable policies for more than 31 million people, that otherwise will depend on the families and the good will of neighbors. The situation in this country is similar to other developing countries that are not yet quite aware and be well-prepared to the challenge of Increasing Longevity and Decreasing Birth Rates simultaneously going already along the last decades.

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Educational Strategies in Brazilian Colleges Do They Lead to the Treasure Within?

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Abstract: The scope of this study is to understand the teaching strategies used by professors of Brazilian colleges, as well as the reasons for these choices. The research aims to collect answers from professors through a questionnaire offering open questions, closed questions and open / closed questions on the teaching methods used in colleges. The answers are checked against the UNESCO Report by Jacques Delors for Education for the twenty - first century, which is based on the four pillars: learning to be, learning to do, learning to know and learning to interact - Education as the *Treasure Within*. As far as the teaching and learning processes are concerned, it is necessary to take into account both the content and the human relations which are established. Becoming conscious of the choices teachers make for the class planning, that is, the strategies used in the classroom, makes them important agents for the development of the learning process when defining the type of class that focuses on the transmission / reception of scientific knowledge or participation / interaction of students. Interdisciplinarity which takes into consideration the ontological, praxiological and epistemological aspects of education seems to bridge the transition process of education from mere knowledge transmission towards Education, as a *Treasure Within*.

Key words: Educational strategies; Interdisciplinarity; The treasure within

1 Introduction

Studies involving the identification of teaching strategies have aimed to make learning more meaningful and relevant to meet the needs of students as well as professors.

Owing to the specificity of the subjects offered in further education, teachers most often tend to be more attentive to knowledge than to students. However, according to the social historical theory by Vygotsky (1984), the human beings are essentially social and it is through the relations that they are constituted as subjects.

Throughout history, many theories have addressed the education issue and how it should occur. Based on these theories, it is possible to identify two basic opposite trends. One stating that knowledge is acquired from without, transmitted from one individual to another, whereas another proposes that knowledge occurs from inside out. From these conceptions several proposals are developed.

It can be noticed in the literature that many authors approach the teaching methods aimed at adults, demonstrating the positive and negative aspects and how to use them. Nowadays, we wonder how the Brazilian professors conduct their current academic practice. What are the most commonly used teaching strategies and why are they chosen?

2 Development

Education, particularly adult education, is a practice which is as old as human history: Confucius and Lao Tse in China; Aristotle, Socrates and Plato in ancient Greece and Cicero in ancient Rome, were all adult educators. The perception of these great thinkers concerning learning was that it was an active process of question making, not passive, full of content. But even such an old practice, has only recently been the object of scientific research. So with roots in Pedagogy, Andragogy emerged.

In his book *The Adult Learner: a Neglected Species*, Malcolm Knowles (1990) attempts to formulate the Adult Learning Theory in 1950. Later in 1960, for the first time, he had contact with the word Andragogy through a Yugoslav educator who attended a summer workshop at Boston University.

It was then that the meaning of the word was adopted as the most suitable to express the “art and science of helping adults to learn”.

Education involves the integral development of the learner, so this issue becomes complex and involves, besides knowledge, the one who learns and the one who teaches.

In addition, it is necessary to consider the three main epistemological learning models: empiricism, apriorism and constructivism (Becker, 2001), as below:

Empiricism is centered in teacher transmission of information and student reproduction of it. Therefore, the pedagogy is directive, not offering the opportunity for the learner’s creativity and autonomy. The student is regarded as someone devoid of knowledge, as a *tabula rasa*.

Apriorism assumes that intelligence is innate, inherited. The teacher is just a facilitator of the learning process to awaken the knowledge that exists in it.

Another epistemology that guides the pedagogical practice is constructivism, manifested through a relational pedagogy. In this model, the teacher leads the student to problem making. Learning is regarded as a result of the interaction between the learner and the social environment.

The Psychodramatic Pedagogy by Romaña (2004), practice of one of the researchers, is a constructivist educational approach which is based on the social historical theory by Vygotsky, using the ethics of the Autonomy Pedagogy of Freire and Sociopsychodramatic didactics by Moreno. It seeks to link the knowledge acquired formally, to the cultural and affective learning through experiences. It starts with the idea that the learning process initially takes place in the social contact to become an individual expression, *a posteriori*. This proposal incorporates the learning process to the life experience of the learners- learning in action, as well as he use of a democratic and participatory teaching methodology.

Thus, these three thinkers' conceptions are below.

3 Main Concepts by Freire, Vygotsky and Moreno

The focus of the theory by Freire (1990) is the possibility of education to produce the evolution of the learner awareness, through development, in three levels: the magical consciousness in which the learner can not understand the environment and regards him / herself as inferior to others – usually in relation to those with dominant interests – submitting to their opinions; the naive consciousness, in which the student regards him / herself as superior to the others, considering he / she fully understands the facts and that all his / her opinions are correct; the reflective or critical consciousness, in which the student is able to recognize the facts, however he / she questions reality, makes research and takes risk in making forecasting. This level of awareness enables a relationship between reflection and action. Once motivated, he / she starts to reflect on him / herself and recreates prior knowledge and new knowledge, in such a way that he/ she is moved to action, seeking to transform reality. The dialogue is the main tool used in this educational process.

The social historical psychology by Vygotsky (1984) is centered around three main points: the psychological functions which have a biological basis, as they are products of brain activities; the social relations which are the ground for the psychological functioning, and are developed in a historical process; the symbolic systems which are the mediators in the relationship between the human beings and the world.

According to Vygotsky (1984), learning is made possible by the contact of the human being with the cultural environment, which allows for the awakening of the inner processes of development.

The levels of development according to this author can be divided in the following ways: real development, with regards to learning that is already consolidated in the child, indicating mental processes already established; and potential developments, that corresponds to what the child is able to accomplish with the help of another person. The distance between the real and potential levels of development constitutes the zone of proximal development, which defines the functions that are still in the maturation process.

The main concepts by Moreno (2003) are: spontaneity / creativity and tele. He considers four expressions of spontaneity: creativity, which can be related to the creation of new masterpieces, or new social environments, to human beings birth and development, as well as to inventions; dramatic quality which makes repetitions new and full of life; originality which is related to the free flow of expressions, as variations of “*conserva cultural*”; answer adequacy to new situations, showing flexibility of the self.

As for tele – a factor of communication of Psychodrama, the relationship between I and You is a two way relationship, where the intentions of both are shown and grasped.

The three thinkers – Freire, Vygotsky and Moreno – regard the human being as a social being, in a

relationship, who largely depend on the interactions in which they are involved.

These pedagogical concepts can be references to guide the understanding of the answers of the teachers practice, and the reason for the choice of the teaching strategies. The dimension of the being can be detected in the answers through these references.

4 Jacques Delors UNESCO Report

Considering the UNESCO Report by Jacques Delors for the Education for the twenty-first century, four pillars are mentioned: learning to be, learning to do, learning to learn and learning to interact.

Delors proposal had to cope with three challenges in the world: tensions to be overcome, designing and building our common future, and learning throughout life: the heartbeat of society.

Education for Jacques Delors is regarded as “the principal means available to foster a deeper and more harmonious form of human development, and thereby, to reduce poverty, exclusion, ignorance, oppression and war.”.. “for a world which is a better place to live in”.

When seeking for a title for the report, he used the parable by Le Fontaine: *The ploughman and his children*, in which Work was the Treasure Within. Delors used this metaphor to say that Education is the *Treasure Within*.

For such achievement, that is, becoming conscious of meaning in being, doing, knowing and interacting, to be able to take decisions with the challenges and uncertainties presented in the twenty-first century, the vision and approach of interdisciplinary education seems to have an important role to play.

5 The Role of the Interdisciplinary Vision and Approach in Education

Interdisciplinarity is an attitude to knowledge, regarding the human being in his / her plenitude, taking into account the ontological, praxiological and epistemological aspects of education, according to Ivani Fazenda (2002).

It is 40 years since the researches in Interdisciplinarity were started, and it does not have one single definition. It provides opportunities for the following encounters to happen: one with oneself, one with the others, and one with the environment, in the learning process. It also encourages integration of different fields of knowledge.

In an environment of mutual trust, the individual perceptions emerge, and are perceived with the attitude of ‘epoché’ – suspension of judgement to better understand the own Ethics and Aesthetics. Meaning guides the construction of the proposals. It is the organizing factor that brings coherence of thoughts, actions, expression and feelings, along a maturation period, with respect, loving attitude, humility and lack of attachment which allow for constant calibration of the process, while theory and practice are articulated, in permanent reorganizing flow. Both, teachers and student become aware of themselves as they articulate knowledge.

Paulo Freire (1990) insisted on the famous point that it was necessary to ‘make people conscious before literacy’. In this concern, Espirito Santo (2007) emphasizes that developing consciousness is related to the sense of knowledge as a whole, together with deep awareness of the self, without which, education remains in the level Freire called ‘banking education’, implying there is no space for self-knowledge.

Could Interdisciplinarity bridge the transition processes of Education regarded as mere transmission of knowledge to the Education for the twenty – first century, as the *Treasure Within*? As a matter of fact this seems to be a way to wisdom such as its being proposed by advanced, experienced and visionary thinkers like Claudio Naranjo and Ricardo Semler.

6 Methodology

This is a descriptive exploratory study, which organizes the information obtained in data collection, according to the kind of educational strategy used by the professor. The research is based on the information and narratives by the professors. Approximately 50 Brazilian professors, chosen at random, answer the questionnaire. Governmental and private university professors are included, involving courses in humanities from the five regions of Brazil – North, Northeast, Midwest, Southeast and South. Teachers are included regardless of the subjects they teach, their age and sex.

7 Procedures

The research is conducted through a questionnaire, as it is one of the most important techniques

available to obtain data in social research through e-mails, inviting professors to answer the questionnaire, in various cities of the Brazilian regions.

The questionnaire was pre tested, in order to assure consistency. This procedure aims to check aspects regarding the clarity and precision of the terms; the organization of questions and the understanding of the introductory text.

Along with the questionnaire, the professors receive an introductory text informing about the research, its importance, the fact that neither the professor's identity, nor the institution where he works are shown.

The questions are presented as open, closed, and open / closed. Open questions meet the needs of exploratory studies, for allowing the use of the own words, without restrictions, while closed questions only allow for answers of the yes / no type, or multiple choice. As for the open / closed questions, after a first question which can be open or closed, a second question follows: "why?"

The different kinds of questions included in the questionnaire provide data for a qualitative and quantitative study; and open-ended questions encourage personal and spontaneous responses that enable a qualitative analysis of the data, while closed questions provide answers that are quantified.

8 Other Similar Studies

Along the research, it was identified that the use of particular educational strategies are encouraged by some authors. Games, dramatization, group dynamics, role playing are chosen because they enable greater involvement of students with the object of study, leading to better learning (Romaña, 1985; Capellini; Bellido, 2008).

Studies by Cyrino and Toralles-Pereira (2004) discuss two important ways of focusing educational strategies in health care: problem-based learning (PBL) and problematization. PBL focuses on the cognitive aspects of the construction process of concepts and appropriation of basic mechanisms of science and questioning the construction of knowledge in the context of critical development. Both "break the traditional way of teaching and learning, encouraging the participatory management of the experience protagonists, reorganizing the relationship between theory / practice".

In the studies by De Domenico and Ide (2005), aiming to identify the teaching strategies adopted by professors to build skills in graduation students on nursing at a governmental university in São Paulo, it was identified that there is a trend of "adopting a constructivist approach and the intention of promoting pedagogical changes seeking for a different educational development by levels of complexity".

Still in a nursing graduation course, in the State of Piauí, in the northeastern Brazil, Moura and Mesquita (2010) evaluated the perception of the students facing the experienced educational strategies and concluded that "the success of an educational strategy will depend on the integration of factors related to both the teacher and the student," and that "the involvement of this process results in the development for higher education, in a meaningful exchange of knowledge where the teacher is learner and can also enable the learner to be a teacher in a valuable role reversal."

Furthermore, in others studies by Moura and Mesquita (2010), it was noticed that the role of the teacher "goes beyond mere transmission of the message, allowing the assimilation of the curriculum and raising critical awareness on the part of the student that will help face the different situations, through creative and transforming attitudes," practicing less traditional forms of strategies in their classes towards the implementation of innovative teaching strategies for the development of nurses.

In his research, Quadros (2009) found that the professors of the Chemistry Department at the Federal University of Minas Gerais, southeastern Brazil, chose interactive lessons seeking to engage students by creating a favorable environment for the intellectual development. In this case, "the attention of the professor is directed to the students, as he / she values their speeches and questions, letting them express their ideas and build their arguments."

On the other hand, recent studies by Mazzioni (2013), conducted in southern Brazil in the graduation course of Accounting Science, concluded that the class in a lecture style is the most widely used teaching strategy. About 40% of the students consider problem solving the most effective kind of lesson.

9 Conclusion

It has been observed so far, based on the similar researches performed, that the use of strategies including knowledge transmission, together with personal interaction outcome strategies focused only in

knowledge transmission.

The kind of subject matter taught has some influence in the choice of educational strategies used by the professor. It was the case of Accountancy, where the focus was the content.

But in many different places, there seems to be a reversal from the focus on the object to the focus on the subject. That allows for a professor to be a constant learner, along the process of teaching, even in reversal roles with the student.

It is, hopefully, this reversal that may lead Education of the twenty-first century to the *Treasure Within*, encompassing the ontological, praxiological and epistemological aspects, that is learning to be, learning to do, learning to know, learning to interact. As a matter of fact; and as mentioned before slowly an Educational Grassroots Revolution is under way that may transform schools opening doors to innovation and creativity (ROBINSON, 2015). Education then will be able to bring a significant contribution to human beings and nature, for each one may be able to bring his / her own talents on service as a contribution to the world, through Better Visions, Higher Values and Wiser Decision Processes.

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Security and Peace in Latin American Countries

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Abstract: This work aims to analyze the relationship between security and peace and their present conditions in Latin America, based on the research of these issues in international publications in various media and data collection indicators available in studies with statistical reliability. There is also the goal of obtaining a set of indicators in the light of existing jobs and new contributions that may show the “state” of present Security and Peace conditions in Latin America and infer about the future of such conditions, with a view to proposing actions between and within countries of the region. The Security-Peace binomial presents us with a fundamental question regarding the relationship of cause and effect - the safety results from the peace or peace is a consequence of security? Independent-minded succeed or not answer this question we have to consider that the two factors have impacts on the wellness of the human being. Equal opportunities and valuing life are fundamental principles that pave the road to full citizenship in Latin America, and without which it won't make sense any attempt to try to achieve security and peace. The Security Commission Hemispheric of the Organization of American States Permanent Council emphasizes in a recent meeting (March 2000) that among the premises for reformulation of the hemisphere's security concept are “the need to recognize the close links between security, development and consolidation of democracy as well as the historical relationship between peace and democracy”. We are hence at a very special moment of our historical trajectory, where notorious disrespect for human rights are frequent threat to populations of Latin American countries. Drug traffic brings devastating consequences for the internal security of many countries in the Region and gives rise to a climate of war that challenges public policies and exposes the populations and governments to immense costs, affecting resource and areas that should be prioritized for further progress of our countries, all levels of society. While most developed nations discuss issues relating to the use of social achievements, we are still involved in the fighting against child prostitution, abandonment of children and adolescents, food insecurity, neglect and violence against the elderly, among other sad examples. This immense concern frame extends also to relations with the environment, with enormous consequences for future generations of Latin America. The construction of new prisons does not track the growth of the prison population and the inhumane conditions to which prisoners are subjected act as catalysts of crime, generating a vicious and terrifying cycle. The example of the Dominican Republic with the implementation of “zero laziness” in prison is a path to be followed by all the nations of Latin America. Initiatives to education, focusing on children and youth, with heavy use of art and science, may make all the difference and create today a future of peace and security, based on fraternity among all peoples.

Key words: Peace; Security; Sustainability; Happiness; Latin America

1 Introduction

What benefit could bring all the wealth of a human being if it lacks peace and security? Catherine Salles, in her book *In Underworlds of Antiquity* comments about life in the slums of Rome in the beginning of the II century B.C.: “Crowded in unsound and unhealthy housing, the inhabitants of the slums are exposed to all the dangers that nature or society does not cease to generate”.

After all this time we could see that this reality of the ancient world is still present today in the big cities of Latin America, where fear is present in all social classes.

Income inequality, as overwhelming as determining, establishes who has and who does not have the right to have security mechanisms without, however, ensure that this security is real and to ensure a minimum of everyday peace, whoever.

Although we are already historically distant from the beginning of civilization of mankind, we are forced to recognize that we are still far from a world turned to the happiness of man. We did not achieve democracy as a form of general government and suffer from the glaring inequality between

opportunities for rich and poor, so crucial to the insecurity and violence.

We witnessed a major paradigm shift, fundamental to the study of this topic - the threats to security and peace in the states before being mainly due to factors and external aggressions, are nowadays more an endogenous result, of primarily, social and multiple problems in underdeveloped countries. According to CHEYRE (2015): "However, in the 70's begins what we can characterize as a gradual expansion of the traditional concepts of security and defense that arises when we identify in the world and also in Latin America, threats to the security in a large scale than those who so far have been facing. While some come and linked to the military, then an increasingly wide range of topics and issues related to political, social, environmental and economic issues that subsequently drug-related phenomena joined was recognized, crime and now more recently minorities linked to refloat aspects of identity and nationalism, with a full agenda of various themes which fit issues of energy, climate, resources, ecology, demography, transnational movements, migration issues and other matters.(...)"

Problems such as social exclusion, drug trafficking expansion, deaths caused by road accidents, low quality education and truancy, increased crime among adolescents, mortality of the youth, mainly among the male gender, poor sanitation and health services, among other social dramas form a framework to increased insecurity and violence. The consequences are similar to a war of considerable proportions and sad.

Other forms of insecurity, so ancient, go back to extend their shadows on the societies within this new century: food insecurity, water, housing and many other. However, actions to fight the causes and effects of insecurity and violence are felt, often by the third sector initiatives and even by government actions. The complexity of the problems require integrated solutions, as we can see in the case of the reconstruction of Medellin, Colombia, as mentioned by BRAND(2001).

At the core of all the evils that could see the lack of security and peace is linked to lack of democracy, combined with growth of corruption. It was proven in "Peace and Corruption 2015" from "Institute for Economics & Peace" that these three factors are correlated. Among the regions that have experienced an increase in the level of corruption, is Latin America, including the Caribbean countries, also considered one of the most violent regions of the world; and as its mentioned in the Psalms since the old times Peace goes hand in hand with the so much needed (Social) Justice: *Love and faithfulness meet together; righteousness and Peace kiss each other* (PSalm85).

Latin American needs to face the fact that become in evidence through the Global Peace Index 2015 of the Institute for Economics & Peace studies indicating that: "Latin America remained the world's most violent region in terms of societal safety and security, as highlighted by its poor results in most related categories. This is particularly the case for Central America and the Caribbean, the lowest ranked region and where many of the world's highest homicide rates can be found."

This follows - among other factors - the fragile conditions of democracy, governance disability and power of corruption, aggravation of economic crisis, the immense social inequalities and increased drug trafficking in many countries in the region. Those where populist governments subverted the democratic logic in favor of the state power projects has worsened and violence has become frightening. The imperfections of weak democracies in Latin America favor the corruption that, in turn, feeds impunity, causing internal insecurity and violence.

Corruption in the police and judicial system feeds a vicious cycle, as described in the document "Peace and Corruption": "Increases in police and judicial corruption directly undermine the rule of law, thereby increasing political instability and can lead to the collapse of those institutions which were designed to prevent violence and conflict. This occurs in many fragile and low capacity contexts whereby once corruption reaches a certain point, police forces no longer perform a useful function in controlling crime, but rather become part of the problem."

2 Peace and Security - Citizenship and Happiness

2.1 The evolution of security concepts and peace

The end of the Cold War led to the review of security and peace concepts. The concept of security is now centered on the human person and concerning their lives and the degree of freedom that make their choices (SVETLANA, 2004). The concept of "positive and negative peace" invites us to reflect on social issues and how they affect the binomial security and peace. Obviously, this is fully applicable to Latin America, as defined by GALTUNG (1969):

"With the distinction between personal and structural violence basic violence becomes two-sided, and so does peace conceived of as the absence of violence. An extended concept of violence leads to an

extended concept of peace. Just as a coin has two sides, one side alone being only one aspect of the coin, not the complete coin, peace also has two sides: absence of personal violence, and absence of structural violence. We shall refer to them as negative peace and positive peace respectively. For brevity the formulations 'absence of violence' and 'social justice' may perhaps be preferred, using one negative and one positive formulation. The reason for the use of the terms 'negative' and 'positive' is easily seen: the absence of personal violence does not lead to a positively defined condition, whereas the absence of structural violence is what we have referred to as social justice, which is a positively defined condition (egalitarian distribution of power and resources). Thus, peace conceived this way is not only a matter of control and reduction of the overt use of violence, but of hate we have elsewhere referred to as 'vertical development'. And this means that peace theory is intimately connected not only with conflict theory, but equally with development theory."

These new concepts bring opportunities and challenges that we know well. As a matter of fact it takes political will, and citizenship development to confront endogenous problems without the temptation (and even the facility) to point out external factors for the problems in Latin America.

A struggle for peace and security will need to overcome centuries of passivity in the face of problems and causes with which, simply, we got used to leave along in Latin America.

2.2 Peace and security, democracy and populism in latin america

The costs of insecurity and violence are worrying worldwide, but Latin America, particularly South America, needs a special attention to this aspect, considering the Global Peace Index 2015 statement: "South America is the largest contributor to homicide rates by region and represents an expenditure of US\$250 billion". In South America this comes mostly from Colombia and Brazil. Moreover even though in recent years economic development has progressed significantly in both countries, crime rates have not experienced a corresponding decrease (which would be seen with such increases in wealth and development). One of the main observations regarding these two countries is that while the overall size of their respective economies has increased, the levels of progress in Positive Peace has not yet follow this trend. In particular, both Colombia and Brazil still hold high levels of inequities and corruption"; although Colombia is somewhat improving lately.

In Latin American countries (as in other parts of the world) there is a feeling that the police are highly corrupted, especially in Mexico (90% of the population), Jamaica (86%) and Venezuela (83%). These countries also boast high rates of homicides and violent crimes, according to the study quoted above, "Peace and Corruption 2015" this points the fact that the populations of fragile democracies and authoritarian regimes lead to greater police corruption. Moreover the conditions for "Positive Peace" are very rare or incipient in most Latin American countries. Chile and Uruguay have the best positions in the rankings of the Global Peace Index in the Region while the rest have a long way to go to improve peace conditions.

In addition weakening of democratic institutions in the Latin American states with populist governments, end up having an impact on the governance of such countries and fostering systemic corruption, which leads to a decrease in security and peace. Hence, the need to find ways to overcome populism and inefficiency of hypertrophied states that results from that lack of democracy condition. The illusion of the state as the sole provider of wealth has only made increasing inequality, poverty and corruption in a vicious circle that generates insecurity and violence - unnecessary, irrational and incompatible with the Latin Soul of the region. The achievement of security and peace in Latin America depends on the improvement of governance, which according to the World Bank Governance Indicators (WGI) includes five dimensions: "Voice and Accountability, Political Stability, Regulatory Quality, Rule of Law and Control of Corruption". Good governance is a consequence of democracy and leads to sustainable progress. The World Bank is actually keeping a record of many years regarding this 6 dimensions that show in general very little if any improvements in most of the countries of the region.

2.3 The relationship between security, peace and happiness in latin america

As indicated by Maslow's hierarchy of needs, Peace and Security are basic for Human wellbeing and becoming essential for happiness and an Harmonic Society as mentioned by IP PO-KEUNG(2014): "In view of the broad and substantive overlaps between harmony and happiness, it seems a society that exhibits signifying overlaps would have certain identifying features. In the Societal domain, safety, peace, stability, democracy, the rule of law, mutual respect, relatively wealthy, social health, freedom, social fairness, solidarity, friendship, sharing, balanced social interests, and environmental sustainability are the common components."

As a matter of fact Happier Societies are peaceful and enjoy security over multiple prisms. However following further up in the Maslow Pyramid there is also need for economic security, as

pre-supposed for a sense of peace and tranquility; however and as indicated by FERRAZA et al (2007), after overcoming the subsistence line, including access to water, food, housing and sanitation, financial conditions are not so critical for an increased sense of happiness, as shown Kahneman *et al.* (2006). Such finding shows that there is a "window of opportunity" for Latin America (and the world), where the pursuit of sustainability, beyond mere economic and financial progress provides us more harmonious societies and consequently happier ones.

Research by ARRGGLE(1987); MYERS and DIENER(1995); MOREIRA-ALMEIDA et al.(2006), people who claim to have faith, religion and / or spirituality are more likely to be happy and these condition is widespread among the peoples in Latin America.

3 Methodological Procedures

For the purpose of an statistical analyses data from 132 countries were considered divided in three regions:

- the Iberia American – AIBER – 21 countries;
- the advanced economies – AVECO – 28 countries;
- the remaining 132 countries – OTHERS – 84 countries.

Table 1 shows the means for each one of the 3 Regions (3R) of Synthetic Indicators such as Social Progress Index (SPI); Human Development Index (HDI); Governance (GOV); Corruption Perceived Index (CORR) and Environmental Performance Index (EPI); as well as some Analytic Indicators such as Discrimination and Violence Against Minorities (DISCVIOL); Community Safety (COMSAFETY); Traffic Deaths (TRAFICDEATH).

Table 1 ANOVAs Comparing Means and F's for Rescaled (0–100) and Positivized Variables (The higher the better)

3R	SPI	HDI	GOV	CORR	EPI	DISCVIOL	COMSAFET	TRAFICDEATH
AIBER	64.41	65.92	42.48	37.21	52.7	48.96	81.3	60.73
AVECO	90.3	87.36	83.25	74.94	81.39	67.1	89.43	90.01
OTHER	42.63	46.74	33.36	30.7	37.95	36.45	65.13	57.4
F	83.97	43.45	97.02	81.65	69.68	27.61	28.77	39.26

Source: Produced by authors

As shown more clearly in Figure 1 Latin America is in an intermediate situation between AVECO and OTHER regions, but it's still far from those of more developed nations, which indicates the need for improvements particularly regarding Governance and Corruption; and moreover is particularly close to OTHERS regarding Traffic Deaths !

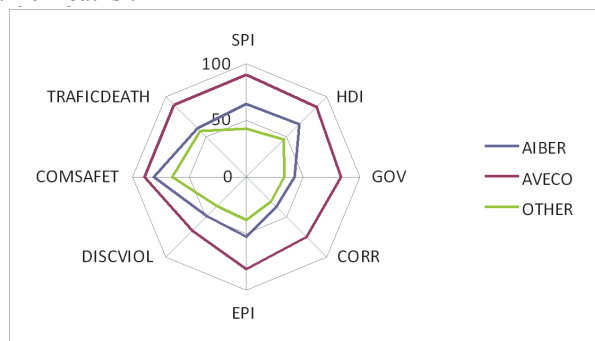


Figure 1 Comparing the 3 Regions Regarding the Basic Indicators

The Dendrogram in Figure 2 indicates that the highest correlation among these variables is the one between Governance and Corruption, that means that Bad Governance impacts High Corruption and the no doubt the other way around too. This will in turn, increases insecurity and violence; and therefore affecting the level of Peace.

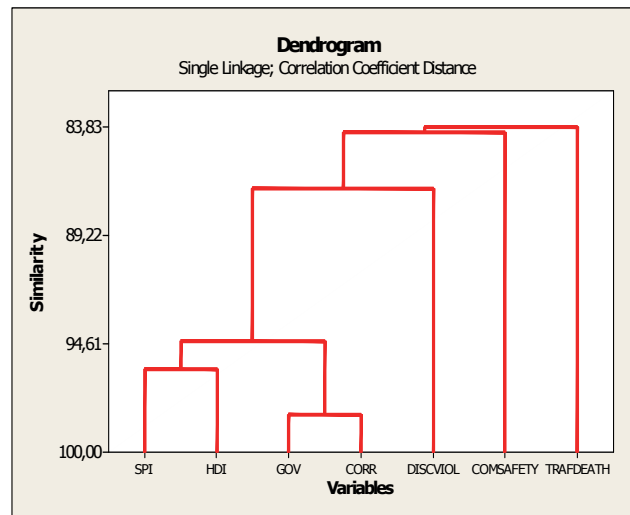


Figure 2 Dendrogram of Synthetic and Analytic Indicators

The averages presented in Table 1 show that the highest difference between AIBER and AVECO countries is regarding Governance (83.25 to $42.48 = 40.77$). Moreover the three countries with better governance in Latin America are, respectively, Chile (83.61), Uruguay (73.23) and Costa Rica (69.96); so only Chile got to the point of attaining the average Governance of the AVECO countries. go. Something very similar happens with Corruption Levels. Hence there is still a long way to go.

4 Conclusion

As shown above as a whole Latin America is in an intermediate situation between the group of developed countries and the least developed. It's like a teenager region, between childhood and maturity, where most countries are still suffering internal crises that results from high deficiencies in governance levels; moreover there is no happiness in the absence of security and peace and there is no peace and security in the absence of a "culture for peace"

Problems regarding security and peace in Latin America are now well known and quantified, including in terms of its causes. Solutions are being implemented, but despite the merit of these efforts, the problem of insecurity and violence seems far from eradication. The question is when or how will a Culture of Peace be developed in Latin America?

According to FREIRE(2009): "the United Nations defines the culture of peace as a set of values, attitudes, ways of behavior and ways of life that reject violence and to avoid when dealing with the causes that you are at the root to solve problems through dialogue and negotiation between individuals, groups and nations".

The challenge, of developing and sustaining Peace in Latin America will require coping with serious social problems and the lack of appropriate standards of governance in most countries of the region. Improving governance would allow greater control of corruption that may fosters Trust that would be essential to give some hope to the people of many Latin American countries.

Improving the educational system would no doubt contribute to a more equitable distribution of opportunities and therefore would increase social justice, without which it will be hard to think that one day the region may attain adequate levels of Peace and Security. Also art could help be as a catalyst of these changes, complementing education as well as preserving rich traditional cultures on the Region.

As a matter of fact the region has a great heritage of faith and spirituality; that may help to increase resilience and opens a predisposition to improve human, social and environmental conditions as recently pointed out by Pope Francis on his *Evangelii Gaudium* that is actually a warning as well as a moving call to worldwide Walk the Path towards a more Caring and Sharing Society

Today in many places we hear a call for greater security, but until exclusion and inequality in society and between peoples are reversed, it will be impossible to eliminate violence (EG59).

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Schools Management in the Complex Thinking Perspective

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Abstract: The scope of this Paper is to clarify the unfolding of Complex Thinking concerning the role of management, as a result of a research carried out in some Brazilian Governmental Schools, where the dialogical movements were understood in the whole context in which the linear and systemic aspects coexisted. The studies of the theory of Complexity are the bases of the reflections on the management action, enabling articulation toward the self-organization of the group. It is observed by many researchers that the action of the manager usually encompasses the role of a planner of the work, with rational use of the resources and articulation of the means to reach the targets of the institution, in addition to the role of coordination and control of people's work. That has shown not to be enough to meet the challenges of the world nowadays. The processes of management may get different meanings: under a technicist conception, management is often centralized, decisions come from the top without participation of the other levels; under a more democratic conception, the process is more participative, and decision is collective. In this view, the manager is expected to promote collective work, encourage the participation of the different subjects of the team and institution community, establish co-responsibility and assure the construction and implementation of a proposal – a set of intentions – a collective agreement. To be able to do so, the manager should be prepared to perceive the team as a living system, able of self-organization, as well as the linear and systemic aspects in permanent balance.

Key words: Complex thinking; School management; Self-organization; Sustainability

1 Introduction

The strengthening of democratization represents a change in the net of power relations at the institution. The vertical flow of centralized command is replaced by more flexible horizontal relations. Power is not crystalized in hierarchical levels, but it is distributed among the teams of work which take responsibility for thinking and doing. Decision and action becomes complementary in the alive dynamics of the balance of polarities – not opposites as in the hierarchical pyramid. The dichotomy between planning and executing does not exist as mutually excluded. Instead, protagonism of those who share the same ideals for change increases, and they agree in taking a common task defined by negotiation of objectives. Success or failure of results are not attributed to a leader of command, but are the result of collective work. Control is much more related to follow up and evaluation of the process aiming at helping the subjects in their construction of responsible action. Plans of work are not imposed top/down nor outside/inside, but rather built, implemented and evaluated by the teams. Models make no sense, as the solutions come from the context, resources and degree of need and effort on the part of the people involved. This view of management actions expands as we reflected with the help of the Complex Thinking approach of Edgar Morin preparing managers to take decisions for sustainable development. Moreover knowledge and complexity and socially networked cultures are already an essential characteristic of progress in most developed countries as indicated by Hidalgo and Hausman from the MIT Media Lab; and that may now be even measured by the Economic Complexity Index (ECI).

2 From Administration to Management

In the last two decades, the expression 'school management' was introduced in the Brazilian educational context, replacing 'school administration', with the aim of encompassing new skills of the school principal, in the process of democratization of the governmental school. In this sense, school management is understood today, at least legally, as a collective and participatory process, which governs the way the school works, involving decision-making, planning, implementation, monitoring and evaluation of an educational policy.

In this context, the school principal is in charge of the implementation of the collective decisions of school boards, as well as the coordination of the operations of the school unit. The manager is expected to encourage the participation of the members of the team and the school community, define responsibilities and ensure the construction and implementation of a pedagogical proposal, ie a body of intentions, a collective pact. The democratic management concepts are closely interwoven with the

principles of citizenship, autonomy and emancipation, being a way to develop people for sustainability. Democratic management in school, in essence, is not a practice that can simply be instituted because it is a self-organizing process, coordinated by the manager, through participatory experience. This process is not mechanical, as social reality is extremely complex, the educational field is not neutral and the human being cannot be regarded as an instrument of production, distant from the natural world. Thus, the discussion on school management will be expanded below from the perspective of the complex thinking by Morin (2005a, 2005b, 2005c), covering the dialogical movement between linear thinking and systemic thinking.

3 Linear Thinking in Management: Hierarchical Control and Bureaucracy

Linear thinking, a hallmark of our times, tends to simplify reality, fragmenting it so it can be understood and controlled. It is appropriate for the treatment of mechanical and functional problems, but ineffective when dealing with issues that require a systemic view. Reason is overused, through rationalization, which perceives only the immediate answer, simplifying and reducing everything to simple causality.

The traditional model of school management, which expresses the linear, Cartesian and mechanist logic, has its recent origins in the Classical Theory of Administration, whose leading exponents according to Chiavenato (2000) are: the American Frederick Winslow Taylor and his studies on Scientific Management; the European Henry Fayol and the Classical Theory; the German Max Weber and the Theory of Bureaucracy.

One of the criticisms of the administrative models of Taylor, Fayol and Weber is the logical and deterministic approach of the organization, in which fragmentation and the mechanist division of labor prevail. Critical theorists of the twentieth century, guided by the Marxist conceptions, played an important role in denouncing the alienation in production processes and social relations of such administrative models. As a result of this alienation, human being were perversely prevailed from understanding the nature and product of their work, as well as perceive themselves as human beings, part of a systemic nature where they are encompassed. The human dimension in its entirety was eclipsed by the excessive importance given to a fragment of a human being's capability: labor force.

The model and practice of school management, based on the classical management theory, served the purpose of the mass formation of a skilled labor for mechanical work. The structural model of the industry was reproduced in school by maintaining organizational efficiency, centralization of power and instrumental use of communication at the service of control of the production machine.

The ideals of discipline and obedience, plausible in the context of productivity optimization, have become the linear communication standards, desirable in the school environment in which subjectivities are hidden and unrecognized.

Even nowadays, schools are characterized by pyramidal power structure and the fragmentation of school work. In what concerns school organization, the division of labor in technical-administrative and pedagogical tasks is due to the value of specialization at work. The roles and responsibilities are defined through regulations, to maximize efficiency and to assure hierarchical control.

4 Systemic Thinking in Management: A Living Organization

While the linear thinking is effective for the analysis of the parts of a whole, systemic thinking is important for the understanding of the interdependence of parts.

Systemic thinking can be represented by the web of life, as this is its very essence. It is a contextual thinking in the concept of Capra (1997, p. 46): "systemic science shows that living systems cannot be understood by analysis. The properties of the parts are not intrinsic properties but can only be understood within the context of the larger whole."

A system is a set of components that are related to each other. It keeps an organization and a structure. The organization defines the system's identity and expresses its configuration through the essential features of its parts. The structure is defined by how the parts are related. The structure of the system changes during its existence, in permanent exchange of energy with the environment. It is an autopoietic system in continuous regeneration.

In the systemic thinking, the labor organizations are conceived as dynamic, not linear networks, as the mechanist paradigm is not enough to explain them. For Capra (2002), human organizations resemble living systems. They cannot be controlled like machines, through instructions, because they react to the impositions.

Regarding the organization as a living being, there is awareness that the system is able to get self-organized, to learn, to change and evolve naturally, because its intrinsic feature is self-production. It is in constant circular retroactive movement, of own creation, seeking for sustainability in the balance of two paradoxical forces: autonomy and dependence.

The notion of human autonomy is complex and is directly related to the idea of dependence. According to Morin (2001), the subject depends on the environment in which he or she lives, learning a language to communicate, in order to acquire knowledge and generate new knowledge. These are fundamental perceptions to build an attitude towards sustainability.

The sustainable management of democratic school is based on the experience of the dialogic principle of autonomy / dependence, through the strategic coordination of actions and mediation of interpersonal relations. The living organization, in this case, is a self-eco-organizing system with relative autonomy, as it constantly interacts with exterior, and is able to create its own determinations and purposes.

Systemic thinking is necessary for the manager, as it allows him to view school life beyond the bureaucratic routine and formal / functional relations. School dynamics may be understood as a living being, a culture in permanent construction.

Democratic management can fit in this conception, for autonomy and dependence, in dialogical movement, are complementary polarities that characterize the emancipatory process.

An articulation action can be unveiled by the manager when understanding that the own power can be used to stimulate shared decision-making, in which he takes the coordinator position. Thus, he / she can create opportunities for him / her and his / her team to experience new relations and for the educators isolation scenario to assume new settings.

Systemic thinking is opposed to linear thinking, but both are embraced by complex thinking, so that reality is understood.

5 Complex Thinking in Management: Dialogic Relationship Between Linear Thinking and Systemic Thinking

Morin (. 2005a, p 151) explains that all organizational relationship produces antagonism with complementarity, ie, "[...] the complementarities that are organized between the parties secrete antagonism, virtual or otherwise; . dual and complementary identities coexisting in each part is itself virtually antagonistic "As in the TAO, a figure of complexity, the female principle yin contains within it the yang masculine principle, antagonistic and dormant; in opposite relationship, the male yang principle contains latency in the female principle yin. When a polarity reaches its peak, it reveals within it the seed of its opposite.

Linear thinking which is expressed in the bureaucratic matrix and systemic thinking characterized by the vision of the whole oppose dialogically, that is, are complementary opposites, according to the interpretation of complex thinking (Morin, 2005a, 2005b, 2005c). The linear thinking and systemic thinking are always present in the same reality. The prevalence of one over the other may represent a simplistic attitude in the interpretation of reality, if they exceed, for example, in the particularization or generalization. Mariotti (. 2007, p 82) explains: "The holistic view is as reductionist as the Cartesian. One reduces to aggregation, while the other reduces by fragmentation."

The school organization reflects in its domain all the social complexity as it is a part of this. It is a cell of the social hologram, therefore it reflects inside the dynamics of the whole of which it is part. As society, it is also a living organism that is able to get self-organized. Metabolically (Moraes, 2004) it is in permanent reorganization or regeneration, in response to all processes of disintegration. Inside, the relations are ambiguous, appearing as complementary and antagonistic. Beside the movements of change, there are conservative forces, collaboration and resistance are forces which coexist, as well as order and disorder. A force is always in operation in response to the simplifying character of the opposite force.

Morin (2005a, p. 151) explains that all organizational relationship produces antagonism with complementarity, that is, "[...] the complementarities that are organized between the parts segregate antagonism, virtual or otherwise; the dual and complementary identity coexisting in each part is itself virtually antagonistic" As in the TAO, a symbol of complexity, the female principle yin contains within it the yang masculine principle, antagonistic and dormant; in opposite relationship, the male principle yang contains in it, in latent form, the female principle yin. When a polarity reaches its peak, it reveals within it the seed of its opposite.

With the vision of complexity on the school organization, it is possible to deal with the paradoxes that are perceived in everyday reality, which is predictable and at the same time unstable and uncertain. The school culture is ambiguous and has a contradictory character, because it has elements that stimulate innovation, as well as elements which contribute for conservation. Routine and emergent situations alternate; formal and informal relationships flow in parallel; ambiguities are natural in the game of convergence and divergence.

Understanding reality from the perspective of complexity is to realize that there is a creative tension between the polarities depending on contradictions. The opposites are fed by this contradiction and the dialogic relationship is maintained, while new properties emerge that feed, as a recursive ring, the balance game of polarities.

The school is a place of conflict, of dialogic encounters that generate creativity. The subjects have different interests and values from each other that can be negotiated through dialogue. The dialectic can be helpful in finding a consensus whenever possible. A dialogics is necessary in situations where tensions remain, and also in what concerns diversity. The words by Mariotti (2007, p. 154) complement the idea: "Being able to distinguish when employing dialectics and dialogics is a highly strategic skill."

Conflicting situations are not only found in schools, but are part of the social fabric. They are the result of confrontation of ideas, in all social issues, especially of political nature. In fact, it is they that are reflected in the school. An example of this is the paradox in which managers are in the task of mobilizing educators for participatory and co-responsible building of a political-pedagogical project.

Thus, the management action faces a conflicting reality, explicated by De Rossi (2006), whose interests and values emanate from two distinct and contradictory forms of reasoning: the regulatory one and the emancipatory one. The linear reasoning of regulations is at the service of public policies that are governed by the market economy and are extremely concerned with quick results, while the emancipatory reasoning regards the socio-political citizenship construction as a process.

A major challenge for the school manager is to encompass the coordination of bureaucratic and educational activities in such a way they express a relationship of interdependence. In practice, there is a division of activities due to the technicist culture still prevailing in governmental schools. The educational activities tend to be under the supervision and full responsibility of the coordinators, while bureaucratic activities monopolize all the time of the school manager. This split is due to a fragmented and reductionist vision of school teams who base their actions only in the list of regulations drawn up by school assignments. They lack a vision of the whole, a perception of the systemic reality.

Educational and bureaucratic doings are imbricated in the democratic and complex dimension. The bureaucratic tasks, called 'the means', are necessary to give support to the school routine, to the maintenance of the infrastructure, the implementation of the projects, in short, to give life to the intentionality of the formative educational process. Otherwise, if they are valued as 'core activities' they will assume a linear and instrumental character. On the other hand, the educational activities are made viable through the bureaucratic structure and legal boundaries.

Bureaucracy is also ambivalent. It has an operational and rational characteristic, as it encompasses working methods and applies impersonal rules to ensure the good work of the organization. However, this same bureaucracy can be manipulated by rationalization, running the risk of becoming an administrative blockage, to the extent that the real purpose is distorted.

Besides the bureaucratic and routine activities, there are planned actions. The former are predictable and resemble rigidity, the latter are focused on uncertainty and emerging elements. Planning is a more strategic action, as it works in the field of unpredictability and flexibility, in opposition to the program through which everything is done by automation (MORIN, 2000, 2001).

In addition, planning, in the complex and democratic dimension, is an activity resulting from collaborative movements inherent to participatory spaces. They emerge and are consolidated as leaders and their teams do not arise as mutually exclusive opposites. In this case, management is not exercised with authoritarianism, but gains recognition and legitimacy when there is respect and value of individuality and diversity. The balance between the polarities is maintained because the focus of the changes remains on the interests and meanings. Significant disturbances act naturally in organizations, perceived as self-organizing systems, without having to undertake a mechanical effort to put them in motion.

These impulses may trigger structural, unforeseen changes. Under these conditions, intuition, according to Motta (2001) shall be valued in the action of an officer, beside the analytical rationality, as it produces the global vision required to cope with ambiguities and uncertainties which are present in the emerging situations at work. What is desired is a balance between order and chaos, logical and illogical elements, rational and intuitive ones.

In modern organizations, communication of inter-subjective nature emerges at the heart of management practices, concomitant with the reduction of both, relations of subordination and use of communication only to transmit orders and guidelines.

In contemporary management, the concept of authentic communication arises in professional activity. According to Zarifian (2001, p. 165), it is “a process by which reciprocal understanding is established which leads to a shared meaning, resulting in further understanding of the actions that those involved take together or in a convergent manner.” This meaning is transformed in the course of this communication according to the viewpoint exchanges and explicitation of common needs. From the reflective dimension of meaning, that is, the subjective and practical redesign, the subject directs his / her thoughts and actions, undertakes the own change in face of the events or problems that have made a pre-existing situation lose stability. The expression of that individual dimension is the mark of freedom of the subject, an attribute of civility in modern society.

However, authentic communication is related to expressiveness, that is, in the right to freely express the personal meaning that is contained in the thinking and action, in relation to the partners of communication, as well as the power to express this sense in the initiatives concerning ideas and the doing with autonomous responsibility. Thus, the individual assumes the causality of the own actions.

In line with this, there is a dialogical relationship in the management action, that is: to assert an idea or action in terms of the management skills to direct and control, and at the same time, use authentic communication as a source of reflection on the challenges of the company and the subjective engagement of the individuals who compose it.

Thus, the interpersonal relationship based on the authoritarian model of obedience, and control gains a new meaning by the collaborative model, which values friendship, cooperation, fellowship and consensus. While the first model exemplifies the patriarchal culture and is based on distrust and desire for domain, the second is related to the matristic culture, recognize trust as the principle of interpersonal relationships.

Mariotti (2000) summarizes the essence of these two matrixes according to their characteristics. The patriarchal culture is described as an expression of linear thinking, which, in turn, is guided by the need to control nature, to encourage competitiveness, to use deterministic discourses of exclusion, based on immediacy and dichotomies such as good / bad, friend / enemy, and others.

The matristic culture, representative of complex thinking, is distinguished by understanding the human being in tune with nature, by the participation, solidarity, inclusion, as well as acceptance of reflection on paradoxes and differences.

6 Conclusion

The articulating action of School Managers is a complex undertaking, but not complicated. It turns around the key words, like: democratic management, participation, autonomy, emancipation, and others of the kind. The change is systemic, but it requires the manager's attention to the context and at the same time, the value of educators. Looking at the whole and the parts, without losing sight of the intersubjective plot. In other words, taking care of the atmosphere of the school is crucial for the members of a work team to find pleasure and meaning in their work on a self-sustaining movement, helping students develops attitudes of a sustainable world.

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Research on Development Trend of Cultural Industry Structure in China Based on ARIMA Model

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Abstract: The paper according to the proportion data of the cultural industry output value from 1952 to 2008 accounted for the GDP, ARIMA time series model and time series model based on delay dependent variable auto-regressive are established through the concrete data using comprehensive analysis. Through model analysis, the conclusion is that since 1952, the fluctuations of the proportion of the cultural industry output value account for GDP is larger. In a period around 1978, the proportion of culture industry reached trough; but after 1984 the situation improved and the proportion is increasing year by year, this is consistent with the rapid development of China's cultural industry economy after the reform and opening policy implementation; and in recent years the proportion of the cultural industry in gross national products in the stable. And according to the change trend of cultural industry production value proportion and analysis the proportion of cultural industries output value, understand that our country's culture industry structure should be optimized, to vigorously develop the cultural industry at the same time, should pay attention to the adjustment of industrial structure, and promote cultural industry better and faster development.

Key words: Cultural industry; Cultural structure; ARIMA model; Proportion; Empirical study

1 Introduction

At present, China's per capita GDP exceeded 2000 dollars, city gasification rate reached 47%, is in the industrialization accelerating to in the late stage, from the international experience, the stage of culture industry driven collaborative economic growth strengthens day by day, and gradually become the main body of the modern industrial system. However, from the overall supply of culture industry, the total amount is obviously insufficient, the service level is low, competition ability is not strong; from the internal structure of cultural industry, the traditional service industry is developed, the modern service industry, the emerging service industry, logistics industry lags far behind; in last few years development in the same state, the cultural industry output value proportion to be improved. In 2007 March, the State Council issued "several opinions on accelerating the development of service industry" put forward clearly, to 2010, and strive to make the service industry added value accounted for the proportion of GDP than in 2005 increased by 3 percentage points; the industrial structure based on service economy form conditional and medium-sized city^[1]. In this context, to speed up the development of service industry becomes our country faces a major and a long-term strategic task, which has significant and profound realistic significance^[2]. In particular, for many years China's economy has sustained rapid growth, however, the unreasonable industrial structure, the extensive mode of economic development, resources and environmental constraints exacerbate such problems still exist, these are must study seriously and need to be addressed effectively. So the research on the development of the cultural industry production value proportion is very necessary^[3].

In the prediction of the development trend of the research on data and data problems on time series model is a better model, and compared before papers in cultural industry proportion predicted this aspect mostly choose a model, but a single model has limitations, so in the specific to the identified delay variable auto-regressive non stable time series model based on the ARIMA model, and then, according to the empirical data in China, what kind of model is better is our research direction, but also to the analysis of the data before breakthrough^[4]. At the same time, we will culture industry production value proportion and relative growth speed in the same picture visual comparison, further illustrates the current situation of cultural industry structure is not reasonable^[5-6].

2 Preparation on Model Construction

2.1 Certain assumptions

We make the following assumptions from the nature of the economic development trend in recent years as well as the data itself: The 1 development trend of China's cultural industry output value proportion can be used ARMA (P, q) or ARIMA (P, D, q) model to fit, may the better, but can not

explain the economic significance. The decomposition of theorem 2 can use time series: decomposition and Wold decomposition theorem or Cramer decomposition theorem of the calendar year of cultural industry output value proportion data uncertainty and random effects. And autocorrelation test in order to test the effect of extract of random uncertainty whether full effect. In the following analysis, modelling, we separately these two assumptions on the cultural industry output value proportion data, proposed in 1973 by Japanese statistician Akaike AIC criterion and the Schwartz in 1978 according to the Bayes theory put forward by SBC criterion to evaluate the obtained fitting and the merits of the model, using the AIC criterion and SBC criterion, can effectively make up for according to the autocorrelation and partial autocorrelation graph diagram to determine the order of the subjectivity, in all through the tests of the model makes the AIC or SBC function reaches the minimum model for the relative optimal model. At the same time, assisted with the rationality of model fitting effect diagram and the prediction results to evaluate the merits of the model.

2.2 Theoretical basis of model building

1) has the following structure model called autoregressive integrated moving average model, called ARIMA (P, D, q) model:

$$\begin{cases} \phi(B)\nabla^d x_t = \Theta(B)\varepsilon_t \\ E(\varepsilon_t) = 0, Var(\varepsilon_t) = \sigma_\varepsilon^2, E(\varepsilon_t \varepsilon_s) = 0, s \neq t \\ E x_s \varepsilon_t = 0, \forall s < t \end{cases} \tag{1}$$

Type in $\phi(B) = 1 - \phi_1 B - \dots - \phi_p B^p$ as stationary reversible ARMA (P, q) autoregressive coefficient polynomial model; $\Theta(B) = 1 - \theta_1 B - \dots - \theta_q B^q$ is ARMA (P, q) mobile smoothing coefficient polynomial model.

2) auto-regressive model construction thought is the first information to identify the main decomposition method to extract the sequence by uncertainty factors:

$$x_t = T_t + S_t + \varepsilon_t \tag{2}$$

T_t is the trend effect fitting, S_t fitting for the seasonal effect. While the extraction factor decomposition method for uncertainty information may not be sufficient, the need for further testing autocorrelation of residuals of the $\{\varepsilon_t\}$ sequence. If the inspection result shows no significant autocorrelation, the deterministic regression model to illustrate the extraction of information more fully, can stop the analysis. Extracting enough, consider the establishment of the residual sequence fitting autoregressive model:

$$\begin{cases} x_t = T_t + S_t + \varepsilon_t \\ \varepsilon_t = \phi_1 \varepsilon_{t-1} + \dots + \phi_p \varepsilon_{t-p} + a_t \\ E(a_t) = 0, Var(a_t) = \sigma^2, Cov(a_t, a_{t-i}) = 0, \forall i \geq 1 \end{cases} \tag{3}$$

The following two kinds of commonly used trend fitting model of the effect of practice:

3) auto-regressive model, the power function as the independent variable of time t

$$T_t = \beta_0 + \beta_1 t + \dots + \beta_k t^k + \varepsilon_t \tag{4}$$

4) auto-regressive model, the independent variables to observe the value of $\{x_{t-1}, x_{t-2}, \dots, x_{t-k}\}$ for the history

$$T_t = \beta_0 + \beta_1 x_{t-1} + \dots + \beta_k x_{t-k} + \varepsilon_t \tag{5}$$

3 Construction of ARIMA Model

3.1 Sequence diagram

First of all, to our country since 1952, culture industry output value accounted for the proportion of gross domestic product to draw a sequence diagram, as shown in figure 1.

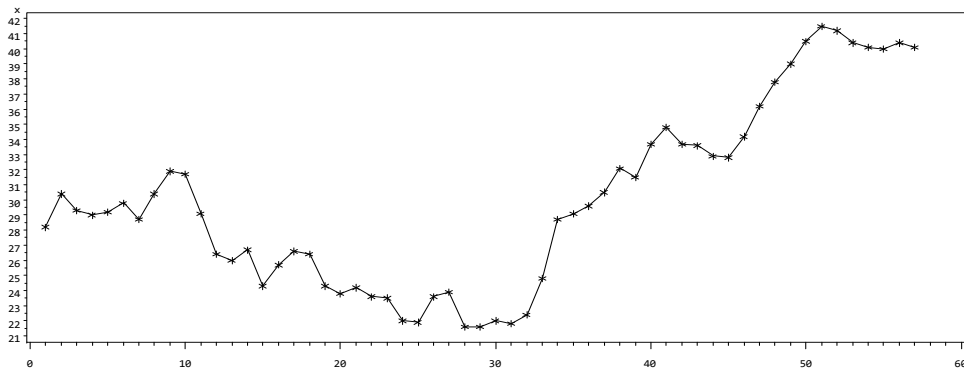


Figure 1 Cultural Industries Accounted for the Proportion of the Total Output Value of the Timing Diagram

3.2 Differential operation and pure random inspection

By the sequence diagram can be seen, the series is non-stationary, therefore cannot use ARMA (P, q) model. And it can be seen that the sequence contains a significant trend curve, we can use the low order (2 or 3 order differential effects) to extract the curve trend, to realize the sequence trend stationary, in actual operation, the two order differential ideal, get the timing diagram of two order difference such as shown in Figure 2.

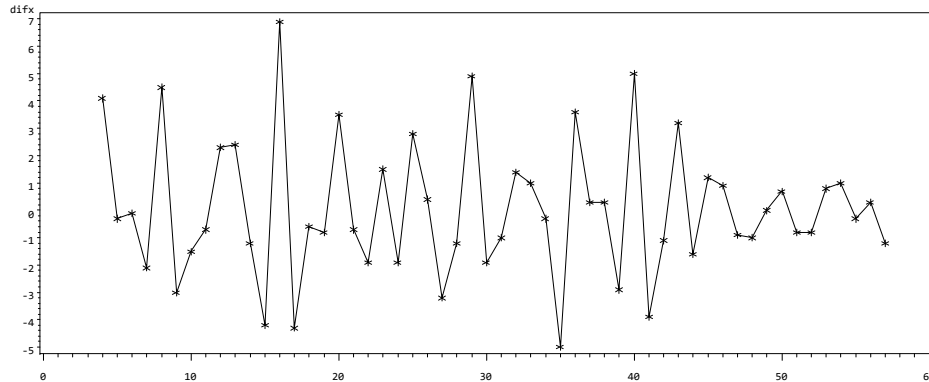


Figure 2 Cultural Industries Accounted for the Proportion of the Total Output Value of the Timing Diagram

Sequence of smooth, we have to do the pure random testing on the sequence, the test results are shown in table 1. We took a significant level of 0.05, due to the 6 order, 12 order delay of P value is less than 0.0075 and 0.0233 respectively, less than the level of significance, can reject the sequence as the original hypothesis of randomness, i.e. the time sequence is non-random, that data continue to study is meaningful.

Table 1 White Noise Test Results

To	Chi-Square	DF	Pr>	ChiSq	-----Autocorrelations-----				
6	17.52	6	0.0075	-0.242	-0.312	-0.002	0.257	-0.204	-0.163
12	23.57	12	0.0233	0.115	0.196	0.025	-0.160	-0.074	0.073

3.3 Difference model structure

Partial correlation diagram showing sequence has obvious tailing. The integrated autocorrelation and partial autocorrelation properties, for fitting the model order is MA (2) model, namely, the original time series ARIMA (0,2,2) model.

3.4 Significant test

Table 2 Conditional Least Squares Estimation

Parameter	Estimate	Standard Error	t Value	Approx. Pr > t	Lag
MU	-0.01958	0.04663	-0.42	0.6763	0
MA1,1	0.48242	0.13320	3.62	0.0007	1
MA1,2	0.28748	0.13338	2.16	0.0358	2

Results show that the constant p value is 0.6765 larger than the significant level (0.5), that is, MU is not significant, other parameter p values were less than the level of significance (0.5), which were significantly. The removal of the constant term, again carries on the parameter estimation. Test of significant model parameters need to be estimated and the parameters determined after SAS operation, the obtained results are shown in table 2. Obviously, the two parameter p value is very small, two parameters were significantly. Significant test for the whole model. We can see that the delay of each order LB statistics for P values significantly greater than 0.05, so the fitting model significant vertical.

3.5 Specific form fitting model

The specific form fitting model for:

Factor 1: $1 - 0.47993B - 0.28603B^2$

That is,
$$\nabla^2 x_t = \frac{\varepsilon_t}{1 - 0.47993B - 0.28603B^2}$$

Or the equivalent in mind for: $x_t = 2.47993x_{t-1} - 1.67383x_{t-2} - 0.09213x_{t-3} + 0.28603x_{t-4} + \varepsilon_t$

Using the fitting model to predict the sequence of x_t , as shown in table 3.

Table 3 Predicted ARIMA Model

Obs	Forecast	Std Error	95% Confidence	
58	40.0642	1.3885	37.3428	42.78
59	40.2244	2.5264	35.2728	45.1760
60	40.3846	3.5092	33.5066	47.262
61	40.5447	4.4649	31.7937	49.2958
62	40.7049	5.4273	30.0676	51.3423

We can see that in the next five years, the cultural industry output value accounted for the proportion of GDP does not have too big change.

4 Conclusion

At present, China is in the middle stage of industrialization, the development of the social economy rapidly into the city, the market, the internationalization of the track. Accelerate the development of cultural industries, improve the proportion of the cultural industry in the three industry structure, is an important way to promote the adjustment of industrial structure, a fundamental change of the mode of economic growth; is the overall enhancement of comprehensive competitiveness, improve the overall quality of the national economy and the residents quality of life in an effective way; is the inevitable choice to promote economic health, coordination, sustainable development; is the effective guarantee to promote sound and rapid development of the national economy.

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Research on the Status Quo of Implementation of Science and Technology Insurance in China*

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Abstract: Science and technology (S&T) insurance is a new institutional arrangement aiming at transferring scientific and technological risk and promoting enterprise technological innovation. S&T insurance in China developed rapidly through the gradual pilot work. This paper introduces the basic theory of scientific and technological risks and S&T insurance, to take an overall understanding of S&T insurance, then analyzes and evaluates implementation status of S&T insurance pilot cities, and points out the problems and difficulties in implementation process of S&T Insurance. Finally, the paper proposes relevant countermeasures for the government, high-tech enterprises and insurance companies respectively, to provide a reference for the healthy development of China's S&T insurance.

Key words: S&T insurance; Technological innovation; Scientific and technological risk; Pilot cities

1 Introduction

S&T insurance is a novel concept born in China. Xie Kefan and Ni Shuguang (1995) first proposed the concept of S&T insurance and defined the scope of S&T insurance, highlighted that S&T insurance is the tool to transfer the risk of failure and termination in the research and development process of high-tech enterprises. With the development of S&T insurance in China, Scholars such as Shao Xueqing (2009), Xie Kefan (2010), Zhao Shi (2012), Xue Weixian (2014), Li Hongkun (2015) studied the connotation, the function, innovation of new types and operation mode of S&T insurance. Some scholars discussed S&T insurance in more specific way, and concluded some mature theories on high-tech enterprises protecting and transferring scientific and technological risk. Tiller and Bedigian (2001) studied on technology insurance in intellectual property field. Luigi Buzzacchi and Giuseppe Scellato (2008) tended to studied technology insurance of patents. Scott J. Shackelford (2012) focuses on network risk insurance.

Since 2007, China has initiated S&T insurance in Beijing, Wuhan, Chengdu, Shanghai and other 12 pilot cities (regions), this act has a huge impact on transferring scientific and technological risk and promoting innovation activities in high-tech enterprises. Most of China's S&T insurance pilot areas are still at an initial stage, and have the urgent need to get more promotion and development. This paper examines the implementation status of S&T insurance, and summarizes relevant experience of typical pilot areas, analyzes the existing problems, and then puts forward relevant countermeasures.

2 Scientific and Technological Risks in High-Tech Enterprises and S&T Insurance

High-tech enterprises are both the mainstay of technological innovation to bear the main benefits and risk of technological innovation. Scientific and technological risks include technical risks, financial risks, talent risks, market risks. Technical risks mainly are: 1) product development failure, 2) delay in production of new products, 3) product quality defects, and etc. Financial risks mainly include: 1) lack of R&D funds, 2) problems on export business loan recovery, and etc. Talent risks mainly are: 1) high-tech brain drain, 2) high-tech talent health problems, and etc. Market risks mainly include: 1) new products have not achieved the desired effect, 2) new products lack of competitiveness, and etc.

High profit is the driving force of high-tech enterprises to conduct technological innovation, however all kinds of risks become the obstacle for enterprises engaged in technological innovation. The S&T insurance combines science and technology with insurance, becomes a particular tool to transfer scientific and technological risk of high-tech enterprises. According to the business security object classification, the existing 15 S&T insurance types of China can be divided into four categories, as shown in Table 1. At present, the types of S&T insurance are less, still can not fully meet the high-tech enterprises needs to avoid and transfer scientific and technological risks.

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Table 1 Types and Categories of S&T Insurance

Categories	Types of S&T insurance
High-tech enterprises R&D achievements category	product development liability insurance, product liability insurance, product quality guarantee insurance
High-tech enterprises business environment category	key research and development equipment insurance, research and development business interruption insurance, high-tech enterprise property insurance, investment loss insurance, patent insurance
High-tech enterprises employee security category	senior management and core R&D staff accident insurance and health insurance, board of directors and the supervisory senior management professional liability insurance, employer's liability insurance
High-tech enterprises social responsibility category	export credit insurance, environmental pollution liability insurance, microfinance guarantee insurance

3 Status Quo of Implementation of S&T Insurance Pilot Cities

Beijing, Chongqing and other five cities of China are the first group S&T insurance pilot cities. After years of promotion, S&T insurance has steadily sustainable development. The relevant S&T insurance statistical data of these pilot cities was collected with a representative, as shown in Table 2 and Figure 1.

Table 2 The Relevant S&T Insurance Statistical Data of Six Pilot Cities up to 2012¹

Items	Beijing	Wuhan	Chongqing	Suzhou	Shenzhen	Tianjin
Guaranteed high-tech enterprises	427	400	106	45	40	55
Insured amount	520	500	188	208	183	187
Premiums paid	5886	6500	1225	1884	675	1517
Financial subsidies	3100	1000	393	204.3	1000	440
Payment amount	2953	2785	4569	366	1000	1153
Financial subsidies to premiums paid	53%	15%	32%	11%	148%	29%
Payout Amount to premiums paid	50%	43%	373%	19%	148%	76%

To analyze the numbers of guaranteed high-tech enterprises, Beijing, Wuhan each has more than 400 guaranteed high-tech enterprises, to pay premiums about 60 million yuan, and the insurance amount is more than 50 billion yuan, reflecting the high-tech enterprises are of high enthusiasm to be insured. Chongqing has 106 insured enterprises, the number of insured enterprises in Suzhou, Shenzhen, Tianjin were around 50, and the premiums paid and insured amount are relatively small, showing high-tech enterprises in these four pilot cities are of less awareness of S&T insurance, the development of S&T insurance in pilot cities is uneven.

To examine the situation of financial support, Shenzhen provides subsidies nearly 1.5 times the premium to guaranteed high-tech enterprises, whereas Beijing subsidies for guaranteed enterprises is more than half of the premiums paid. Followed by Chongqing, Tianjin, Wuhan, Suzhou, government financial support for guaranteed enterprises is relatively low.

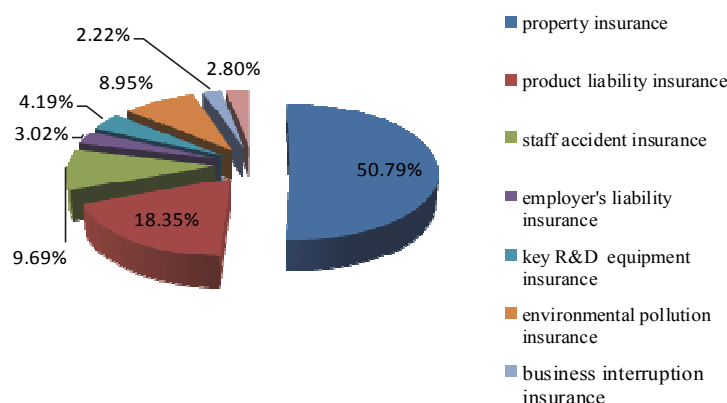


Figure 1 S&T Insurance Premium Distribution of Wuhan in 2011²

To detail the situation of payment for guaranteed high-tech enterprises, guaranteed enterprises in Chongqing get about 45 million payment amount, 3.7 times the amount of the premium paid, guaranteed

¹ (Source: local Science and Technology Bureau)

² (Source: Wuhan Science and Technology Bureau)

enterprises in Beijing, Wuhan each get payment amount of nearly 30 million yuan, showing that pay scale in these three pilot cities are relatively large. Guaranteed enterprises in Suzhou, Shenzhen and Tianjin receive relatively smaller amount of S&T insurance payment.

To discuss the situation of S&T insurance premium distribution, property insurance has the highest premium income accounted for 50.79 percent of all types of insurance, product liability insurance accounts for 18.35 percent, followed by staff accident insurance and environmental liability insurance, the rest of S&T insurance premium share are very low, indicating a serious imbalance in the distribution of S&T insurance.

In general, the development of S&T insurance in China has made a breakthrough, but there are three prominent problems: First, some local government financial subsidies for S&T insurance is not in place, incurs a negative effect on the insurance initiative of high-tech enterprises to a certain extent. Second, the type of S&T insurance is not rich, the existing insurance structure can not meet the comprehensive needs of high-tech enterprises, and some technology venture can not be guaranteed. Third, S&T insurance coverage has an uneven development, and high-tech enterprises prefer the continuation or extended of traditional insurance coverage.

4 Recommendations for Further Development of S&T Insurance

In order to further promote the development of S&T insurance, the main measures proposed are:

4.1 Recommendation for local government

Local government should put emphasis on the financial subsidy policies of S&T insurance, and combine financial subsidy policies with other incentives policies to support technological innovation. The policy mix of tax incentives policy, venture capital policy and S&T credit policy could grant the high-tech enterprises a full range of support and protection to conduct technological innovation.

The government should encourage insurance companies to create new types of S&T insurance, and use the patent policy to protect their innovation of new S&T insurance types. For instance, the insurance company has a patent right for the new type of S&T insurance they created, while other insurance companies have no right to participate in the related businesses of the new S&T insurance, and the new S&T insurance services will be available to all insurance companies and the market until the government buy the patent from the insurance company.

4.2 Recommendation for insurance companies

Insurance companies should strengthen the awareness of innovation of new S&T insurance types, to provide professional, high-quality insurance services to high-tech enterprises. Insurance companies could classify the risk from the aspects of innovation activity and from the different involved bodies, and then create new S&T insurance types accordingly. For the demand of high-tech enterprises, insurance companies can focus on the development of independent innovation first (set) products insurance, high-tech enterprises financing insurance and scientific and technical personnel security insurance.

Insurance companies could cooperate with insurance intermediaries and banks to innovate insurance services model. Insurance intermediaries and banks have the information superiority insurance companies do not, the cooperation can solve asymmetric information, risk identification, risk assessment and other issues in S&T insurance business, to provide a personalized risk management strategy to high-tech enterprise, and also give support for insurance companies to determine premium rate, and make it more profitable.

4.3 Recommendation for high-tech enterprises

High-tech enterprises should seriously study the knowledge of risk management, and gradually build enterprise risk management system, and according to the feature and the level of risk to choose the proper type of S&T insurance to transfer risk and develop innovation activities. Moreover, high-tech enterprises should strengthen communication with government departments, to reflect the business demands. When preferential policies for enterprises may not be implemented, the enterprises and trade unions could complain or suggest to relevant departments to actively protect their own interests.

5 Conclusion

S&T insurance greatly promotes the cooperation between science and technology and insurance, is an important measure with a strong strategic significance to implement education strategy and promote independent innovation. Through tripartite collaboration of government, high-tech enterprises, insurance companies, S&T insurance of China will get a good and orderly development. With the support of the

government policy and the promote of S&T insurance, there will be better risk diversification and protection of corporate innovation activities, so that more enterprises will participate in technological innovation, and ultimately accelerates the construction of innovative country of China.

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Research in Universities' Patents Transformation in China

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Abstract: The 21st century is the era of knowledge economy, the quality of patent transformation is an important measure of the national scientific and technological level. But it is also an important criterion of reflecting a national scientific and technological innovation capacity and economic competitiveness. This paper argues that Chinese universities out of the market application of patent applications, and the insufficient management of intellectual property and protection transformation in patents transformation. The shortage of financial support for research funding is a major problem in Chinese universities, which should be solved in the transformation of patent. By strengthening enterprise's project docking and co-development, and actively guiding the development of small and pilot scale, and improving the possibilities of conversion, focusing on the economical practical value in research project, strengthening the measures, such as technology transfer center career capabilities can effectively improve patent conversion rate.

Key words: Knowledge economy era; College patent; Patent transformation; Patent transformation system

1 Introduction

1.1 Research presentation of foreign situation

Intellectual property originated in western countries, domestic research on intellectual property rights than China much earlier. They did a more in-depth research in the current situation of patent transformed, problem and cause of it. They put forward a number of practical recommendations. On the one hand, universities rely on government investment to improve the economic interests of the patent. On the other hand, universities can manage their own patents which generate economic benefits. In research of this area is relatively mature, they has formed a sound management system patents, patent applications as well as supporting policies and institutions, and also set up specialized agencies responsible for it particularly. They adjust the strategy through intellectual property, the growing number of patent, and patent quality will be improved, thus it contributes to the transformation of the implementation of the patent. For example, establishment and development of patent system is ahead of other countries in the US, which have been earlier patent specification in the mid-17th century. The US patent system in the production practice through constant changes and additions, and gradually formed a relatively complete system of patent management and protection.^[1] Due to these factors, universities in Western countries have got enormous social and economic benefits by patent management, and it has become a very successful business activities.

1.2 Research presentation of Chinese situation

Compared with the United States, the rise of Chinese intellectual property is still relatively late. Situation research focuses on issues about the college transformation of science and technology, in the study of science and technology achievements transformation of universities. The main needle transforming scientific and technological achievements from mode, operation mechanism, factors, problems and countermeasures of universities to improve scientific and technological achievements study recommendations. But the researchers said the study of university patent Transformation, mainly from theoretical analysis, which is lack of empirical data to support appropriate research and specific situations. We summary that the Chinese college patent Transformation: First, Chinese universities patent transnational research started late and develop slowly. Second, it lacks of systematic transformation at the present stage of Chinese college patent. Third, Chinese domestic research with respect to foreign, there is an apparent gap between still less research of economic transformation of university patents.^[2]

2 General Situation of Patent Transformation of Chinese University

Because gathering talent people, excellent research conditions and strong scientific and technological innovation with Universities, which gather more attention from the world economy and it is also the main science and technology investment direction of government. In recent years, countries around the world develop strategies to promote university patent industrialization. Especially in the United States

and Japan, which have done a lot of work for the university patent, and also achieved good results. Compared to the United States and Japan, China attaches great importance degree in university patents should be improved, and we also should provide a reliable theoretical basis. In order to accelerate the study of university patents, patent strategy improve the quality of colleges and universities to improve the patent, the effective promotion of patents. To research universities' patents, their status is real basic research, from the phenomenon to the nature of the issue, and they put forward effective countermeasures to improve the situation, whose purpose is to improve the international competitiveness of high-tech.

According to the Science and Technology Universities Compile Statistics, which shows there is only one supreme science and technology award in Chinese universities in 2013. National natural science Award 33, including there are 4 of the first prize, 29 of second prize. STIA is total 64, including three first prize, 61 of second prize. National Science and Technology Progress Award 192, two of grand prize, 10 of first prize, 180 of second prize. The various departments of the State Council of Science and Technology progress Award 1173. Under the Science and Technology Progress Award of provinces and autonomous regions and municipalities 3821. In 2013, a total of 3821 university patent awards have been applied. In 2013, the applications of patent total 106714, authorized 68,971. Turnover 2357, accounting for only 3.4 percent of whole patents. Universities and research institutions patented technology conversion rate is far lower than the full rate patent transformation. According to an empirical analysis suggests that Chinese college patent transformation. In 2014, top ten universities patents schools of China, there are four patent universities whose conversion rate of more than 50 percent of institutions, 30 percent to 40 percent of institutions have six, patent conversion rate is generally low. Patent lowest conversion rate of only 37 per cent only. From 2006 to 2013, the total patent applications in China reached 10.355 million, but the amount of invention is granted patent 5.9 million authorized rate is 57.5 percent. Total number of patent applications for invention is 3.455 million, while the amount of invention patents 1.08 million authorized rate of only 31 percent.

Secondly, the situation of the international patents application. According to Chinese patents will be published statistics. Chinese international patent applications 21516 in 2013, which accounted for 10.5 percent in global applications. While the US global patent applications 57 239, which accounted only 37.5 percent in the U.S. Analyzing of China awards and international patent applications universities and technological achievements, which illustrates the quality of Chinese university patent is not high. It also don't match the quality of patents and patent applications.

3 Problems of Chinese Universities Patent System's Transformation and the Reasons Analyzing for It

3.1 Problems existing in the Chinese universities patent transformation

In recent years, applications and granted patents in universities has shown rapid growth, but also there are many problems in Chinese universities patent transformation. For example, most colleges and universities patent conversion is low, the quality of patent transformation is not high, and the conversion of the patent system management has its drawbacks. All of these make a gap between China's colleges and universities in the development and management of patent and the western countries. Also in research and development activities in colleges and universities is not really to combine closely with market applications, which has also led to a drop in the quality of patents and patent application. And in contrary to that, And foreign professional patent investment company, using scientific research resources of colleges and universities, put forward a targeted market research and development project, through the study commissioned or patent acquisition "refresh" patent layout, which pose a potential threat to China's industrial development. An application for a patent for the existing main problems are from the market, colleges and universities patent conversion rate is low, and the lack of management and protection of intellectual property rights, the patent into the money shortage, etc^[3]. In order to promote the ability of China's colleges and universities patent creation, utilization, protection and management. It is necessary to get a further study in the present situation of our college patent technology transformation work and problems, to put forward relevant suggestions and countermeasures, provide reference and recommendation for Chinese college patent technology transformation work.

3.2 Analysis of the problems existing in the transformation of Chinese universities patent

3.2.1 Colleges and universities patent application is out of the application of the market

Because the patent technology transformation work of our country college has been away from the market application and so result in college patent technology transformation dynamics is insufficient.

The quality of patents and patent technology conversion has showed a trend of decline, not conducive to the transformation of scientific and technological achievements in colleges and universities. On the one hand, the scientific researchers are accustomed to the pursuit of technical level, emphasizes the technical achievements to attain the international and domestic advanced level, and ignored the market orientation and the reality of economic value, scientific and technological achievements and patent technology transformation of consciousness is not strong.^[4] On the other hand, evaluation system in colleges and universities are more dependent on important journals such as the publications and patent application number, evaluation of quality of patents, patent technology transformation and reward mechanism is insufficient, resulting in a large number of teachers in colleges and universities attaches great importance to the research. The application of basic research and despise attaches great importance to the patent application and despise patent technology transformation.

3.2.2 Shortage of college patent transformation in the management and protection of intellectual property rights

Management and protection of intellectual property rights has gradually integrated into the college of science and technology development agenda. Many colleges and universities have issued the regulations on the protection of intellectual property. In 1999 formulated the Tsinghua university provisions about promoting transformation of scientific and technological achievements, reward for successful transformation of scientific and technological achievements of science and technology personnel, allow individuals to implement transformation and so on have made that clear.^[5]

However, from the overall, the transformation of colleges and universities in the patent protection of intellectual property rights and management still exists many problems. Firstly, the patent protection consciousness is too weak, although has strong scientific and technological innovation capacity in university, but because of the patent law the propaganda work of knowledge and to strengthen the patent protection for not doing enough. Secondly, Chinese most of the protection in universities' intellectual property work lack of unified leadership. Intellectual property management system is not perfect enough. Thirdly, Chinese most universities patent work by the school hosting of scientific research management departments, most colleges and universities has not yet set up a special intellectual property management, the lack of perfect patent system.

3.2.3 Research funding shortage

In recent years, due to the lack of scientific research base in universities and the lack of funding, which can't make patents realize industrialization quickly. Though the university scientific research funds has been a relatively greatly increased, but the amount is limited, relative to the colleges and universities is still insufficient demand, difficult to obtain significant results. University of science and technology enterprise is little investment in the country or in a few cases, the accumulation relying on their own rolling development. Few colleges and universities can get government or agency technology achievement transformation fund or risk fund, one can, lack of necessary capital input, college patent technology transformation will lack the necessary material base, again good, have market prospect of patent results also are unable to commercialization. State Intellectual Property Office on Universities Patent Investigation. Analysis shows that Chinese universities lack the funding of Patents accounts for 86% of the total survey.^[6] The data also reflecting the capital factor is also the important reason of the process are some patents. Patent transformation is a complicated process, the realization of the process, requires a lot of manpower and material resources and financial resources. In the process of transformation of the patent with particular emphasis on these links, patent transformation of inadequate investment, especially the lack of money, make some risk is bigger, in the short term is difficult to effective patent is difficult to convert.

4 Suggestions to Conversion of Chinese Colleges and Universities' Patent

Nowadays, China has been deepening reform and further opening to work hard to build the Socialist Market Economy. Under this new circumstance, the colleges and universities should take their own advantages and contribute to economy construction all the time. To build and develop the Socialist Market Economy, we should make more contributions, such as paying more attention to and promote enterprises' technical transformation, converting and popularizing our inventions, introducing and absorbing foreign new outstanding technology. There are several suggestions to the conversion of colleges and universities' patent.

First, it should be sticking to strengthen co-operations with enterprises, which is the most effective way to increase the rate of conversion. According to needs of enterprises, colleges and universities can

take advantages of knowledge and experimental equipment to develop research and devise activities, which have specific market objects. The intellectual properties acquired in this way, can be put into practice quickly, create social and economic values.^[7] Based on provisions of trust agreement, these intellectual properties usually belong to both sides, but enterprises have rights to apply them into practice. It is also possible for enterprises or colleges and universities to own whole intellectual properties. However, ownership of the achievements of further researches should belong to person who invent them.

Second, guiding the development of small-scale and pilot is important to increase possibilities of conversions. Under the current policy, scientific research administrations in colleges and universities should encourage teachers to invent by those measures such as adjusting the systems of testing, reward and propaganda. Before applying for a patent, pilot scale test or small scale test is essential. Using samples to apply for patents should be a standard of test for patent. After pilot scale test or small scale test, achievements are basically mature, which have more advantages on practicability and have specific market targets. It's relatively accurate to estimate investments and profits. At the same time, the inventions through pilot scale test can decrease the risks, increase the confidence to enterprises when being converted. It can also decrease period of negotiation.

Third, changing researchers' minds, that is, patents created by researchers should bring economic values.^[8] Scientific administrations in colleges and universities should strengthen management, especially when researches apply for patents that are same or similar. Number of patents is not the point, on the contrary, quality and effect are the keys to patents. Researchers should be good at combining scientific researches with technological innovations, balancing the relationship between them. Only through technological innovation can scientific research achievements create economic values to realize the social values.

Finally, strengthening the professional function of technological transfer center in colleges and universities. Technological transfer center in colleges and universities is a successful mode to transfer or convert intellectual properties in United States and Japan. Currently, because of a large amount of patents and management affairs, some of comprehensive universities in our country establish technological transfer center to deal with issues about intellectual property. The main function of this organization which belong to colleges or universities, is applying for a patent, paying fees to maintain a patent, contacting to convert and deliver relative market information. At the same time, it also take on some management work of science and technology department. According to our researches, in a college or university who has many authorized patents, if a person is in charge of applying for patents and paying fees very well, there is no enough time to marketing to enterprises. Marketing to enterprises is mainly relied on intermediary technological agent. It reflects that the operation of technological transfer center in colleges or universities don't meet requirements of market or enterprises. Therefore, it's high time to strengthen construction of technological transfer center, making it independent to science and technology department. To improve ability of technology transfer, it should strengthen professional personnel allocation, which make itself reach the professional standards as market intermediary technological agent and operate in the market way.^[9]

5 Conclusions

According to the researches about problems of conversion of patent in colleges and universities in our country, the number of applying for patents and authorizing patents show the importance of universities' innovation in patent. However, the quality of patent and social economic values is also important to colleges or universities. From the construction of patent system in Chinese colleges and universities to the development of patent conversion, many universities show their advantages of technological innovation. But there are many problems in patent conversion. Compared to western countries, our colleges and universities have a huge gap in rate of patent conversion. To solve these problems, we should establish reasonable patent conversion system, make proper policy which is beneficial to the development of patent. In the aspect of marketing, we should strengthen the cooperation between universities and enterprises to make patent bring economic values. At the same time, researchers should change their old minds. Number and quality are both important to express huge advantages of scientific and technological innovation.

Enlarging the propagation and education to all society, improving the whole society's mentality of intellectual property, enlarging administrative enforcement and building a better marketing circumstance intellectual property are important tasks in a near future. The work of intellectual property should be

market-oriented, enhance the cooperation between universities and enterprises and adopt the industry-university-research cooperation. Meanwhile, we should make reasonable test measures based on technology conversion to encourage researches to select project from market, to test in enterprises. Only in this way, it can solve the problems enterprises have and patents in colleges and universities can convert fast. Finally, universities, enterprises and market can form a sound relationship of interaction and cooperation.

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Study on the Dynamic Relationship Between Foreign Trade, FDI and the Economic Growth in the New Normal

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Abstract: Recently, our economy has developed rapidly. The foreign trade and FDI grows continually. In the new normal, that whether foreign trade, FDI and the economic growth has a relationship or not has become a hot issue in the academia. This essay, on the basis of the VAR model analysis methods, makes a study on the relationship between foreign trade, FDI and economic growth from 1994 to 2014. And the results show that there is a cointegration relation between the foreign trade, FDI and the economic growth. And this essay will figure out some actions to sustain the economic growth in the new normal on the basis of the empirical analysis.

Key words: Foreign trade; FDI; Economic growth; The new normal

1 Introduction

Recently, our economy has developed rapidly. The foreign trade also has a rapid growth. Since the end of 1994, the foreign trade has reached 2 trillion RMB and been on a rapid development track. Up to the December, 2014, the foreign trade volume reached 26,433.5 billion RMB, which surpasses the USA to be the first. The foreign trade has made a great contribution to the economic growth, meanwhile, China's resources and investment environment has greatly attracted foreign businessmen. The bring-in of FDI has provided funds for economic growth and introduced advanced technologies. That whether there is a relationship between foreign trade, FDI and economic growth or not has been very popular. There are large numbers of studies on the influence of FDI to a country; these studies have focused on FDI to the country economic growth, foreign trade, technological progress, industrial structure and employment, etc. On FDI and economic growth, Jordan Shan (2002) using VAR method research the relationship between FDI and economic growth in China, Finding there is bidirectional causality between FDI and economic growth, but on the influence of FDI to economic growth is greater than the influence of FDI on economic growth. Domestic Sang Xiu Guo (2002) study positively correlated relationship between FDI and economic growth, FDI has a promoting effect on economic growth, but it is not the main cause of China's economic growth. China's economic growth is the cause of the FDI growth. Wei jiang liu (2002) study shows that FDI to China's foreign trade volume expansion has played a great role in promoting, both from foreign and import, FDI in our country are showed significant trade creation effect. While Shi Xiaolong (2004) research has shown that FDI to our country foreign trade has a significant role in promoting.

Throughout domestic academia for FDI research, we found that more studies are on relationship between export, import and the economic growth, the relationship between FDI and economic growth. Few studies are on the relationship between these three. Besides, China's economy faces the new normal. And China's economy is endowed with new meanings and new characteristics. So this essay plans to analyze the dynamic relationship between the foreign trade, FDI and the economic growth and aims to provide suggestions to promote the development of the economy.

2 Data and Methodology

2.1 The data sources

In this essay, the sample chooses the data between 1994 and 2014. The data come from the *China Statistical Yearbook*. In order to deprive of the influences of price, the GDP deflator is used with 1994 as the base period. The data of FDI come from the *China Statistical Yearbook*. Every year's FDI multiplies the annual average exchange rate. Meanwhile, in order to the reduce the influences of price, the FDI variables are translated with the GDP deflator with the 1994 as the base period. The GDP is measured with RMB. And the import and the export are measured with US dollars. So firstly, the unit of account of the import and export has to be translated in RMB. Besides, this essay also uses the CPI to deflate the data and then calculate the logarithm of these data and get $\ln(EX)$, $\ln(IM)$, $\ln(FDI)$ and $\ln(GDP)$.

2.2 The methodology selection

In order to explore the dynamic relationship between foreign trade, FDI and the economic growth,

this essay chooses to establish VAR models of 4 variables including imports(IM), exports(EX), FDI and GDP. VAR is set up on the basis of the characteristics of the data. In the economies, the variable will be influenced by its own hysteresis value and other variables' hysteresis value. So the single variable in the autoregressive model needs to be changed to C, which is the VAR model. The expression of the model VAR should be :

$$y_t = A_1 y_{t-1} + A_2 y_{t-2} + \dots + A_p y_{t-p} + Bx_t + \varepsilon_t \tag{1}$$

(t=1, 2, L, T)

In the equation, y_t is the endogenous variable with the K - dimensional vector. T is the number of the samples. P is the order of the lagged variables. x_t is the endogenous variable with the D-dimensional vector. The K×k matrix A_1, \dots, A_p and the k×d matrix B are the coefficient matrix. ε_t is the variable influenced by the K-dimension. In the model VAR, in order to reflect the dynamic characteristics of the models, p and r have to be very big. However, if p is overly large, the degree of freedom in the model will be reduced. So we must establish a balance between these three. This balance can be made by AIC principle and SC principles.

3 Results

3.1 The stationary tests of the variable time series

According to the Econometric Theory, if the time series are non-stationary series, spurious regression is easy to get, which makes that traditional models can not reflect the relationship between the explanatory variable and the explained variable. In order to avoid the spurious regression, this essay will use the ADF method to make a Unit Root Test on various tests. The results are as follows:

Table 1 The Unit Root Test of Ln (EX), Ln (IM), Ln (FDI) and Ln (GDP)

Variable	ADF	5%	Terms of inspection (c, t, k)	Result
Ln (GDP)	-2.0253	-3.4629	(C, T, 1)	Not smooth
Ln (IM)	-2.3359	-3.4629	(C, T, 1)	Not smooth
Ln (EX)	-1.2987	-3.4629	(C, T, 1)	Not smooth
Ln (FDI)	-2.3256	-3.4629	(C, T, 1)	Not smooth
ΔLn (GDP)	-3.3963	-3.0001	(C, 0, 3)	smooth
ΔLn (IM)	-3.5526	-3.1200	(C, 0, 0)	smooth
ΔLn (EX)	-3.9961	-3.0314	(C, T, 1)	smooth
ΔLn (FDI)	-4.214	-3.1212	(C, 0, 3)	smooth

Note: in the test, c, t represent the constant term and trend term. K represents the Lag Intervals for Endogenous. Δ represents the first order difference.

From this, we can see that Ln (EX), Ln (IM), Ln (FDI) and Ln (GDP) are non-stationary. But these four are all first order stationary. Therefore, we need to further test it.

3.2 Cointegration test

In order to make sure that whether Ln (EX), Ln (IM), Ln (FDI) and Ln (GDP) have a stable and long-term relationship, this essay will adopt Johanson's method of maximum likelihood to test the cointegration relationship between Ln (EX), Ln (IM), Ln (FDI) and Ln (GDP) . The selection of optimal Lag Intervals for Endogenous of Johanson test is determined by the p. The test results are as follow:

Table 2 The Cointegration Test Results

Variable	Eigen value	The trace statistic	Results	Cointegration equation
Ln (GDP)	0.3612	8.2311 (10.40)	1	Ln (GDP)=0.221Ln (EX) +0.05 Ln(IM)+ 0.136Ln (FDI)+ 5.3056 (0.006) LR: 59.31
Ln (EX)	0.1158	3.6018 (5.79)		
Ln(IM)	0.0996	3.2589 (4.65)		
Ln (FDI)	0.2263	7.2356 (11.20)		

The Cointegration test results show that the Cointegration test statistic receives the hypothesis that the Cointegrate vector is "1". Therefore, we can think that these 4 time series has a long-term stable

relationship. From the Cointegration Equation, we can see that FDI and import and export have a positive influence on the economic growth. When FDI increases by 1%, the economy will increase 0.136%, which means that FDI and GDP are positively correlated. When import increases by 1%, the economy will increase 0.05%. and when the export increase 1%, the economy will increase 0.221%.

3.3 VAR model and granger causality test

The Cointegration test shows that there is a long-term and stable cointegration relationship between these three. However, whether this kind of relationship is causal relation still needs to be proved. This essay will use the Granger Causality Test to test whether there is a causal relation between variables. The test results are as follow:

Table 3 The Results of the Granger Causality Test

The null hypothesis	F Statistic	P Values	Results
Ln(FDI) is not the cause of Ln(GDP)	6.2621	0.0108	reject
Ln(GDP) is not the cause of Ln(FDI)	3.0503	0.0231	reject
Ln(FDI) is not the cause of Ln(EX)	5.7122	0.0121	reject
Ln(EX) is not the cause of Ln(FDI)	1.6339	0.9625	accept
Ln(FDI) is not the cause of Ln(IM)	1.1252	0.3358	accept
Ln(IM) is not the cause of Ln(FDI)	1.4689	0.5045	accept

The results show that firstly, when the significance level is 5%, Ln (FDI) and Ln (GDP) influence each other. On one hand, the rapid development of China’s economy attracts much foreign direct investment. The increase of FDI leads to a great growth of the foreign exchange reserve. The growth of FDI causes the increase of the monetary base, which finally increase the money supply and then stipulate the economy. On the other hand, the flow of the FDI promotes the domestic investment in related fields and then provides more jobs and pushes the economy forward. Facts prove that when FDI increases by 1%, the economy will increase by 0.136%. On the other hand, with the rapid development of economy, China’s resources and environment become more attractive, which can prove that FDI and economic growth can influence each other? Secondly, when the significance level is 5%, Ln (FDI) causes Ln(EX) . The mass inflow of FDI increases the domestic investment and then provides more jobs. The growth in domestic production will increase the export. The Ln (EX) is not the reason of Ln (FDI) which shows that FDI can promote the export growth and the export growth cannot attract investment. This is mainly because the structure of exporting goods. For many years, the energy intensive, highly polluting and resources products occupy a large part in the exporting goods, which is not good for attracting foreign capital. Thirdly, when the significance level is 5%, Ln(FDI) cannot influence Ln(IM), which can prove that the growth in import is the reason of the increasing domestic demand. The import is not the reason for the inflow of FDI. The inflow of FDI is mainly determined by that whether the domestic economy can attract the foreign capital or not.

3.4 Error correction model

The Cointegration Test shows that there is a long-term and stable relationship between Ln(GDP)、Ln(IM) 、 Ln(EX) and Ln (FDI) . However, the stable relationship cannot put up with the outside influences or the balance will be broken out. So the short-term dynamic model should be built.

Error correction model can prove the stable relationship between Ln(IM) 、 Ln(EX)、 Ln (FDI) and Ln(GDP) and correct the short term balance. This essay will establish the error correction model to explore the short term fluctuation. The error correction model’s results are as follows:

$$\Delta^2LnGDP=0.0023+0.1024\Delta^2LnEX+ 0.0015Ln(IM) +0.131Ln (FDI) -0.245e_{t-2}$$

$$R^2=0.9901 \quad DW=1.9722$$

We can find that degree of fitting of the model is high. In a long term, the cointegration has a huge power, which can change the imbalance to the balance. The coefficient of correction can show the adjustment degree of the imbalance. If the short term data deprives of the long term data, the model will change the model with the adjustment degree as 0.245. And the ratio for error modification is negative, which can reflect the negative setting of the repair mechanism.

4 Conclusions

From the results of the positive analysis, we can conclude that: Firstly, there is an obvious cointegration relationship between FDI and the economic growth. Although their own growth is unstable, the relationship is stable. Secondly, through the Granger casual relationship test, we can find that: ①Ln

(FDI) and Ln (GDP) can influence each other. ②LnFDI can have an influence on LnEX. And LnEX cannot influence LnFDI. ③Ln(FDI) is independent on the Ln(IM) and the Ln(IM) is also independent on the Ln(FDI). ④all these can prove that FDI is an important reason of the economy growth. Thirdly, the Error correction model can show that in a short term, there is a dynamic adjustment system between the foreign trade, FDI and economy growth. In the long term, the adjustment degree of the imbalance is about 24.5%.

4.1 Improving the export structure and attracting the inflow of the foreign capital

This essay proves that the export can exert a huge influence on the domestic economic growth. Therefore, we need to improve the structure of the export, guarantee the export of the labor intensive products, expand the export of the Electromechanical products and hi-tech products, develop the service industry and service outsourcing, build our brands and the marketing networks, control the export of the energy intensive or highly polluting products to attract the inflow of the foreign capital.

4.2 Adjusting the export strategies

The empirical analysis proves that the import exerts a huge influence on the economic growth. Adjusting the import strategies can promote the economic growth. We should encourage importing the advanced technologies, equipment, innovative results and resources and raw materials, controlling the import of the low-technology goods to form an intensive economic growth pattern, improve the productivity and the core competence of the exporting enterprises. This can prompt the import to increase the economic growth and then promote the export growth.

4.3 Creating a market full of fierce competition

To promote foreign enterprises to bring in more advanced technologies and take part in more research activities, it is important to maintain the competition in the market. The international enterprises are easy to form the monopoly in the regional market dependent on the funds, technologies and governments' favorable policies. Therefore, only by creating a competent environment can foreign enterprises produce more new technologies and products. Domestic enterprises and foreign enterprises all need a competent environment. The institutional barriers should be removed to let enterprises become the major role in the market. In addition, some industries have advanced technologies and fund barriers. Domestic enterprises cannot have a high competence in a short term. In this situation, at least 2 enterprises should be introduced in to form a competition among them. Foreign enterprises will bring in more advance technologies and services to get more market shares. And then domestic enterprises can get more information and technologies.

4.4 Improving the innovation ability of the domestic enterprises

On one hand, enterprises should put more investment in the research and development to improve their own innovation ability, especially the ability to make use of the foreign funds and the ability to take in the technologies. On the other hand, government should encourage enterprises to make innovations. For instance, To promote enterprises to cooperate with research and institutions, to promote enterprises to share technologies and to promote more investment in the new technologies. Besides, we should make use of the opportunity of the international division of labor and International Industrial Restructuring to improve the quality of foreign capital and technology content. And then we should take advantage of the technology spillover effects to foster their own innovation ability.

4.5 Strengthen policy coordination, promote the balanced development

Foreign investors should be encouraged High technology industries and advanced manufacturing. China's current capital is relatively abundant, Foreign exchange reserve is adequate, the international trade balance surplus slightly every year, construction funds Gap is not big, in this case, the investment focus should shift to high technology And advanced management, encourage foreign companies in China promotes the research and development ability, belt Dynamic domestic industrial upgrading; Speed up the process of open services, encourage foreign investment to the knowledge Modern services flow; Im actively introduce advanced agricultural industry in the developed countries Production management technology, the development of green ecological agriculture emphatically, so as to optimize foreign investment Industrial structure, promote industrial upgrading in China.

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Research on the Relationship Between Differentiation Strategy, Heterogeneous Resources and Performance of HTSME

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Abstract: This article studies the relationship between differentiation strategy, heterogeneous resources and firm performance of high-tech small and micro enterprises. Firstly, the article will do a literature review about the effect differentiation strategy and heterogeneous resources on firm performance, then building a model about the above three, proposed assumptions that differentiation strategy and heterogeneous resources have a positive impact on firm performance, and obtain data through investigation and research, using SPSS19.0 for data analysis and processing, obtained conclusion that both differentiation strategy and heterogeneous resources has a positive impact on firm performance, but compared with differentiation strategy, the heterogeneous resources has less impact.

Key words: Differentiation strategy; Heterogeneous resources; Enterprise performance; HTSME

1 Introduction

HTSME (High-tech Small and Micro Enterprises) play an important role in China's national economy and social development, promoting the development of small and micro enterprises also promotes national economy steady and rapid development. But the HTSME themselves faced with various difficulties and challenges, their late development results in HTSME have been appeared some problems that include not enough emphasis, risk resilience is not enough, and the burden of financing, lack of market demand and so on. Since the financial crisis, China's HTSME are facing many problems. By studying heterogeneous resources and differentiation strategy of HTSME, and analysing the impact of differences strategy and heterogeneous resources on enterprise performance, and thus draw conclusions in favor of the development of HTSME.

Researching the effects of heterogeneous resources and differentiation strategy on performance can not only help HTSME to solve their own development in the presence of problems, but also provide reference for HTSME on how to use heterogeneous resources, differentiation strategy to improve performance. Not only promoting the development of HTSME faster and better, but also conducive to China's economic development. How does heterogeneous resources and differentiation strategy impact on performance? What is the impact mechanism? Thus, this article do literature review on the basis of previous studies, model assumption, examples of verification and data analysis to get the final conclusion and summary.

2 Literature Review

The primary basis of differentiation strategy is heterogeneous resources, so study the impact of differentiation strategy and heterogeneous resources on the business performance is significant. Especially for HTSME in China, the difficulties encountered in the early days, how should they use heterogeneous resources for differentiation strategy to improve business performance, and how they handle the relationship between differentiation strategy, heterogeneous resources and enterprise performance?

The so-called differentiation, refers to the elements of the enterprise in the form of the business entities to provide products, or various conditions in providing products in the process, compared with other enterprises which provide similar products or service, causing particularity enough to lure buyers, so buyers will differentiate it with other companies operating similar products, and differentiate enables different companies within the same industry products or services reduce substitutability, which means that the strengthen of product market monopoly elements. Differentiation strategy can be many ways: design or brand image, technical characteristics, appearance characteristics, distribution network and uniqueness of other aspects. It should be stressed that the differentiation strategy does not mean that companies can ignore the cost, but now the cost is not the company's primary strategic objectives. Mintzberg (1978) thought that the Porter's differentiation strategy can be broken down into five cases which conclude market image differentiation, product design differentiation, quality and differentiation, support differentiated and undifferentiated, which are emphasized the role of advertising, R&D and

product development, reliability and performance, products and imitation. Philip Kotler (2002) pointed out that whether a difference is worth establishing, it should see if it can meet the following characteristics: Importance, Exclusivity, Superiority, Perceptual, Preemption, Affordability, Profitability. Even so, when the company introduced a new product or service to the market, even if do a little minor improvements for an existing product or service, to distinguish their products or services with other, it will attract consumer concerns, and produce new feeling. Therefore, all the elements that can make their products or services different from other products or services can be attributed to differentiation. But just a certain point to seize market share is not enough, but more importantly, to make their own products or services are unique, significantly different from the other, and to attract consumers. Above we mention that the primary basis for the implementation of the differentiation strategy is heterogeneous resources, then what is heterogeneous resources?

RBV theory think that, if the resources of the enterprise meet the characteristics of valuable, difficult to imitate, can not copy and the scarcity, then the resource of competitive advantage is persistent, and will improve the enterprise long-term performance. Then competitive advantages that the resource generating has persistent, and will enhance long-term performance. Accordingly, RBV scholars proposed conclusion that heterogeneous resources is the root of differences between Competitive Advantage and Corporate Performance.

What is "Valuable", Barney (1991) made a clear explanation and definition. In his view, the valuable of resource is able to make business with a lower cost than competitors to get the same profit, or the same cost to get more profit, then we can bring a competitive advantage for enterprises; and, when such resources are scarce or are irreplaceable, then the resource brings competitive advantage is persistent. For the scarcity of resources, scholar Hitt (2002) gives a straightforward exposition. He noted that the scarcity of resources means that this particular resource is only possession and control by the industry's few companies. For difficult to imitate and not copy characteristics of resources, Hitt and other scholars to be the same definition and analysis. In their view, not copy means that competitors can not replicate through technical means, while difficult to imitate refers to the high cost of the same resources to imitate. In sum, the RBV theory think that the root of the discrepancy between the different companies lies in the different of nature of the firm constitute resources. Differences in resources has led to the different both competitive advantage and the length of time to maintain competitive advantage. If the companies are trying to gain a competitive advantage in the fierce competition in the market, it makes necessary to have a valuable nature resource companies; if trying to maintain long-term competitive advantage, it necessary to make this valuable resource to meet the scarcity and difficult to imitate characteristics.

3 Research Model and Hypothesis

3.1 Effect of differentiation strategy on enterprise performance

Dess and Davis (1984) analysed and summed up the 21 kinds of driving factors, designed a scale to measure competitive strategy type, to be followed seven strategic management scholars seminars, 19 corporate CEO survey, found that companies do exist several types of competitive strategy through factor analysis and cluster analysis, and performance indicators which is measured by return on assets and sales growth positively correlated with differentiation strategy. Based on this, this study presents the following hypothesis and verification:

Hypothesis1: differentiation strategy has a direct positive impact on business performance.

3.2 Effect of heterogeneous resources on enterprise performance

HTSME engage in innovation through the integration of existing enterprise resources, based on the existing capacity of enterprises, including technology companies and management capacity, and foster or form new private or heterogeneous resources of enterprises. Private resources or heterogeneous resources bring the excess returns to the enterprise under the protection of isolation mechanisms to enable enterprises to gain competitive advantage. Based on this, this study presents the following hypothesis and verification:

Hypothesis2: heterogeneous resources has a direct positive impact on business performance.

3.3 Hypothetical model

Based on the above hypothesis, this study proposes relationship conceptual model about the differentiation strategy, heterogeneous resources and firm performance, as shown in Figure1.

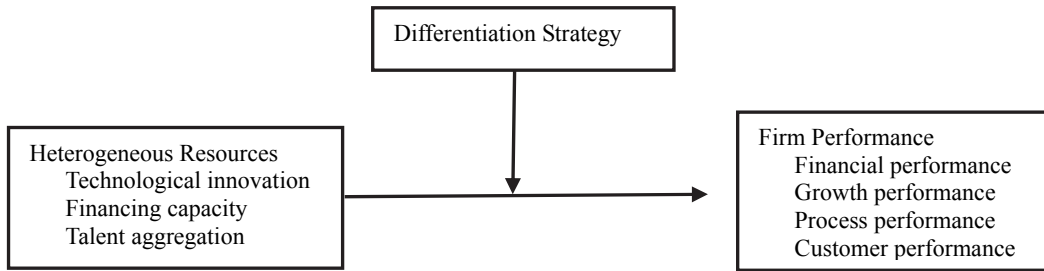


Figure 1 Relationship Model about the Differentiation Strategy, Heterogeneous Resources and Firm Performance

4 Data Analysis

On the operational definition and measure of differentiation strategy, heterogeneous resources and corporate performance, as far as possible using scales the existing domestic and international literature has been used. Dess and Davis designed scale to measure type of competitive strategy .Subsequent studies, most of indicators are based on that Dess and Davis set 21 methods of competition and make appropriate adjustments according to the characteristics of the study, the article is mainly based on Dess and Davis designed scales to be modified, then selected three metrics: Attention to product brand, Attention to R & D and innovation, Attention to marketing techniques. For heterogeneous resources, the current difficulties faced by high-tech small and micro businesses is focused on technological innovation, financing ability, talent aggregation, etc., so for combine the status quo of the current HTSME, we could measure from technical innovation, financing ability, talent gathered three aspects .Kaplan and Boston (1996) think that it should be from the customer satisfaction, staff development and learning, internal processes and management and financial performance to reflect the business performance and competitive advantage the overall balance, scholars called the Balanced Score Card. Therefore, according to description that Kaplan and Boston discussed on the Balanced Score Card, which selected our research needed indicators, and combined with the need our study ,concluded financial, internal processes and management, employee learning and growth, customer satisfaction this four changes of circumstances. All these questions use Likert scale measure 7, 1--7, respectively, "not" --- "complete." Table 1 variables and metrics can be drawn from the above scale.

Table 1 Variables and Metrics

Variables	Variable name	Metrics	Metric name
Differentiation strategies	X1	Attention to product brand	x1
		Attention to R & D and innovation	x2
		Attention to marketing techniques	x3
Heterogeneous resources	X2	Technical innovation	x4
		Financing ability	x5
		Talent gathered	x6
Enterprise performances	Y	Customer satisfaction	y1
		Staff development and learning	y2
		Internal processes and management	y3
		Financial performance	y4

After forming the questionnaire, questionnaires are distributed and collected mainly by Wuhan High-Tech Development Zone, and Wuhan High-tech Development Zone assist the distribution and recovery in the above business park. Select the payment approach, on the one hand there is a good group with these institutions and cooperative relations, on the other hand can ensure the integrity and reliability of survey data. T test has been used on returned questionnaires which at different times, and found no significant difference. Thus, the recovery of the sample is statistically representative of the population, and finally selected a sample of 20 questionnaires to analyze. Finally, using SPSS19.0 software for data analysis:

Table 2 The Coefficient^a

Model		Non-standardized coefficient		Standard coefficient	t	Sig.	Correlation
		B	Standard error	Trial version			Zero-order
1	(Constant)	.698	1.120		.623	.542	
	x1	.553	.077	.982	7.203	.000	.815
	x2	-.034	.082	-.050	-.410	.687	-.233
	x3	.337	.119	.378	2.831	.012	-.089

a. Dependent variable: y1

Table 3 The Coefficient^a

Model		Non-standardized coefficient		Standard coefficient	t	Sig.	Correlation
		B	Standard error	Trial version			Zero-order
2	(Constant)	.317	.889		.356	.726	
	x1	.287	.061	.769	4.703	.000	.326
	x2	.130	.065	.288	1.993	.064	.187
	x3	.475	.094	.806	5.032	.000	.467

a. Dependent variable: y2

Table 4 The Coefficient^a

Model		Non-standardized coefficient		Standard coefficient	t	Sig.	Correlation
		B	Standard error	Trial version			Zero-order
3	(Constant)	-.197	.835		-.235	.817	
	x1	.230	.057	.542	4.011	.001	.075
	x2	.348	.061	.680	5.691	.000	.618
	x3	.452	.089	.675	5.101	.000	.476

a. Dependent variable: y3

Table 5 The Coefficient^a

Model		Non-standardized coefficient		Standard coefficient	t	Sig.	Correlation
		B	Standard error	Trial version			Zero-order
4	(Constant)	3.164	1.777		1.781	.094	
	x1	.076	.122	.160	.621	.000	-.076
	x2	-.015	.130	-.026	-.114	.000	-.018
	x3	.384	.189	.513	2.035	.049	.435

a. Dependent variable: y4

Table 6 The Coefficient^a

Model		Non-standardized coefficient		Standard coefficient	t	Sig.	Correlation
		B	Standard error	Trial version			Zero-order
5	(Constant)	3.249	1.960		1.658	.117	
	x4	.286	.171	.356	1.672	.014	.183
	x5	.004	.244	.003	.016	.000	.136
	x6	.676	.231	.611	2.929	.010	.510

a. Dependent variable: y1

Table 7 The Coefficient^a

Model	Non-standardized coefficient		Standard coefficient	t	Sig.	Correlation
	B	Standard error	Trial version			
6	(Constant)	1.055	.918		1.149	.268
	x4	-.058	.080	-.109	-.726	.478
	x5	.319	.114	.405	2.796	.013
	x6	.510	.108	.696	4.719	.000

a. Dependent variable: y2

Table 8 The Coefficient^a

Model	Non-standardized coefficient		Standard coefficient	t	Sig.	Correlation
	B	Standard error	Trial version			
7	(Constant)	.087	.777		.112	.912
	x4	.198	.068	.327	2.921	.010
	x5	.198	.097	.222	2.055	.057
	x6	.610	.091	.733	6.673	.000

a. Dependent variable: y3

Table 9 The Coefficient^a

Model	Non-standardized coefficient		Standard coefficient	t	Sig.	Correlation
	B	Standard error	Trial version			
8	(Constant)	.592	1.224		.484	.635
	x4	-.184	.107	-.253	-1.727	.103
	x5	.751	.152	.697	4.942	.000
	x6	.288	.144	.288	2.003	.062

a. Dependent variable: y4

5 Analysis and Conclusions

As is shown from SPSS19.0 analysis data, x2 for y1 regression coefficients significance test t value is $-0.410(p=0.687>0.05)$, x2 for y4 regression coefficients significance test t value is $-0.114(p=0<0.05)$, x4 for y2 regression coefficients significance test t value is $-0.726(p=0.726>0.05)$, x4 for y4 regression coefficients significance test t value is $-1.727(p=0.103>0.05)$, x5 for y3 significance of $p = 0.057 > 0.05$, x6 to y4 significance of $p = 0.062 > 0.05$. In addition, the remaining variables on the dependent variable of the regression coefficient significance test t values are positive, p less than 0.05, indicating that the dependent variable has a positive impact relationship.

x2 for y1 on the t is negative, but significant test was greater than 0.05, indicating negative for y1 to x2 is not great, but the x2 for y4 indeed has a significant negative effect; Similarly, x4 for y4 has not obvious negative effect, x5 on y4 has not obvious positive effect, x6 of y4 has not obvious positive effect. x1, x2, x3 represent differentiation strategy, x4, x5, x6 represent heterogeneous resources, thus we can conclude: both differentiation strategy and heterogeneous resources has a positive impact on firm performance, but compared with differentiation strategy, the heterogeneous resources has less impact. Therefore, the foregoing hypothesis 1, hypothesis 2 have been verified.

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The Role of Foreign Direct Investment on Economic Growth

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Abstract The present work attempts to explore economic growth problematic by studying which factors can affect the economic growth. A time serial data from 1986 till 2012 was used and the ordinary least squares regression method was applied to analyze the relationship between gross domestic product set as a dependent variable and foreign direct investment, export, import and inflation rate as a independent variable. We emphasize the theories of economic growth, some empirical studies related to relationship of foreign direct investment with economic growth and empirical result of this study. The results show that foreign direct investment and import are positively associated with economic growth and they are very significant variables to explain economic growth in Cabo Verde while export and inflation rate has no significant impact on economic growth. This study brings new insights of gross domestic product relationship with foreign direct investment and provides empirical evidence of exceptional case of Cabo Verde.

Key words: Gross domestic product; Foreign direct investment; Export; Import and economy growth

1 Introduction

Every country in order to achieve the international competitive advantage, to provide opportunities to his people and accomplish sustainable development, needs to face one of the most crucial issues in macroeconomics, economic growth. The government jointly with private institutions must produce in order to increase its market value. Thus, economic growth should be the increase in the market value of the goods and services produced by this country over time. Economic Growth is one of the five ways for a society to reduce scarcity. To achieve this goals government should invest in education, health and technological innovation. This last is usually associated with economic growth. The U.S. economy large growth serves as an example during the introduction of the Internet and the technology that it brought to United States industry as a whole. An increase in productive capacity and an improvement in the quality of life to the people of that economy are two main important aspects to be thought on this growth of an economy.

Many empirical studies have been carried out in attempt to provide variables that can affect the economic growth and has been confirmed and many researches has supported the assumption that there are many factors that can affect economic growth. Some variables or factors such as inflation rate, expending on education, expending on health, import, export, foreign direct investment, increase on population etc. are some of the important factors that are assumed to affect the economic growth.

Although some research has provided evidence to support the existence of relationship between these variables with economic growth others research has failed to do so. In this research we will try to provide some empirical evidences that can support these hypothesis.

This present paper is structured as following: Section 2 we give some highlights of economic growth and its theoretical framework. In the section 3 we present our methodology and data, section 4 we present our results and last section we conclude our study.

2 Theoretical Framework

Economic growth has arisen the interest of many researchers for many decades. Their concerns about economic growth have created some theories and models of economic growth. Thus we will emphasize some theories and models created by notorious researchers in this matter.

2.1 Theories of economic growth

The classical growth theory was developed by David Ricardo, Thomas Malthus, Adam Smith, and James Mill which the first, also developed one of his most important legacy, the theory of comparative advantage, which suggests that a nation should concentrate its resources solely in industries where it is most internationally competitive and with other countries to obtain products no longer produced nationally. The classical growth theory also called the theory of production and the theory of growth, based on the theory or law of variable proportions, which states that increasing both of factors productions (labor or capital), whereas holding the other constant and assuming that there is no technological change, will increase output, but at a diminishing rate that eventually will approach zero.

This theory has received some criticism because technology is known as one of the most important factors in economic growth is assumed to be constant.

A very important model was developed by Robert Solow and Trevor Swan. This model assumes that there are diminishing returns to capital and labor. Capital accumulates out of saving but its level per worker decreases due to depreciation and population growth. As a result of diminishing returns to capital economies eventually reach a point where, absent technological progress, capital per workers remains constant and economic growth ceases.

Another theory of economic growth is endogenous growth theory developed by Paul Romer and Robert Lucas, Jr. in the late 1980s and early 1990s. They developed the endogenous growth theory that includes a mathematical explanation of technological advancement. This model also included a new concept of human capital, the skills and knowledge that make workers productive.

There are some others theories well know such us: Unified growth theory that was developed by Oded Galor and his co-authors to address the inability of endogenous growth theory to explain key empirical regularities in the growth processes of individual economies and the world economy as a whole, The big push revived and formulated rigorously, in the late 1980s by Kevin Murphy, Andrei Schleifer and Robert Vishny, Schumpeterian growth, the approach explains growth as a consequence of innovation. The economic theory was named after the 20th-century Austrian economist Joseph Schumpeter. And finally three other theories: institutions and growth, human capital and growth, Energy consumption and efficiency theories.

2.2 The effect of foreign direct investment (hereafter FDI) in economic growth

There is a weak support for an exogenous positive effect of FDI on advantage of FDI externalities in the macro empirical literature and it might be limited by local conditions, such as the development of the local financial markets or the educational level of the country. Alfaro, Chanda, Kalemli-Ozcan and Sayek (2004), Durham (2004), and Hermes and Lensink (2003) provide evidence that only countries with well-developed financial markets gain significantly from FDI in terms of their growth rates. Borensztein, De Gregorio, and Lee (1998) and Xu (2000) show that FDI brings technology, which translates into higher growth only when the host country has a minimum threshold of stock of human capital.

Marta Bengoa and Blanca Sanchez-Robles (2003) found that economic freedom in the host country is a positive determinant of FDI inflows. Their results also suggest that foreign direct investment is positively correlated with economic growth in the host countries. However, the host country requires economic stability, adequate human capital and liberalized markets to benefit from long-term capital flows.

Nuzhat Falki (2009) examined the Impact of FDI 35 on Economic Growth of Pakistan. The data of FDI from the Handbook of Pakistan Economy-2005 published by the State of Pakistan and the World Bank Development indicators-2008 from 1980 to 2006 with variables of domestic capital, foreign owned capital and labor force. With the help of endogenous growth theory and applying the regression analysis she concluded that FDI has negative statically insignificant relationship between GDP and FDI inflows in Pakistan.

Anokye M. Adam & George Tweneboah (2009) examined the Foreign Direct Investment and Stock Market Development in Ghana's they collected the data of market capitalization as a proportion of GDP, Ghana cedi-Dollar exchange rate and Net FDI inflow quarterly - data from 1991 to 2006. They apply multivariate co integration analysis and Vector Error Correction Model (VECM) and concluded that FDI has significant influence in the development of Ghana stock market and also concluded that there is long-run relationship between FDI and nominal exchange rate and stock market in Ghana perspective.

3 Data and Methodology

3.1 Selection of the variables

3.1.1 Dependent variable

In this study we use Gross domestic product (hereafter GDP) growth as a dependent variable for measure of economic growth.

3.1.2 Independent variables

We use some independent variables in this study such us: FDI, import, export and inflation rate. The following table shows the independent variables, their description and their expected relationships with the firm's value.

Table 1 Summary of Independent Variables

Variable name	Variable definition	Hypothesis sign
FDI	Amount of investment of foreign assets into domestic structures, equipment, and organizations	+
Import	The amount of products shipped into a country	+
Export	The amount of products shipped outside a country	-
Inflation rate	The percentage increase in the price of goods and services annually.	-

3.2 Data and method

This study is a study case about Cape Verde Economy. The data used was obtained from World Bank and respective website of Central Bank of Cape Verde and Institute of National Statistics. The time series of each variables cover the period of 1995 to 2012. Most of data was transformed into their natural LOG with exception of inflation rate.

In this study we use time serial data, we assume that there is a linear relationship between the proxies chosen with GDP, thus we use the Ordinary Least Squares Regression (OLS).

4 Results and Discussion

The table shows the statistical summary of the variables included in this research. GDP have 20.332 for the mean and the Std. Deviation 0.678

Table 2 Statistical Summaries of Variables

	GDP	FDI	EXPORT	IMPORT	Inflation
Mean	20.332	16.201	18.824	19.771	2.279
Median	20.240	17.081	18.718	19.603	2.160
Maximum	21.346	19.167	20.190	20.840	19.848
Minimum	19.066	9.075	17.329	18.784	-9.383
Std. Dev.	0.678	2.541	0.963	0.673	6.287
Skewness	-0.012	-1.006	0.095	0.231	1.061
Kurtosis	2.020	3.445	1.569	1.686	4.611
Jarque-Bera	1.081	4.780	2.343	2.184	7.981
Probability	0.582	0.092	0.310	0.335	0.018
Sum	548.960	437.420	508.244	533.827	61.525
Sum Sq. Dev.	11.949	167.910	24.105	11.760	1027.674
Observations	27	27	27	27	27

The Jarque-Bera values of variables and the probability associated with them reflects that all the variables in this study follow normal distribution.

According to the OLS regression results presented in the table 4 we can see that these four variables jointly are significant to explain the changes in GDP. The model is very significant, adjusted R-squared is 0.982 which means that 98.2 % of changes in GDP are explained by these four variables. Durbin-Watson statistic is 1.131, F-Statistic and the probability associated is 0.000, which means that the data well fit in this model. The variables FDI and import has positive sign and there are significant which means that these two variables have positive significant relationship with GDP. Nevertheless export and inflation rate does not seems to affect economic growth.

FDI has a positive coefficient 0.038, which means that an increase in 1% on FDI leads an increase on 0.038 on economic growth. Thus FDI promotes economic growth. The probability associated with t-statistic is 0.038 and it is less than 5% meaning that this variable is very significant. This result is consistent with Anokye M. Adam & George Tweneboah (2009) and Marta Bengoa and Blanca Sanchez-Robles (2003).

Table 4 OLS Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.300	1.300	1.000	0.328
FDI	0.038	0.017	2.202	**0.038
Export	-0.168	0.128	-1.307	0.205
Import	1.092	0.177	6.169	***0.000
Inflation	-0.005	0.004	-1.385	0.180
R-squared				0.985
Adjusted R-squared				0.982
S.E. of regression				0.092
Sum squared resid				0.185
Durbin-Watson stat				1.131
F-statistic				349.474
Prob. (F-statistic)				0.000

, * Corresponding to 5% and 1% level significance.

The variable imports has also positive coefficient 1.092 meaning that when the import increase in 1% the gross domestic product increase in 1.092%, there have a strong positive relationship between each other. The probability associated with t-statistic is 0.000, which is less than 5% meaning that import is very significant variable in this study.

The explanatory variable inflation rate has negative coefficient, meaning that gross domestic product has negative relationship with inflation rate and the same happens with variable export. However these two variables are not significant since their probability value associated with t-statistic is more than 5%.

We applied some residuals tests to examine the existence of any problems on the residuals. The Breusch-Godfrey Serial Correlation LM Test was applied to see if there is autocorrelation on the residuals, but the test prove no existence of serial correlation. The normality test also was applied to prove if the residuals are normally distributed. The results in table 5 show that Jarque-Bera is 0.473 and the probability associated with Jarque-Bera is 0.789 which is more than 5% leading as to accept null hypothesis meaning that the residuals are normally distributed. The following table presents the results about serial correlation and normality test.

Table 5

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	2.318	Prob. F (2,20)	0.124
Obs*R-squared	5.081	Prob. Chi-Square (2)	0.078
Normality test			
Jarque-Bera	0.473	Probability	0.789

5 Conclusion

This paper examines the relationship between Gross domestic product and foreign direct investment by using OLS regression method. After applying the important method to find out the relationship between the variables on this study, we conclude that there is a strong relationship between foreign direct investment and imports with gross domestic product and these two variables affect positively the economic growth of Cabo Verde. The results express the reality of Cabo Verde. The country import most of the products consumed internally. The others variables such as export and inflation rate do not seem to have any statistically significant relationship with gross domestic product.

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Knowledge Management and Intellectual Property Protection in Developing Strategy of High-Tech Enterprises*

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Abstract: Knowledge has become the essential production factor in the era of knowledge-based economy. New high-tech enterprises tend to take knowledge as their most valuable strategic resources for development. Competitive edge comes from the knowledge resources owned by the enterprises. Enterprise configuration and the capability to protect knowledge resources are the profound sources of the competitive edge of new high-tech enterprises, and also the power to implement knowledge management. The knowledge management is the decisive channel to implement knowledge economy development strategy. Intellectual property is the vital means for enterprises to realize the economy development strategy. There are connections as well as differences between enterprise knowledge management and intellectual property protection. Only by dialectically dealing with mutual relations between enterprise knowledge management and intellectual property protection can the knowledge management smoothly carried out in high-tech enterprises.

Key words: Knowledge management; High-tech enterprises; Developing strategy; Intellectual property protection

1 Introduction

The core of knowledge-based economy is knowledge innovation. Intellectual property rights and knowledge management are the two significant means correlating with each other and also distinguishing from each other. As the power sources of enterprise innovation, the two have become the resources with the most distinctive values, the focuses of competition among new high-tech enterprises, as well as the power and sources of economic growth. "The high-tech enterprises with distinctive knowledge-intensive and technology-intensive features pay special attention to the knowledge acquisition, creation, sharing, integration, recording, storage and renewal with other business organizations as well as the implementation of innovation activities transversely and longitudinally, in order to continuously enhance their own knowledge reserves and scientific research and creative abilities, so as to form the core competitiveness and gain competitive edge." (Marco Grimm, Reiner Anderl, 2013) By promoting the variation of other factors, they promote the entire social progress and development. In development strategy of enterprises, knowledge management and intellectual property protection has become the vital dynamic mechanism to promote innovation and improve core competitiveness; therefore, to discuss about the correlations between knowledge management and intellectual property has vital theoretical significance and practical guidance value in promoting the development of knowledge-based economy.

2 Correlations Between Enterprise Knowledge Management and Intellectual Property Protection

Enterprise knowledge management is to coordinate and unify the different aspects of human resources as well as information technology, market analysis and enterprise management strategies. It is to jointly serve for the development of the enterprise, in order to generating the management effects that the whole is larger than the sum of the parts. Intellectual property rights are the rights of people to enjoy the spiritual wealth that they have created in the fields of science and technology, culture, arts and etc. The objects of protection are widened with the increasing and spreading of the human's intellectual property forms and the development of applied technologies; cover the copyrights, rights of invention, patent rights and trademark rights and etc. According to the definition there is no significant correlation between knowledge management and intellectual property protection; however, when they are analyzed in different aspects it can be specified that the two have correlations as well as differences.

2.1 Correlations between enterprise knowledge management and intellectual property protection

The ultimate goals of enterprise knowledge management and intellectual property protection are consistent and promote the innovation activities of the enterprise. On one hand, by effective utilization

and sharing of enterprise knowledge, the enterprise knowledge management stimulates the innovation and strains capacities of the enterprise as a collective, in order to developing more new products, new processes and new technologies, to make the enterprises own more intellectual property. On the other hand, the intellectual property protection renders the enterprise's knowledge achievements of deserved rights, to rationally used and popularized knowledge achievements, in order to largely encouraging the enthusiasm of the enterprise, scientific and technical personnel for innovation.

The protection of enterprise intellectual property shall be an essential aspect of enterprise knowledge management. The enterprise knowledge management includes: enterprise knowledge information management, to set up knowledge base in order to solidifying knowledge; enterprise knowledge application management, to apply the acquired knowledge to specific practice; management of enterprise knowledge exchange mechanism, to encourage knowledge creation and sharing; and enterprise knowledge property management, to establish effective enterprise intellectual property management mechanism. Obviously, as the essential form of intellectual property which needs to be effectively managed, intellectual property is the vital component of knowledge management.

2.2 Differences between enterprise knowledge management and intellectual property protection

The objects that enterprise knowledge management and intellectual property protection are involved with are different. What the enterprise knowledge management is involved with includes enterprise explicit knowledge, enterprise tacit knowledge and people. In particular, enterprise knowledge management emphasizes tacit knowledge management, which is expressed as the management of people. However, what the intellectual property protection is involved with mainly refers to the enterprise explicit knowledge, that is, the recordable coding knowledge; besides, it is hard to implement or protect the tacit knowledge in the mind of people.

The action mechanisms of enterprise knowledge management and intellectual property protection are different. Enterprise knowledge management mainly takes the means of effective utilization and sharing of knowledge, to improve the enterprise innovation and strain capacity. However, intellectual property is to take the means of knowledge protection, to let the enterprise and innovative personnel gain profit, in order to stimulating their enthusiasm for innovation and improving the innovation capacity of enterprise. Although the two have the same objective, that is, to promote the innovation activities of enterprises, the action mechanisms adopted by them are totally different and even contradictory to each other; because one is about knowledge sharing and the other is involved with knowledge protection.

The management technologies adopted by enterprise knowledge management and intellectual property protection are different. Enterprise knowledge management technologies mainly include the various kinds of information management technologies (such as document management technology, data mining technology, expert system technology, search engine technology, BBS technology and etc.) and various human resources management technologies (such as inspiring technology, communication technology, coordination technology and etc.). However, intellectual property management technologies mainly adopt legal measures to protect the intellectual property and apply management tools to implement intellectual property.

3 Dialectical Relationships Between Enterprise Knowledge Management and Intellectual Property Protection

Although there is a certain contradiction between enterprise knowledge management and intellectual property protection, their objectives are consistent, which are both to improve the innovation capacity of enterprise and promote the innovation activities of enterprise; therefore, while carrying out the enterprise knowledge management, the enterprise shall protect the intellectual property. On the premise of protecting the intellectual property, the enterprise knowledge management shall be carried out, to make enterprise knowledge management and intellectual property protection mutually promote each other, sequentially taking effects to jointly fulfill the unified objective.

3.1 Dialectical relationships of the two kinds of knowledge during conversion process

By analyzing it theoretically, enterprise knowledge management is the conversion process of the two kinds of knowledge, i.e. explicit knowledge and tacit knowledge. The conversion process is composed of four models: converting tacit knowledge into tacit knowledge, converting tacit knowledge into explicit knowledge; converting explicit knowledge into explicit knowledge; and converting explicit knowledge into tacit knowledge, that is, the SECI model put forward by Ikujiro Nonaka and Hirotaka Takeuchi. The four kinds of models are called socialization, externalization, combination and internalization in succession.

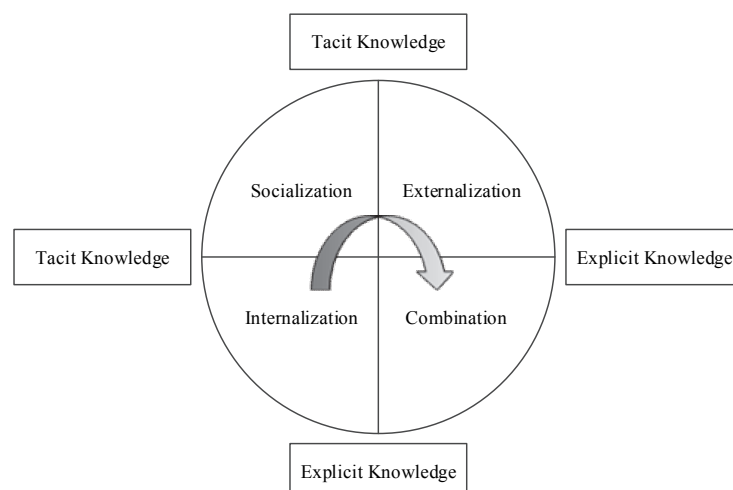


Figure 1 Process of SECI Self-Transcendence

By taking this model as reference, the relations between knowledge management and intellectual property during the dynamic process of knowledge creation are listed below,

(1) Model I (Socialization): while converting tacit knowledge into tacit knowledge, it needs the observation, experience, imitation and continuous practices among people, to gradually comprehend and master the tacit knowledge of the members in an organization, in order to converting it into their own tacit knowledge. In this model, the enterprise needs to pay attention to the issues of intellectual property including the tacit skills liketechniques, knacks and etc. Besides, the knowledge management shall be conducted, including carrying out on-the-job training, establishing learning organization, developing intellectual capitals and etc. While protecting business secrets, the principles of knowledge management shall be abided to fulfill the first kind of conversion model.

(2) Model II (Externalization): while converting tacit knowledge into explicit knowledge, it needs to apply the means including analogy, metaphor, hypothesis and etc., to express the tacit knowledge by the inheritable explicit knowledge which is easy to be spread. In this model, the enterprise shall pay attention to protecting the intellectual property including patents and copyrights towards the innovative products with explicit knowledge, consequently preventing the negative influence of the outflow effects of tacit knowledge. In addition, the method to assess and measure the values of knowledge shall also be implemented by taking the balance sheet for reference, to establish the knowledge model and conduct the knowledge management including coding and so on. While protecting the explicit intellectual property, it shall enhance the functions of knowledge management, to fulfill the second kind of conversion model.

(3) Model III (Combination): while converting explicit knowledge into explicit knowledge, it needs to adopt the tools including distributed documents management, data warehouse and etc. to further systematize the fragmented explicit knowledge and express it with professional language. In the model, the enterprise shall pay attention to protecting the intellectual property including patents, trademarks, copyrights and etc., which is recorded and spread in the explicit and available texts, in order to maintaining the image and reputation of the enterprise. In addition, it shall establish the enterprise internal and external network system, to establish, renew and expand the knowledge base, among which, the patents, trademarks and copyrights, as well as the technologies, methods and information of licenses of other enterprises are one part of the contents in knowledge base. While protecting the intellectual property towards the comprehensive explicit knowledge, the level of knowledge management shall be improved, to fulfill the third kind of conversion model.

(4) Model IV (Internalization): while converting explicit knowledge into tacit knowledge, it needs to adopt the means of training, to convert the explicit knowledge in textbooks into the tacit knowledge in the mind of people, and then reuse the knowledge by the innovation activities of people. In this model, the enterprise shall pay attention to protecting the intellectual property including skills, knacks and etc., to prevent the business secrets from being given away. In addition, the learning model of “learning by doing” shall be implemented, and the current knowledge resources shall be applied, to make the knowledge management of knowledge innovation and improvement. While protecting the intellectual property towards the tacit knowledge to stimulate innovation, the objective of knowledge management

shall be realized, to fulfill the fourth kind of conversion model.

3.2 Dialectical relationships among factors of enterprise knowledge management

Enterprise knowledge management is involved with many essential factors, including enterprise cultural factors, human resources factors, technological factors, organizational structure factors, system factors and etc.

Enterprise cultural factors are the most significant factors in knowledge management, because they manage the foremost tacit knowledge which is hardest to manage in enterprise knowledge. Whether they are good or not is concerned with the establishment, growth, explicitness and codification of enterprise tacit knowledge, in order to conducting a series of processes including creating new tacit knowledge. Besides, they are also the key factors concerning the success or not of the enterprise knowledge management. Enterprise culture includes three vital components, i.e. symbols, values and mental models. Symbols are to express the unified feeling of enterprise from the outside, including dressing, office environment layout, corporate logo slogan and so on. Values standardize the thoughts and codes of conduct of employees intangibly, which can make the behaviors of the employees and the objective of the enterprise consistent. Mental models are the deep corporate culture, which influence many assumptions, stereotypes or impressions on the way that people understand the world and take actions. They constitute a kind of force hidden in the people's heart and deciding people's behavioral patterns. To conduct the knowledge management, the enterprise must establish good values and mental models, deepen the understandings of employees towards knowledge, pay attention to knowledge learning accumulation, and create a kind of enterprise culture which not only respects intellectual property (tacit intellectual property) but also encourages knowledge sharing.

Human resources factors are a kind of essential factors in enterprise knowledge management, because tacit knowledge exists in people's mind; and in essence, the management of tacit knowledge is expressed as the management of people. As for the human resources management in knowledge management, firstly a Chief Knowledge Officer (CKO) shall be established, whose duties include understanding the knowledge demand and business environment of the enterprise; creating the environment to promote knowledge learning, knowledge accumulation, knowledge protection and knowledge contributions; and enhancing the processes of knowledge collection, integration, protection and sharing. Secondly, the evaluation of intellectual capitals shall be conducted. Intellectual capitals refer to the sum of the excellent human resources within the enterprise and the infrastructure supporting the good development of these human resources. Intellectual property evaluation is a decisive step for an enterprise to implement knowledge management, which can grasp the conditions of the knowledge resources within the enterprise, in order to protecting, applying and further exploring the knowledge resources. In addition, the communication mechanism among employees shall be established, due to that according to the statistics, the tacit knowledge accounts for 80% or so in an enterprise. To deeply explore the tacit knowledge, communication is an ineffective means. Nevertheless, because of various factors, the communication fails to go on smoothly, which requires the enterprise to establish some mechanisms to stimulate the employees to make communication, and grant awards to the employees making contributions to tacit knowledge. It is the confirmation of "tacit intellectual property".

Technological factors are the basis of knowledge management, and the means to realize the knowledge accumulation, storage and communication. On the premise of protecting intellectual property, the enterprise shall apply technological factors to make the enterprise knowledge management. Firstly, information technology shall be applied to establish the knowledge base of the enterprise, to accumulate, classify, process and extract the knowledge which was originally dispersed, thereby forming the systematic and continuously developing knowledge assets and sharing resources, to facilitate the application of the experience and achievements by other people. Secondly, the Intranet of an enterprise shall be established to provide the services including internal e-mails, file transfer, electronic bulletin, news, data query and etc., in order to realizing internal communication and collaboration via the Intranet; sharing the research reports, production technologies, scientific research methods and textual and graphic files. Besides, the enterprise external knowledge can be obtained by Internet, including social public knowledge and enterprise supply chain knowledge and etc. Besides, the knowledge alliance with colleges and universities, scientific research institutions and partner enterprises can be formed via the Internet. The organizational structure factors and system factors are also the chief factors in enterprise knowledge management. A flat organizational structure is favorable to the knowledge exchange and sharing, because there are no intermediate nodes. A set of reward system for examination and assessment with intellectual property protection and knowledge sharing consciousness, in a large degree, can better stimulate the innovation capacity of employees and promote the knowledge exchange and

sharing.

4 Knowledge Management and Knowledge Property Protection in Knowledge Value Chain

Professor Michael. E. Porter in American Harvard Business School holds the view that each enterprise is the aggregation conducting various activities during the processes of design, production, sales, sending and assistance of other products; all these activities can be expressed by a value chain .There is also such a value chain in the flow and renewal of the knowledge in an organization. The essence of knowledge management is the management of knowledge value chain, to increase the values of knowledge continuously in movement. The following is to analyze the Knowledge Value Chain (See Figure 2) by the value chain model of Michael. E. Porter, in order to further clarifying the relations between knowledge management and intellectual property in the various links of the value chain.

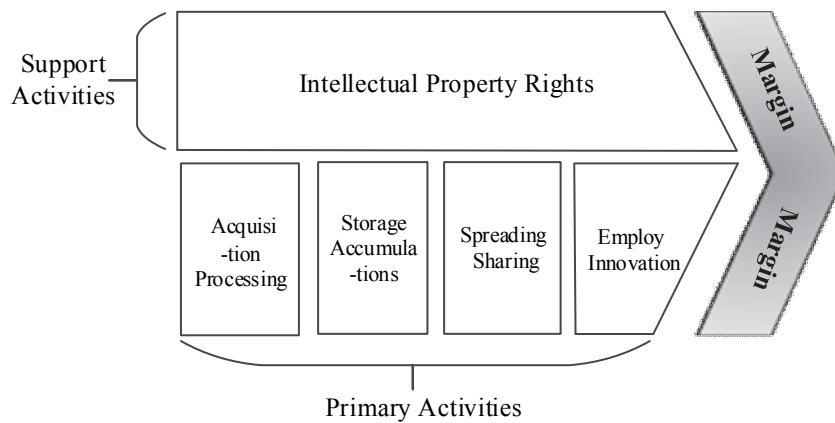


Figure 2 Knowledge Value Chain

The successful knowledge management can optimize the association among the various links in value chain, accelerate the flow of knowledge, and make it become the resource which will never dry up in the organization. Similarly, the improved intellectual property protection can also become the basic guarantee to increase the values of the various links in the value chain, and provide the basic route to realize the smooth cohesion of the various links. (G. Scott Erickson, Helen N. Rothberg, 2013)

In the phases to acquire and process knowledge, the enterprise can apply the computer network, to search the current information of patents, which can not only avoid repeated researches, but also provide the theoretical starting point for the researches. Knowledge management is started from acquiring knowledge. Acquiring knowledge is merely processing knowledge, in order to converting the dispersed and disorderly knowledge into orderly knowledge by classification, analysis, arrangement and extraction, so as to form the knowledge with proprietary intellectual property and the knowledge valuable for the enterprise, to guarantee the increase of values.

In the phases to save and accumulate knowledge, the knowledge which has been processed is depositing so that forming the knowledge base of the enterprise. In the process to form the knowledge base, the contents regarding the intellectual property like patents, trademarks and copyrights of the enterprise and other enterprises shall be searched and classified, to guarantee their security. The storage of knowledge shall be considered in the long run. The knowledge concerning the long-term interests of the enterprise shall be saved for a long period time, whereas the out-dated knowledge shall be eliminated timely, thus keeping on renewing the knowledge, so as to increase the values.

In the phases to spread and share knowledge, knowledge is not exclusive. Only on the basis of flowing and sharing, can the values of the knowledge in the enterprise be increased. However, the intellectual property has the monopoly property. During the process of knowledge distribution, attention shall be paid to distinguishing the knowledge which can be shared and spread from the knowledge which cannot be spread, as well as the knowledge which needs to be protected from the knowledge which does not need to be protected. Only in this way, can the positive effects brought by knowledge spreading and sharing be obtained; otherwise, if the enterprise merely enlarges the scope of knowledge sharing and reduces the costs of knowledge spreading by the simple and convenient way of information technology, but neglects the negative influence of the outflow effects of knowledge, it will bring

uncountable huge losses to the enterprise.

In the phase to use and innovate with knowledge, enterprises must establish Intranet, technology network and knowledge base, so as to continuously use, expand and create knowledge. Only in this way, can it realize the values of the knowledge and bring the increase in values. The process to use and innovate with knowledge is also the process that the intellectual property protection is given full play to. It is rightly due to the intellectual property protection that lays the foundation and paves the road for the usage and further innovation of knowledge, and stimulates the enthusiasm of the innovators, to make the employees keep on innovating and realize the value increase of knowledge during the process of usage and under the incentive of property rights. By the reorganization of enterprise business processes, the practice in knowledge management including the assessment regulations and etc., which can make knowledge generate benefits shall be established to make the knowledge resources form the unblocked knowledge flow in knowledge chain in a more rational manner and making the employees contribute the knowledge that they have acquired while using the knowledge.

5 Knowledge Management in Intellectual Property Strategy of Enterprise

Knowledge management provides the new management idea for the enterprise, and intellectual property has become the critical component of knowledge management. During the process of taking intellectual property protection as the core and establishing the intellectual property strategy, the knowledge management shall be improved, to achieve the huge values of knowledge capitals and enhance competitive edge of the enterprise by tacit knowledge, which is the vital route to promote the development of the enterprise. As for the knowledge management in intellectual property strategy, firstly, the objectives for the enterprise to produce, develop, apply and protect knowledge shall be formulated. Secondly, the market survey as well as research & development shall be enhanced, to organize the application, assessment and delimitation of property rights of the various kinds of knowledge products, improving the core competitiveness of the enterprise finally. To implement the intellectual property strategy, the enterprise shall not only pay attention to the intellectual property protection of the scientific and technological achievements, but also penetrate the work regarding the intellectual property into the various links of the enterprise including production, operation and value chain. The scientific and improved intellectual property management system shall be established in the enterprise, and the special management organization shall be set up to guarantee the orderly implementation of the intellectual property strategy in the enterprise.

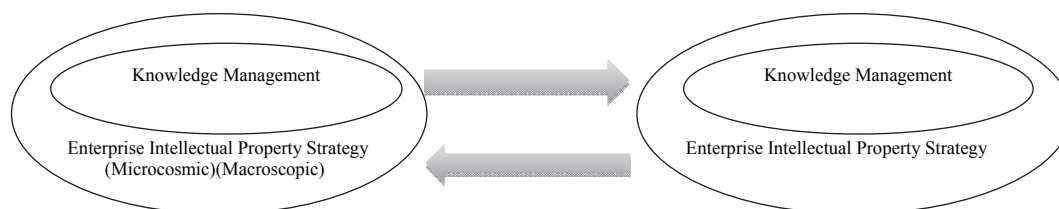


Figure 3 Knowledge Management in Intellectual Property Strategy

5.1 Knowledge management in microcosmic intellectual property strategy

The so-called microcosmic intellectual property strategy is the enterprise intellectual property strategy. To implement the enterprise intellectual property strategy, it shall not only pay attention to the intellectual property protection in research and development center, but also implement the protection of intellectual property in the various departments in the management and production of the enterprise, the various links of the value chain, and the whole process of value creation. In the enterprise, the intellectual property management system shall be established, and the management personnel of intellectual property shall be selected and cultivated. When it is necessary, the special department shall be set up to handle the daily affairs of intellectual property management. At the same time, attention shall be paid to the research and formulation of enterprise intellectual property strategy, to provide sufficient fees for the intellectual property management, and be really aware of the relations among intellectual property management, enterprise technological innovation and enterprise economic benefits.

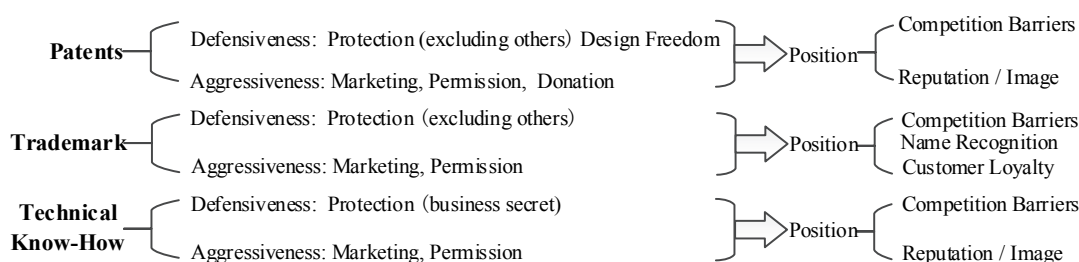


Figure 4 Functions of Intellectual Property in Enterprise

In the era of knowledge-based economy, management is developing in the direction of knowledge management, which is to meet the requirements of the survival, competition and development of the enterprise by a series of continuous management processes including acquirement, innovation, delivery, usage, protection and etc. of the various kinds of knowledge. Knowledge sharing is the biggest advantage to rationally develop intellectual resources, knowledge learning is the development tendency of knowledge integration, and knowledge protection is the dynamic mechanism of knowledge innovation; therefore to develop the knowledge management taking intellectual property protection as the core is the principal condition to promote innovation and enhance competitiveness.

Knowledge management in intellectual property strategy is the knowledge management taking intellectual property protection as the center, to turn the intellectual property protection from an organic component of knowledge management to an endogenous variable penetrating into the various aspects of knowledge management.

5.2 Knowledge management in macroscopic intellectual property strategy

The so-called macroscopic intellectual property strategy is the national intellectual property strategy. The above all set forth the relations between intellectual property and knowledge management in the angle of microscopic organizations; however, as a kind of brand-new management idea and management method, knowledge management will change the survival ways of the various organizations including the national government in the macroscopic level.

To implement the national intellectual property strategy is to make the government focus on the work of intellectual property protection of scientific and technological innovation achievements while enhancing the scientific and technological work and promoting the economic growth. Firstly, the government shall lift the intellectual property protection to the national strategic level.

Whether it is America or Japan, they all reexamine the significant role played by the intellectual property system, which appears along with the scientific and technological development, on the modern economy in the strategic angle. The “National Patent Strategy” by America grasps the core technologies of proprietary intellectual property in many key fields, in order to providing the powerful weapon for the technological innovation and activities of multinational firms in America as well as the behavior of market contest. By comparing Japan with America, it can be discovered that there are the shortcomings in the aspect of intellectual property protection. (It shall lift the intellectual property to the national level, set up the strategy of “building the nation on intellectual property”, and take it as the power to promote the scientific and technological advance, improve the competitiveness and revitalize the economy. The above two developed countries show the emphasis degree of the governments on intellectual property. It is exactly this kind of forward-looking strategic insight that makes the quantity of patent applications maintain comparatively fast growth in America and Japan.(Riikka Kulmala, Juha Kettunen, 2014)

Therefore, while taking the successful points of foreign enterprises for reference, special attention shall be paid to being combined with the practical national conditions in China, the policy supporting conditions of the government as well as the strategic targets and actual requirements of the enterprise, to match and effectively integrate intellectual property protection with knowledge management, thereby realizing the win-win situation between the enterprise and the employees. On the basis of effective and reasonable protection of intellectual property, the potential of the employees and enterprise in innovation shall be stimulated, enhancing the core competitiveness of the enterprise and even the nation in international arena.(Lina Wang, 2004)

6 Conclusion

In the perspective based on the development strategy of new high-tech enterprises in the paper, as

for the research on enterprise knowledge management and intellectual property protection, the main following conclusions are obtained:

Knowledge management is the major subject of business management in the 21st century. Due to that the economic changes and technological changes are increasingly intensifying, the necessity for high new-tech enterprises to adapt to and grasp changes becomes more and more critical. Knowledge management makes enterprises obtain competitive edge from learning continuously, to further improve work efficiency of the enterprises, so as to realize the sustainable development and innovation of the enterprises.

The role played by the enterprise intellectual property protection in enterprise and regional development becomes more and more significant day by day. In modern days driven by knowledge-based economy, intellectual property gradually turns into the major means for high-tech enterprises to research and develop science and technology, and explore market. It is the core strategic resource and crucial wealth for enterprise development, as well as the enterprises' strategic means in market competition.

In the paper, by exploring the close connections between knowledge management and intellectual property protection in high-tech enterprises, it has been discovered that the common goal of the two is to promote the knowledge innovation of enterprises, so as to arrive at the conclusion that the matching and integration between knowledge management and intellectual property protection in high-tech enterprises is the new trend for the future development of enterprises. Besides, evidences show that in the environment of knowledge-based economy, all the enterprises must adopt effective measures, input sufficient human resources, strengthen knowledge management and intellectual property activities, and enhance the competitive edge in knowledge innovation.

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Technology Life Cycle Forecasting of Chinese Hydraulic Components Based on Patent Analysis*

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Abstract: In the current research related to the forecasting of the technology life cycle, the S-curve is fitted based on historical data for a particular technology, then the technology life cycle is forecast according to the fitting parameters. However, in the whole development process of a technology, it may contain multiple S-curves, only using a single S curve fitting is impossible to get the forecasting results accurately. In this study, the patent data of the hydraulic components of China and the other countries are compared, and the difference between the development stage of them is analyzed. From the analysis result of the other countries, it has been found that there may be appeared more than one S curve in the technology life cycle of hydraulic component, when the development of the technology is still in its early stage, only through the existing data is difficult to accurately predict the technology life cycle. Therefore, the comprehensive solution which combine with the development stage and the S curve inflection point analysis are presented in this paper, which can forecast the technology life cycle of Chinese hydraulic components accurately.

Key words: Patent analysis; Technical life cycle forecasting; Logistic model; S curve; Hydraulic component

1 Introduction

Hydraulic components are important parts of basic mechanical components, which are mainly responsible for transmission of power and control functions in mechanical equipment and are crucial component parts. Therefore, the technology forecasting of hydraulic components has great strategic significance for the development of China's equipment manufacturing industry.

Currently, the main method related to the forecasting of the technology life cycle is using Logistic model to determine the current stage based on the S-curve^[1,2]. But, after the comparison and analysis of the patent data of the key hydraulic components of China and the other countries, it has been found that if the logistic model were used to make predictions, it needs to be segmented. Meanwhile, because the development stages of China and the other countries are quite different, so it is difficult to get the accurate results if only use one S-curve to forecast the hydraulic components technology life cycle of China. Therefore, the comprehensive solution which combine with the development stage and the S curve inflection point analysis are presented in this paper, which can forecast more accurately.

2 The Methodology and Data Source

2.1 The forecasting method of S-curve of technology life cycle

Logistic growth curve was proposed by Verhulst in 1838^[3], namely that the path of technological progress is not random, but follow a specific track, the overall trend needs to go through infancy period, growth period, maturity period and recession period as human life cycle, so it is also called "growth curve", and its shape is approximately S, also known as S-curve. The life cycle forecasting method of S curve is to utilize the past development information of the forecast technology, combining with logistic regression model to find out the growth curve and estimate future. The using of S curve mainly includes two aspects: one is to predict the performance of a single technology to solve the problem, the other is to predict how and when to reach the upper limit. Currently, many scholars have achieved satisfactory results by using the S-curve to forecast technology life cycle. For instance, Frank utilized the logistic curve model to forecast the diffusion of wireless communications in Finland and to identify the factors affecting the diffusion process^[4]. Yu-Heng Chen et al proposed the technological S-curves that integrates the Bibliometric and patent analysis into the Logistic growth curve model for hydrogen energy and fuel cell technologies to forecast the life cycle of hydrogen generation and storage^[5]. Analytic results indicate

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that the S curve is a very effective means of quantifying the technology forecasting.

2.2 Logistic model

The most common description of logistic growth curve model equation is:

$$p(t) = \frac{k}{1 + e^{-\frac{\ln(81)}{dt}(t-t_m)}} \tag{1}$$

Where, $P(t)$ is the cumulative number of the patent; k is the growing saturation level (saturation); dt is defined as the time interval length of $[k \times 10\%, k \times 90\%]$, i.e., the length of time from growth period to maturity period^[6].

2.3 Data resource

In this study, the cumulative application of patent was chosen as patent indicators, which was proposed by Ernst (1997), so the first task was to select the appropriate patent database to obtain reliable patent data. In this study, Wanfang patent database (<http://g.wanfangdata.com.cn/>) is chosen to conduct retrieval analysis for hydraulic components patents of Chinese and foreign. Due to the limit of paper length, the hydraulic cylinder was chosen as an example, the specific search logic of Chinese and foreign is shown in Table 1.

Table 1 The Search Logic of Patent

The search logic of patent	
Foreign	subject:("hydraulic cylinder")+subject:("oil cylinder") + subject:" hydraulic actuator"
Chinese	subject:(" hydraulic cylinder ") + subject:(" hydraulic oil cylinder ") + subject:("oil cylinder")

Meanwhile, because the patent data in 2014 is still not complete, so the retrieval time range to 2013.

In order to confirm whether the data obtained from Wanfang database were complete and reliable, a comparative analysis of different databases was needed. Firstly, the patent tool in Wanfang database was used, input “hydraulic cylinder” in the title, the total amount of hydraulic cylinder patents retrieved in database was 2803 from 1971 to 2013, and the number of U.S. patent was 377 in it. Secondly, input the same search logic in the United States Patent and Trademark Office patent database (<http://www.uspto.gov/>), the total number of hydraulic cylinder patent from 1971 to 2013 was 341. The results obtained from two database were substantially equal, the excess data in Wanfang database could be explained that it did not update the small part of failure patent. So, it indicated the data obtained from Wanfang database were reliable.

3 The Forecasting of Chinese Hydraulic Cylinder Patent Development

3.1 Foreign hydraulic cylinder patent technology development trend analysis

3.1.1 The development trends analysis

The number of foreign hydraulic cylinder patent is retrieved from the Wanfang database and imported into Microsoft Excel, the trend chart is shown in Figure 1.

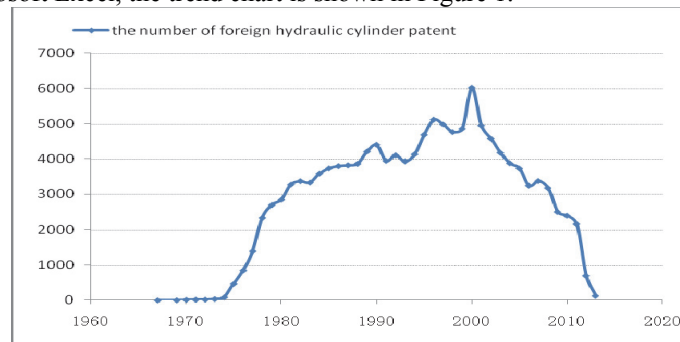


Figure 1 The Number of Hydraulic Cylinder Patents in the Other Countries

From Figure 1, it can be seen that technology development of hydraulic cylinder in the other countries has experienced two S-curves from 1967 to 1974, the patent number of hydraulic cylinder grown very slow (patent number from 1 to 74); from 1975 to 1981, the patent number of hydraulic cylinder grown extremely fast (patent number from 441 to 3003). From 1982 to 1993, the growth rate

became significantly slower than before; from 1994 to 2000, the growth rate has accelerated again; after 2001, the number of foreign hydraulic cylinder patents has the negative growth trend, it decreased with time.

According to the theory of technology life cycle, it was easy to find that the number of hydraulic cylinder patents in the other countries has experienced the complete life cycle, including the infancy period, growth period, maturity period and recession period. From the development trend analysis of hydraulic cylinders patents, the growth rate of the number of hydraulic cylinders patents speed up from 1975 to 1981 and then slowed down from 1982 to 1993, then re-accelerated from 1994 to 2000, but slowed down again after 2001. For instance, from 1982 to 1993, the growth rate did not continue to grow in accordance with the previous stage.

3.1.2 Verification of logistic prediction model

From the analysis result of the development of the hydraulic cylinder patent technology in the other countries, it can be found that there are two S-curves, if the logistic model were used to make predictions, it needs to be segmented, and the selection of data segments plays a very key role in prediction accurately. Here, the first period of S curve (1967-1981) was chosen to import into Loglet 2 (Logistic fitting software developed by Rockefeller University, <http://phe.rockefeller.edu/Loglet Lab/2.0/>), the fitting result is shown in Figure 2, and parameters is shown in Table 2.

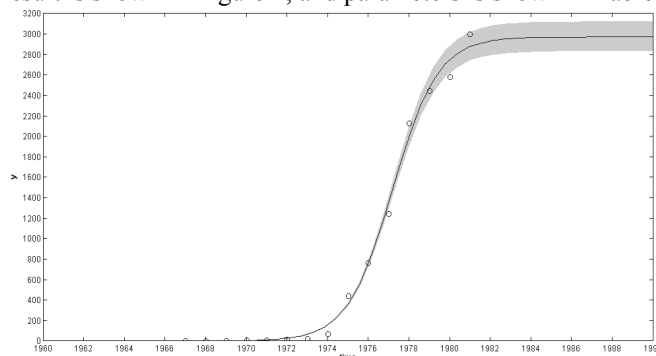


Figure 2 Fitting Curve of the First Stage of Hydraulic Cylinder Patents in the Other Countries

Table 2 The Fitting Result of S-curve of Foreign Hydraulic Cylinder Patents

Saturation	Midpoint	Growth time (dt)
2971.037	1977.208	4.882

From the fitting result, it can be seen that the saturation number of hydraulic cylinder patents was 2971, which corresponds to the time in 1981, and from the entire trend of foreign cylinder patents, the growth rate of the patent numbers flatten out in a stage after 1981, it can be considered the patent numbers tended to be “saturation” (it could be considered as local saturation) in short-term, it indicated that the forecasting by logistic model was feasible in the selected range. In addition, the midpoint can no longer be seen as a turning point between growth period and maturity period from the entire trend of foreign cylinder patents, it should be a turning point between infancy period and growth period in the whole development of the hydraulic cylinder patents. Namely, the hydraulic cylinder technology in the other countries entered into the fast-growing growth period.

3.2 The forecasting of Chinese hydraulic cylinder patents development

Similarly, retrieve the patent data of Chinese hydraulic cylinder in the WanFang database, and record it in the Microsoft Excel, the data is shown in Figure 3.

From the Figure 3, it can be seen that the number of Chinese hydraulic cylinder patents showed a rising trend since 1985, and increased exponentially after 2005, which was in line with the model of logistic growth curve. Compared with the trend of the other countries (as shown in Figure 4), it can be speculated that the hydraulic cylinder patent technology of China may also experience 2 or more S curves.

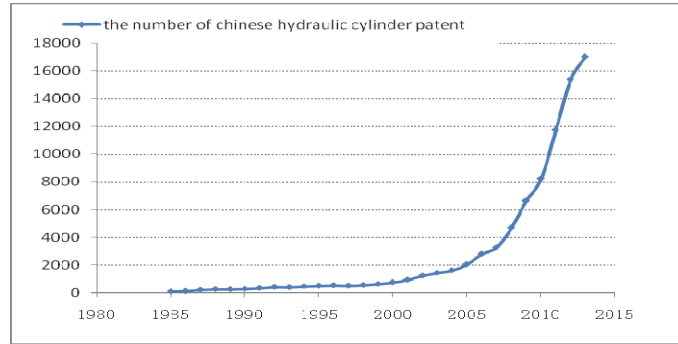


Figure 3 the Trend Chart of Chinese Hydraulic Cylinder Patent

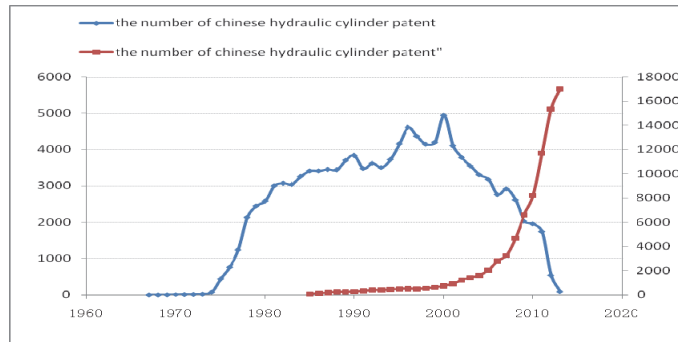


Figure 4 Comparison Chart of Hydraulic Cylinder Patent between China and the Other Countries

But, if only use logistic growth curve fitting, it is impossible to forecast the life cycle of the hydraulic cylinder technology accurately, because the current historical data is not comprehensive. Therefore, the patent data from 1985 to 2013 was selected in this paper, and Loglet 2 was used to fit the growth curve of patent technology. The S-curve of the patents of hydraulic cylinder from 1985 to 2013 is shown in Figure 5.

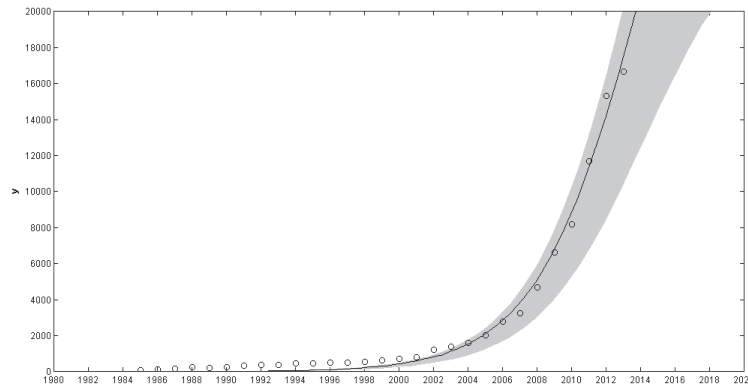


Figure 5 The Logistic Fitting Curve of Hydraulic Cylinder Patent Technology in China

Table 3 Fitting Parameters in Loglet 2

Saturation	Midpoint	Growth time (dt)
43262.547	2014.222	13.587

In Figure 5, the discrete points are the number of hydraulic cylinder patent, the solid curve is the optimal S-curve fitted by Loglet 2 based on historical data. Compared with the whole development process, the local saturation point is 43263, namely, the limit number of hydraulic cylinders patent at this stage, and the inflection point (midpoint) is 2014. Compared with the development process of the technology of foreign hydraulic cylinder patents, it represents a turning point in the whole development process between infancy period and growth period, then it enter into the fast-growing growth period after 2014.

4 Conclusion

The life cycle analysis of the patent technology plays an important role in evaluating the development level of a technology and the enterprise strategy making. In order to forecast the technology life cycle accurately, the trend of same patent technology in China and the other countries should be considered comprehensively. In addition, for the S curve fitting in a certain stage, the corresponding fitting results should be given the reasonable meaning.

In this study, the life cycle of Chinese hydraulic technology is forecast by the S-curve growth model combining with the trend of foreign hydraulic cylinder patents. The forecasting result demonstrated the hydraulic cylinder technology development of China is still in the fast-growing growth period, R&D and patent applications in this area continued to thrive, which has important significance for the development strategies making of Chinese hydraulic components enterprises.

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On the Optimization of Chinese Reward System of Science and Technology under the Perspective of System Theory

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Abstract: System theory is a method theory about the recognition of universal connection of things, is a set of scientific theories and ideas which fully reveal the specific system exists, the laws and relationships among things. System theory is also the important theoretical basis to establish a rational reward system of science and technology. The Chinese reward system of science and technology (CRSST) is a complex system which contains three key factors of reward subject, reward object and reward intermediaries, as well as related contents such as objectives, principles, review standards, operation mechanism. Using system theory to optimize the CRSST, we should pay attention to three aspects: setting the right rewards in accordance with the social needs; seeking right programs to optimize system operation by using the feedback principles; the investigation and reasonable adjustment of the afterward effects.

Key words: Chinese reward system of science and technology; Social needs; Operation mechanism; Reward-after effects

1 Introduction

The system is universal, from inorganic to organic world, from natural science to social science, from people's thinking to whole society, every substance or everything is in a certain system, and in the system they exist, develop and form new system. Based on overall situation, system science method is a comprehensive analysis method in order to best analyze and solve the problems. System science method is universal significance and is an important theoretical basis to establish reasonable reward system of science and technology (S&T).

S&T reward is recognition for important S&T achievements, is material and spiritual rewards for the peoples those finished the S&T works. The important S&T achievements are the original achievements those produced huge economic values in national economical production. The Chinese reward of Science and technology (CRSST) has undergone the process from scratch to continuous development and improvement, from the release of "Provisional Regulations about Invention Right and Patent Protection" in August 1950, to the publication of "Regulations on National Rewards for Science and Technology" in May 1999. So far, the CRSST has formed and is in the process of improvement.

The Chinese S&T rewards should include another form of S&T rewards --- special talent rewards, in addition to a variety of traditional rewards. In 1994, the China Academy of Sciences launched "Hundred Talents Plan" to attract and train hundreds of outstanding young academic leaders from abroad. In 1998, the Ministry of Education set up the "Chang Jiang Scholars Award Plan" to improve the academic status of Chinese higher education. In 2008, China initiated the "Thousand Talents Plan" to bring in overseas top talents to China over the next five to ten years, and this plan called for strategic scientists or leading talents who can make breakthroughs in key technologies or can enhance China's high-tech industries and emerging disciplines. In 2012, the country implemented "Ten Thousand Talents Plan", in 10 years, to support the selection of about 10000 domestic high-level personnel, and maximize their activities of innovation and entrepreneurship. Meanwhile, all provincial governments also started the implementation of a variety of names of the talent introduction plans. Through the implementation of introduction and training plans of special talents, some special talents got spiritual and material rewards based on their S&T researches and experiences.

In the view of general system theory, the CRSST is a complex system consisting of three important elements, it is, reward subject, reward object and intermediary. The reward subject is the organizer and implementer of science and technology reward, it may be the government, social groups, enterprises or individuals. The reward object is the creators of S&T achievements that are included in the reward range and obtain the acceptance of evaluation criteria. The intermediary refers to the reward mechanism and implementation process by which the subject interacts with the object, including reward purposes, reward principles, review standards, reward services and other related contents.

Based on system science method, the studies for the CRSST demand ones grasp the structure and function of CRSST. It is well-known that, the subject of CRSST includes government institutions (state, province, city), industry associations, enterprises and seldom personal; the main functions of CRSST are to produce outstanding talents, to promote technological innovation and scientific development, as well as their applications in various fields of national economy. In this paper, using system science method, we have discussed the reward setting, review mechanism, investigations for reward-after effects and policy adjustments in order to put forward prospective suggestions for optimizing the operation of CRSST.

2 Set S&T Rewards According to Social Demands

S&T is a subsystem of the whole social system, its social status and its foundation of survival and development, are to meet social demands and promote social developments. As Engels said, “technology is largely dependent on science status, then science is more dependent on the status and needs of technology. Once society has the need for technology, the need can push science forward more than ten universities.”^[1] The social demands for S&T are in many aspects. The developments of new products, new material and new technology in industrial and agricultural productions need S&T to provide new knowledge accumulation; the improvements of the people's spiritual and cultural life need S&T to create new information carrier and communication means; the international military competitions need S&T to provide technical and intellectual supports. It can be said that the interaction between the social needs and the development of S&T is a two-way choice process.

According to the demands, the society adjust its economic inputs to various S&T resources (scientific research projects, research institutions, human resources), and review the benefits and values of S&T achievements according to evaluation standards, thus the subjective motivations of researchers are integrated into the social objective demands. The greater the demands of the society for some field of scientific research achievements is, the more funding is provided, to help scientists focus on this research field. Otherwise, the higher the degree of scientific research work meeting the social needs is, the greater the social support is. The two-way choice mechanism is conducive to the promotion of fair competition in the development of S&T, but also to ensure the limited social resources can be put into the study with best benefits. The Chinese government issued the “National high technology research and development program (863 Program)” in 1986, “Hundred Talents Plan” in 1994, “National key basic research and development program (973 Program)” in 1997, the “Chang Jiang Scholars Program” in 1998, “Thousand Talents Plan” in 2008 and “Ten thousand Talents Plan” in 2012. Meanwhile, all provincial governments also implemented a variety of names of talent introduction and training plans. All these are the embodiment of social demands for S&T.

The fundamental purpose of CRSST is to promote the growth of scientific knowledge and technological innovation, to strengthen the penetration of S&T to all economic and social fields. In the CRSST, the reward subjects formulated reward objectives, principles, review standards, operation mechanism, honor and treatment, so that the objects consciously accept the guidance of S&T rewards, and carry out scientific researches in the specified direction. Moreover, the reward subjects implement the motivations in order to obtain useful S&T achievements and enlarge own social influences. The objects accept the motivations and carry out scientific researches in the specified direction, they hope that their S&T achievements are recognized and themselves obtain spiritual satisfaction and material treatments. In the CRSST, to be recognized is original S&T achievements those produced significant economic benefits, but in fact, the most critical is the S&T talents who created those original S&T achievements. Therefore, all kinds of S&T rewards in the CRSST should be constructed on the basis of esteeming and motivating S&T talents.

In order to fully mobilize the enthusiasm of scientific researchers in all industries, in various subject fields and at all levels, the CRSST should show its characteristics of multi-species, multi-level and multi-form rewards, cover all creative S&T works and construct an all-round reward systems, moreover each kind of S&T reward should have its specific reward scope, area and object. The settings of the CRSST, not only offer the rewards for the minority of S&T elites, but also ensure that the contributions of most S&T workers are recognized; not only offer the rewards for the achievements those obtained significant economic and social benefits, also offer the rewards for the creative theory achievements; not only offer the rewards for the S&T personnel who engage in the basic, applied and development researches, also for the people who work in the management, popularization and education of S&T achievements.

3 Optimize the Operation Scheme of CRSST Using Feedback Principle

Feedback control method is one of basic methods of system theory. In order to make the CRSST run in good condition, it is necessary to use feedback principle to design and optimize the system operation based on the collection and analysis of all relevant information. Feedback refers to that the output information of a system, go back to input port of the system through certain channel, enable the system to maintain the information flow and play a good role of self control. According to the different results, feedbacks can be divided into positive feedback and negative feedback. If a feedback tends to resist the movement against target, makes the system run along the direction of target, and allows the system to achieve a dynamic equilibrium state, the feedback is a negative feedback; conversely, positive feedback. Figure1 shows the sketch of feedback controls of CRSST. The feedback controls of CRSST include three loops. Loop I consists of “Review and Arguments”, Loop II consists of “Objects, Applications, Reviews, Arguments, Reward results and Objects” and Loop III consists of “Subjects, Reward settings, Reviews, Arguments, Reward results and subjects”. To realize negative feedback controls of CRSST, the subjects should ensure the collection and accurate transmission of all kinds of feedback information in Loop III.

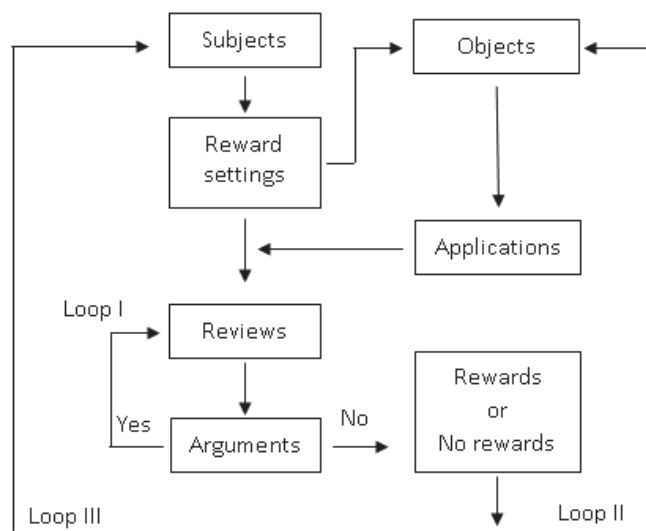


Figure 1 Sketch of Feedback Controls of CRSST

The deviant behaviors in S&T rewards is often seen, if not be controlled strictly, the universality, fairness principle, reputation and stability of CRSST will be damaged. To ensure the fairness and rationality of review process, the objection system was introduced into the CRSST. As shown in Loop I, the objection system is a reassessment system implemented by reward subject, for the arguments about the rewarded achievements and S&T personnel, raised by social sectors in the objection period. The objection system uses the feedback information to correct the deviation from reward targets and carry out the feedback controlling and adjustment, so it is a direct and effective method to prevent the deviant behaviors.

Normal objections are negative feedback information, it helps to improve the system robustness and stability. But there are few deviant objections to fight for power and money, and confuse right and wrong. The deviant objections are positive feedback information, will cause the system output distortion and disorder. Therefore, in the settings and actual operations of CRSST, the subjects should give full play to the positive roles of normal objections and avoid the negative influences of deviant objections. Moreover, it is necessary to broaden the objection channels and establish the supervision and control systems consisting of experts, scholars, public opinion and the discipline supervision departments to play the positive roles of objection systems.

Loop II shows the function of identification feedback of S&T workers for CRSST. The S&T rewards are open recognition of the governments, society and peers for the important S&T achievements and the S&T workers who finished the achievements, including spiritual and material rewards. Through the rewards, the S&T personnel got the recognition information for certain S&T achievements, these feedback information are beneficial to the S&T personnel adjust their future plans and behaviors of S&T. As authoritative social recognition, the S&T rewards can further stimulate the S&T personnel’s

enthusiasm for innovation, encourage them to create more achievements. This will form a negative feedback cycle.

4 Investigations of Reward-after Effects and Adjustments

Loop III shows that the subjects should strengthen the follow-up investigations for the reward results and make the analysis for feedback information to improve evaluation method and provide the suggestion for the reform of CRSST. By investigating the reasonableness of reward-after effects, the subjects may improve the system structure and implementation schemes of CRSST. The reward-after effects of CRSST mainly include accumulated advantage and Matthew effect.

The advantage accumulation refers to the phenomenon of the continuous accumulation of S&T rewards, resource allocation and superiority. When having made great achievement and obtained social recognition and reward, the scientist have better jobs, better environment and more research resources, these progressively leads to higher level research results and new rewards, and enter a virtuous cycle of “advantage — achievement — recognition — rewards — advantage”^[2]. Jerry Gaston pointed out, “the scientist made an achievement in a certain time point, the recognition for this achievement will affect his output at second time point.”^[3]

The advantage accumulation has positive influence on the different layers of S&T personnel. For outstanding scientists, the advantage accumulation can highlight their position and role in the S&T development, establish their prestige, strength the influence of their contribution on the society and even the whole human civilization. For general S&T workers, the advantage accumulation can urge they enter into the prestigious research institutions, study the scientific frontier, accelerate the output rate, in order to obtain further advantage in recognition and reward, and to become a member of elite scientists.

Matthew effect is an injustice phenomenon in science honors and resource allocation caused by S&T rewards. In the S&T rewards, honors and resources were often given to those applicants who are more famous and more prestigious, and less to those not well-known. In the CRSST, the rewards for cooperative achievements are more likely to the cooperator who has greater prestige; Among the independent achievements finished by different people, the achievements done by famous people was considered to be higher levels.

The negative influence of Matthew effect is great, the main performance is unfair distribution. After obtaining high level rewards, some elites enjoy repeatedly the reputation, honor, status and wealth in a long time or even a lifetime even though they hasn't new contribution or achievements, such award way of “a reward-winning, lifelong benefit” causes that some scientists rest on his laurels. Meanwhile, some common S&T personnel often do not get due reward, it will seriously dampen their research enthusiasm. Moreover, Matthew effect could hinder new S&T talents and new theory, since it is established on the basis of authoritarianism, people are prone to blind obedience to authority, not easy to accept new people in the scientific community and new ideas against popular theory.

5 Conclusion

The CRSST consists of reward subject, reward object and reward intermediaries. Based on system theory, we outline three feedback control loops in the CRSST. Loop I consists of “Review and Arguments”, Loop II consists of “Objects, Applications, Reviews, Arguments, Reward results and Objects” and Loop III consists of “Subjects, Reward settings, Reviews, Arguments, Reward results and subjects”. Using system theory to optimize the CRSST, we should pay attention to four aspects:

(1) The subjects set the rewards in accordance with social needs, and should adjust the reward setting based on the changing S&T situation.

(2) In Loop I, between the review and reward, the objection system should be introduced into the CRSST to ensure the fairness and rationality of review process.

(3) In Loop II, the recognition information for S&T achievement should be open to the society, that is beneficial to the S&T personnel adjust their future plans and behaviors.

(4) In Loop III, the subjects should investigate and study the reward results and reward-after effects to improve the system structure and implementation schemes, thereby play the positive influence of accumulated advantage and restrain the negative influence of Matthew effect.

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The Optimization of Functions and Resources for Library Based on Needs of College Students*

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Abstract: The most important person in college are students, the most important architectural in college is library. How to optimize and configure the resources of library better has been an issue to be considered by libraries. Through learning at KTH Royal Institute of Technology Library, we proposed some recommendations for libraries of internal colleges.

Key words: KTH royal institute of technology; Library; Services; College students

1 Introduction

Academic library is a symbol of the strength of the university, the heart of the university, and an important pillar of teaching and scientific research. The library is an academic fortress, an academic center, and a small university in the university^[1]. From the digital library, subject librarian system to the patent information service platform, to cloud computing, and then to applications of big data, academic library develops rapidly. But as common undergraduates, they pay more attention to the study environment and services of the library. University library should consider how to optimize the allocation of library resources based on the needs of students, and how to improve its position in the hearts of university students. And so university students put libraries on an indelible position in their memories of college life. Fortunately, we visited the KTH Royal Institute of Technology library for a while. Combined with local university libraries, we provided some advices on the reasonable sharing and use of available resources based on the needs of the students.

2 The Impression of the Library of KTH Royal Institute of Technology

KTH Royal Institute of technology was built in 1827. So far it has nearly 200 years of history. It is the Sweden's largest and oldest public institution of higher education in science and engineering. Its science and engineering has a high reputation in Europe and the world. An old laboratory building built in 1917 is the former site of its library in main campus. The library was renovated in 2000 and it is strongly artistic. The first floor of the library looks like an open book and you can go inside from the "opening" of the book. The atrium of library is the stack room and it is the center of the library. The atrium has high headroom and is littered with a variety of sofas and chairs, which could provide a comfortable environment to readers. Around the stack room there are lounges where people can discuss subjects, and also computer rooms where people can collect information over Internet. In the periphery of the lounges and computer rooms is the librarians' office and career guidance room. The book-keeping room which is full of Swedish books and periodicals reading room are on the second floor of the periphery. There are a lot of desks and chairs in the reading room, both of them are with different shapes. The lamps and power strips are matched with desks and the boxes where bags and clothes can be collected behind the chair. All of these make readers feel comfortable and intimate.

The library of KTH Royal Institute of technology specifically sets small places for students' life services. One can easily find the school map, school calendar and guide of the library there. Also the library sets some billboards where various lectures and activities information can be posted. At the entrance to the library, the works of the students in School of Architecture are exhibited, which decorate the library and also broaden students' horizons. Several ancient books are exhibited in the outmost periphery of the central stacks. Students could learn more about the process of books and also the library could increase some sense of history with these books.

Many students are attracted by the predominant environment and considerate services of the library of KTH Royal Institute of technology. Even on Friday afternoon the library is full of people. The library

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is the most satisfied place on campus.

Recently, the libraries of Peking University, Nanjing University and Wuhan University are ranked in the top ten beautiful libraries. The students in the universities show high expectations on the libraries. Therefore, we should pay more attentions to the construction of the library. Also the staffs in the library should provide considerate services to the students, and try our bests to make the library the most satisfying place. The students will be reluctant to leave library when they graduate. And the library will be in their memories when they leave school after several years. The library will gradually receive more donations from successful schoolfellow and it could reach a win-win situation between students and their university.

3 Building College Science Competition Service Platform

Many seminar rooms for different disciplines were set up outside of the stacks of the library of the KTH Royal Institute of technology. There are many professional books and journals, with small blackboards and chalks for group discussion. The seminar rooms are integrated with the stacks, insulated by the transparent glass wall. The research team can use it whenever, without reservation. Only few domestic university with seminar room^[2]. It is neither convenient nor popular, since the research team have to book them for use in advance.

Recently, our country has played more and more attention to college research training projects, such as National Undergraduate Electronic Design Contest and the National University student mechanical innovative design contest. Library can play a major role in the student competition with the advantage of Library Collections and subject librarians.

The implementation of subject librarian system was extremely difficult. Because subject librarians have limited professional knowledge of different discipline, it is difficult to obtain the trust of project leaders and make something for major research projects^[3]. However subject librarians can of course play an important role in college scientific contest with their retrieval skill. Chongqing University proposed a boot-service system for college research training, and obtained certain achievements^[4].

Therefore, this paper constructed a college science competition service platform, which is combined with discipline seminar rooms and subject librarian.

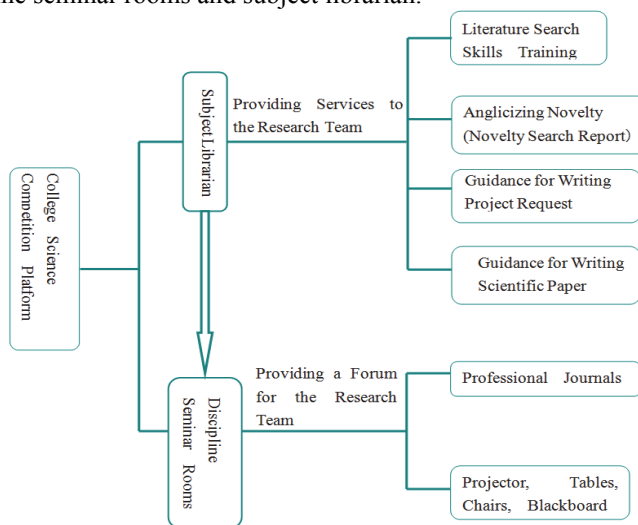


Figure 1 College Science Competition Platform

Subject librarians can be distributed among different subject seminar rooms, which should be booked by research teams in case of need. In addition, subject librarians have the right to participate the student competition and project research. Such corporation can strengthen the link between the librarians and students, enhance the position of the library, obtain the invaluable service experiences for research projects, and provide power to the development of subject librarian system. It guarantees a gradual development of the subject librarian system.

4 Play a Role in the Employment of Graduates

Providing career guidance and employment information service for the college students to is an

important responsibility of the library of the KTH Royal Institute of Technology. The library sets up Career coach (career guidance) office. When students have career confusion, they can get professional analysis and advice. Information shelf is set next to the office with materials such as how to write a resume, interview skills, how to write a cover letter and job information. College students can demand for free. Bulletin board is next to the information shelf. It contains the information of enterprises Campus Talk, lectures of career planning, job hunting, and many others. Campus network provides a more comprehensive employment information service platform, the same as the career centers of domestic colleges and universities.

Calls on the University Library to broaden its employment service have occurred constantly^[5-7]. Some perspective is based on subject librarian in the Library Employment Service^[5], and some suggest that library should establish an employment information service platform^[7]. But most domestic universities set the University Career Center, and therefore it's very difficult to promote university students' employment service in the library. But the University Career Center are "distant" from students. The university students will focus on this web site only in need of applying for jobs. Thus the library can cooperate with the University Career Center with its geographical and "likability" advantages. Only in this way can employment guidance be really popular in college students' lives.

4.1 Set up a special employment information office

The library should provide the books and newspapers about choosing jobs, employment, career planning, resume writing, interview skills. They can be placed centrally in the Employment Information Office that will offers enough space for students to read and discussed about job hunting. Additionally, the library should strengthen cooperation with the University Career Center, and specifically sets up information shelf and panels. The information about enterprise recruitment brochures and the instruction manuals of the web site for University Career Center can be both placed on the shelves. Notices of a variety of career-related lectures held by the University Career Center and Campus Talk will be post on information panels. Meanwhile, low-grade students can also be attracted, which means that college students can create awareness of career planning and employment earlier. It will be certain to increase the employment rate in an indirect manner.

4.2 Set up career counseling office

There are professional career counseling teachers in university career center that is the advantage of human resources. However low-grade students usually do not pay close attention to job websites and career counseling. Library can strengthen cooperation with Career Center of university, set up career counseling office next to the library stacks, and provide career planning guidance and employment counseling for students in need. The entire library student employment service platform are as follows:

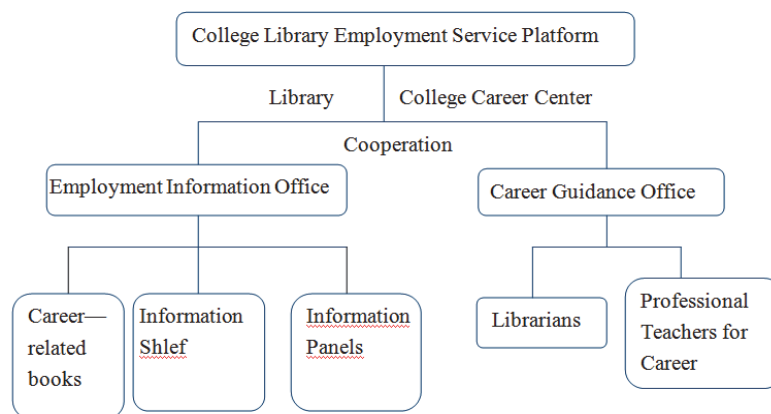


Figure 2 Students Library Employment Service Platform

5 Conclusions

It is very important to cultivate a sense of library identity for students, which can be achieved by improving the learning environments and service levels of libraries. Students will love and admire the university libraries, only if the libraries operate based on needs of college students and from a service-oriented point of view, via optimizing their functions and resources gradually.

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Research on Innovation and Development of Student News Associations in Chinese Colleges and Universities

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Abstract: Student organizations in colleges and universities are vital to students' active participation in curricular and extracurricular activities, playing a significant role in enriching extracurricular activities, nurturing an on-campus culture and helping enhance their comprehensive abilities. Among all, student news association has a distinguished and irreplaceable role in broadcasting on-campus news, which could help publicize the philosophy, build an image and advance the culture of the university. Thus the urgent need to improve the news association and realize innovative development is compelling.

Key words: Colleges and universities; News association

Interest-based associations are building blocks of student organizations in colleges and universities. Students are drawn to them on account of their shared interest. Through engagement students' interests become entrenched and these associations serve as a platform to further their personal attainment. However, news association is differently and explicitly targeted to serve the campus. It is a crucial tool to broadcast on-campus news.

1 Major Responsibilities of the News Association

The main responsibility of the news association is news broadcasting. Members collect original news material, interview outstanding students, edit magazines for different departments and make posters and relative videos so as to cover the efforts university has done for students and successful stories of some excellent students themselves. News association is designed to differentiate from other interest-based associations.

2 Members of the News Association

2.1 Preferred abilities

Good writing, organizing and photographing abilities are preferred. The coverage is closely related to students themselves, such as freshmen welcoming at the railway stations or airports, sports events and literary activities. Besides, progress of academic research, the work of CPC organization and dean's office will be covered. As a result, the specific responsibility required includes news coverage and photographing. Sometimes trainings are offered as to enhance the efficiency of the work group.

In addition, excellent writing skills and students who have passion for literature are highly preferred to ensure the ongoing news writing, exclusive interview, relative compiling and publishing. The news association often assists some departments with editing documents of CPC, ideological and moral construction, editing and composing literary or political publications and making posters or videos. Therefore students with innovation spirit and wielding computer skills or others are welcomed to join the association.

Members of the news association are also required to have a sense of contribution and responsibility, because trivial and detailed work is time and energy consuming. Any mistake in the report or news coverage is not allowed. Members should take the their own obligations, be meticulous and passionate for the association.

2.2 Evaluation of members

Members of the news association shall be evaluated in the following aspects:

Ability: perfect accomplishment of a task, wielding several skills, independent thinking, innovation and leadership;

Attitude: a strong sense of responsibility for assignments, teamwork, a sense of contribution and aspiration to learn;

Efficiency: legitimate tools to accomplish a task, finishing each assignment and self-improvement

3 Dilemma

3.1 Shortage of funds

Funds are necessary to support the running of news association. There are three main sources of funds: social patronage, membership fee and funds from the university. As an association with actual working responsibilities, News Association needs to offer payments rather than collect membership fees. With inadequate funds from the university and limited social patronage, the association now faces real funding problems.

It depends on the members themselves to get over this hump. Generally speaking, more social patronage, more funds. There are separate teams in charge of gaining patronage, which requires skills and resilience to tackle problems within the process. Support from the university is also very helpful. While members from the news association do their best to serve the campus, the university needs to do their part to attach much importance to the association. They need ample funds to secure the healthy development.

3.2 Lack of legacy

Student organizations in universities and colleges see a new leaders team every year or even every semester. On this occasion, documents are not well maintained and inherited, and some of the feature activities have to be dropped. A legacy of culture is impossible without accumulation and reflection of previous experiences. New leaders teams have to learn by doing, given the fact that there is lack of documents inherited from the previous teams. Consequently, members and leaders team are repeating the work inefficiently and obtain slow improvement, further resulting in deficiency in unity and becoming less appealing.

A team should therefore be established to exclusively document the daily work, compile contributions from each member and leave this legacy to the following team next year.

3.3 Incompetence of leaders

In the news association, the assignment as leaders has a one-year term. Most of them didn't get involved in managerial roles until they are appointed as the leader. Ordinarily even outstanding members lack managerial abilities.

To solve the problem, continuous efforts can be made in two ways. On one hand, the incumbent leaders should create a favorable environment and engage more students into decision-making who could build their own decision-making and management abilities at an early stage. On the other hand, it is important to clarify different roles of leaders and members from different grades. For instance, outstanding seniors can serve as the president and vice president; sophomores are main contributors as leaders of each department; some vice heads of a department could be taken by freshmen that meanwhile are the majority of members.

3.4 Little sense of belonging

Many members cannot find a sense of belonging or achievement or even want to withdraw from the association due to lack of recognition for their hard work. This is partly attributable to less care from the leaders group and ineffective incentive policy.

Solutions can be multiple. Leaders group should feel responsible to motivate the members, for instance arrange more activities to interact with and give credit to them timely. A full-fledged incentive policy had better be in place including material awards, moral encouragement and evaluation system. Due respect and honor awards can help the members keep a sense of belonging and at the same time show more drive.

4 Suggestions

4.1 Create an environment where members feel like home

In comparison, student organizations in overseas universities are more institutionalized and standardized. There are strict proceedings in applying for, examining and approving a new association and all the organizations must abide by the Student Organization Management Rules. It is a different case in China where students join an association, complete tasks all out of their own free will. A group with rigid rules should give way to a home-like association.

Leaders group secures the daily work. They are leaders, such as president, vice president and heads of each department but equally importantly friends and partners. They are more like brothers and sisters, sharing experiences with lower-grade members, helping them settle problems and motivating them to be a better self. Even when the leaders retire, they will always be there and offer a helping hand if the association needs help. Home-like associations are more likely to produce better outcomes.

4.2 Engage more members into social practices

News broadcasting is the main responsibility of the news association but not the only one. Members shall be encouraged to step out of their comfort zones and explore more outside the campus. There could be numerous things worth trying. Students can gather successful stories related to their own universities that may be reported on the campus news; students can follow and document post-graduate work and study of outstanding graduates which is beneficial to the statistics as a reference for undergraduates especially at the point of choosing whether to pursue an academic or business career; students can interview folk artisans and appeal to better protection of falling customs or artworks... Apart from broadcasting on-campus news, the news association needs to cover current affairs as well. Therefore, they need to explore outside the campus and build a bridge between the university and the society.

Members of the news association can not only unleash their potential, get involved in lots of practices, improve networking ability, enrich extracurricular lives, build an information tunnel, guide others' mindset but also reach more friends or movers and shapers on campus and put their fingers on the pulse of research progress.

News associations in colleges and universities play a unique role in guiding a more healthy media environment. Relative management teams must look for innovative means to support their development, offer them with favorable policies and economic support and promote their healthy and orderly development.

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A Policy Research on the Development of Traditional Chinese Medicine International Trade *

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Abstract: Traditional Chinese Medicine (TCM) owes long history in China. The development of TCM international trade plays an important role in improving human health and carrying forward traditional culture. This paper starts with the development situation of TCM international trade, and states the existing problems and the restrictive factors of TCM international trade development. In order to promote the rapid development of TCM international trade, the government should make feasible policies according to the actual situation of TCM development: strengthen quality control of TCM and improve product quality; optimize the industrial structure of TCM and improve the international competitiveness of TCM; reinforce support for TCM export and actively respond to trade barriers; enhance international communication and cooperation of TCM, and drive TCM development with Chinese medical treatment.

Key words: Traditional chinese medicine(TCM); International trade; Restrictive factors; Policy suggestions

1 Introduction

Traditional Chinese medicine (TCM) is the history treasure of the Chinese nation, and also the precious resources that benefit the world. The revitalization and development of TCM is the important strategy to realize the Chinese Dream. The deepening of economic globalization has brought opportunities of TCM international trade. In international trade, TCM plays a critical by its natural advantage of unique treatment theory, high security, and low side effects, however, a variety of restrictive factors have brought TCM international trade the adverse effect even huge losses. How to solve the problems relates to the way China's TCM industry goes to. To improve the international competitiveness of China's TCM industry, not only the force from micro level of TCM enterprise, but also the country's corresponding macro policies are needed.

2 The Current Situation of TCM International Trade Development in China

2.1 TCM total external trade continues to grow

In recent years, China's TCM trade continues to grow. The total exports of China's TCM rose from \$1.708468 billion in 2010 to \$3.592072 billion in 2014. The annual increase rate of TCM exports on the whole is about 20.7% in past 3 years. The total imports of China's TCM increase from \$554.1228 million in 2010 to \$1038.032 million in 2014. The average growth rate of TCM imports is as high as 17.5% annually(table 1). China has a long history and rich resource of TCM, but export volume growth is far lower than the import growth in international trade. The problem of unbalanced development exists.

Table 1 Import and Export Situation of TCM Products in China 1n 2010-2014

(unit: ten thousand dollars)

Year	2010	2011	2012	2013	2014
TCM products exports	170846.83	214820.94	230410.6	290324.6	294171.95
TCM products export growth rate	--	25.73%	7.25%	26.03%	23.73%
TCM products imports	55412.28	70640.23	85607.59	105353.81	91473.21
TCM products import growth rate	--	27.28%	21.18%	23.06%	-1.47%

Data sources: China chamber of commerce for import and export of medicine and health products, Jan 1, 2015.

* This paper is supported by humanities and social science research base of Hubei province college: The research center of TCM development.

2.2 TCM products export is typically extensive

TCM products can be divided into four categories: health care products, extract, proprietary Chinese medicine, Chinese herbal medicine and slices. From the perspective of TCM products export structure in recent five years (table 2), exports were mainly based on raw material products such as extract, Chinese herbal medicine and slices, which reached more than 80%. The export share of processed products, such as proprietary Chinese medicines and health products is significantly lower, even has a tendency to be less. Proprietary Chinese medicines and health products exports accounted for only 14.47% of the total amount in 2014, which hit fresh low in recent five years. All above show that China's TCM product export is typically extensive. It will make harm to the development of China's TCM industry in the long term.

Table 2 TCM Export Structure in China in 2010-2014

(unit: ten thousand dollars)

Name of commodity	2010	2011	2012	2013	2014
Total Traditional Chinese medicine	170846.83	214820.94	230410.6	290324.6	359207.24
Health care products	9589.33	14086.66	14980.14	17800.88	26983.7
extract	76770.99	104741.26	106252.7	125927.09	177724.02
Proprietary Chinese medicine	19371.34	20605.74	23718.14	25956.88	25006.31
Chinese herbal medicine and slices	65115.16	75387.27	85459.63	120639.75	129493.21

Data sources: China chamber of commerce for import and export of medicine and health products, Jan 1, 2015.

2.3 TCM exports account for a relatively small share in the world's natural medicine market

China owns rich TCM resources. TCM product has its unique advantages. However, the share of TCM products in the world's natural medicine market is not high. TCM export share in the international natural medicine market is about 3%-5%^[1]. The priority of export is Chinese herbal medicine and plant extracts. Proprietary Chinese medicine products' market share is even lower. In recent years, overseas natural medicine research and development is in a leading position. Export of TCM products represents a continuous low proportion which would create more pressure on TCM export in China.

2.4 TCM export market is focus on the asian market

Influenced by traditional culture and geographical location, export market of TCM is clearly biased, stable but excessively narrow. More than 80% of the export is based on Asian markets which is focus on Japan, South Korea and southeast Asian countries. Although the European and American market have wider demand, exports of TCM only account for about 20% which is focus on health food^[2]. The concentrated market results in limitations of TCM export and increased trade risk. At the same time, it also increases the entrance difficulty of proprietary Chinese medicine in international market.

2.5 External trade of proprietary Chinese medicine keeps continuous deficit

Proprietary Chinese medicine can embody the theory and culture of TCM. The trade situation of proprietary Chinese medicine reflects the trade level of TCM to a certain extent. Although China has superiority of history and resources of TCM, its proprietary Chinese medicine is occupying few market share in the international trade. China's proprietary Chinese medicine relies on import seriously. As to proprietary Chinese medicine in China, trade deficit existed and increased continuously from 2010 to 2014 (table 3).

Table 3 Present International Trade Situation of Proprietary Chinese Medicine in China in 2010-2014

(unit: ten thousand dollars)

Year	2010	2011	2012	2013	2014
Proprietary Chinese medicine export	19371.34	20605.74	23718.14	25956.88	25006.31
Proprietary Chinese medicine import	26822.68	29126.7	33076.29	35034.43	33718.77
Proprietary Chinese medicine trade deficit	7451.34	8520.96	9358.15	9077.55	8712.14

Data sources: China chamber of commerce for import and export of medicine and health products, Jan 1, 2015.

3 The Restrictive Factors of TCM International Trade in China

3.1 Low TCM products quality

The quality is the material foundation of TCM international trade. Although China has rich resources of TCM, TCM is often in a very passive position in international competition because of its low quality. TCM international standard work started relatively later in China, which made TCM lose good opportunities in the international competition. At present, TCM products export is restricted by international market barriers, and is often labeled low quality which does not accord with the specific standard in international trade. Quality control of TCM in cultivation, production and process is not ideal. TCM planting is mostly extensive management, which may lead to excessive heavy metals, remnant pesticide and excessive microbial. Developing TCM industry, low processing level of Chinese herbal pieces, and low innovative ability result in the slow development of TCM international trade.

3.2 Unreasonable TCM industry structure

TCM international trade in China has its own characteristics. The main export products are Chinese herbal medicine and extract, which has caused excessive competition of international trade. Proprietary Chinese medicine has few kinds. Proprietary Chinese medicine has 26 dosage forms and 10000 varieties. Its technical content is not high and life cycle is short. And it is lack of intellectual property rights protection^[3]. The unreasonable export product structure also reflects the limitations of manufacturing enterprises. In general, the size of the TCM manufacturing enterprises is small, and they have backward production technology and low efficiency. The lack of research and development capabilities makes TCM export depend on the raw material which has low added value. The trade pattern that creates over-consumption of natural medicine resources is unsustainable. If things continue in this way, there will be a vicious cycle and a serious threat to China's TCM international trade.

3.3 Numerous TCM trade barriers

With the development of TCM international trade, trade barriers also follow. In order to protect their own interests in TCM international trade, many countries set up new non-tariff barriers. These barriers mostly take the form of legal, technical rules, regulations, agreements, standards and certification, and are implemented in technical index system, such as science and technology, health, quarantine, security, environmental protection, product quality, authentication, etc. The barriers are used in international trade. They consist of flexible and various regulations. The common trade barriers include the technical bulwark and green barriers. These trade barriers have a huge influence on China's TCM entrance to the international main market. Sometimes, a clause can change the whole pattern of TCM trade. Due to the limitation of European plant drug approval and continuity of terms (the British has banned the sale of unregistered traditional medicine on May 1, 2014), China's TCM exports to the EU market are just more than 11 million dollars, and fell 5.85% in 2014. All of these make the internationalization of TCM increasingly difficult.

3.4 Different culture

Culture is the accumulation and inheritance of historical tradition. It will have an impact on the country's public behavior. Different cultural background leads to the general skepticism of the west to TCM. Compared with western medicine, TCM has complex composition, pays attention to syndrome differentiation and treatment, and dose not have quantitative analysis of pharmacological effect, which result to a lot of TCM promotion difficulty. Moreover, TCM concept records are all in Chinese. It is difficult to fully retain the theory essence in the process of translation^[4], which also affect the propagation of TCM concept in Western countries.

4 Policy Suggestions on the Development of TCM International Trade in China

To achieve rapid expansion of international trade, China's TCM industry requires not just the power of the enterprise but the government's energetic support. The government should formulate the corresponding macroeconomic policies and fundamentally solve the factors which restrict the development of TCM products international trade .

4.1 Strengthen the quality management of TCM products

The quality control and guarantee of TCM is the core problem in TCM modernization, industrialization and internationalization. The government should establish and perfect GAP, GMP, GLP, GCP, GSP etc., define the process of TCM research, development, production and circulation so as to promote comprehensive management, control and security of TCM^[5]. At the same time, these norms can accept recognition and beliefs of more countries and regions.

4.2 Optimize the structure of TCM industry

The government need to carry forward the optimization and upgrading of TCM industry, adjust the national industrial policies, make comprehensive study and deployment of the development direction of TCM industry, and give corresponding policies and financial support, such as credit, taxation, price, technical transformation etc. Further deepening reform is necessary. In order to enhance the international competitiveness of TCM products, and promote the transformation pattern to change from extensive development to intensive development, the government should develop the scale of TCM industry, improve industrial concentration, create a batch of famous international brand of TCM enterprises through assets operation and structural adjustment^[6].

4.3 Reinforce the support to TCM export

The government should formulate corresponding policies to encourage the export of TCM products, to enhance support to TCM products export, and to improve conditions of TCM enterprises in the international competition. At the same time, the government should strengthen the introduction of foreign advanced technology and equipment, improve the advanced standardized construction about science and technology of TCM, coordinate and protect intellectual property rights of TCM through the formulating and perfecting the laws and regulations, and make use of the multilateral agreements^[7]. In the face of abnormal trade barriers, the government needs to strengthen international dialogue, develop trade policies which are suitable for China's national condition, optimize the trade structure, deal with trade frictions, and promote promote the cancellation of non-tariff barriers through policies.

4.4 Enhance TCM international exchange and cooperation

In order to promote the development of TCM trade, the government should improve relevant policies and enhance exchange and cooperation, which can make the TCM trade connect with international standards further^[8]. It is important for TCM international trade to drive TCM development with medical treatment. Driving TCM development with medical treatment needs the government to perfect the relevant policies, to promote international exchange and cooperation of TCM industry, and to reinforce international medical academic communication. It is necessary for the government to promote international education of TCM. We should let more people especially foreign medical experts believe the scientific and the effect of TCM so as to improve the international status of TCM theory system and heighten the international understanding and trust of TCM.

5 Conclusion

Basing on the understanding of TCM international trade, we analyze the current situation of the development of TCM international trade in China, summarize the restrictive factors of TCM international trade, including the low TCM products quality, unreasonable TCM industry structure, numerous TCM trade barriers and different culture. Some policy measures should be taken, such as strengthen the quality management of TCM products, optimize the structure of TCM industry, reinforce the support to TCM export and enhance TCM international exchange and cooperation.

In the future, in terms of research on the development of TCM international trade in China, we should consummate the relevant policy and integrate the theory with practice; build perfect theory system to improve the development of TCM international trade in China.

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The Construction of Subject Knowledge Platform Based on Knowledge Management: Empirical Research on Subject Knowledge Management of Library of Wuhan University of Technology*

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Abstract: Through the survey on the needs of users in their scientific research, the library I work for began building subject knowledge service teams in 2014 to reform of the organizational structure of subject service, integrates the special database resources in the subject of information and communication engineering, carries out knowledge sorting, mining and search for the subject and builds up a subject knowledge platform of information and communication engineering for scientific research. The platform provides the teachers and students in the college with subject evaluation and value added services to satisfy the extensive demand of scientific research for information. With the building of platform for the subject of information and communication engineering, this paper will explore and practice the expansion and extension of subject service.

Key words: Subject knowledge; Scientific research; Practice of platform; Knowledge management; Subject service

1 Introduction

Knowledge management originates from the organization and service of knowledge^[1]. It refers to a process that a manager acquires, stores, transmits and applies the internal and external knowledge of organization to improve the organization's ability of value creation. Karl M Wiig proposed that the knowledge management of library has two meanings^[2]: one is the meaning of service-based knowledge management, i.e. extraction, organization, development, service and dispersion of numerous information resources in a library to directly satisfy the needs of users for knowledge; the two is the meaning of people-oriented knowledge management, i.e. conversion between implicit knowledge and explicit knowledge in a library to facilitate the innovations of library and improve the core competitiveness of library.

In 1998, Mr. Ren Junwei^[3], as the introducer of "knowledge service" into the library circle of China, opened the curtain to the research of knowledge service in this circle. In 2000, Mr. Zhang Xiaolin^[4] pointed out the new requirements for library and information science in the environment of knowledge economy and modern information and the focus of library and information institutions on knowledge service in their core competence, and thoroughly reviewed the connotation, service model and operational pattern of knowledge service, promoting an upsurge of the research on knowledge service in China. So far, scholars in China have studied knowledge service for more than ten years and published a great number of articles to present its connotations, features, contents and implementation measures from different approaches and put forward a great deal of constructive viewpoints and ideas. In other countries, some articles have introduced My Library and My Gateway, etc., but there are few researches on knowledge service of library^[5].

Under the information environment of digital scientific research, academic library assists scientific researchers in knowledge control, knowledge mining, knowledge sorting and knowledge search to facilitate the conversion from implicit knowledge to explicit knowledge, satisfying the requirements of scientific research for utilization of knowledge^[6]. Through the survey on the needs of users in their scientific research, the library I work for began building subject knowledge service teams in 2014 to reform of the organizational structure of subject service, integrates the special database resources in the subject of information and communication engineering, carries out knowledge sorting, mining and search for the subject and builds up a subject knowledge platform of information and communication engineering for scientific research. The platform provides the teachers and students in the college with subject evaluation and value added services to satisfy the extensive demand of scientific research for information. With the building of platform for the subject of information and communication

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engineering, this paper will explore and practice the expansion and extension of subject service.

2 Strategies for Construction of Subject Knowledge Platform Based on Knowledge Management

Now, subject knowledge service is one of the important tools utilized by academic library to provide knowledge service extensively, which introduces the idea of knowledge management into subject service. Under the guidance of knowledge management, scientific management methods are employed to integrate all kinds of distributed subject resources. Subject knowledge base is established based on the needs of users and the contents of service are presented through subject knowledge platform. On the other hand, scientific management methods can be utilized to manage the resources other than literature for subject service, e.g. organizational structure, organizational personnel and organizational system, etc.

The knowledge management of library^[7] can be roughly divided into three phases, i.e. knowledge acquisition, knowledge conversion and knowledge innovation, during which the value of library knowledge is gradually increased. Based on the roles of knowledge management in library and the current status of subject service, this paper sums up the strategies of knowledge management for construction of subject knowledge platform mainly in the following aspects: integration of subject resources and construction of subject knowledge base; understanding the needs of users in scientific research; building a subject service team; reform of organizational structure of subject service.

2.1 Integration of subject resources and construction of subject knowledge base

Integration of subject resources means to apply scientific organization methods to gather, sort out and store all kinds of resources inside and outside a library, and integrate all kinds of scattered knowledge into a knowledge system in terms of subject. This knowledge system is an important source for subject knowledge base, so as to provide a lot of knowledge resources for subject service.

Both integration of subject resources and construction of knowledge base entail the scientific methods of knowledge management. Considering the three phases of knowledge management, knowledge must be well gathered, processed, stored and dispersed first for academic library to provide better subject service. Then, a large number of disorderly and unrelated knowledge resources, electronic resources of the library and other explicit knowledge are acquired from the library together with the experience of librarians and other implicit knowledge, which are processed and delivered into subject knowledge base. The subject knowledge base with multiple carriers for various subjects appears in multiple forms to integrate library resources with internet resources and provides accurate subject resources for users on the subject knowledge platform, so as to extend knowledge service to end users.

With emerging technology, subject knowledge platform combines the explicit knowledge including library information resources with the implicit knowledge of subject librarians and users to facilitate the conversion of knowledge, realizes the accumulation and innovation of knowledge and expands the contents and service receivers of subject knowledge platform. At present, subject knowledge platform is established mainly by means of Web 2.0 or Lib 2.0 (e.g. LibGuides), blog and static web page for subject, etc. With its Web 2.0 features, subject knowledge platform satisfies the requirements for library's information service at a deeper level, realizes the transmission of subject knowledge and the function of knowledge sharing quickly, and provides the customized service for users in respect of different subjects and special topics. In 2010, Fulton surveyed 40 research libraries in the U.S., of which 28 libraries had used the content management system to provide service for scientific research users and 11 libraries were planning to use content research system. Subject knowledge platform performs the content management of subject resources, and guarantees the orderly and continuous storage of scientific research achievements, in order to facilitate the sustainable development of scientific research.

2.2 Understanding the needs of users in scientific research

Subject service for scientific research users has expanded from the traditional delivery of literature to the information service. However, the idea of subject service has upgraded the basic information service of library to the specialized service supporting teaching and research, and transformed from passive service to active service. Meanwhile, subject service has embraced the new model of service satisfying the needs of users in scientific research. Today, subject service requires subject librarians to frequently communicate with scientific research users in different departments of university and learn about their actual needs. On the other hand, subject librarians are required to often utilize emerging technology and get well involved in the virtuous space of scientific research users, in order to make users enjoy subject services at any place. Hence, embedded subject service under ubiquitous knowledge

environment has become a user-centered subject knowledge environment subject to special information demand, and been fully blended into the virtual space of users to provide extensive information service and form a knowledge service system featured by brand-new organization of resources, service functions and system structure.

In order to construct a brand-new knowledge service system, the subject service model of library must be combined with the subject knowledge platform, so as to facilitate the sharing of subject knowledge. The new subject knowledge platform of library should be driven by the needs of scientific research users, contain subject knowledge and comprehensively utilize the latest tools and technologies to jointly realize the creation of knowledge through the collaboration of subject teams. The subject librarians of new generation must get involved in the scientific research process of college users and understand the needs of users in scientific research to provide useful knowledge service for them.

2.3 Building a subject service team

In this context, knowledge staffs are subject librarians involved in the subject service of library. The management of staff with scientific management methods can guarantee the standardization of organization. Under the standardized management, knowledge staff can also improve their work efficiency. The process of knowledge management contains developing the rules on subject librarians, providing periodical training for librarians, arranging communication activities among librarians, making librarians share their knowledge and experience and cultivating the awareness of subject service team, etc. Some academic libraries have also started the construction of learning organization for adapting themselves to the changing knowledge environment.

In order to improve the quality of subject service and the satisfaction of users, the library I work for builds subject service teams to provide subject knowledge service with their wisdoms and strengths through mutual learning. Subject service team^[8] is a collaborative subject service unit. Through collaboration and cooperation among groups, a subject service team can provide the integrated subject service including subject knowledge service, subject user training service and subject resource service. Subject knowledge service group is the core of subject service team and crucial to building subject knowledge platform. Subject knowledge service group is not responsible for doing scientific research, but provides knowledge services for scientific researchers, including science and technology novelty search, selective dissemination of information service, literature retrieval service and patented information service, etc. Through the specialized evaluative database, subject knowledge service group gives play to its advantages in information retrieval, information filtering, analysis and prediction to identify the research topics and hot spots in a subject and track the key works, journals, scientific research topics and other resources in the research field in a timely manner, in order to establish the subject knowledge platform. Subject knowledge platform provides virtual service for users. Through the resource integration technology, online acquisition technology and knowledge mining technology in the system of the platform, subject knowledge service group can realize mutual conversion between implicit knowledge and explicit knowledge, and make use of the platform to share subject knowledge, so as to facilitate the innovation of knowledge.

2.4 Reform of organizational structure of subject service

After library knowledge service has become the key competence of library and the growth point of its management, organizational management mechanism is also constantly improving and changing simultaneously. In subject service, knowledge management is applied in reforming and innovating the organizational structure of subject service. To give better play to the role of internet environment, the organizational structure of knowledge management has been changed from traditional pyramidal structure to flattened structure, so as to establish the organizational mechanism and management model for fully supporting knowledge service.

For academic library, the traditional organizational structure means that the leader of library directly governs all departments, e.g. consulting department, editing department, technical department and digital department, etc. Each department is managed by the responsible manager. Departments do not closely connect or cooperate with each other. When a library employs the matrix organizational structure of subject service, it follows the needs of users, breaks the borderlines of functional departments and arranges the subject service teams for subject cultivation to provide services for users. To realize this objective, the library must reorganize its business process and organizational structure, and consulting department must cooperate closely with other departments. This structure strengthens the connection among departments in the library, while subject service teams have also saved labor and money for departments considerably, optimized organizational structure and enhanced the competitiveness of organization.

3 Modeling of Subject Knowledge Platform

The subject knowledge platform of the Library of Wuhan University of Technology¹ is a user-based subject and knowledge-oriented service platform, which integrates resources and tools including internet resources revealing, subject knowledge portal, specialized database link and knowledge mining, etc. to support such services as subject demand analysis, interaction between library and college, subject knowledge selection and integration, design and management of customized service. It is a subject knowledge platform based on Web 2.0 technology. The subject knowledge platform acquires a large number of disorderly and unrelated knowledge resources, electronic resources of the library and other explicit knowledge from the library, gathers the experience of librarians and other implicit knowledge, and processes them into the subject knowledge base, so as to establish a subject knowledge base with multiple carriers for various subjects appears in multiple forms, integrate library resources with internet resources and provide accurate subject resources for users on the subject knowledge platform. This subject knowledge management model consists of knowledge acquisition, knowledge conversion and knowledge service. Through combining the knowledge management of subject service with the people-oriented knowledge management and the knowledge resources with the advanced information technology, this model integrates all kinds of resources inside and outside the library to provide knowledge service for users. This platform completes the conversion from information to knowledge and provides knowledge service. The model of platform is established as presented in Fig. 1:

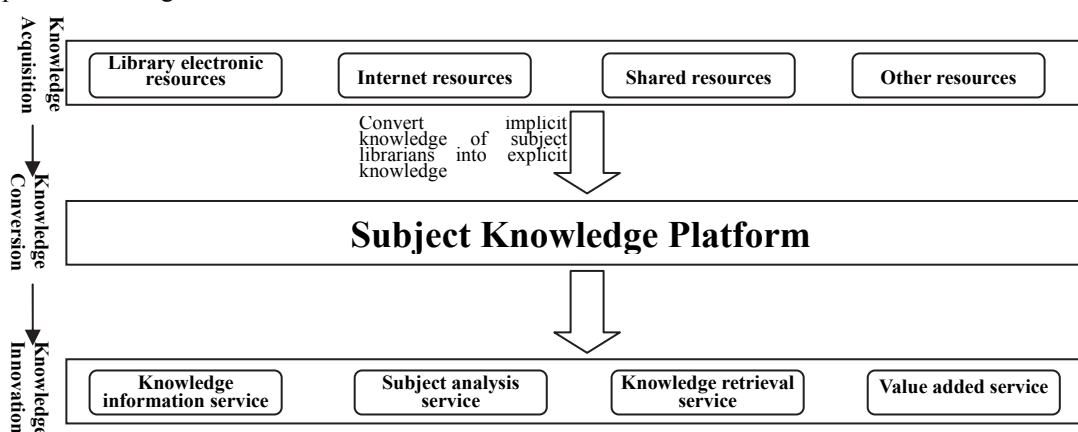


Figure 1 Subject Knowledge Platform

4 Initial Achievements in Construction of Subject Knowledge Platform

Subject service platform is an important part of subject knowledge service system. Through extensively searching, analyzing, evaluating and selecting the useful information resources, subject librarians can input information into subject service platform for classification, sorting, indexing and database creation, carry out the organization, integration, customization and analysis of information knowledge in the library, provide subject knowledge tracing service, topic service and knowledge analysis, and perform subject analysis and evaluation, academic communication, storage and management of various academic achievements, etc.

So far, the construction system of one-stop integrated subject knowledge platform for information and communication engineering has been preliminary completed. The platform reflects the knowledge resources of the subject in a centralized and comprehensive manner, covering subject status, project funds, research institutions, experts & scholars, academic achievements, subject analysis, database navigation, free online academic resources and other subject resources, one-stop resource retrieval, online consulting and other subject programs, in order to offer the one-stop channel for teachers and students to acquire all kinds of knowledge resources and services related to their subjects and majors. Since its test run was carried out in September, it has obtained 20,797 visits and 2,059 entries uploaded, and made practical achievements in the process of insightful, subject-oriented, real-time, interactive and customized service for scientific research. This platform has effectively integrated subject knowledge

¹ Subject Knowledge Platform of Library of Wuhan University of Technology[EB/OL].(2015-06-16). <http://iace.wl.lib.hnlat.com/>

service into teaching and scientific research, and been widely praised by users in my university.

Compared with other subject platforms at home and abroad, this platform is superior in terms of resource integration, indexing & cataloguing, service coverage and content abundance. Taking the knowledge management platform for the subject of information and communication engineering, the specific standards and achievements of construction are as follows: setting up the column for publishing the knowledge resources of the subject; integrating the library resources of the subject with the free resources on the internet; offering the unified access to search for the knowledge resources of the subject; providing subject analysis service and value added service for scientific research; integrating teaching service system; integrating scientific research institutes at home and abroad and related dynamic resources; strengthening real-time interaction between subject librarians and users, etc.

1) Setting up the column for publishing the knowledge resources of the subject: The column is mainly used to release the latest hot topics in the research of the subject, the academic trend, the upcoming meetings, policies and regulations at home and abroad, update the cutting-edge knowledge of the subject at home and abroad in a real-time manner, realize the all-directional integration and revelation of subject resources and help users with a general overview of the resources in the subject.

2) Integrating the library resources of the subject with the free resources on the internet: The navigation bar of databases integrates 66 subject databases, 20 trial databases and 67 free internet resources, presents an overview of databases and how to use, and allows to directly access the required database.

3) Offering the unified access to search for the knowledge resources of the subject: All kinds of resource databases in the library are linked to the subject service platform to realize the one-stop and unified search for specialized databases in the library, provide the service of subject-oriented, accurate and unified search for literature, and offer convenient link to the original texts.

4) Providing subject analysis service for scientific research: Literature count and analysis tools and specialized assessment databases are mainly utilized to perform the statistical analysis from various approaches and complete the analysis report on periodicals collected in SCI, SCIE, EI and ESI in 2013 and 2014, the analysis on the collection of articles published by teachers in SCIE, CPCIS, CSCD and EI, and the analysis report on ESI ranking of subjects. Also, the information sheet of subject periodicals in ESI and highly influential periodicals is prepared and distributed to the teaching and scientific research personnel of subjects, etc. The analysis report on subjects provides very important reference and guidance for universities to decide upon subject cultivation and for teachers and students to publish articles.

5) Providing value added service for scientific research: One-stop service is provided in the application for scientific research programs through offering the notifications and announcements, application guidelines and documents regarding the programs and funds of the subject, the related websites of such programs and funds and the people-oriented inquiry for scientific and technological programs.

6) Integrating scientific research institutes at home and abroad and related dynamic resources: The platform introduces the domestic and overseas academic organizations, teaching and scientific research institutes, domestic and overseas colleges and universities for scientific research, post-doctorate positions of domestic universities, research bases, and releases the events and news regarding scientific research of other institutions; provides analysis of cutting-edge topics, periodicals and influence factors of subject, hot topics and breakthrough focuses of subject, cooperation among institutions of subject, and news makers of subject, etc., so as to help local users discover potential cooperators in scientific research and learn about fellow researchers more conveniently.

7) Integrating teaching service system: For instance, it provides 65 video resources and courseware resources and 20 exquisite course resources, etc.

8) Strengthening real-time interaction between subject librarians and users: For instance, interaction can be achieved via QQ group, telephone call and email, etc.

5 Enlightenments from Construction of Information and Communication Subject Knowledge Platform

In the construction of information and communication subject knowledge platform, knowledge service is realized with some tools for knowledge revealing and knowledge extraction, and preliminary effect has been achieved in subject service. However, the technology of knowledge discovery for scientific research has not been realized for data mining, data processing, index management and

warehouse management, etc. at a deep level. In addition, in order to realize the embedded subject services, the subject service attempt to use LibGuides, but it is an independent platform which has not been embedded into the information knowledge platform and later gradually integrated into a whole. In the future, it is expected to further improve the information subject knowledge platform and eventually establish an subject knowledge platform that is oriented by subject content, relies on scientific research capabilities and integrates scientific research projects and achievements, subject research status and progress, related literature and scientific data, research institutions, and all other scientific research knowledge and factors, so as to promote the construction for other subjects. To sum up, subject knowledge management platform is a dynamically expanding system, which requires the active participation of users, so it is necessary to analyze the needs of users constantly, classify user groups in college, develop different service packages, and adjust services in a constant and dynamic manner, in order to improve subject knowledge service to information support for users eventually.

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Study on the Construction of Intellectual Property Strategy of Universities in China*

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Abstract: Universities are the frontier of intellectual property production in China, which keeps pace with the intellectual property strategy of the country and the strategy of innovation-driven development, in order to construct and implement intellectual property strategy in universities. This article focuses on the construction of intellectual property strategy. With abundant statistics, it systematically analyzes the results and problems of intellectual property undertakings of universities. In virtue of the successful practices of foreign universities, it puts forward suggestions about the strategic construction of intellectual property: raising the public awareness of intellectual property, enhancing related laws and regulations, standardizing the construction of management system and strengthening technological creativity.

Key words: Innovation-driven; Intellectual property; Universities; Strategy

1 Introduction

Intellectual property is a strategy to safeguard national interests and to strengthen comprehensive national power. The major content of intellectual property strategy involves the creation, management, protection and utilization of intellectual property, which is integral to the national strategy of innovation-driven development. University is the major source of knowledge and technology innovation, which plays a critical role in the implementation of national intellectual property strategy. As a result, the development of intellectual property in universities will exert direct influences on the acceleration of accelerating transformation of economic development mode and on the adjustment of economic structure.

2 Analysis of Intellectual Property Status of Universities in China

In recent years, the intellectual property undertakings in universities are increasingly strengthened. However, generally speaking, the intellectual property undertakings are relatively weak, especially in terms of intellectual property awareness, management institutions and system.

2.1 The achievements of intellectual property undertakings

From 1986 to 2013, the total application of patents from universities in China was 536,250, among which 351,034 were invention patents, accounting for 65.5%; 130,582 were practical patents, accounting for 24.4%; and 54,674 were appearance design patents, accounting for 10.2%, as is shown in Figure 1.

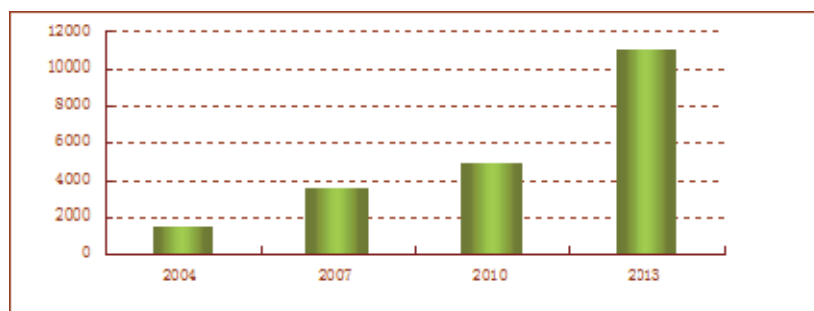


Figure 1 Number of Application for Patents from Universities

Until 2013, the total number of patent authorization of universities reached 274,469, among which 141,843 are invention patents, accounting for 51.7%.^[2] From 2009 to 2013, the average annual growth rate of patent application reached 27.4%, and the average growth of annual authorization reached 41.0%.

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From 2009 to 2013, invention patent accounted for 64% of the total number of patent application of universities, which was much higher than the figures of practical patent and appearance design. Invention patent was the most essential, which attested the remarkable improvement of research and improvement ability of Chinese universities.

2.2 The problems facing intellectual property undertakings

2.2.1 The weak awareness of intellectual property. The students and staff in universities still have a shallow understanding of intellectual property. Among university students, only 20% know how to protect their innovative products. 60% of them have the awareness to protect their products, but don't know the relief for intellectual property infringement. A large number of university researchers pay more attention to publish articles rather than protecting intellectual property. A large number of research products are not protected by intellectual property and thus don't turn to actual productivity.

2.2.2 Unsound management institutions and systems. The management organizations of most Chinese universities are not sound enough, leading to the lack of effective institutional assurance. According to a sample survey, 36.4% universities set up intellectual property offices, or patent department under Scientific Research Office. 45.5% universities clarify Scientific Research Office as an institution for intellectual property management and equip it with staff in charge of patent management. However, 18.1% universities don't have special institution or staff for patent management.^[3] In addition, universities are also in lack of strict confidential system of technological achievement and sound system of laboratory management, intellectual property contract-signing and evaluation and achievement transformation, without the establishment of sound and standard management system.^[4] It also leads to the serious loss of intellectual property of Chinese universities.

2.2.3 The low conversion rate of patents. From 2009 to 2013, the annual sales of patents of universities stood at 1311, 1571, 1745, 2143 and 2357, and the conversion rate was 7.5%, 6.4%, 5.0%, 4.3% and 3.4%. The total sales of patent reached 9127, with an average conversion rate of 5.3%, as is shown in Figure 2. Various factors lead to the low conversion rate of university patents. One of the major reasons is that the initial tests conducted by university laboratory occupy a larger proportion of patent application, which cannot be easily promoted or applied. Many achievements can only be applied in laboratory, which is fairly limited.

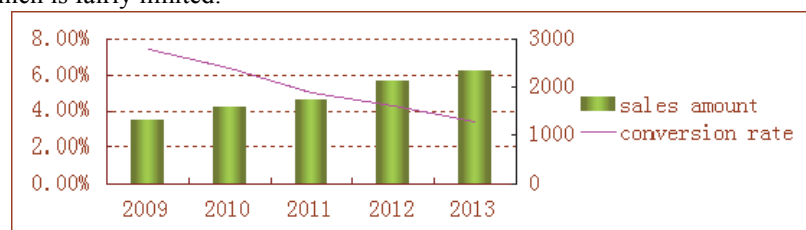


Figure 2 Sales Amount and Conversion Rate of University Patents

2.2.4 Unreasonable talents training and the lack of professionals. The talents of intellectual property are talents with comprehensive and cross-sectional knowledge. However, during the process of intellectual property cultivation in universities, there is no case for reference and imitation. With a lack of social practice consultation, and with only abstract concepts and simple memorization, students are deprived of a deep understanding and flexible application of intellectual property, and the methods of talents training also have flaws.^[5] In addition, the staff in charge of intellectual property management is of scarce number, and fewer persons receive systematic education and training of intellectual property. The professionals are not familiar with intellectual property searching consultation, agency, evaluation, transaction and protection. The lack of intellectual property talents of high quality and specialization results in the low level of overall management.

3 Learning from the Intellectual Property Experience of Universities in Developed Countries

Long before, such developed countries as European countries and Japan started to pay great attention to the setting up and application of intellectual property strategy in universities and made great achievements. Generally speaking, there are some features of the intellectual property strategy of universities in these countries.

3.1 The intellectual property strategy in the US attaches great importance to practical application.

The first is substantial financial support. The American government invests substantial funding to

ensure technological innovation, in order to strengthen the construction of intellectual property ability of universities. Substantial funding provides strong support to the technological innovation of American universities, which remarkably stimulates the initiative of researchers, improves the innovation ability and raises the commercialization rate of scientific achievements. The second is relatively sound law system. The American federal government issued Bayh-Dole Act, which denoted that universities have the property rights of the scientific invention sponsored by government. Universities have the rights to sell their invention patent licensing to American corporations. The profits made by patent licensing are attributed to universities and the inventors of patents have the rights to the earnings, which largely promotes the conversion of research achievements to intellectual property. In addition, by reasonable economic benefits distribution, the initiative of researchers is stimulated. The third is the establishment of special patent management departments. For example, the establishments of AUTM, OTL and NTTC are responsible for the management function of intellectual property, receiving achievement application, patent application and patent approval for researchers.

3.2 The intellectual property strategy in the UK attaches great importance to practical application

Firstly, influenced by Bayh-Dole Act, the UK changes the possession of intellectual property of government-sponsored projects. It clearly denotes that the intellectual property of projects sponsored by higher education funding committee or the national research committee belongs to universities, which is not a public property. With stimulation mechanisms, including financial and non-financial stimulations, two thirds of the universities provide direct financial stimulation to researchers and award the staff with parts of the profits made from intellectual property. Secondly, by reducing funding for universities, it forces universities to cooperate with industries for funding support. It guides the industrialization of technology of universities and applies the test technology to production field, turning it into productivity. Thirdly, the establishments of technology office, cabinet technology committee, technology council are responsible for the coordinating and promoting the cooperation between university and industries to raise achievement conversion. In addition, the media are set up to organize evaluation system, with the major indicators of technology production and conversion rate to evaluate scientific practices.

3.3 The intellectual property strategy in the UK attaches great importance to the combination of “production, study and research”.

As one of the most technologically advanced country in the world, Japan has accumulated a series of effective measures to promote technological innovation and the application of innovative achievements. 1. By raising the rewards to researchers and funding to universities, the initiatives of teachers, students and researchers are simulated. In 2000, 3.12% of GDP was invested to scientific researches, which was higher than the US. 2. By making the most of the demands between different market players, the fluent connection between research, conversion and application (production, study and research) is formed, to maximize the utilization of resources and to increase social profits by promoting innovation and competition. In 1997, the Japanese government took a series of measures, including the adjustment of laws concerning the part-time work of university teachers in corporations, the implementation of encouragement policy and the transformation of government function. The research, industrialization and corporation demands were integrated from the “macro-government” coordinating all the aspects to “micro-government” regulating market operation. The changing conception of government function further stimulated the creativity of university. At the same time, the corporations entered the global competition.

4 Suggestions about the Implementation of Intellectual Property Strategy in Chinese Universities

At present, the Chinese universities have sufficient conditions to learn from the successful experiences of intellectual property undertakings in developed countries, in order to reach a higher level and to make breakthroughs.

4.1 Strengthening the awareness of intellectual property

The first is to raise the awareness of intellectual property. The universities popularize intellectual property knowledge, in order to strengthen the teachers' and students' awareness of the importance and values of intellectual property. This process can be realized by various means. For example, among the special majors of universities, intellectual property is taken as compulsory course. Among other majors, intellectual property is optional course. The lectures about intellectual property are organized to train teachers, and the culture of intellectual property is included in the study of politics in universities. The second is to spread and communicate intellectual property culture. The media on campus, including

radio, newspaper, journals and publication, should regularly broadcast and publish contents related to intellectual property culture, in order to create a general environment for the construction of intellectual property culture and to promote the spread of culture on campus. The third is to strengthen the integration of intellectual property culture and scientific knowledge to promote academic research. Science and culture interact with each other for mutual survival, in order to promote the formation of intellectual property culture.

4.2 Consummating related laws and regulations

At a proper time, the Trademark Act, Patent Law and Copyright Law in China should be revised to integrate the safeguard of rights of intellectual property oblige, the public interests, the maintenance of law stability and the increase of the adaptability of laws. The aims of laws to ensure intellectual property strategy and the demands of current development are fully expressed. Because the two regulation documents of *Management Regulation of Intellectual Property Protection in Universities* and *Suggestions about Further Strengthening the Intellectual Property Undertakings* were carried out at an earlier time, their notions, guiding principles and measures have many unreasonable points, which entail revision as soon as possible.

4.3 Regulating the construction of management system

Based on the existing intellectual property management institution, the management mechanism should be further upgraded to improve the management and service level of intellectual property to standardize and institutionalize intellectual property management. The specific measures include the followings. The first is to upgrade the management system of all intellectual properties, including systems for property rights registration and demarcation, verification of non-work-related achievements, intellectual property evaluation and achievement conversion, intellectual property stimulation and support and promotion-related intellectual property.^[6] The second is to set up sound stimulation mechanism. The country should specify the belonging of intellectual property in universities, allowing the universities to have the full control of research achievements sponsored by governments, encouraging researchers to apply for patent and acquiring propriety intellectual property rights. Gradually, the intellectual property achievements should be increased to become a weight in the indicator of the evaluation system for academic performance, which tends to offer the technological rewards and research funds to outstanding universities. The interest promotion mechanism and safeguard mechanism for technological achievements conversion and application are established, in order to raise the ratio of private rewards among the inventions and technological achievements. The third is to reform the performance evaluation system for teachers. The intellectual property achievements are listed as an important indicator for the professional title appraisal, promotion rewards and performance assessment.

4.4 Increasing the ability of independent technological innovation

The first is to increase the capability of independent innovation. Improving the ability of independent innovation is a major measure to construct innovative universities and to ensure the effective application of intellectual property strategy in universities. Meanwhile, it is also the key to the development strategy of innovation-driven. Independent innovation takes three forms, including the original innovation, integrated innovation and the re-innovation after introduction, digesting and absorbance. The three modes have their own features. The universities can decide which mode to take according to their specific situations. For example, for universities with high research abilities, they can make technological breakthroughs in their advantageous disciplines by adopting independent innovation models. As for ordinary universities, they can focus on integrated innovation and re-innovation after introduction, digesting and absorbance, with the help of original innovation. The second is to pay attention to coordinative innovation strategy. "The 18th Party Congress" put forward the innovation-driven development strategy, and attached great importance to coordinative innovation, which can be realized by strengthening researches in three aspects: intellectual property system promotes the study on the connection between economic and social development; the study on the connection effects of intellectual property public policy and technology policy, industry policy, trade policy and regional policy; the coordinative innovative study on the intellectual property strategy in universities and technological innovation strategy. In order to achieve these goals, universities should break the traditionally closed and isolated innovation model, and integrate corporations, research institutions and government to make innovative coordination and coordinative innovation strategy.

5 Conclusion

Under the background of innovation-driven development and with a consideration of the current status of intellectual property undertakings in Chinese universities, we should be fully aware of the frequency, urgency and burden of the problems. To achieve this, we should further promote the intellectual property strategy in universities in order to make greater achievements and to make contributions to the construction of an innovative country and to the rejuvenation of our Chinese nation.

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Ranganathan's Five Laws and Its Impact to the Technological Innovations of Library and Information Sciences

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Abstract: This paper analytically reviews the five basement laws appear in the field of Library and Information Science (LIS) that, introduced by Dr. S.R. Ranganathan, who was the first class Indian library scientist, and his laws theoretical impacts to the technological enhancements of the field of LIS. Technology transitions from conventional age to electronic age, and individual impacts on element of R's laws for that, were analytically revived throughout the available literature. Finally, concluded that, most of the technological innovations available at the field of LIS have based Ranganathan's five laws, and his five laws are still on live of the library and information science domain.

Key Words: S.R. Ranganathan; Five laws in library science; Technological innovations; LIS

1 Introduction

1.1 Recent developments of LIS as a public domain

In 1900s, the libraries were began to more popular among general public, after liberzed them from royal prerogatives, who ruled world before 1900s and transferred the management of the libraries into the progressive philosophers called librarians^[1].

During this renaissance period, many researches and developments taken place toward information organizing and distributing, formulating standards for librarianship and form a better library management system. These were devilishly effected to the revolutionary development in the field of Library and Information science.

The contemporary period, the American Library Association (ALA) involved to introduce suitable standards and frameworks for libraries. Those also directly impacted to achieve the organization goals of the field. Under the industrial revolution, technology and instruments were invented for enhance the printing and publishing, also were remarkable support to the development of the Library and Information Science field^[2].

In 1960s dada communication via cables (ARPANET after World Wide Web & Internet)^[3] was implemented and it affected to the massive change at the telecommunication industry. Information could be able to send one place to another very fast as packet data, and this technology gradually impacted to the field of LIS to store information and send to another party very quickly on requests.

As the result of above technology driven developments, the libraries were become most essential institutions among the people and societies. They continually used to visit the libraries to full fill their day to day information needs and gradually they become the most valuable communication centers worldwide. According to these enhancements, its shape also tremendously began to change day by day, and their staff also were used to find out the optimum solutions to provide correct information into correct user at the correct time with the aid of modern information and communication technology^[4].

Present era called as "Information era"^[5]. Therefore, information is considered as an important tool in every aspect of human life and very recently it has become the fifth need of human life. Today people are searching information from mobile devices which have connected to the super speed 4G internet. The shape of the libraries also have become an invisible mode (virtual library). Many cloud based information clusters are waiting until users are requested information. Finally information has become a most important need of the human life.

1.1.1 What is Library and Information Sciences?

Library and Information Science is a profession that is full of people passionate about making a positive change in the world & they tend to be wildly happy about what they do. According to one recent survey, over 85% of information professionals questioned said if they had the choice, they had do it again. Librarians bridge the gaps that exist between people, information and technology. In their professional lives, librarians and information professionals work to: design and develop knowledge-organization systems, create reader's advisory resources to encourage young students to develop a lifelong love of reading and learning, help scholars locate archival and other resources crucial to their work, identify sources of assistance in family and personal crises and help doctors more quickly

locate health information in critical situations ^[6]

1.1.2 What is Technological Innovations?

Technological innovations comprise new products and processes and significant technological changes of products and processes ^[7]. There is no doubt that technology has had a lasting impact on libraries. Once thought to be going the way of traditional bookstores, libraries have rebounded and are thriving in a technology fueled world. With the help of innovation, re-imagination and vision, libraries are embracing new technologies while creating dynamic community centers filled with life ^[8].

1.1.3 S.R. Ranganathan & Five Laws of LIS

Dr. Shiyali Ramamrita Ranganathan considered the father of library science in India cover certain facets of library and information science. He was a university librarian and professor of library science at Benares Hindu University (1945–47) and professor of library science at the University of Delhi (1947–55). The last appointment made him director of the first Indian school of librarianship to offer higher degrees. He was president of the Indian Library Association from 1944 to 1953. In 1957 he was elected an honorary member of the International Federation for Information and Documentation (FID) and was made a vice-president for life of the Library Association of Great Britain. As well as he was the author of many LIS text books and founder of Colon Classification system ^[9].

In 1931, he introduced the five laws to LIS, and most of the contemporaries were accepted those laws as the basic fundamentals of the library management system. These laws are as follows:

Books are for use.

Every reader his [or her] book.

Every book its reader.

Save the time of the reader.

The library is a growing organism.

The Five Laws of Library Science are some of the most influential concepts in the field (*see illustrator 1*). Since they were published in 1931, these five laws have remained a centerpiece of professional values of LIS. These basic theories of LIS continue to directly impact the development of this discipline and the service of all libraries.

1.2 Methodology

When consider the past several decades, it can be seen the field of LIS has developed by multiple ways especially through technological innovations. This paper plans to discuss the interrelationships and impacts of Ranganathan five laws with those enhancements. Latest developments of products and services in field of LIS are considered as technological innovations and compared effectiveness and efficiency of those innovations with his basic learning of five laws.

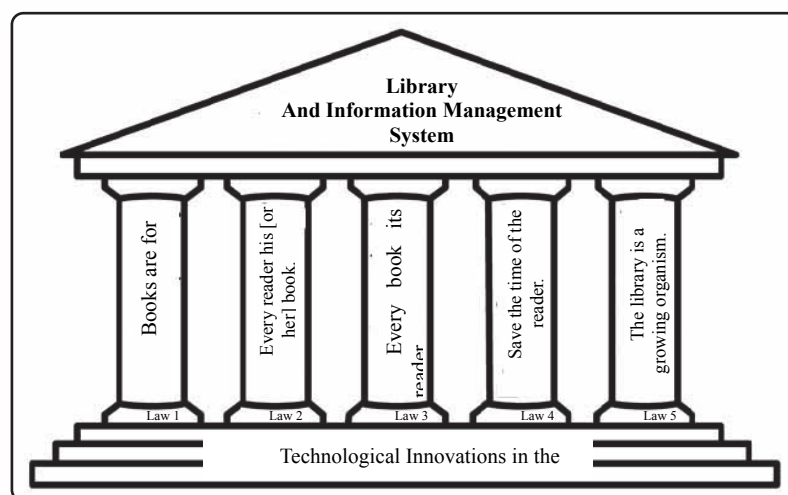


Figure 1 Five Pillars of Modern Library Management System

1.3 Technological innovations in library materials

Modern libraries are increasingly being redefined as places to get unrestricted access to information in many formats and from many sources. They are extending services beyond the physical walls of a building, by providing material accessible by electronic means, and by providing the assistance of librarians in navigating and analyzing very large amounts of information with a variety of digital tools.

Modern e-books has substituted for printed books. Mobile communication and digital technology have made good bridge for users to read e-books via kindle or ipads. People are used e-library to access into the information and their reading environment has totally changed by the modern technology.

At the present information era, the shape of the information materials already has changed and becoming a smallest. Many e-books are existed without any printed equivalent. Commercially produced and sold e-books are usually intended to be read on dedicated e-readers. However, almost any sophisticated electronic device that features a controllable viewing screen, including computers, tablets and smartphones can also be used to read e-books.

E-book reading is increasing in the US; by 2014 28% of adults had read an e-book, compared to 23% in 2013. This is increasing because 50% of Americans by 2014 had a dedicated device, either an e-reader or a tablet, compared to 30% owning such a device by the end of 2013 ^[10].

Ranganathan's first 4 laws discussed about the library materials and their effectiveness to save the users' time. After he raised the importance of open the books for public readers, it was directly impacted to material enhancements of the libraries. Therefore today it has totally changed the environment of the libraries.

With the acceptance of his laws, the general public were invited to use libraries and their information materials more and more affected to enhance the research and developments of its technology. With these enhancements there were many organizational, structural and management changers at the libraries. After the law published, books were very user friendly information sources, and publishers also were started to think about convenient of readers. They used to adopt technology to publishing industry as well. New systems for book loans, circulation rules and technologies, fine system, user recording system and resource verification systems also were reformulated accordingly.

1.4 Technological innovations in library services

The internet has become the most technological innovative factor in LIS. It has already had a major impact to small the library and expand their services. As an added service to the lending books the libraries can be able to start e-mail alert information services, Selective dissemination of information (SDI) services and Current Awareness Services (CAS). With this massive change of the LIS field it has become reverse impact like libraries are becoming smallest and services and storage of information are becoming larger. What Ranganathan says in his fifth law "Libraries are a growing organism" now starts to become a shape up with new technology (*see illustrator 2*).

E-borrowing, e-reading, and online "ask a librarian" research services are another most innovative developments in LIS. Many librarians now can connect with their readers online to solve their information needs. Saving readers' time has become a most important factor of the LIS. This need has pointed out by Rangathan on his fifth law. This law is a recognition that part of the excellence of library service is its ability to meet the needs of the library user efficiently. He paid more attention about users and always directed to the librarians to minimize the users' time from begin of information search to finish his or her information need. The base of this law was adopted by alternative information providers also to complete their organization goals.

Many technological innovators in LIS domain used to base this law before design their product or service. Library classification schemes, indexing & abstracting services and every kind of selective dissemination of Information services are based on saving the users' time. Because saving time is the major satisfaction factor of every kind of customers in product and services.

Librarians' reference skills are most impacted to save the users' time. Library cross-reference services, cataloguing technologies, online public assess catalogues (OPAC) are can be named as technological innovations of LIS which accompany with Ranganathan's forth law.

As the growing organism the libraries facilitate to their users to access information in correct format and in time ^[11]

The R's fifth law of library science "the library is a growing organism" means that a library should be a continually changing institution, never static in its outlook. Books, methods, staff and the physical library should be updated over time. He supposed that libraries should be growing at least its users, materials and staffs.

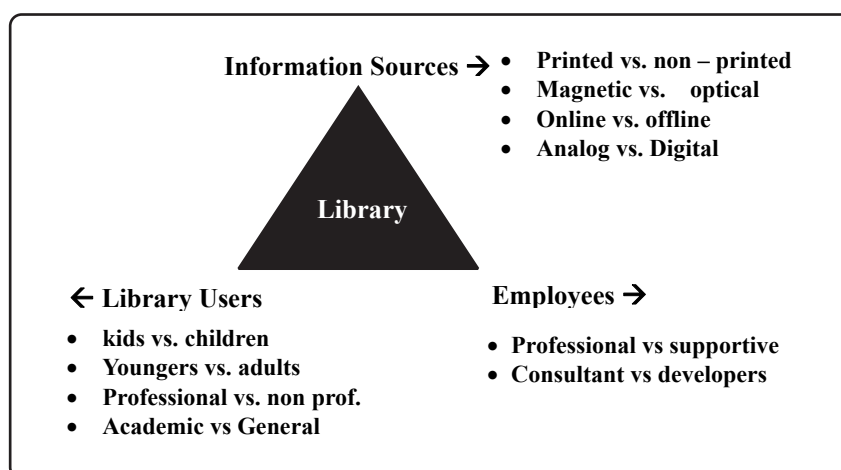


Figure 2 Library is a Growing Organism

2 Conclusion

At this information age, the libraries have been in the most prominent information and communication dissemination centers, collection development centers and latest technology using centers. Libraries acquire and secure ownership of digital content (typically through license), store the content as the local services, and make it accessible to a target community. Libraries attempt, as technological innovators, to ensure fully access to the digital collection through their various kind of information services, and to migrate the content according to latest technology. In the meanwhile, libraries host as a social partners, and growing organism of this global era.

As a result of above approaches, domain of LIS is always renew with the modern developments of technological innovations. E-books, e- journals, web 3.0 technology, social media interaction, online user feedback systems, worldwide catalogue searching facility (world cat), and web based library circulations, cloud library initiatives, library access via iPhones, kindles, QR code, 3M library gates are the main approaches they applied with modern technological innovations in this information era^[12].

Dr. S.R. Ranganathan's five laws of Library Science are still suit for the modern library developments due to their liveliness. Those laws contain whole library management skills and especially as a growing organism, libraries can be able to shape up their basic organization structure according to the users' needs. It is reviled that most of LIS oriented innovations have being started using conceptual framework of R's five laws. Most of the new technology innovations happening on the LIS field based on these five laws foundation.

When consider individual law it is shown interconnection between each law with others. As an organization, they library cannot be avoid any of law as thinking they are unusual. These interconnectivity has manipulated the organization culture according to the current requirement as well as productivity of newer innovations.

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Research on the Problems and Countermeasures of Urban Minimum Living Guarantee System in Current China

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Abstract: Urban poverty in social and economic transition is a special phenomenon; The urban poor is the part of the national poverty population, which has its own characteristics. Solving the urban poor poverty is one of the most important measures for establishing and perfecting the social security system. The paper first related ci-theory concept is defined, and then analyzed the status quo and the urban poor effect. Emphatically analyze the Chinese urban poverty population to social security system present situation, the urban poor social security problems in the system. Then analyze foreign urban poverty population to social security system of experience and enlightenment. Finally establish and perfect our country's urban poverty population to social security system countermeasures. Including perfecting the urban poor social assistance system, speeding up social security legislation steps, establishing social security and the employment problem ease cohesive mechanism.

Key words: Urban poverty; The social security system; Unemployed security; The pace of legislation

1 Introduction

Poverty is a worldwide problem. There are many number of people living in poverty in the vast majority of countries or regions in the world. Because the emergence of the urban poor has been a disharmonious factor for the development of our society, so the government and all sectors of the society have paid great attention to the urban poverty issue. Anti-poverty and the social security system are closely linked together, therefore, the social security system is an important means to fight for poverty. The establishment and perfection of the social security system are related to reform, development and stability in China. The stability of a society cannot do without the healthy development of the social security system; the adjustment of the economic structure also needs the support of the system. Therefore, it is of great significance to research the urban poor social security situation, establish and perfect the social security system.

2 The Formation and Composition of Urban Subsistence Allowances System in China

2.1 The formation of urban subsistence allowances system in China

Since founding new China, the historical vicissitude of the urban poor social security system has mainly experienced four different historical periods: the creation of the urban poor social security system (1949-1956); the development period of the urban poor social security system (1957-1965); the urban poor social security system's construction of stagnation period (1966-1977); the urban poor social security system's recovery and reform period (1978-).

2.1.1 The creation of the urban poor social security system (1949-1956)

Early of the China, the government started to solve the serious social problems. The government had promulgated a series of social politics and regulations to establish the social security system in China during the process of solving these problems of reality. With the efforts of the government, China's social security has taken shape before the Great Cultural Revolution. It had generally formed a social security system which is about social insurance, social relief, social welfare and social special care. There-into, the social security system which faces the city urban poor includes social insurance system and social assistance system, and social assistance system is the lowest level of measure and basic means.

2.1.2 The development period of the urban poor social security system (1957-1965)

Our country has carried on some adjustment to labor insurance system for workers and staff of the state organs and institutions. According to the social development situation, it increased treatment after retired of works and staff who lose labor ability completely because labor causes damage. In March,1957 and March 1958, our country enacted some laws like 《Interim Provisions on workers, employees retirement process》, therefore retirement of workers and the staff has been an independent system arrangement. Also, the condition for retirement was changed. Easing the retirement age---the

male's retirement age reduces from 25 years to 20 years; and the female's retirement age reduces from 20 years to 15 years. Moreover, there are more detailed provisions for retirement treatment. There has formulated corresponding treatment according to seniority. In the aspect of medical insurance system, the Ministry of Health promulgated "the provisions on the scope of the provisions on occupational and patients approach" in 1957, and this stipulation made the 14 kinds of disease including in the scope of the occupational disease, increased the occupational disease's treatment of medical insurance.

2.1.3 The urban poor social security system's construction of stagnation period (1966-1977)

China's social security system's construction had taken a knock during a period of the Great Cultural Revolution happened in 1966. At that time, the social security regulation was repudiated, there was unable to properly conduct social security business, moreover, the whole society was basically in a state of chaos, the construction of the urban poor social security system remained stagnant. Afterward, labor insurance which is a main content of China's social security lost the whole function and evolved into enterprise or unit security system. The social security system could only rely on each unit to organize to maintain and perpetuate.

2.1.4 The urban poor social security system's recovery and reform period (1978-)

Our country social security system of the urban poor had been recovered and rebuilt from 1978 to 1984. The fifth National People's Congress decided to set up the Ministry of Civil Affairs, this move ended a situation that social relief, social welfare and special care and placement system operated without a competent department: the State Council enacted 《Interim Measures on Resettlement of the sick and elderly cadres》、《Interim Measures of workers retire or resign》; at the same time, some areas began pilot reform of the institution of unemployment insurance of staff and workers in state-owned enterprises and pension insurance and disaster relief insurance of the collective enterprise employees. However, according to the whole social security system, the work of this period was mainly in order to solve the problems left over by history and restored the normal retirement system, and it was to save the chaos which was caused by the Great Cultural Revolution.

The social security of urban poverty in our country has carried on reforming and restructuring since 1984. The social security system of China transformed from traditional system to social pooling at that point. There was the social pooling of the types of insurance like retirement, medical treatment and unemployment etc. which promoted gradually from point to surface. At the same time a career of social assistance for the urban poor got great development. However, there are a large number of laid-off workers and workers in enterprises with difficulties while China has done further deepening of social and economic structure adjustment and state-owned enterprise reform. The traditional social relief system did not classify city of new poverty into the scope of the relief. At the same time, because of the rising prices and the low-side relief standard, the original city poverty was hard to maintain the minimum living standard. In this case, to reform the original social security system and establish a social security system to adapt new situation was extremely urgent.

2.2 The composition of urban subsistence allowances system in China

According to 《Urban minimum living security regulations》, the basic framework of urban subsistence allowances system in China includes principles and guidelines, target people, assistance standard, financial source, management and supervision, complete policy. This part will mainly analyze several aspects associated with this study.

2.2.1 Principles and guidelines: the lowest social security system of urban residents follows to a principle which is to ensure the basic life of urban residents. Insisting on a policy that the state guarantees combined with social support and encouraging labor save by themselves.

2.2.2 Target people: if the per capita income of a family is below the local minimum living standard, holding non-agricultural registered permanent residence' city people whose family members that living together have the rights that getting the basic life material help from the local government. The identity and economic condition of target people are different, so their treatments are different. City resident without life source, working ability or legal guardian could get the whole security funds which are based on local minimum living standard. On the other hand, citizen who gets certain income could get differential security funds which are based on local minimum living standard.

2.2.3 Assistance standard: to ensure urban minimum living guarantee standard is based on citizen's basic living necessities like clothing, food, housing costs, water and electricity (gas) costs and expenses of compulsory education of minors.

2.2.4 Financial source: the urban minimum living guarantee funds is included in the budget by the local government. The central government subsidies for the poor provinces are included into the social relief

fund expenditure. There are special management and earmarking a fund for its specified purpose only. The state encourages social organizations and individuals to donate funding for the urban minimum living security. This funding is all included into the local minimum subsistence funds.

2.2.5 Complete policy: the minimum living standard security system is the last line of defense the entire social security system. The pressure of the minimum living standard security system will be increased so that the system is hard to exit and operate if other social security policies are poor implementation and too many loopholes. Therefore, it is important that three guarantee lines (the minimum wage, SOE basic living allowances of laid-off workers and unemployment insurance) are well coordinated. They can apply for city residents of the minimum living allowance basing on a situation that household income per capita is still lower than the local minimum living standard only when the laid-off workers, the unemployed, enterprise retirees and active employees receive the basic living expenses, unemployment insurance, pensions and wages respectively. Meanwhile, the implementation of preferential policies in education, housing, health care, water and electricity etc. is help to reduce a part of the expenses of the poor households. Even so, it is still not enough for the urban poor families rely on cash guarantee, it needs services to compensate for the lack of funds. Community service and other benefits should be given to those poor families first. Moreover, local governments and departments should give the necessary support and care to employment, self-employment and other aspects of urban residents who enjoy the minimum living allowance.

3 The Problem to the Urban Poor Population of Social Security

3.1 Lack of awareness to the urban poor population urban subsistence allowances

Poverty is a process accompanied by Health and Human Development of the social phenomenon. Perceptions of poor groups mixed with many complicated factors. But there has been accustomed to the poor as an alternative society, which is a purely burden on society. Under the guidance of this negative thinking and relief for the poor is seen as alms to the poor, it has become a one-way flow of resources.

Urban subsistence allowances negative view of the existence of the urban poor signs. If a negative view of the poor, and let them idle, it is not only a waste of human resources, and with the further transition economies, further expand the low number of financial burden on the state will further increase. What the poor should be in position of Urban Poverty Strategy? Positive or negative view of the poor, there will be very different results. In this regard, some experts have this appeal, it was believed that the government and the whole society should actively look at urban poor groups, never see them as a burden on society, but still treat them as are valuable human resources; I believe they can, through their own efforts to create their own jobs, to obtain sustainable livelihoods. It is unfortunate that the current government as the main anti-poverty, ignoring the poor play to their capabilities and functions.

3.2 Relief function of the urban subsistence allowances is insufficiency

Urban subsistence allowances failed to properly reflect the voice of urban poor groups, there is a relief dysfunction problem. Such low premiums low, low system itself has a negative orientation, it is difficult to promote poverty alleviation minimum target. Target urban subsistence allowances are basically located in the guarantee basic living. Then because of the "basic" understanding of the lack of operational provisions, in some places it will be "to protect the basic livelihood" as "safeguard eat," even too much emphasis on "minimum guarantees" to determine very low security standards. Minimum target if not starvation, but it is difficult to ensure the necessary nutrients. Let alone meet other needs of life. In fact, the negative impact of poverty alleviation, so the poor have a respite possible angle of view and poverty, guaranteeing the system becomes too negative. Moreover, the minimum living standard security system design is too simple, ignoring the special needs of different types of poor families.

From the cause of poverty, the part because of the loss of or does not have the ability to work, such as the "three non-officers", the disabled, elderly, the sick, etc., part of the temporary loss of the ability to work but not enough jobs or job opportunities, such as laid-off, unemployed or low-income workers; From the family structure, the presence of single-parent families, families school children, the elderly, the disabled and other special family circumstances. The structure of the current minimum living security system over a single, complex situation of poor families simplification, regardless of how the situation is different from relief objects, in accordance with the same standards to implement relief.

Institutional structure could not design a different standard sizes of poor households per capita subsistence minimum, no studies of single-parent families and the special needs of the elderly, children, the disabled, but did not consider how the able-bodied poor implementation of effective incentive, It is to be

treated equally with those who are unable to work, or simply to resist the outside subsistence allowance s. Security System This single structure is not only unable to meet the different needs of the poor living minimum, while also making efficient use of the limited relief funds reduced.

3.3 Urban minimum living security system's development faces bottleneck

Urban minimum living security system's development has emerged bottleneck, which includes: currently, minimum living standard security system does not provide relief after the deadline, according to the current provisions guaranteeing that any able-bodied person must apply for employment first, subsistence allowances is for people who fail in applying for a job twice. According to the survey, unemployment consists of a considerable amount of people who apply for subsistence allowances. The so-called “unemployment” is not without a suitable job, but ideologically prefer not to work, depending on aid. Driven by this idea, they do not value the work recommended, and unwilling to bear the hard work and then with the “faked illness proof” to prove themselves “unable to work”, so they can be get into the government’s scope of protection.

Secondly, the “family property survey” faces obstacles in practice. “Family property survey” is an important part of guaranteeing access mechanism. Determining whether the applicant meets the eligibility criteria. It's first checked by committees of first instance, and then the Office of the streets do the “family property survey”, the result of the approval plays a vital role. According to our current operating mechanism, financial institutions can't reach “investigation” requirement, social security sector's right is limited, coupled with inadequate laws and regulations, resulting in difficult to operate “family property survey” in practice.

Finally, aid averaged makes it unable to meet the “poor households” needs. In general, we tend to rescue the standard averaged, ignoring the differences in size of each family structure, demand, and can't meet the actual needs of “poor households”. It turns out that poor households are generally in the loss of the ability to work while suffering from serious illness, and permanently, leading to ruin. For such families, relying on government-issued monthly assistance payment is certainly inadequate.

3.4 To separate social security and employment from urban subsistence allowances

Excepting reemployment, when Social Security just preserve the negative life that who get the subsistence allowance caused the low social mood easily and keep on immediate interests of narrow mind cautiously. Excepting Social Security, when reemployment policy just participation competition in the market, the poor can lose their job in tomorrow of that days' the unstable labor markets. Not unnaturally, then will do everything to keep the treated for Social Security. Then lots of the “unregistered employment” and “off-payroll income” have arisen. Today, subsistence security system just aims to solve the problem of minimum living of citizen but without any action to helping the poor come true again of obtain employment. On the one hand, the urban poor reflection of the lack of effective self-interest requirements and participation in decision-making channels, on the other hand, many of the poor lack the appropriate skills. Therefore, the poor express their interest in the manner required often non-institutionalized sudden. This approach can easily lead to social instability. In addition, because the poor have not reflect self – interest demands, the lack of appropriate capacity. Therefore, the policy on poverty reduction is actually carried out by the non-poor. This policy lacks the necessary institutional constraints to effectively meet the needs of the poor, we rely on good intentions of policy makers. The fact that such good intentions in many cases are unreliable.

4 The Improvement of Urban Poverty Population Social Security System Strategies

4.1 Accelerate the pace of legislation

Social security objects are dramatically changing, laws and policies are failed to timely adjustment: ownership compositions of companies are diversification. It has been unable to continue to classify enterprises according to ownership in the aspect of social security, and those original policies relating to state-owned enterprises could not to follow. There are more and more people select the informal employment like elasticity of employment and flexible employment etc., at the same time, a lot people keep several labor relations with different corporations, we can not claim them to join the social insurance with the same approach like those formal employment. Therefore, we should accelerate the pace of social security legislation and improve the social security laws.

4.2 Strengthen law enforcement and supervision of social security

Establishing a social security system with Chinese characteristics is major social system engineering. The economic of our country is stable and healthy development, it has laid a solid material foundation to speed up the reform of social security system. Nowadays, should attention pay close to the

development and improvement of the legal system of social security, clear the function and role of social security in urban poverty reduction in the legally and guarantee the survival and development of the urban poor. At the same time, we also need to strengthen law enforcement and supervision and positively make government affairs public. Basis, authority, procedures, results and supervision approach of social security administrative enforcement should be announced to the public. This is help to the public supervise social security administrative enforcement.

4.3 Improving the social security system project for the urban poor

Because of the realities of social security system's function is not perfect, narrow coverage and low security level, so improving the urban social assistance system should include financial assistance, legal aid, humanities aid and education assistance for the urban poor. Generally, after poor families receive financial assistance, it just is to maintain the most basic living conditions, but the demand is still not contented in health, education and social interaction, so improving the social assistance system is imperative. There can be done from the following:

Firstly, providing financial assistance for the urban poor. Social security system is an institutional security system which is set up by legislation. The assistance to the poor is to provide minimum social living. All levels of government, social organizations and communities are responsible to give hand to the poor with many aspects like funds, substance and services in order to guarantee their basic living conditions, alleviate pressure on the survival of the poor, alleviate social contradictions and achieve social stability.

Secondly, providing legal aid for the urban poor. Determine the status and role of social assistance in the social security system from the law. Under the situation of the growing complexity of labor relations, the increasing pressure of labor supply and the poor have no money to court, providing legal aid for the poor and protecting the legitimate rights and interests of the weak. This is an important exemplification of social justice and equity, and it has become an important way to safeguard the rights of the poor.

Thirdly, providing medical assistance to the urban poor. The first step to establish and improve the medical care system is to rely on a reality of uneven regional development, it can not work in a hast. Gradual promotion is on the basis of practice, so forming a nationwide network of medical assistance and establishing an effective legal system of medical assistance.

Fourthly, providing educational assistance to the urban poor. Especially, our country should attach great importance to education of the children of the urban poor households. There are many channels, for example, providing free education of the urban poor on the basis of nowadays compulsory education. Otherwise, to non-compulsory learning period, it could provide several ways like student loans and on-campus jobs etc. to solve their continuing education, those poor children could get a relatively fair education opportunity through a variety of ways, thereby avoiding the problem of poverty inter-generational transfer.

4.4 Establish and improve the urban poor's social insurance system

Further improve the social insurance system for the urban poor including pension insurance, medical insurance, unemployment insurance and industrial injury insurance. These social insurance programs for the urban poor have a fundamental role in safeguarding. Based on the respective functions and features of the urban poor, they are a question of priorities.

4.4.1 Unemployment insurance

Laid-off workers and unemployed workers of towns mostly are belong to the working age population. Therefore, our current top priority is to improve the unemployment insurance system as soon as possible to protect this segment of the population do not fall into the plight of unemployed. Nowadays, China has initially realized the urban minimum living security system merged with the unemployment insurance system, unemployment insurance should move towards to the integration of the object. Breaking the boundaries of identity between enterprises of different ownership workers so that the workers of the individual companies, joint-stock enterprises and township enterprises could enjoy the same social benefits and labor security with the workers in state-owned enterprises and collective enterprises, then achieving the docking of unemployment insurance and employment promotion programs while improving the overall level of unemployment insurance. Unemployment insurance has a concentration of funds and anti-risk capabilities.

Take full advantage of this feature to ensure that our country in different regions, different periods of unemployment insurance balance should be to maximize the level of co-ordination. Enhancing scheduling capability of funds transfer, seriously implement effective forms of municipal co unemployment insurance fund, increasing the proportion of provincial adjustment fund financing, and

enhance the funds ability to adjust the remaining places. There should pay closely attention to the payment problems caused by business closed, fund bankruptcy, transition and lay-offs, persist a system of unemployment insurance situation monthly bulletin and warning reporting and make response options in advance. Immediately allocate funds while a region emerges fund gap to ensure the needs of the fund. Make efforts to improve the overall level of unemployment insurance so that to achieve the fund has sufficient capacity to respond to the situation, and then provide strong support for the effective functioning of the unemployment insurance system.

4.4.2 Medical insurance

There are many urban poor is infirm, but few of them buy the health insurance, therefore, medical costs become a heavy burden to those poor families. Fear of illness and medical treatment is a general psychology of poor people. Minor illnesses do not be take care by the doctors then causing serious illness and eventually caused the collapse of the family, this is one of the reasons causing the poor and a vicious cycle of poverty. First, the rate of basic medical insurance is low. Second, a considerable number of family members can not get timely medical treatment when they are sick. The third is sick in the hospital, expensive medical and heavy burden of medical expenses are troubled the low-income families. Nearly half of the surveying households reflect that the problems of they are often worried and concerned are ill in hospital and medical expense burden.

Therefore, establishing and improving the medical insurance system for urban poor is urgent. Multi-level medical insurance system is the basic experience of developed countries. Our country should establish the same multi-level medical insurance system which is based on health insurance and supplied with commercial health insurance, and the core of this system is basic medical insurance. To the basic medical insurance, the current need is to expand coverage, the urban poor population groups are all included into the system, then the social medical aid system and cooperation system are supplemented, as far as possible to make the system tilting to vulnerable groups so that to meet the medical needs of this part of the group.

4.4.3 Pension insurance

According to United Nations projections, in 2015 the proportion of China will reach 9.6% and in 2050 to reach 23.6%, which means there will have about one in four people are the old at that time. According to the above analysis and taking into account the huge population of our country, this shows that it is necessary and urgent to increase efforts to the relevant aspects and improve pension insurance.

To improve pension system of the urban poor should mainly pay attention to improve the overall level of pension in current. Make clearly the personal accounts and do in prevention to the risk of pension insurance “empty account” running. The higher level of social security co-ordination is the stronger elasticity of social security funds. Nowadays, there should be make a formation of east, center and western regional co-ordination level by the pilot that based on the initial realization of the social insurance at the provincial level, then establishment of a national co-ordination level in proper time. Moreover, to increase the pension fund appropriately, by selling of state assets inventory, the first level of national land and other ways to enrich the national pension fund so that to solve the status of pension accounts “empty account” operation, then to defuse the risk of future payments.

4.4.4 Promoting active employment

Although social security can play a role in poverty mitigation and prevention, but it is also a double-edged sword. The slightest mistake will cause a “poverty trap” to make the poverty issue more complex and intractable, and the role of social security to alleviate poverty prevention is difficult to achieve the desired objectives. The so-called “poverty trap” is that the availability of the personal income-relating subsidies are declined while the income is increased so that resulting in the real income is declined which earned thought personal efforts. This phenomenon makes those poor people who are below the poverty line unable to extricate themselves, it has against the enthusiasm of the poor to work hard to get more revenue. Many scholars researched the minimum living standard security system and found that Chinese low regime had made a long term poverty in low-income groups. The will that increasing income by employment of residents entitled to basic living allowances is not strong, and the mentality is negative. This shows that if the subsistence security system is not properly changed, the people falling into “poverty trap” will be more in China.

It requires a corresponding social security during the period of employment. To the urban poor, the unemployed financial assistance is an irreplaceable mean of relieving worries of workers and enhancing the security expectations. However, if helping the poor is blindly stuck in the “bleeding” level, will only increase the financial burden to the state, and the poverty will not be fundamentally changed. Employment is the real living protection of the poor. There should be completely removing the poverty

of the poor population groups, it can cure this group by “bleeding”, tackling the problem, and to help the poor to improve the ability of relieving poverty. It should carry out strict dynamic management to subsistence allowance system, carrying out the difference rescue in case of investigation and verification. Actively guiding the able-bodied person to support them, and stressing that the unemployment insurance system is converted to employment security mechanism. The original intention of the unemployment insurance system is to promote employment services, gradually shifting the focal point to employment services and job training etc., this also is the proper meaning of its title, and this is help to let a mission which enhance the labor skills and competitiveness of employment to be same important with rescue the unemployed people. This transformation will not only be help to improve the employ ability of workers, but also the overall quality of China’s labor resources will be enhanced which is a not your aspect of improving our country’s international competitiveness.

5 Conclusion

In summary, this article has analyzed the real life situation of the urban poor after receiving aid, then summing up the defects and shortcomings of the current aid system. Focusing on the fundamental goal of relief and standing perspective of the poor so that to make a useful exploration of building a comprehensive and innovative urban poverty relief system basing on learning the relevant experience form foreign country. However, this study is only a preliminary exploration. There are many questions for future research to be further explored. Anti-poverty is a worldwide problem. The anti-poverty problem is carrying out sustained efforts in the world. With our government and the social have the awareness of the importance of these issues of urban poverty and social assistance which is gradually deepened, we have reason to believe that anti-poverty policy will be more robust and perfect in the 21st, moreover, China will get more achievement on the issues of urban poverty and social assistance.

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The Proposed Punitive Damages System of Chinese Patent Infringement and the Comparison with America*

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Abstract: The proposed fourth amendment mainly focuses on some difficult problems that need to be dealt with urgently during the implementation of the existing Patent Law. The main points of the fourth amendment of the Chinese Patent Law include protection of design patent, patent implementation, decision of patent invalidation, administrative enforcement, as well as punitive damages, and this paper will only discuss the punitive damages. By the simple comparative analysis of Chinese and American patent infringement damages system, the research found that the introduction of punitive damages of willful patent infringement is absolutely necessary in China. However, the case study told us that the application of any system should have strict applicable conditions, which include the applicable standard for willful patent infringement and calculation method of willful infringement damages.

Key words: Willful Patent infringement; Punitive damages; American patent infringement damages System; Comparisons

1 Introduction

The fundamental purpose of the patent system is to protect the invention creation and encourage innovation. The substantial increase of patent infringement cases and the status of "high cost of rights protection, low income" greatly reduce the function of the patent system "incentive and innovation". The controversy arises at the historic moment of the introduction of the system of punitive damages in the patent law of our country.

With the number of patent infringement cases increased year by year, the controversy of the patent infringement compensation amount has become more and more, and the academic and practical circles pay more and more attention to this problem. When patent encounters unlawful infringement, scientific and rational determination of the amount of damages has always been a hot spot and difficult problem in patent infringement litigation.

2 Proposed New Provision on Damages for Willful Patent Infringement

Patent infringement damages in Chinese Patent Law adhere to the compensatory principle, which means that the damages caused by the infringement liability shall be limited to the actual occurrence of damage. Paragraph 2 of Article 65 of the existing patent law states "Where it is difficult to determine the losses suffered by the right holder, the profits the infringer has earned and the exploitation fee of that patent under a contractual license, the people's court may award the damages of not less than RMB 10,000 Yuan and not more than RMB 1,000,000 Yuan in light of such factors, as the type of the patent right, the nature and the circumstances of the infringing act." In accordance with the present patent law, "the loss of the right people", "the gains obtained by the infringer", "the patent license fees" and "statutory compensation" are four sequence modes to determine the amount of compensation for patent infringement, however, since it is difficult to obtain evidence for the former three methods, the "statutory compensation" is the most common way for court to determine the amount of compensation in litigation. Applying the compensatory principle for damages in the judicial practice to punish patent infringement behavior and protect the patent right can easily lead to high protection cost and low infringement cost. "Win lawsuit, lose money" is a common phenomenon among patentees in patent infringement cases in China. These problems discouraged patentees to protect their patent rights and weakened the relief system for preventing patent infringement. Whether to improve patent infringement compensation and introduce the punitive damages system has become a tough problem that need to be solved urgently.

Under this circumstance, the new added paragraph of Article 65 stated as "As for the intentional patent infringement, based on the factors, such as the situation, the scale or the damage result of the infringement act, the people's court shall double or triple the amount of the damages determined in

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accordance with the stipulation under the first two paragraphs.”

Combined with Paragraph 2 of revised Article 61, the amount of damages for willful patent infringement will be increased dramatically. The case *Chint Group Corp (Chint) v. Schneider Electric Low-Voltage (Tianjin) Co. (Schneider), Ltd.* is known to public because of its long trail and exorbitant compensation. In September 29, 2009, Wenzhou Intermediate People's Court announced that Schneider and its authorized distributor Star Electric Equipment Co. Ltd. in Zhejiang, were guilty of patent infringement. Under the ruling, Schneider shall cease infringement and make a RMB 330 million compensation to Chint Group. It was the largest compensation ever in a domestic intellectual property dispute. If the case was judged according to the new patent law, compensation of RMB 330 million may become 660 million or 990 million. This amount is enough to explain the impact caused by the amendment of patent infringement compensation principle.

However, high amount of compensation dose not mean that new compensation principle is necessarily good, the adverse consequences it may bring about also need to be considered and prevented. An example can give us a warning. Regulation of punitive damages in "Chinese Consumer Protection Law" is the background of this case. In 1995, Wanghai bought 12 pairs fake SONY earplug from a store in Beijing, and then he requested for double compensation according to Article 49 of Consumer Protection Law. Since then, Wanghai began his career of anti-counterfeiting. To prevent the field of patent from appearing above phenomenon and “patent troll”, the condition on which punitive infringement damages can be applied must be strict.

3 The Comparison of the Infringement Damages Between Chinese and American

While the introduction of punitive patent infringement damages is in a vigorous debate in China, treble damages have been adopted for about 210 years (1793-) already in America. So far the United States is the only country applies punitive damages in the patent law. 35 U.S.C. § 284 stating that the court may increase the damages up to three times the amount found or assessed when a patent is willfully infringed. However, the rising presence of NPEs in American economies let to a strong debate on the patent infringement damages. Some scholars acknowledge that high patent infringement compensation is one of the reasons for the emerging of “patent troll” phenomenon (Markus Reitziga etc. al, 2007).^[1] In recent years, the United States congress has been considering all kinds of legislation suggestions to solve the problem of huge patent infringement damages. However, as a hot topic debated within Congress, the damages in patent infringement matters were not included in the ultimately published America Invents Act. Moreover, the America Invents Act does not contain any language regarding the calculation of damages in patent infringement matters.

3.1 The comparison of method for setting the standard of “willful infringement”

Although there are no specific provisions of constitutive requirements for punitive damages in American Patent Law, it does not mean that all patent infringements can apply for punitive damages. In America, for the conducts not specified in the law, juridical practice gradually taking its shape in accordance with judicial precedents will prevail. Series willful patent infringement cases judged by CAFC have confirmed that punitive damages can only be applied for on the premise of willful infringement (Christopher B. Seaman, 2010).^[2] Therefore, the standard of “willful infringement” almost set by courts with reference to previous judicial precedents in America.

Judicial precedent is not one of the Chinese legal sources. Article 65 of the proposed *Chinese Patent Law* amendments has set forth the consequences of willful patent infringement, which are imposition of punitive damages for this behavior. However, constitutive requirements of willful patent infringement are not defined in Article 65 or other articles. In order to implement Paragraph 3 of Article 65 smoothly, a judicial interpretation by the Supreme People's Court is necessary. Unless otherwise provided by law or relevant judicial interpretation, courts cannot determine the amount of compensation for willful patent infringement cases based on precedents.

3.2 The comparison of the calculation of punitive infringement damages

In America, the patent infringement compensation may take the form of lost profits, a reasonable royalty, or a combination thereof (Shapiro C, 2010).^[3] For many patentees, to prove the loss of profits is not realistic due to limited evidences, so reasonable royalties remain the predominant measure of patent damages awards.

Regarding the abovementioned Chinese patent infringement damages, Article 65 of the existing patent law stipulates that "the loss of the patent holder", "the gains obtained by the infringer", "the patent license fees" and "statutory compensation" serve as the four bases on which patent infringement

damages are calculated. Actually, from Chinese scholar's empirical research we can see that the last one is the common basis to calculate patent infringement damages (He Ningxing and Yuan Xiaodong, 2012).^[4] The scholar collected samples from 42 courts distributed in 23 provinces, autonomous regions and municipalities. All 552 cases are selected with the principle that patentees win the lawsuit. It turns out that 546 of the total 552 cases are applicable to the calculation rules of "statutory compensation".

Using "statutory compensation" as the basis for calculating punitive damages is controversial. Statutory compensation is applied to patent infringement cases of which the damages cannot be calculated clearly (Cao Xinming, 2013).^[5] Accordingly there is a perception that it should not be taken as the basis to calculate punitive damages. The contrary argument is this: Currently 97% of cases are applicable to statutory compensation, and it has been a common method for determining the amount of compensation; if you do not use it as a basis for punitive damages, then the introduction of punitive damages is of no great significance. In the authors' option, calculation of punitive damages for patent infringement can also refer to 2013 revised "*Trademark Law*". The calculation of punitive damages for malicious trademark infringement is based on "the loss of the right holder", "the gains obtained by the infringer" and "the trademark license fees". Meanwhile, the upper limit amount of "statutory compensation" for trademark infringement was increased from half a million to 3 million, but it isn't taken as the basis of punitive damages.

4 Conclusion

The application of any system should have strict applicable conditions, including the objective existence of the tort and the subjective psychological. Therefore, we should pay attention to the following two aspects in the introduction of the patent infringement punitive compensation system.

Firstly, the applicable standard for willful patent infringement needs to be further defined. Punitive damages are a supplement to the compensatory system which can only be applied in willful infringement situation rather than all patent infringement cases. Therefore, the determination of willful infringement is crucially important. The aim of introducing punitive damages is to resolutely resist willful infringement act and encourage patentees to actively protect their own legal rights, but overextended patent rights are not conducive to technologic innovation. The interest between patentees and public must be balanced.

Secondly, even though the willful infringement damages is increased by three times, there is still no obvious difference between punitive damages and compulsory damages for the enterprises based on the average amount of current patent infringement damages. Moreover, the deterrent effect of punitive damages can hardly achieve the desired result. Lessons can be drawn from American calculation method of willful infringement damages and an operable calculation method for Chinese courts and relevant offices should be set up.

At the same time, in order to resolve the conflict in the process of establishing applicable standard of willful infringement, a strict standard and high compensation for willful infringement should be considered.

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The Economic Effects of RMB Exchange Rate on ASEAN Countries

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Abstract: Effects of currency rate are always being a vital issue for any concern economies. Fluctuations rate not only effects the own economics systems and policies but also to others direct and indirect related economies. No wonder it's going to be a burning issue for East Asian countries if there are any changes in Chinese yuan exchange rate. This paper will talks about the possible effects that maybe concern for the respective economies in the Association for South East Asian nations (ASEAN) region.

Key words: RMB exchange rate; ASEAN economy; Trade partner; Offshore currency

1 Introduction

Macroeconomic theory has long established that export and import growth, and thus the trade balance, are determined by changes in price competitiveness, economic growth of trading partners, and income growth in the home country. Exchange rate changes alter both price competitiveness and income growth of countries. Thus, exchange rate changes have a great impact on trade balance along with some other economic indicators for the participating countries. Also there is a huge influence on changes of one currency rate on other related economies. ASEAN is a big trade partners for china and vice-versa. Obviously there is a huge impact on RMB exchange rate changes on ASEAN countries economies.

1.1 Objective and scope of the research:

The main objectives of the research are to resolve:

- How the ASEAN countries can be effected if there is a change of RMB transaction rate
- Social and other Impacts on ASEAN of RMB depreciation and appreciation
- Understanding the regional trade benefits and its pitfalls incase currency rate variation.

1.2 Methodology

In this report we have mostly used the secondary information sources. We have covered the topics related to the title from several books, journal, articles, and publications and so on. Some data we have used here were taken directly from the ASEAN websites. Some data we have used for some calculations. Besides we have personally talked with some close friends who already travelled these countries and region. I tried to explore their comments, experiences, excitements, attitudes and so on. They have already shared with me their personal point of view regarding their travel and tourism.

1.3 Literature review

According to (Akhtar and Spence, 1984) , Exchange rate volatility is a source of concern as currency values partially determine the price paid or received for output/goods and, consequently, this affects the profits and welfare of producers and consumers . so the exchange rate volatility has a good relation with the volume of goods traded internationally by making prices and profits indeterminate.

Some Theories suggests that the exchange rate volatility has its effects on exports negatively or positively (Doyle, 2001 and Baak, 2004), based on the how the agents are playing role in the market . If economic agents are moderately risk averse the impacts of exchange rate volatility to exports will be negative (Cushman, 1983 and Koray and Lastrapes, 1989). This negative impact may come directly through uncertainty and adjustment costs, and indirectly through its effect on allocation of resources and government policies (Cote, 1994).

2 Direct Economic Impact of RMB Exchange Rate on Other Economies

From the above diagram we can see the effects of currency depreciation and on its impacts on economy of the respective country. If in case of ASEAN it happens (any country) against RMB, then the situation can be like this. For an example Malaysian ringgit depreciate, the price competitiveness will be higher. And it will have an effect on bilateral trading as import will less and exports should increase. For this reason the aggregate demand with go up as well as balance of payment. In this situation there will be an internal and external pressure to appreciate the currency. The government of financial leaders would intervene to maintain the peg. If so happens the money supply with increase in a numerous numbers and that will hit again on prices.

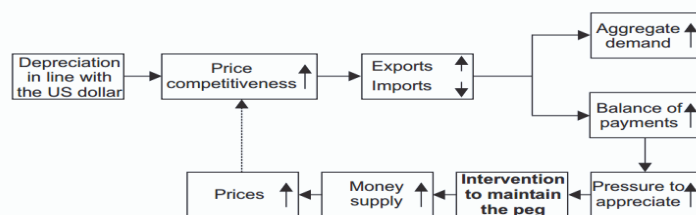


Figure 1 Macroeconomic Impact of Exchange Rate Depreciation under a Pegged Exchange Rate Arrangement

Source: Emma Xiaoqin Fan, Implications of a US Dollar Depreciation for Asian Developing Countries

2.1 Exports volatility

With respect to trade flows in East Asia, time series analysis of exchange rate volatility and trade has produced mixed results. Poon et al. (2005) found a negative relationship between volatility and trade for Singapore, but a positive relationship for Thailand and Indonesia. More recent studies using panel data have found a negative relationship between exchange rate volatility and trade, e.g., Chit et al. (2010) for ASEAN countries and the PRC, and a conditional relationship where volatility is harmful for trade when the financial sector is underdeveloped (Chit and Judge 2011). Thorbecke (2008), using data from the five largest ASEAN economies, the PRC; found a negative relationship between exchange rate volatility and export of electronic components, and Hayaka and Kimura (2009) found similar evidence for machinery goods and parts. Tang (2012) links these results to the strengthening of regional value chains, finding that the link between volatility and trade is strongest within a grouping of the five largest ASEAN economies, the PRC; and stronger for trade in intermediate and equipment goods than for trade in primary products or consumption goods. This argument suggests that the relationship may be time-sensitive, becoming stronger as regional value chains have become more prevalent.

2.2 Investment

Investment Flows. Both ASEAN and China have invested considerable resources overseas. Foreign direct investment (or FDI) made by China in other countries averaged US\$ 2.1 billion per year during 1989-1994; it rose to US\$ 2.2 billion a year over 1995-2000. Outward FDI from the old ASEAN-5 members (except Brunei Darussalam) averaged US\$ 3.7 billion a year during 1989-1994; it reached US\$ 7.0 billion in 2000.

China has been a destination for FDI from some ASEAN member countries -- directly or via the Special Administrative Region of Hong Kong. Likewise, several ASEAN member countries have also been the host to important FDI flows from China, both directly and via third party ventures. For example, China's FDI in ASEAN amounted to about US\$ 114.4 million in 1995 but fell to US\$ 135.8 million in 1999. The flows of such investment in ASEAN have thus been modest, averaging some US\$ 146 million a year during 1995-1999. In relative terms, they accounted for less than 0.5 per cent of the total inward FDI in ASEAN per year, except for 1998-1999 when the percentage averaged 1.3 per cent a year. Wagner School researchers compiled a list of Chinese aid and related investment projects or offers to ASEAN from 2002-2007 and arrived at a combined total value of \$14 billion. They estimated that 43% of that figure went to infrastructure and public works projects, 32% for natural resource extraction or development, 3% to military, humanitarian and technical assistance and the remaining 22% to unspecified activities. Mutual investment has also expanded. From 1991-2000, ASEAN investment in China increased at an annual average rate of 28%. In 1991, ASEAN investment in China was only US\$90 million which increased to US\$26.2 billion by 2001, accounting for 7.7% of China's overseas investments. According to ASEAN statistics, the net FDI inflow from China to ASEAN in 2009, 2010 and 2011 were US\$1.85, US\$2.78 and US\$6.03 billion US dollar respectively. (Sabit, A.H.) The rapid rate of urbanization, which is also accompanied by the rise of middle-class families in China, will also change consumer behavior and lifestyles, stimulating the demand for imports of quality and luxury products and services that will benefit ASEAN countries.

3 Indirect Economic Impact of RMB Exchange Rate on Other Economies

3.1 Foreign debt

The Chinese aid package includes a US\$10 billion investment fund, geared for cooperation in infrastructure construction, energy and natural resources development, and improvements in information and communications. China also announced it would extend a \$15 billion line of credit over the next

three to five years to needy ASEAN countries. Although the terms were not made public, the loans include preferential terms for \$1.7 billion in cooperation projects. Four loan agreements for unspecified projects worth about \$420 million were signed when Cambodian Prime Minister Hun Sen visited China over the weekend, Secretary of State for Finance Aun Porn Moniroth told a briefing late on Monday. Another three loan agreements, worth more than \$80 million, are expected to be signed this year, Aun Porn Moniroth said, adding that Wen had also promised a grant of 150 million yuan (\$24 million) as "a gift" for Cambodia to use on any priority project.

3.2 Foreign remittance

According to China Daily (2013—08) every morning, more than 7,000 Vietnamese walk across the border and start work in a Chinese town. For example Dung, a Vietnamese sea food worker earns at least 200 yuan (about \$33) every day, nearly five times the amount of the average Vietnamese do. "It's been my dream for a long time to speak Chinese well and work in China," she said. The free trade area built by China and the Association of Southeast Asian Nations (ASEAN) provides opportunities for more people to make decent salaries like Dung. The preferential trade policies and zero tariffs for thousands of commodities have resulted in an increasing number of Chinese and ASEAN citizens working across borders.

4 Social and Other Effects of RMB

4.1 RMB denominated foreign aid:

According to the NAY PYI TAW, Nov. 13 (Xinhua) -- China pledged to offer assistance worth 3 billion yuan (about 480 million U.S. dollars) to less developed members of Association of Southeast Asian Nations (ASEAN) next year to help the regional bloc reduce poverty. China will also offer 100 million yuan (16 million dollars) for rural poverty reduction project in East Asia as confirmed by the Chinese Premier Li Keqiang while attending the 9th East Asia Summit. He added China will put forward the East Asia Cooperation Initiative on Poverty Reduction at this year's ASEAN plus Three Summit. An additional \$39.7 million was earmarked for "special aid" to Cambodia, Laos and Myanmar, the 10-member groupings poorest members and closest China allies, to meet "urgent needs". China also announced it would donate \$5 million to the China-ASEAN Cooperation Fund and an additional \$900,000 to the ASEAN plus China, Japan and South Korea cooperation fund. Beijing also donated 300,000 tons of rice to an emergency East

4.2 Travel and tourism

Trade in Services. The two-way flows between ASEAN and China have also been on an increase. Tourism is a good case in point. ASEAN tourists visiting China totaled almost 1.1 million in 1995; the number reached an estimated 1.8 million in 2000. Meanwhile, ASEAN received about 0.8 million tourists from China in 1995. More remarkably, however, the number of Chinese tourists to ASEAN almost tripled to 2.3 million persons in 2000. The potential for two-way tourism is really inviting. At present, ASEAN tourists were less than 8 per cent of the total tourist arrivals (19.8 million) in China during 1999 while Chinese tourists in ASEAN made up just 10 per cent of the 22.6 million persons visiting ASEAN in 2000 (W. Thitapha, 2001)

5 Conclusion

The differences in currency values can affect our ability to buy imports or sell exports, affecting the standard of living. Therefore, the effects of currency crises in other nations are not limited to those nations they can affect other economy and lives in important ways. An appreciation of the exchange rate has economic consequences both in the short and long term. As the economy adjusts to a higher exchange rate, some of the main beneficiaries and losers start to emerge. A high currency appreciation leads to lower import prices - this boosts the real living standards of consumers at least in the short run - for example an increase in the real purchasing power of the residents when traveling overseas. When RMB is weak, it is cheaper for ASEAN countries to import raw materials, components and capital inputs good news for businesses that rely on imported components or who are wishing to increase their investment of new technology from overseas countries. A strong exchange rate for ASEAN also helps to control the inflation - domestic producers face stiff international competition from cheaper imports and will look to cut their costs accordingly. Cheaper prices of imported foodstuffs etc. will also have a negative effect on the rate of consumer price inflation. Cheaper imports lead to rising import penetration and larger trade deficit. But it also has an opposite effects. In case of export, Exporters lose price competitiveness and market share - this damages profits and employment in some sectors - notably

manufacturing industry. If exports fall, this has a negative impact on economic growth. Some regions are affected more than others. Many business organizations have identified the strength of the exchange rate as a major economic problem over recent times. Economists working for the ITEM club argued in the summer of 2001 that the pound should be lower by at least 10% in order to prevent manufacturing industry falling into an economic slump. So this also might be tonic for the ASEAN countries in term of trading with china.

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The Role of Social Interaction and Leadership Support in Knowledge Sharing for Enhancing Innovation Capability of Micro-Businesses.

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Abstract: The study aims to examine how social interaction, incentives and leadership support affect knowledge sharing and how knowledge sharing affects innovation capability in knowledge intensive micro-businesses. For this purpose data from 30 knowledge intensive micro-business organizations were collected through a self administered questionnaire. Cronbach's alpha, correlation and regression analysis were used to examine validity of the scale, association among the variables and testing of the hypotheses respectively. The study implies that social interaction and leadership support are important factors for enhancing knowledge sharing in micro-businesses which positively affects innovation capability of knowledge intensive micro-businesses. The relationship of incentives with knowledge sharing is found insignificant. The study is limited to test the relationship at workers' level therefore management and owners were not included in the respondents.

Key words: Social interaction; Knowledge sharing; Innovation capability; Micro-businesses

1 Introduction

Knowledge is becoming a key factor in the success of contemporary organizations and is rather a source of competitive edge for enterprises^[1] Organizations nowadays are hiring more of brains than hands^[2] thus focusing on the need of knowledge for successful business operations. Similarly, businesses that can successfully capture and deploy knowledge in their systems and processes will have an advantage over others^{[3][4][5]}. However, for successful management of knowledge in organizations, human behavior has been cited as the key^[6]

Researchers and practitioners have been increasingly advocating knowledge sharing as essential process of the knowledge economy and it would ultimately lead to knowledge accumulation, knowledge dissemination and knowledge acquisition^[7] Knowledge sharing is the process of sharing expertise, lessons learned and skills among the employees of an organization^[8] It is considered fundamental by researchers for generation of new ideas, development of business opportunities and learning process of knowledge workers.^[9]

Sparrow states that knowledge management issues and processes may be different for small and medium enterprises than as they work for large organizations^[10]. Micro-businesses are the smallest of the businesses but are of crucial importance to an economy. In the United States 95.8% of businesses are micro-business enterprises with one or two owners and upto 10 employees^[11]. European commission defines micro-business as a business with less than 10 or fewer employees and an annual turnover of 2 million Euros^[12]. Small and medium enterprises are major contributors of any economy. However, in developing countries the importance of small enterprises is even more because it's the main source of employment^{[13][14]}. In Pakistan, the contribution of small and medium enterprises to GDP is 40% and employees 90% of the non-agricultural labor force^{[15][16]}. Small and medium enterprises are also regarded as important innovators of an economy^[17]. Being good knowledge generators because of their capacity to innovate, SMEs still lack the capacity to exploit knowledge^[18]. Hence, there is a need to understand how knowledge is managed in the SMEs.

Several studies have been conducted on the relationship between knowledge management, leadership support and innovative capabilities in medium and large organizations having advance IT infrastructure^{[18][19][20][21][22]}. However, the relationship of innovation capabilities and knowledge management in micro-business enterprises with little or no IT infrastructure remains under researched. Therefore there is a need to focus on this important part of the business that form the bulk of business organizations in the economies. This research covers this research gap and the results can guide micro-business owners in enhancing innovation capacity of their business.

2 Literature Review

2.1 Knowledge sharing

Knowledge sharing is the process of sharing expertise, lessons learned and skills among the

employees of an organization. Knowledge is shared at individual as well as organizational level^[8] Individual employees share knowledge by talking to colleagues to help them accomplish their task better, and more efficiently. At organizational level, knowledge sharing is capturing, organizing, reusing and transferring tacit and explicit knowledge and making it available to other firms^[23]^[24] Knowledge sharing among employees, results in knowledge creation which is crucial for sustaining the competitiveness and innovation capability^[25]. Researchers have identified several factors that influence knowledge sharing like open culture, leadership support, intrinsic and extrinsic motivational factors, IT, and social interaction etc^[23]^[26]^[27]^[28]^[29]^[30].

Most of the research in KM and KS field is focused on the large size organizations and there is a need to study the influences of knowledge sharing in small and medium sized businesses^[31].

2.2 Social interaction and knowledge sharing

Knowledge sharing is encouraged by social interaction, as employees who are sociable are more active in knowledge sharing. Lack of trust is a major knowledge sharing barrier which is minimum among friends. Therefore there are more chances of knowledge sharing between friends^[32]. Knowledge sharing can occur at the time of communication, formal and informal interaction. Even the employees having a cup of coffee at a coffee shop or talking about their work; some knowledge is shared and exchanged among them^[27]. Lin and Lee, concluded that social-oriented organizations and open communication promote knowledge sharing^[33]. This behavior applies micro-businesses as well because there are more chances on interaction between the employees because of the small size and closeness in relationships. More importantly, tacit knowledge is shared mostly in informal rather than in bureaucratic environment. Informal face to face social interaction is the most effective technique used by SMEs for enhancing knowledge sharing^[26] Therefore employees should interact more in order to share knowledge. Lin, found that only technological factors are insufficient in creating a knowledge sharing culture, in the absence of social relationships and social interaction^[23]. Communication and social interaction reduce barriers to knowledge sharing, which may increase knowledge sharing^[27]. Therefore, many organizations encourage their employees to interact more by providing rest rooms or provide food or drinks for them^[34].

2.3 Incentives and knowledge sharing

Reward is one of the factors which encourage people to share knowledge with others. Knowledge is shared among employees because monetary rewards are expected and when the reward system is taken back, employees may share less knowledge with each other^[29]. Rewards or bonuses are termed as extrinsic motivations^[28]. Apart from monetary value employees generally perceive as being remunerated; and they feel that they are achieving their intrinsic or extrinsic well-being^[30]. One way of helping to convince employees of their value to the organization is to offer enticements in a form that are linked to the well-being of the organization, like stock options etc.^[35] Rewards definitely encourage employees to share their knowledge while they are busy with their own work^[36]. Organizations have to reward the employees who are willing to share their knowledge with others. Hariharan and Cellular emphasize that the management should announce reward and recognition schemes to measure and reward knowledge sharing behavior^[37].

2.4 The role of leadership in knowledge sharing

Leadership is one of the most important factors in implementing and sustaining knowledge sharing activities. Owner's support for knowledge sharing among employees is important for creating a knowledge sharing culture^[33]. Managers and owners can enhance their organizational competencies and skills by establishing a knowledge sharing environment^[38]. Similarly supervisors can facilitate the process of knowledge sharing which can result in capturing and building tacit knowledge^[39]. The role of leaders starts at the time of hiring motivated employees who are willing to share and utilize their knowledge. After hiring, leaders and owners should create an environment that support knowledge sharing by using their authority, personal relationship and charisma^[40]. Relative advantage, relative complexity and compatibility of knowledge sharing process are results of the intensions of decision makers in an organization^[33].

2.5 Knowledge sharing and enterprise innovation capabilities

The ability of a small and medium enterprise to innovate and improve its products continuously has been proved to be related to its employee's skills and knowledge^[6]. The same process is assumed in micro-business as well. Therefore identifying and capitalizing on tacit knowledge and sharing it in an organization may lead SME's (including micro-business enterprises) for a better performance, specifically in producing new products and services^[7]. Similarly, Lin found that knowledge sharing in an organization lead to the implementation of new ideas, processes, products and/or services^[8]. Jantunen

[41] implied that there may be a relation between knowledge sharing and firm’s innovative capabilities and suggested further research. Sa’enz et al [42] in a comparative study proved that knowledge sharing is a key factor in improving and enhancing innovative capabilities in both hi-tech and low-tech business firms.

Various studies have verified these relationships in relatively large business firms. [7] [42] [23]. However, less work is done on knowledge sharing in micro-businesses especially in developing countries.

This study aims at testing the model shown in figure 1, which shows relationships at the level of micro-businesses. The model suggests that knowledge sharing can act as a moderating variable between social interaction, incentives and leadership support to enhance innovation capability of the enterprise.

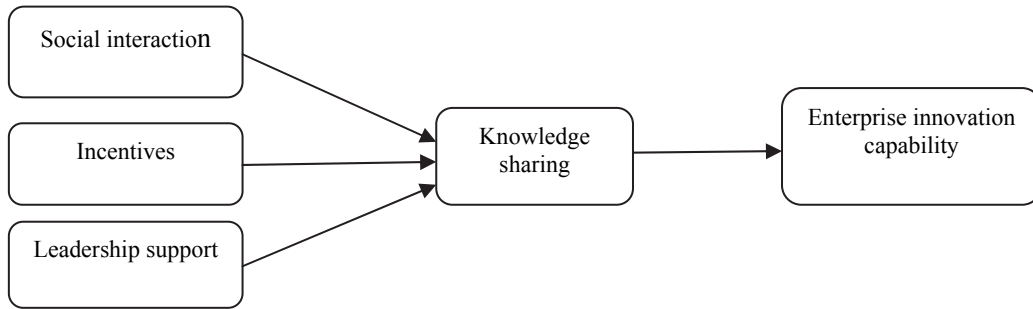


Figure 1 Model

H1: Social interaction has a positive significant influence on knowledge sharing.

H2: Incentives have a significant positive relationship with knowledge sharing.

H3: Leadership support has a significant positive influence on knowledge sharing.

H4: Knowledge sharing has a significant positive relationship with enterprise innovation capabilities.

3 Methodology

The research is based on hypothetico-deductive quantitative methodology. Multi-variate regression analysis is used to test the hypotheses mentioned above. Data have been gathered through a self-administered interview questionnaire from 100 employees of different age groups working in 30 knowledge intensive micro-business enterprises having up to 10 employees. The scope of the study is limited to two cities of Pakistan i.e. Rawalpindi and Islamabad which are typical of the country.

The five point Likert scales for knowledge sharing, incentives and leadership support have been adopted. Scale for social interaction has been developed by the authors and approved from two university professors. Scale for knowledge sharing was adopted from Spreitzer [43] and Van den Hoof [44][45]. Leadership support from Tan and Zhao [20]. Incentives from Hargadon, [33] and Innovation capability from Calantone and Zhao [19]. Adopted scales are already tested by Lin [23]

4 Results and Discussion

The reliability of each variable is given as follows in table-1. Reliability of each adopted scale is compared with the reliability results of [23]

Table 1 Reliability of Measure

Variable	No. of Items	Cronbach’s Alpha	(Lin, 2007)
Ksharing	5	.79	.79
Interact	5	.64	-
Incentive	4	.71	.75
Innovcap	5	.84	.77
Leadsupp	4	.76	.72
Overall reliability	24	.86	-

Descriptive statistics show that the means of knowledge sharing, social interaction and innovation

capability are closer to each other. The values are closer to the maximum value which shows that most of the responses for these variables are positive and moving in the same direction. The results are shown in the following table.

Table 2 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
ksharing	100	11.00	25.00	21.5200	3.21449	10.333
Interact	100	12.00	25.00	20.3600	3.40089	11.566
incentiv	100	5.00	20.00	16.2900	3.34028	11.157
innovcap	100	8.00	30.00	23.6100	4.27087	18.240
leadsupp	100	5.00	20.00	17.0600	2.64315	6.986
Valid N	100					

Bivariate correlational analysis was used to initially test the degree of association between the variables. Table 3 presents the coefficients of correlation for the given variables.

Table 3 Correlations

		ksharing	interact	incentiv	innovcap	leadsupp
ksharing	Pearson Correlation	1	.507(**)	.064	.499(**)	.354(**)
	Sig. (2-tailed)		.000	.528	.000	.000
	N	100	100	100	100	100
interact	Pearson Correlation	.507(**)	1	.057	.579(**)	.482(**)
	Sig. (2-tailed)	.000		.571	.000	.000
	N	100	100	100	100	100
incentiv	Pearson Correlation	.064	.057	1	.194	.222(*)
	Sig. (2-tailed)	.528	.571		.053	.026
	N	100	100	100	100	100
innovcap	Pearson Correlation	.499(**)	.579(**)	.194	1	.596(**)
	Sig. (2-tailed)	.000	.000	.053		.000
	N	100	100	100	100	100
leadsupp	Pearson Correlation	.354(**)	.482(**)	.222(*)	.596(**)	1
	Sig. (2-tailed)	.000	.000	.026	.000	
	N	100	100	100	100	100

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Coefficient of correlation for social interaction and knowledge sharing is 0.506 which is significant at $p=0.01$ level of significance. Similarly the coefficients of correlation for innovation capability and leadership support are 0.499 and 0.354 respectively which are significant at $p=0.01$ level of significance. Correlation is insignificant for incentives with a coefficient of 0.064. However, correlation has been found among independent variables as well as shown in the above table.

Keeping in view the correlation in the independent variables, step by step regression analysis was conducted. In the first step regression was carried out for social interaction as independent and knowledge sharing as dependent variable as shown in table 4. The results returned a higher Beta value of 0.507, t- value of 5.81 and adjusted R square value of 0.25 which signifies the first hypothesis.

Table 4 Model Summary: Step One of Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	11.77	1.67		6.928	.000
s.interaction	.479	.08	.507	5.81	.000

Adjusted $R^2 = 0.25$

In the second step of regression analysis incentive was taken as independent variable and knowledge sharing as independent variable. The relationship is insignificant with a Beta value of 0.06, $t=0.634$, $p=0.528$ and adjusted R Square value of -0.006 . Thus H2 is not substantiated.

Table 5 Model Summary: Step Two of Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	20.51	1.61		12.72	.000
incentive	.06	.097	.06	.634	.528

Adjusted R square= -0.006

In the third step of regression analysis leadership support is taken as independent variable and knowledge sharing as independent variable. Beta value is improved to 0.354, $t=3.749$, $p=.000$ and adjusted R square of 0.24 which signifies H3.

Table 6 Model Summary: Step Three of Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	14.17	1.98		3.692	.000
Leadsupp	.431	.115	.354	3.749	.000

The fourth step regression analysis was conducted for innovation capability as dependent variable and knowledge sharing as explanatory variable. The model shows adjusted R square value of 0.241 which indicate that 24% of the variation in innovation capability is explained by knowledge sharing.

Table 7 Model Summary: Step Four of Regression Analysis

Model	R	R square	Adjusted R square	Std. error of the estimate	R Square change
1	.499(a)	.249	.241	3.71985	.249

a Predictors: (Constant), ksharing

Further the β value is 0.499 with a t value of 5.701 which is significant at $p=0.000$ level of significance as shown in table 8.

Table 8 Model Summary: Step Five of Regression Analysis

Model	Unstandardized Coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	beta		
1 (Constant)	9.341	2.530		3.692	.000
ksharing	.663	.116	.499	5.701	.000

Dependent Variable: innovcap

Discussion: First the results of Cronbach's alpha shows that the overall reliability of the scale is good. These results are consistent with the results of Lin [23]. Reliability of the developed scale for social interaction showed an increase with increasing number of questions. The regression analysis for social interaction, incentives and leadership support as independent variables and knowledge sharing dependent variable shows that the model is significant. But β and t values for individual variables indicate that social interaction is the only variable that is significantly influencing knowledge sharing. However a step by step regression of the three independent variables and knowledge sharing substantiate H3 i.e. leadership support is positively influencing knowledge sharing. Apart from signifying the relationship of leadership support and knowledge sharing, step wise regression improved the β and t values for social interaction (β value improved from 0.438 to 0.507, t value increased from 4.401 to 5.81). This may be due to multicollinearity among the variables because the independent variables are correlated with each other as shown in Table-1. Connlley and Kelloway [27] found similar results for the relationship of social interaction and knowledge sharing, with a slightly higher correlation coefficient of 0.61 compared to 0.507 found in this study. This maybe because of the cultural reasons as the workers regard sharing knowledge as a duty and not something that they should be paid for. The fourth step of regression analysis signifies hypothesis that knowledge sharing is positively influencing innovation capability. Lin [23] found similar results at the level of large organizations.

5 Conclusion

The study tested relationship between knowledge sharing and innovation capability of knowledge intensive micro-business organizations. Correlation and regression analysis were used for data analysis to verify the four hypotheses. Results of the study show that social interaction and leadership support are important factors for knowledge sharing in knowledge intensive micro-business enterprises. Similarly knowledge sharing is important in enhancing the innovation capability. However incentives are not found to be associated with knowledge sharing.

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Study on Performance Evaluation of Knowledge Management in Products Innovation

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Abstract: With the arrival of knowledge economy era, knowledge is regarded as one of the most important resources, and knowledge management greatly influence the effectiveness of enterprise's innovation capacity. In order to elevate the ability of innovation, elites of enterprises are becoming increasingly relied on knowledge management. Knowledge management is one of the most vital section deciding whether the products profitable. In this article, documents about knowledge management process will be summarized at first. Then the application of knowledge management in product innovation will be discussed. Lastly the performance evaluation system in product innovation process will be built, meanwhile empirical analyze will be conducted.

Key words: Knowledge management; Products innovation; Fuzzy comprehensive evaluation

1 Introduction

Innovation is the key point which enterprises are pursuing for. Product innovation means a lot to market expansion and market share elevation. Nowadays, a lot of industries in China are staying in the beginning stage. Faced with the challenge of economy globalization, market globalization and technology competition, product innovation has become the lifeblood of the enterprises. Especially in high-tech industries, innovation matters to the vitality of the enterprise in big colossal. In knowledge economy era, innovation relies more on information collection, reorganization, transforming and so on. Therefore, how much a enterprise can manage the knowledge decides knowledge absorbing ability, technology transforming ability and product innovation ability. In order to escalate product innovation ability, enterprises become more and more tend to conduct knowledge management.

Knowledge management refers that through external knowledge obtaining and sharing process, create and apply new knowledge. In other words, it's knowledge oriented enterprise management. Knowledge management during product innovation process enriches the enterprise management. Within identical innovation project and distinctive product innovation projects, knowledge management emphasize the sharing of internal knowledge in the project and the cooperate between projects. Thus the evaluation system of the knowledge management in product innovation is of great vitality.

2 The application of the Knowledge Management in Product Innovation

In an organization, knowledge stores not only in the workers' brain, but also rooted in the documents, daily routines, programs, drills and principles in the organization. The knowledge in the organization can be classified into 2 categories: recessive knowledge and dominate knowledge. See in Table 1.

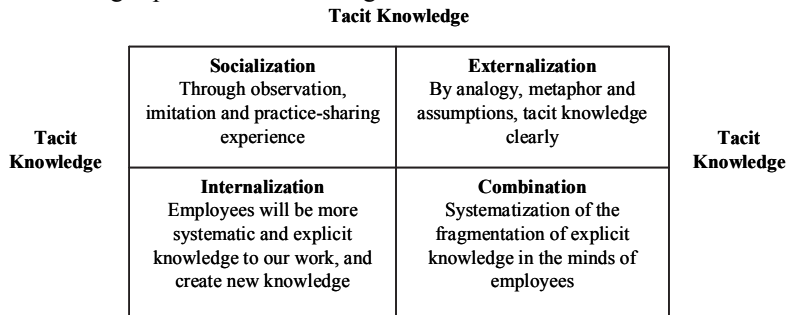
Table 1 Classification of Knowledge Types

Types	Contents	Features
Tacit knowledge	Is very difficult to express clearly and implied in the process of knowledge and action	It has the features of the highly personal and hard to communicate, it is not easy to achieve sharing of personal
Explicit knowledge	It is the knowledge that you can clearly express in language, such as text, numbers, graphics, etc	It is easy to express, encoding features, making it easy to communicate and share

There is a transformation relation between recessive knowledge and dominate knowledge. Since the dominate knowledge can be communicated and shared easily, technologies can be learned by other competitors. Thereby, to a organization, it's obvious that dominate knowledge don't actually form consistent advantage. The core ability of a organization is based on recessive knowledge. Thus the core intension is to excavate the recessive knowledge within the employers' brain.

As a special practical activity, the main content of product innovation is streaming and the transformation of knowledge and the knowledge itself. Product innovation is a consistent changing process of the invention, the development, the transformation and the application of the knowledge. The invention of the knowledge is the process of inventing and discovering new knowledge. The

transformation, transferring and invention is a dynamic and advancing process. It can be divided into 4 stages: socialization, externalization, combination and internalization. When the recessive knowledge among individuals finally completed a spiral movement, in other words have become new recessive knowledge, new knowledge spiral movements begin.



Tacit Knowledge
Figure 1 The Knowledge Spiral

Enterprise knowledge management have permeated, and is reflected, into every sections in production innovation. According to the reflection of the knowledge management in product innovation, it can be divided into 4 stages:

(1)Product conceiving

Specifically, is the original concept of knowledge, experience based for deep processing, the burst produced in the process of product design, and before this process. In fact, there have been the knowledge internalization of "participation", knowledge sharing and exchange has begun operation, and through exchanges between groups discuss the formation of the basic idea of product innovation.

(2)Innovation realization

New and innovative ideas formed to outside of expression, so that the organization departments of the enterprise staff clarify which contains the core idea, must to the tacit knowledge constantly outside for specific concepts, through the description of the text, the specific test operation and so on. In the final analysis these are dependent on the implementation of knowledge management through the knowledge management

(3)Marketization

The potential value of new products is the most direct embodiment of the process of the market, in the realization of the commodity market, it must be involved in the integration of knowledge management. On the one hand to enterprise's existing knowledge and strategic partners of knowledge integration and fusion to market values; on the other hand, and strengthen the knowledge exchange with suppliers, distributors, advertising agencies, customers, and so on, so the production to create economic value can be accepted and recognized, said the only way to realize the commodities market.

(4)Knowledge sharing

The realization of commodity market, must be on the market in the process of success and failure experiences were summarized, formed the enterprise on the product development philosophy unique knowledge system. At the same time, using inside and outside the enterprise staff knowledge sharing, forming a virtuous cycle, so that it can be for the next product innovation and lay a good foundation.

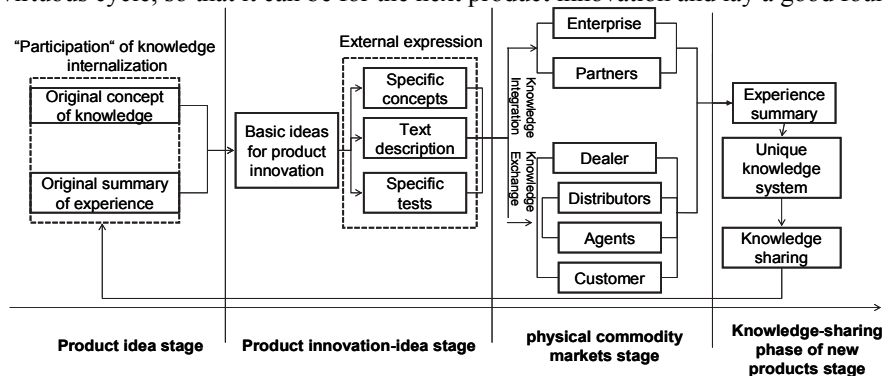


Figure 2 Knowledge Management Applications in Various Stages of Product

3 Evaluation System Building

3.1 Principles

Knowledge management in product innovation performance evaluation is a dynamic and complex process. First of all, the product innovation process is dynamic, it is an ongoing and continuous improvement process, knowledge reuse, transformation of innovation; secondly, product innovation process is a comprehensive application of all kinds of resources, knowledge, and is affected by various factors, including market demand, competition environment. In addition, the evaluation is based on the model of quantitative analysis, so in the selection of evaluation indicators, to combine quantitative and qualitative factors in two aspects. Therefore, when constructing the evaluation system must pay attention to the index system of the science principle, system principle, principle, static and dynamic combination principle, quantitative and qualitative unifies the principle, the principle of operation.

3.2 Selection of performance evaluation index of knowledge management in product innovation

According to the principle of performance evaluation, based on the research results of management performance evaluation, the paper sorted out the performance evaluation index system. In this paper, the evaluation system is mainly divided into five parts. Also, referred to a series of references, the evaluation index is subdivided.

Table 2 Evaluation Index System of Industrial Cluster Collaborative Innovation Capability

Target layer (X)	Criterion layer (Y)	Index layer (Z)
Knowledge Management Performance Evaluation System in product innovation	Knowledge Innovation Ability(Y1)	Utilization of knowledge (Z11)
		Inventory increase rate of knowledge (Z12)
		Number of cooperation projects with research institutions of growth (Z13)
		Cooperation project success rate (Z14)
		Improve the degree of R & D staff's ability to take advantage of knowledge (Z15)
	Technical Capabilities(Y2)	The proportion of product innovation of R & D investment accounted for total R & D expenditure (Z21)
		The improvement degree of Speed and number of R & D (Z22)
		R & D success rate (Z23)
		Growth rate of number of patent applications (Z24)
	Market Performance(Y3)	Market share (Z31)
		Sales growth (Z32)
		Customer loyalty (Z33)
	Economic efficiency (Y4)	Sales profit growth rate (Z41)
		ROI of Innovative products (Z42)
		Innovative product revenue share of total revenue (Z43)
	Competitive position (Y5)	Improvement of enterprises' reputation (Z51)
		Improvement of corporate image (Z52)
		Future sustainable competitiveness (Z53)

(1) Knowledge innovation ability

In product innovation, it is necessary to make use of the existing knowledge and produce new knowledge on the basis of the original knowledge. Therefore, it should include the utilization rate of inventory knowledge and the increase rate of inventory knowledge. In addition, it should be in cooperation with external research institutions, make use of the existing stock of knowledge, and develop a new ability to meet the market demand of the products through the innovative use of existing knowledge. So it should cooperate with research institutions, to increase cooperating chance, to increase project success rate, and to increase researchers' ability.

(2) Technical ability

In a large extent, knowledge is one of the expression forms of technical, and knowledge and technical are closed related. In the enterprise organization, knowledge of these technologies is attached to the technical research and development, and also internal of organization, including R & D quantity

and speed improve degree, research and development success rate, number of patents increase rate.

(3) Market performance

Customer's personalized demand is more and more high, and product innovation has become an important strategic choice for enterprises in the fierce market competition to obtain long-term development. Knowledge exchanges with suppliers, distributors, advertising agencies, customers and so on must be strengthened, and the economic value of the production of the products can be accepted and recognized. The second level index should include three aspects: market share, sales growth rate, customer loyalty.

(4) Enterprise economic benefit

The ultimate goal of knowledge management in product innovation process is to realize the growth of enterprise's economic benefit, and the evaluation of economic indicators is essential. To evaluate knowledge management performance of product innovation, it should include Profit growth rate, the rate of return on the investment, and the total revenue of the innovation products.

(5) Enterprise competitive position

Different enterprise performance from different enterprise competition characteristics, through product innovation, its performance will have an impact on the competitive position of enterprises, ultimately reflected on the good impression of customers and the enhancing of corporate visibility.

4 Empirical Research on Performance Evaluation of Knowledge Management in Product Innovation

In this paper, Knowledge Management Performance Evaluation Index System is based on qualitative index. Usually, Fuzzy Comprehensive Evaluation use quantitative methods to deal with uncertain information and increase the authenticity and accuracy of the judgment by turning qualitative decision into quantitative decision. So Fuzzy Comprehensive Evaluation is one of the best choices. In Fuzzy Comprehensive Evaluation, the determination of evaluation factors is a key factor to affect result. To determine weighting, Analytic Hierarchy Process (AHP) was adopted.

(1) Comparison matrixes and conformance testing

In this paper, an enterprise which design and product electric products and managing and producing at a high level is treated as a research sample. Enterprise manager and researcher built a team to conduct comprehensive importance evaluation, using 1~5 Scaling Method and combing personal experiences and understanding with method. Based on these, comparison matrixes was set up and conformance testing was executive.

Table 3 Evaluation System and Analysis of Total Index

Evaluation parameters	Y1	Y2	Y3	Y4	Y5	W
Y1	1	1/2	1/3	1/4	1/2	0.0815
Y2	2	1	1/2	1/2	1	0.1539
Y3	3	2	1	1	3	0.3151
Y4	4	2	1	1	2	0.3077
Y5	2	1	1/3	1	1	0.1419
Consistency index						

In the same way, we can calculate the weight and the consistency index of the index layer.

(2) Evaluation set

In this case, the evaluation set uses five gradient standards, and set up the following evaluation set. {Excellent, Good, Average, Less, Lest}

Experts Evaluation Method is adopted: invite 10 experts to the evaluation of each index score, calculate each average number, and get the final score. The final score is the corresponding membership degree.

(3) Evaluation membership matrix

Determine the degree standard, and get the membership vector of the factor layer Z for the evaluation set E.

(4) Fuzzy comprehensive evaluation

According to the evaluation of the W and the evaluation of the R, the fuzzy comprehensive

evaluation of fuzzy comprehensive evaluation set , and the corresponding conclusions are obtained.

Table 4 Index layer Weight and Consistency Index

Criterion layer	Y1	Y2	Y3	Y4	Y5	Consistency index
Index layer	0.0815	0.1539	0.3151	0.3077	0.1419	
Z11	0.3445					0
Z12	0.1979					
Z13	0.1589					
Z14	0.0891					
Z15	0.2096					
Z21		0.4668				0
Z22		0.2776				
Z23		0.0953				
Z24		0.1603				
Z31			0.1283			0
Z32			0.5954			
Z33			0.2764			
Z41				0.4434		0
Z42				0.1692		
Z43				0.3874		
Z51					0.6250	0
Z52					0.1365	
Z53					0.2385	

After calculation, S is the Y's membership vector, that is, the total evaluation results.

(5)Result evaluation

According to the formula

The calculated as shown in formula (4.2):

Through the evaluation of the enterprise, it can be seen that the knowledge management performance of the enterprise is between the Average and Good, and this result is in line with the actual situation of the enterprise.

5 Conclusion

Product innovation has a decisive role in the survival and development of enterprises. Through the evaluation of knowledge management on product innovation performance, we can provide a basis for formulating scientific and reasonable strategy of knowledge management and improve the enterprise products innovation ability and level of innovation. Also improving management innovation and producing innovation uncertainty reduction has important significance and accumulate experience for the next stage of product innovation activities. In this paper, the application of knowledge management in product innovation and performance evaluation system is designed to provide reference for the relevant research, and provide a theoretical reference for the enterprise to improve product innovation capability.

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Enlightenment of University Undergraduates' Development Survey on Chinese Education Management

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Abstract: The investment of current Chinese government in higher education is increasing year by year. This paper mainly explores the relationship between undergraduate talent development and education system among universities in China with the empirical study. It is proved that there exists the problem on the orientation of undergraduate talent development in colleges and universities. As a result, the assumed curve and related enlightenment from the survey is proposed for education administration to guide undergraduates to select correct development orientation and become creative talents to the most extent.

Key words: University undergraduates; Development survey; Education management; Enlightenment

1 Introduction

At present, most universities in China have set up optional courses about career development, yet students just take them as a kind of interest. With about 7.5 million undergraduates each year in China, career plan and employment becomes a big issue. There are some researches on university undergraduates' career plan at home and abroad, covering different perspectives of management role in undergraduates' development, such as the economic value of education^[1], the predicative model of strategic development of a university^[2], the improvement of entrepreneurship education management^[3], the system construction of undergraduates' career plan^[4]. With the survey conducted, this paper will display the related enlightenment.

2 Research Question

The research probes into the development of nearly 500 university undergraduates randomly from freshmen to seniors among the key universities, participating in work, competitions, IELTS, TOEFL, postgraduate program, business establishment. More than 100 university undergraduates have been traced and recorded. Through the extensive investigation, on the basis of data analysis with several models, some conclusions will be drawn for the present development situation of university students and some suggestions will be given for the future education management. This study discusses the relationship between undergraduate talent development and education system among colleges and universities in China by interview, questionnaire and empirical record, etc.

3 Result Analysis

With the record on 100 students, it can be found that the rate of Chinese university undergraduates concerned about the employment information in their daily life exceeds 80%, i.e. they pay much attention to the future employment development, no matter they will directly hunt a job or not when they graduate. From the overall distribution, current university students can be divided into six typical groups: further study in postgraduate program, further study abroad, direct employment, clear targeted companies, business establishment and desire inaction group, among which students who plan further study in postgraduate program and direct employment are the main body, taking up more than seventy-five percent of interviewees, while the other groups account for a relatively small number of people. The interviews show that the proportion of postgraduates concerning about the information of entrepreneur establishment has reached to 47%, higher than that involving in the real entrepreneur establishment. The tracked interview indicates that more than 60 percent of postgraduates would choose to start a business in the future, however, they have no idea of business establishment on campus. From the investigation, it is surprised to find that undergraduates' concern for the IELTS and TOEFL is 8%. Besides, the rate of their concern for the relevant lectures is quite low, almost the same with the questionnaire results. The return visit shows that IELTS and TOEFL have their own fixed participants. From the employment information, the representatives in some fields think that university is mostly a kind of life experience, which will have an influence on their future orientation of development, but the

influence is not decisive. The degree of the influence has great difference among different fields, such as those of employment and going abroad, which has high requirements for the effectiveness of campus development.

4 Related Enlightenment

According to the above survey result, the development branch of university undergraduates can be illustrated by different kinds of models as the following, which would be the enlightenment to practical education.

4.1 The branches of campus development orientation and Philips assumption curve

Campus development has various directions. It is assumed that there really exist a large number of road choices on campuses. However, due to the limited time and energy, undergraduates have to choose only one or at most two or three points and also will focus on one point, which requires them to make their own choices. They have to choose their own suitable way to set down the direction of their future development^[5]. Through the survey, six development paths are obtained with different shares in Figure One.

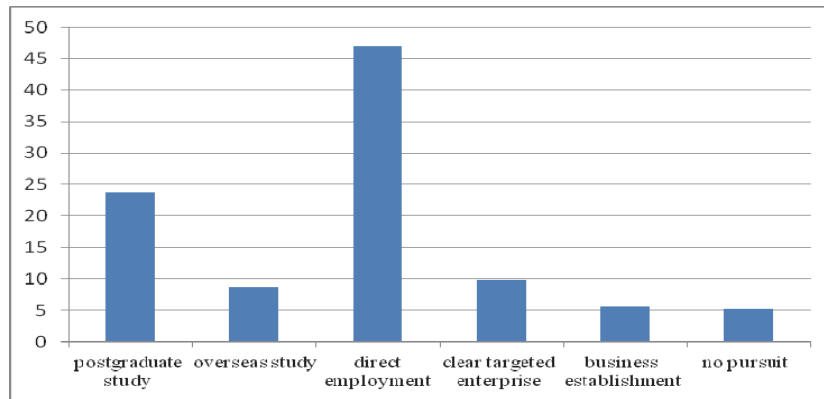


Figure 1 Percentage of Students in Different Development Orientation

It fully demonstrates the diversification of the existence of branch roads on campuses. Hence, a standardized university production assumption can be presented: given that the orientation of university talent development is convergent and each person develops in a fixed pattern, then the final yield would be much higher, but with few innovative components; however, if in different development paths, the rate of success among university graduates would decline, but the innovative achievements would be much higher. The relationship between the two can be represented by an assumed curve in education management, as is shown in Figure Two.

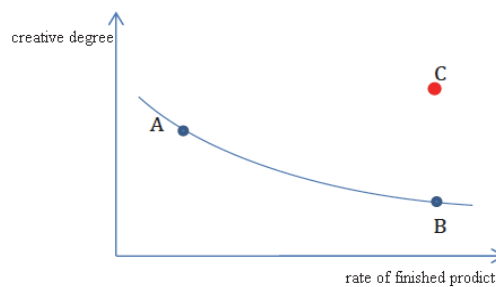


Figure 2 The Assumed Curve in Education Management

This curve has nothing to do with good or bad for the creative degree of the talents and the talents cultivated like finished products, but just related to the demand of the talents in different period. For example, in high school, fundamental knowledge is emphasized, so mode B is applied, i.e. cultivating talents like finished products. Whereas in colleges and universities, mode A is thought to be necessary in order to cultivate innovative talents. When the popularization of university education appears on the agenda of the state and the government, university students around point B become the majority. To cultivate talents as the finished products does not only mean to study, but to obey the rules of university development road to plan several choices for the students, so that they could have their own

development orientation as soon as they enter the universities. In this way, although we have the fixed mode, there would be still a lot of explosive innovations, i.e. point C as the ideal point can be achieved, forming the double high capacity mode, or the most beneficial point of balance. It is compulsory to solve the communication problems among universities or students and then to help the freshmen have their own choices and life once they enter the university. The above is the campus road branch with the assumed curve.

4.2 The target and layer of campus development mode

According to the preliminary investigations, from the beginning, there exists a tendency of choice convergence in different groups, which is not just a coincidence. More likely it is a common choice under the same goal; that is under the rational situation, the choices of most people sharing the same goal are strikingly consistent in campus road development. Each campus development road should have its correspondent target audience, and that audience is the group having a correspondent goal^[6]. For example, students who want to go abroad should correspond to IELTS and TOEFL training roads, instead of focusing on students' affair. Therefore, the target and layer of campus development mode can be sorted out based on the statistical analyses and summaries of the research data to present the rules of campus development mode. The specific form is shown in Figure Three.

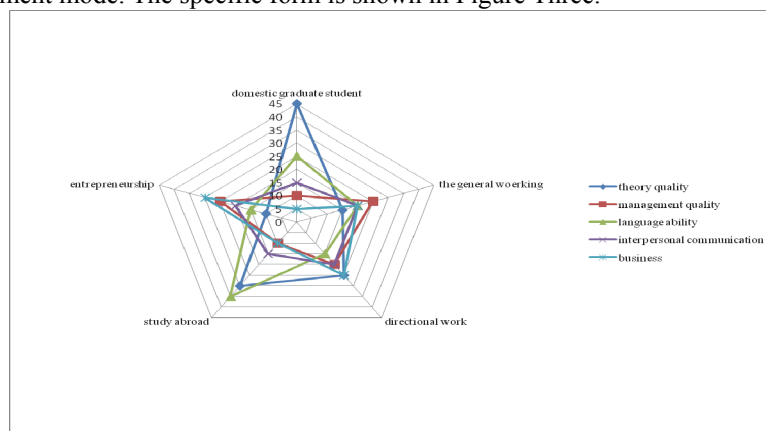


Figure 3 Students' Ability in Different Development Orientation

4.3 The effective campus development model

In the research process, in order to illustrate the choices of campus roads, a choice figure is designed to reflect the choices of undergraduates in Figure Four.

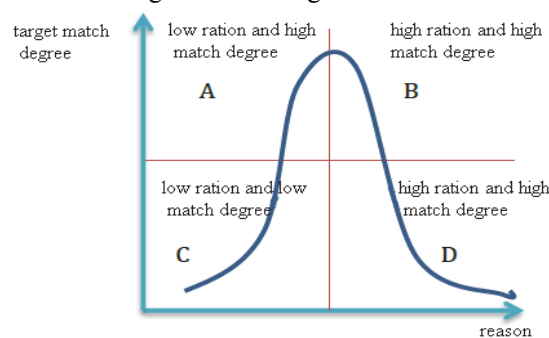


Figure 4 Model of the Selection Of Campus Orientation

The best way is to select region B, however in reality region A and C occupy a relatively large proportion, that's to say, at present there are more irrational choices of campus development which will then lead to the risk of matching between the development of campus and their own development goals. Once the students have a wrong choice, a lot of time and effort will be spent with low efficiency as well as the lost of other opportunities. Therefore, in order to lower the opportunity cost, campus development model should be proposed to postgraduates as soon as possible, so that students can make a rational thinking. And it's really essential for students to make their own choices of development road^[7].

To illustrate the effectiveness of the campus, the validity of the campus development model is established, as shown in Figure 5.

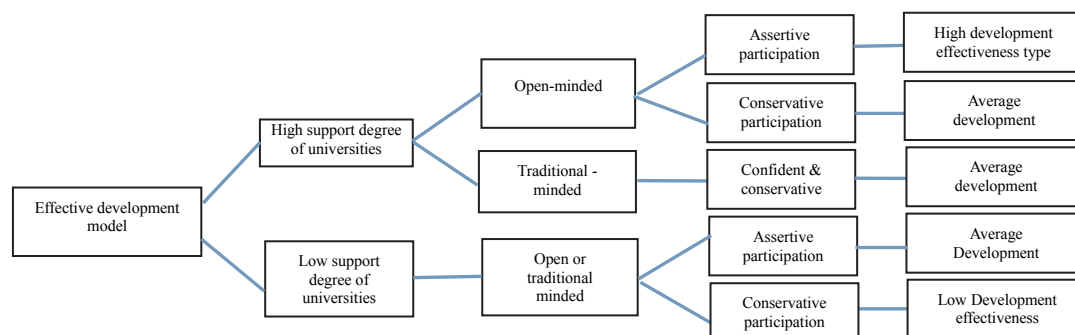


Figure 5 Effective Campus Development Model

5 Conclusion

From the above analysis, it is concluded that the effective campus development model illustrates the three determinate factors for the development of university students. Through the investigation into the orientation selection of the university students, the present state and the best state for the development selection are proposed, which can guide the plan and development of the future university students. On the one hand, the school authorities should take the responsibility for cultivating new campus development orientations and bear the obligation to remind university students of their development orientations. On the other hand, the university students, as a new and young generation, must have the courage to be pioneering and creative and learn to discard the confinement of the traditional thoughts and to pursue something new with rational attitudes and clear objectives^[8].

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Consideration about Precedence Diagram for Start-to-Finish Relationship*

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Abstract: Precedence diagram method includes four types of dependencies, which are “Finish-to-start”, “Finish-to-finish”, “Start-to-start” and “Start-to-finish” as logical relationship. In PMBOK, the predecessor (successor) activity is defined as an activity to come before (after) a dependent activity in a schedule. Based on this definition, four types of dependencies in PMBOK are explained definitely logically. However, logical relationship and time relationship do not accord in Start to finish relation. Therefore, in this paper, author replaces logical relationship of activities with time relationship and priority of activities and then considers a description of four types of dependencies in the precedence diagram method.

Key words: PMBOK; Project time management; Sequence activity; Precedence diagram; Start-to-Finish Relationship

1 Introduction

As for the method to visualize the schedule of the project, many researches were conducted for a long time. An arrow diagram method (ADM), Precedence, a diagram method (PDM), and a bar chart (Gantt chart) are well known as a notation method adopted by many projects today^[1-4]. In 1961, J. W. Fondahl (1924-2008) published the critical path method (CPM) based on the schedule diagram of the activity on node (AON) method that replaced the role of the arrow with a node of ADM as a new method for conventional ADM^[5-7].

In ADM, the task is expressed with an arrow. Therefore it is able to write order of tasks relations easily, but on the other hand ADM cannot plot the time required of the task as a graph element. Therefore it is necessary to introduce a dummy arrow to often adjust a phase at the time between a node and nodes. CPM solved a problem of the time consistency that ADM had^[5].

However, only the “Finish-to-Start” relation was defined as the sequence activities in AON by J. W. Fondahl. Early AON was insufficient to describe the scheduling of the project. Therefore improvement is added to AON and develops into PDM which can describe four kinds of activities relations^[6].

These days, PDM ceases to be distinguished from AON in particular, and it is said that John W. Fondahl is a prophet of PDM^[8]. It is written down in the obituary of Stanford University as follows;^[9]

“He developed the precedence diagramming method for project planning and scheduling, which used flow charts that represented activities as the nodes of a graph, to replace the activity -on-arrow methods previously developed by DuPont and the U.S. Navy Special Project Office.”

PDM showed a superior feature other than four kinds of relations. In the scheduling of the project, overlap between tasks (Lead) and a delay between tasks (Lag) are often necessary. In PDM, it is able to implement these Lead and Lag as a graphic element of the schedule network. Using this feature of the PDM, the research on scheduling of the project developed as study on the optimization of the cost and schedule of projects^[10-13]. Furthermore, the study on optimization of the scheduling for the project that human and cost resources were limited was carried out^[14]. In these studies, the dependence of activities targeted for the analysis is three types as “Finish-to-Start”, “Start-to-Start” and “End-to-End”. Though many studies on scheduling and activity relations are carried out with development of PDM, there has been no report about “Start-to-Finish” relations.

Many project managers replace “Start-to-Finish” with “Finish-to-Start” relationship artificially and they know that they can substitute it experientially. And many project managers think that it is not necessary to set “Start-to-Finish” relationship daringly almost in many cases, because scheduling of projects is possible even if they do not set “Start-to-Finish” relationship. However, such a way of thinking may be based on big misunderstanding about “Start-to-Finish” relationship. “Finish-to-Start” and “Start-to-Finish” relationships show exactly different behavior about the propagation of the delay of the task. Therefore, it is desirable to use these two activity relationships appropriately.

By the way, it can be pointed out another problem here. In any text book of the Time management,

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it is relatively easy for anyone to understand a definition of the “Finish-to-Start” relationship. On the other hand, it is very difficult and hard to understand a definition of “Start-to-Finish” relationship. The definition that it is easy to understand by an easy description is desired earnestly to solve the problems about the misunderstanding of “Start-to-Finish” relationship.

In this article, authors pay attentions to activity sequence based on the time and priority of the activity, and consider a new description method of four type of the activity relationship. This paper is composed of the following contents.

- Section 2 Verification of Precedence Diagram for "Finish-to-Start" Relationship
- Section 3 Verification of Precedence Diagram for "Start-to-Finish" Relationship
- Section 4 Priority of the activity
- Section 5 Conclusion

In Section 2, verification of precedence diagram for “Finish-to-Start” relationship is clarified by using graph theory. Section 3, verification of precedence diagram for “Start-to-Finish” relationship is discussed. Authors will show unconformity of the precedence diagram for SF. In Section 4, we propose an idea to explain the all of sequence activities relationship with introducing “priority of the activity” as a new concept.

2 Verification of Precedence Diagram for “Finish-to-Start” Relationship

2.1 Inspection by the graph theory

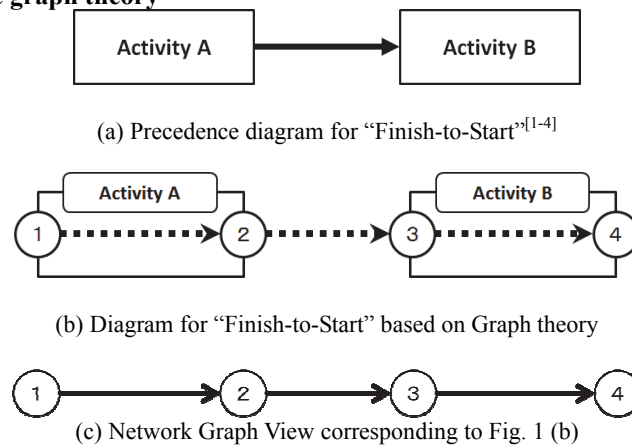


Figure 1 Schematic Diagram for “Finish-to-Start” Relationship

Based on graph theory, it is able to describe “Finish-to-Start” relationship by Precedence diagram mathematically. The arrow (solid line) in Precedence diagram is replaced by a graph (arrow, dotted line). Furthermore, the node in Precedence diagram (displayed by a rectangle in figure 1) is also replaced by a graph (arrow, dotted line). And, the initial point and the endpoint of these graphs rearrange as graph nodes. Then the precedence diagram for “Finish-to-Start” relationship (figure 1 (a)) can be rearranged as a graph view shown in figure 1 (b). Then we can describe the network graph by using nodes and arrows corresponding to figure 1 (b) as figure 1 (c). Table 1 show a matrix based on the sequences of figure 1(c).

Table 1 Direct Relation Between Subordinate and Superior Nodes

		Superior Element			
		①	②	③	④
Subordinate Element	①		1		
	②			1	
	③				1
	④				

Expression (1) shows the adjacency matrix corresponding to the Table 2(a).

$$\begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{pmatrix} \tag{1}$$

The adjacency matrix shown in expression (1) is marked by A , and the unit matrix is marked by I . An operational matrix $A+I$ corresponding to “Finish-to-Start” relationships is described as expression (2) [15]. Then, a reachable matrix M is obtained by a Boolean product operation shown in expression (3).

$$\begin{pmatrix} 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{pmatrix} \tag{2}$$

$$(A + I)^{k-1} \neq (A + I)^k = (A + I)^{k+1} = M \tag{3}$$

The reachable matrix M for the adjacent matrix A in (1) is given with expression (4). In other words, it is found that the flow described with the reachable matrix M in (4) begins in the node 1 and returns to the node 4. This is an extremely natural result.

$$\begin{pmatrix} 1 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{pmatrix} \tag{4}$$

2.2 Definition in PMBOK

According to a guide book of PMBOK fifth edition, it is defined as follows; [1]

A logical relationship in which a successor activity cannot start until predecessor activity has finished. Example: The awards ceremony (successor) cannot start until the race (predecessor) has finished.

3 Verification of Precedence Diagram for “Start-to-Finish” Relationship

3.1 Inspection by the graph theory

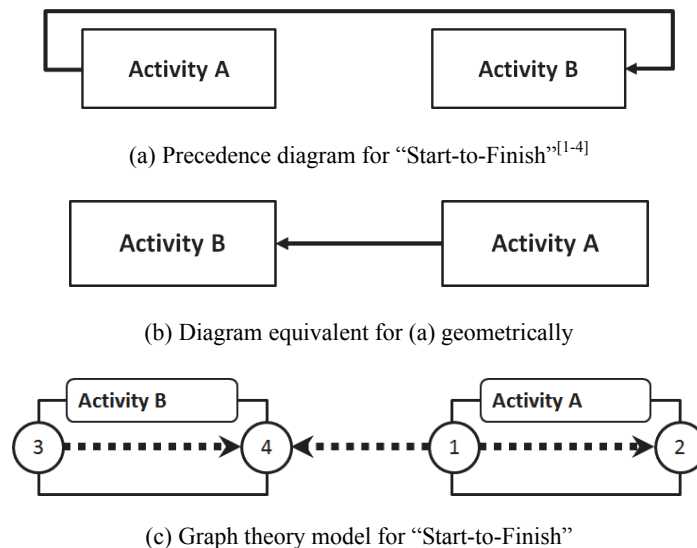


Figure 2 Schematic Diagrams for “Start-to-Finish” Relationship

The precedence diagram of “Start-to-Finish” relationship [1] shown in figure 2 (a) is equivalent geometrically with figure 2 (b). Based on a rule same as section 2, the graph theory model for figure 2 (b) is given as figure 2 (c). As for the adjacent matrix corresponding to figure 2 (c), it is given as

expression (5).

$$\begin{pmatrix} 1 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{pmatrix} \tag{5}$$

The saturated operation for the adjacent matrix (3) becomes equal to matrix (3) own. This means that there is not a reachability matrix for expression (3). This results suggests that the precedence diagram expressing "Start-to-Finish" relationship is unnatural for the graph theory. The prospective flow begins in node 3 intuitively and returns to node 2 via node 4 and 1 as shown in Fig 2(c). The reachability matrix indicating such a flow should be shown with an expression (6).

$$\begin{pmatrix} 1 & 1 & 0 & 1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{pmatrix} \tag{6}$$

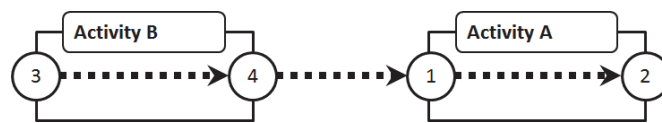


Figure 3 Graph Theory Model for "Start-to-Finish" Corresponding to Expression (4)

It is found, however, the relationship including self-contradiction, because Mathematical network relationships in figure 3 are the same as in figure 1. Therefore, to illustrate without including inconsistencies the relationship between FS and SF, it is necessary to introduce a new concept. In the next section, we introduce a priority as a new concept, to try a new description.

3.2 Definition in PMBOK

According to a guide book of PMBOK fifth edition, it is defined as follows; [1]

A logical relationship in which a successor activity cannot finish until a predecessor activity has started. Example: The first security guard shift (successor) cannot finish until the second security guard shift (predecessor) starts.

"The precedent activity" in this definition is an activity leading logically and points to "activity A" in figure 2 (a). One premise is necessary to understand this definition. In other words, in this definition, "the logical order relations" do not necessarily accord with "time order relations". In our logical thought, "the time order relations" usually accord with "logical order relations" implicitly. In other words, activity B should be placed earlier than activity A in terms of time. The precedent activity should be activity B in our mind. This result causes self-contradiction.

4 Priority of the Activity

When we discuss the dependence of two activities, considerable relations exist in conjunction with time order relations one more. An activity includes importance (priority). We can replace "the logical order relations" as in PMBOK with two indexes of "time order relations" and "the priority". Then the limitation condition in the finish (or the start) point of the activity could be defined as the condition depending on the priority of the activity. Then we can lead the dependence between two activities from a limitation condition set by priority. Therefore, about relationship of four kind of dependence, the results by arrangement with the propagation of a limitation condition depending on priority and the delay are shown in Table 2 - Table 5.

Table 2 Limitation Condition Depending on Priority of "Finish-to-Start"

"Finish-to-Start"	Activity A	Activity B
Time order	Precedence	Subsequent
Priority	1st	2nd
Schematic diagram		
Description	Activity B cannot start until Activity A is finished.	
Propagation of the delay	The end delay of Activity A propagates as a start delay of Activity B.	

In the case of “Finish-to-Start” relationship, priority accords with time order and it match intuitive understanding of us. In the case of “Start-to-Finish” relationship, the time order and priority shall reverse. In other words, we can describe the end condition of the precedent activity by setting a condition to be higher in the priority of the following activity than a precedent activity without raising self-contradiction.

Table 3 Limitation Condition Depending on Priority of “Start-to-Finish”

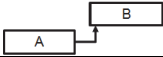
“Start-to-Finish”	Activity A	Activity B
Time order	Precedence	Subsequent
Priority	2nd	1st
Schematic diagram		
Description	Activity A cannot be finished until Activity B starts.	
Propagation of the delay	The start delay of Activity B propagates as an finish delay of Activity A.	

Table 4 Limitation Condition Depending on Priority of “Start-to-Start”

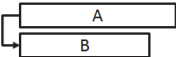
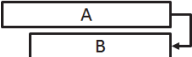
“Start-to-Start”	Activity A	Activity B
Time order	Simultaneous start	Simultaneous start
Priority	1st	2nd
Schematic diagram		
Description	Activity B cannot start until Activity A starts.	
Propagation of the delay	The start delay of Activity A propagates as a start delay of Activity B	

Table 5 Limitation Condition Depending on Priority of “Finish-to-Finish”

“End-to-End”	Activity A	Activity B
Time order	Simultaneous finish	Simultaneous finish
Priority	1st	2nd
Schematic diagram		
Description	Activity B cannot be finished until Activity A is finished.	
Propagation of the delay	The finish delay of Activity A propagates as an finish delay of Activity B	

5 Conclusion

In this paper, we replaced “the logical order relations” with two indexes of “time order” and “the priority” and considered a description method of sequence activity in the Precedence diagram method.

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Research on Enhancing the Influence Through the Convergence of Campus Media

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Abstract: As a special common resources campus media played an important role in uniting students and faculty members and building a harmonious campus. This paper mainly uses the empirical research method, the literature method and logical analysis method. According to a questionnaire survey carried out among 448 college students in Wuhan, the research shows that mobile media can bring traditional media potential to the full and make it more advantages. There are three ways of convergence of the campus and mobile media: from mobile media to campus media, campus media on mobile internet platform, and wireless campus media.

Key words: Media convergence; Campus media; Mobile media; Positioning

1 Introduction

Campus media refers to all forms of media including traditional media and new media. Traditional campus media includes campus newspaper, TV, radio, school-run magazine etc; new media mainly refers to internet (J. Lihong and Z. Yanlin, 2011). As a special common resources campus media played an important role in uniting students and faculty members and building a harmonious campus. Nonetheless, there are many shortcomings: the influence of university media is not heavy enough, it could not attract students and a talent deficit has dogged the media and so on.

The students are the main service targets who are the typical Mobile generation. “Cell phones, personal digital assistants and other handheld devices have become daily necessities for many teenagers and young adults” (Fareena Sultan and Andrew J.Rohm, 2008) . All of them are “thumb race”, “digital natives” (John Palfrey and Urs Gasser, 2008), they use mobile terminal, basically a mobile phone, for socializing and entertainment. “Mobile phone is the totem of teenager. To them mobile phone symbolizes a social distinction and represents individual self” (Sun Huiying, 2010).

As a result of little empirical research about influence of campus media in China a questionnaire survey was carried out among 448 college students in Wuhan. The survey informs that over 70% students spent less than 15 minutes on campus media per day (Figure 1). In striking contrast 67% college students spent more than 1 hour on mobile media per day, 31% spent more than 2 hours (Figure 2).

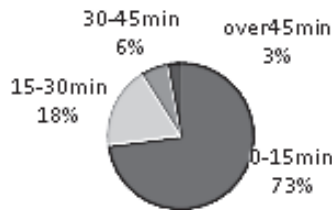


Figure 1 Time Spent on Campus Media Per Day

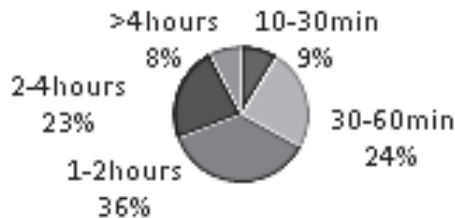


Figure 2 Time Spent on Mobile Media Per Day

On the one hand the use of the campus media is scarce, on the other hand the mobile generation addict to mobile phone. This article will discuss the possibility of enhancing the influence of campus media through mobile media and the effective way to carry out it. The campus would not guide public opinion in an efficient way until it fascinates the college students.

2 Possibility of Campus and Mobile Media Convergence

In general, media refers to various means of communication. Mobile media is the vehicle for communicating messages. With the arrival of 3G times, with development and popularization of computer technology, mobile phone became the mini-computer with correspondence function (K. Wenbo, 2010). The mobile phone is one of the few devices, which people carry all day long and become a ubiquitous medium (S. Soroa-Koury and K.C.C. Yang, 2010). The advantage of mobile phone provides the possibility of two kinds of media.

College students spent much of their time in class and it is not convenient to use computer after 12 o'clock because of other roommates maybe want to get to sleep. This kind of lifestyle is limited by time and space particularly suits to the use of mobile. Mobile phone is characterized by high mobility including always online connectivity, providing versatile and contextually relevant information and services to users wherever and whenever needed (O. Rashid, P. Coulton and R. Edwards, 2008). This feature makes the use of mobile phone very heavy and lasting for a long time.

College students are often called "the post 80s" or "the post 90s" generation, "strawberry generation", "Y generation" and "me generation". They are labeled as "rebellious", "spoiled" and "self-centered". They declare that there is nothing I can't do as long as I like it. They speak out that I am the owner in my world. In a word they are personalized generation. Mobile communication technology has spawned wireless internet. Chinese wireless marketing expert Zhu Haisong once pointed out that wireless internet has two prominent features which make it different from internet: real time and personalization. Mobile media is the most personalized media. The mobile almost became an organ of human being (Z. Haisong, 2011). Personalization brings them together.

Mobile media can bring traditional media potential to the full and make it more advantages. Mobile media is super engine of media convergence and almighty terminal (Z. Haisong, 2011). Mobile media help traditional media create value instead of threatening or even replacing it. All kinds of media find a way to survive combining with mobile media through mobile magazine, mobile newspaper and mobile TV. The interactivity of mobile media passes on to traditional media. Lacking of interactive was one of the most important reasons that prevent it from developing. Traditional media will be new media by integrating with mobile media. The character of multimedia convergence makes campus and mobile media convergence possible.

3 Strategies of Campus and Mobile Media Convergence

The convergence of campus and mobile media is a complicated work. First the positioning of campus media must be identified. Campus media could maintain a momentum of healthy development only if the media orient correctly.

3.1 The positioning of campus media

Chinese television media pluralism an intense competition urges the domestic media industry has entered a time of competition. It has an agreement about media industrialized. Although Campus media are not operated on a self-financing basis, which is under the propaganda department of the party, student affairs department or communist youth League, there is intense competition between campus media and outside campus media. Though it is impossible to make campus media market-oriented, the market-oriented thought that takes the students as center must be established gradually.

Philip Kotler, the undisputed heavyweight champion of marketing, argued that all marketing strategy is built on STP: segmentation, targeting and positioning (P. Kotler, 2005). Since campus media no doubt target faculty members and students -mostly students, the positioning is vital to campus media development. Positioning is a marketing method for creating the perception of a product, brand, or company identity. Positioning is not what you do to a product. Positioning is what you do to the mind of the prospect. That is, you position the product in the mind of the prospect (A. Ries and J. Trout, 2002).

It has long been upheld that news unit is the public mechanism of the party, media is the mouthpiece of the party, and the basic task of media is to lead a person. Although non-campus media are devoting great efforts to transform operation mechanism toward market, campus media still haven't formed the market concept and service consciousness. Campus media has long been defined as tool of

guiding public opinion and teaching student, so it could not appeal to students strongly. The campus media should be a student-centric media, whose object is to meet student's requirements and improve their satisfaction.

In Harold Lasswell's book *The Structure and Function of Communication in Society* the communication master pointed out that the communication process in society performs three functions (a) surveillance of the environment, disclosing threats and opportunities affecting the value position of the community and of the component parts within it; (b) correlation of the components of society in making a response to the environment; (c) transmission of the social inheritance. In 1957, sociologist Charles Wright added the fourth function: entertainment which further completed the communication theory. Campus media should satisfy students' associated four needs: information, sociality, knowledge and entertainment.

Having solved the problem with position, the concrete measures how to enhance the influence of campus media through the mobile media come to the agenda. Professor Hu Yong of School of Journalism and Communication of Peking University argued that an important characteristic of contemporary media is the more dependency between traditional media and new media. The synergy between these two media is a vital necessity of new media market paradigm and enlarging globalization of production and marketing (H. Yong, 2008). There are three ways of convergence of the media: from mobile media to campus media, campus media on mobile internet platform, and wireless campus media (figure 3).

3.2 Three ways of convergence

3.2.1 From mobile media to campus media

This is a basic form of convergence which comes to true by media link. The students accustomed to use their mobile phones to get information, contact each other and entertain themselves. Making the mobile phone as an entrance could improve the rate of campus media utilization. University could push some attractive messages to students through SMS or MMS. Although mobile other applications are growing, SMS is still the most dominant form of mobile application. Most industry analysts believe that SMS traffic will continue to grow and will be the mainstay of mobile data revenues for several years to come. MMS extends the richness of messaging by adding pictures, caption, sounds, music and moving images. (J A Harmer)

Based on the student-oriented mentality these messages transferring to the students could be about curriculum and exam, products sales promotion, interesting game or other students. All the details must be achieved in the campus media. The campus media may be the TV, newspaper, internet or any other class. In this way, the mobile media is a tool of informing and reminding, which make students' access to campus media.

In particular, the SMS and MMS are with the mandatory color; therefore the pushing content should target the students precisely. The feature of mobile' individual identification makes accurate targeting possible. The accuracy of target must base on the students' database, the process from mobile media to campus media cannot be completed without it.

3.2.2 Campus media on mobile internet platform

The second way of convergence these two media is to build small campus platform on the big internet platform. Without doubt the small platform must be mobile internet platform. Finding the most popular mobile applications of student and taking full advantage of them are essential for convergence. For example campus media manager could create a Weibo account and attract students as fans to expand influence. Of course campus Weibo must offer the value; otherwise the students will not focus it.

3.2.3 Wireless campus media

With the coming of 3G era, more and more users use the mobile phone to access the internet, the student are the main force. According to CNNIC (China Internet Network Information Center) Statistical Report on Internet Development in China 66.2% net citizens use mobiles to access internet.

Campus media could become wireless campus media through establishing their own mobile website, or create their own mobile phone application instead of subordinate to other mobile internet platform (Figure 3). It demands higher level of technology and management which need more high quality talents.

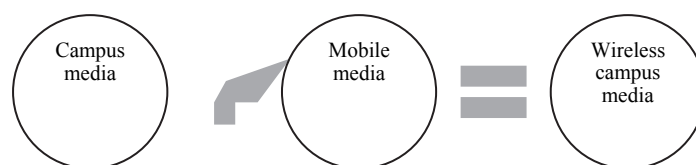


Figure 3 Wireless Campus Media

4 Conclusion

Campus media played an important role in uniting students and faculty members and building a harmonious campus. The students are the main service targets who spent much of their time on mobile because students' lifestyle is limited by time and space. Mobile phone is characterized by high mobility including always online connectivity, providing versatile and contextually relevant information and services to users wherever and whenever needed. Traditional media will become new media by integrating with mobile media. The character of multimedia convergence makes campus and mobile media convergence possible.

It is critical to make full use of three ways of convergence of the media: from mobile media to campus media, campus media on mobile internet platform, and wireless campus media. The relationship of campus media and outside media is more than competition, there is competition in presenting collaboration, and there is cooperative characteristic in competition. Campus media, especially internet media, develop themselves by convergence with outside media.

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A Comparative Study on the Characteristics of Chinese and American Teachers' Talk in EFL Classroom

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Abstract: Recently, more and more native English speakers appear in our English classroom in China, which results in obvious changes to traditional EFL classrooms. Carrying out a comparative study on the quantitative and qualitative characteristics of Chinese and American teachers' talk in EFL Classroom is worthwhile to improve the effects of the teacher talk and creating a favorable language environment for their learners.

Key words: Teachers' talk; EFL Classroom; English learners

1 Introduction

EFL classroom provides the major opportunities for the domestic English learners to use and expose to English, where the quantity and quality of teacher talk (TT) plays a crucial role in the instruction and learners' language acquisition. Teacher talk not only serves as a tool of classroom teaching, by which teachers organize and manage the classroom, but also it is one part of the content of language study. For the learners, teacher talk sets a model of target language. The model Zhou Xing and Zhou Yun (2012) have built encompasses the fundamental natures of TT--- input features, interactional features and features of facilitating output, with which we could study any TT of EFL classroom in any cultural context. The features of TT summarized by scholars at home and abroad maybe fail to cover the essential natures of TT in EFL classroom that ensures relevant studies in any cultural settings and appears bits and pieces instead of systematically arranged.

2 Research Design

2.1 Research questions

For the purpose of revealing the characteristics of American and Chinese teachers' talk in EFL classroom and of putting forwards constructive suggestions for both teachers to improve their language performance, the present study intends to answer the following questions:

1) What is the respective amount of teacher talking time in American and Chinese teachers' EFL classroom under investigation? Is there any significant difference?

2) What are the respective qualitative characteristics of TT with regard to patterns of questions, interactional modifications and feedbacks used by the American and Chinese teachers in EFL classroom? How do they differ respectively in these two EFL classrooms?

2.2 Subjects

The subjects for in the research are divided into two groups of teachers: group 1 comprising five American teachers, and group 2 comprising five Chinese teachers in Wuhan Textile University (WTU). All of them teach Non-English major students most of whom have passed CET-4 examination and are intermediate English learners. There is an average of 30-45 students per class. Five Chinese teachers involved in this study give lessons on the subject of Listening and Speaking English at WTU. All of them are experienced teachers with more than 3 years' teaching experiences and obtain their MA degrees in English linguistics and pedagogics. They regard the student-centered classroom as their essential part of teaching methodology. As for the five American teachers, they teach Oral English at WTU with more than 3 years' teaching experiences in China and have been trained as a foreign teacher regularly. Since all of them have received much training and practice, they have sufficient preparation of their work.

2.3 Instruments

The quantitative study mainly analyzes the comparative characteristics on amount of teacher talk, questioning, interactional negotiations and feedbacks. The qualitative study is to analyze the results of the interviews with those two groups of teachers investigated.

2.4 Data collection

The data in present study is collected in WTU. This study selects five classes by those Chinese teachers and, of about 30-45 minutes each, using different teaching materials to non-English students of

'Level One', which is true of the American teachers apart from the different students they teach. The American teachers mainly teach the non-English major postgraduate students. Definitely, the students taught by different groups of teachers have different levels of command of English, which may affect the interaction pattern between teachers and students. However, this variable is ignored for the limitation of the facts that neither the non-English major graduate students have access to native English speakers in their Listening & Speaking course nor the postgraduate students are provided with English Listening & Speaking course in WTU. The rest of the universities encounter the same situations.

2.5 Data analysis

To begin with, the author figured out the frequency of TTT, display and referential questions, confirmation checks, comprehension checks and clarification checks, positive feedbacks and error corrections from the two groups of teachers, based on the transcriptions. Then, by using the statistical software SPSS 11.0, the author adopted independent T-test to examine whether the frequency of the terms above made by those teachers are significantly different. Finally, the author analyzed the results from interviewing the teachers.

3 Results

3.1 Results from the quantitative study

3.1.1 Amount of American Teacher Talking Time Surpassing That of Chinese Teachers'

In correspondence with research question (1): "What is the respective amount of TTT (Teacher Talking Time) in American and Chinese teachers' EFL classroom? Is there any significant difference?" The author made analyses based on transcriptions of all these ten classroom recordings. The results of the respective amount of TTT from the two groups (group 1 refers to the American teachers, while group 2 refers to the Chinese teachers) are shown in the following Table.

Table 1 Amount of Teacher Talking Time

Teacher	Total amount	Teacher amount		Student amount		Other activities	
	n(min/s)	T(min/s)	%	T(min/s)	%	T(min/s)	%
AT1	45'20	26'10	7.7	5'30	12.1	13.40	0.2
AT2	41'15	30'15	3.0	4'40	11.3	6'20	15.7
AT3	42'50	23'40	5.3	7'30	7.5	11'40	27.2
AT4	40'20	20'10	1.3	8'54	2.1	14.56	26.6
AT5	44'10	21'15	48.1	5'10	11.7	18.15	36.4
Total amount	213'55	121'30	56.8	31'44	14.8	64.51	28.4
CT1	47'30	20'40	43.52	5'30	11.6	21.20	44.9
CT2	45'00	16'20	36.33	6'07	13.6	22.33	50.07
CT3	48'05	21'20	44.23	11'40	24.3	15'05	31.47
CT4	46'35	15.18	32.85	10'12	21.9	21'05	45.25
CT5	49'20	20'14	41.03	4'10	8.5	24'56	50.2
Total amount	235'30	93'52	39.86	37'40	16	105	44.15

Note: AT stands for American teacher, CT for Chinese Teacher. Other activities refer to group discussion, role play and listening to the tape

Statistics in Table 1 shows that either the amount of TTT by the American teachers or the Chinese teachers accounts for the most part of the classroom talk with the range of 39.86%-56.8%, whereas the talk by students in both classrooms is much the same, ranging between 14.9%-15.99%. Neither the students in American teachers' classroom nor in the Chinese teachers' classroom have much chance to talk or communicate with the teachers. And the other activities take up 28.4%-44.15% of the whole class, which is not a small part we could ignore. From the percentage, the author notices that the American teachers talk even more than the Chinese teachers.

3.1.2 More referential questions by american teachers than by chinese teachers

Table 2 Frequencies of Teachers' Questions

teacher	Total n	Display Question		Referential Question	
		n	%	n	%
A T 1	30	6	20.00	24	80.00
A T 2	42	11	26.20	31	73.8
A T 3	25	4	16.00	21	84.00
A T 4	22	5	23.00	17	77.00
A T 5	21	4	19.00	17	81.00
Total	140	30	21.43	110	78.57
C T 1	40	28	70.00	12	30.00
C T 2	23	17	73.91	6	26.09
C T 3	42	30	71.42	12	28.58
C T 4	20	13	65.00	7	35.00
C T 5	19	11	57.89	8	42.11
Total	143	99	69.23	38	26.57

Table2 reveals that among all the questions raised by the American teachers are referential questions ('wh-'/'how' question) that take up 78.57% of the questions, 57.14% more than the display questions ('yes/no' question or gap-filling question). On the contrary, the Chinese teachers raise more display questions that account for 69.23% of their questions, 42.66% more than the referential questions. Then we need to take a close examination on whether the two groups have significant difference on the two variables: referential questions and display questions.

3.2 Results from the qualitative study

From the twenty-minute face to face interview, we find out that few teachers pay attention to the language the use in the EFL classroom or consciously reflect their language and the functions of teacher talk in EFL classroom. But they focus on the importance of improving their oral English, which is one of their qualifications as a language teacher. According to the recordings of this interview, the author finds that most of the Chinese teachers communicate with her as they do with their students, at much the same speaking rate and with the same language complexity. By contrast, the American teachers realize their role of native speakers and the significance of providing idiomatic English. But they seldom use slang or idioms or tell black jokes in classroom, which are embedded with so much the culture factors. Some American teachers try to add some black jokes in the communications with students, which proves to be not feasible in classroom setting and fail to invoke expected response from the students. It is not easy job to give detailed explanations in a class with designed teaching plan, and blocks the real interactions between the teachers and students. When learners come across difficult words, the American teachers tend to ask the students refer to the dictionary and make discussions. Besides they usually turn to body language, examples, paraphrase into simple words or ask students to translate them into Chinese and repeat what students have said to confirm the understanding so that the interactions could keep going. The American teachers try to avoid immediate corrections because they assume that those students they teach are adults and correcting their errors in the presence of whole class could result in frustration and humiliation and lessen the chance to practice speaking English next time. Chinese teachers interviewed share the same view on that. That could further explain the reason why they turn to more guidance leading to learners' self-correction rather than instant correction They would rather spend more time on the individual students in the class. But Chinese teacher always skip to another topic if silence occurs or individual students could not answer question smoothly, owing to the time limit and the pressure of teaching plan. Most of them are informed of the communicative teaching method and the importance of learner-centered classroom. But when carrying out those guidelines, they unconsciously dominate the classroom.

4 Conclusions

The findings in the present study suggest a number of implications for EFL teaching and teacher training. Teachers should consciously decrease their talking time to an appropriate amount and attempt

to encourage learners to produce as much Interlanguage as possible by creating a relaxed and unthreatening environment in EFL classroom. Moreover, teachers should be trained to improve and polish their language constantly so as to provide learners with more comprehensible language input.

4.1 Major findings of the study

The present study sets out to compare the Characteristics of the American teachers' talk and that of Chinese teachers', and whether there is any discrepancy between those two groups of teacher or not. The author mainly examines the major four aspects of the teacher talk: the amount of teacher talk, the pattern of questioning (display questions and referential questions), the mode of interactional modification (comprehension check, confirmation check and clarification check), feedbacks (positive --simple praise, repetition plus praise, praise plus remarks; negative feedbacks --error corrections).

4.2 Limitations of the study

The subjects of this study—the two groups of teachers are not strictly controlled on their age, teaching experiences. And the courses they teach are not exactly the same, due to some practical difficulties. Besides, the sample size is not large enough to be conclusive about the real situation of teacher talk that occurs in EFL classroom. The subjects were chosen only in the universities in WTU. The multiple techniques for data collection should be used to get more accurate results.

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Research on Bilingual Education Frontier Trend Based on Burst Detection

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Abstract: Taking the articles from CNKI relevant to English-Chinese bilingual education as data source, this paper conducts a visualized analysis on China's English-Chinese bilingual education research with the help of Citespace software, and identifies its research fronts by adopting burst detection arithmetic, which reveals the dynamic trends of this field. In conclusion, the research front trend of China's bilingual education evolves as tree-form atlas and the future research fronts will develop along this path.

Keywords: Bilingual education; Research fronts; Burst detection; Information visualization

1 Introduction

With the rapid development of global economic integration and education internationalization, and deepening implementation of quality-oriented education, bilingual education has increasingly captured the attention of modern society. Bilingual education reflects the demands of current society informatization and economic globalization, which not merely requires modern universities to cultivate high-quality innovative talents, but necessarily promotes reform and development of university education. In order to adapt to the new time, the national educational administration has begun implementing the reform in bilingual education. However, as an emergent novelty, bilingual education in China is still at the initial stage without complete theoretic cognition. It is crucial to form a comprehensive set of theoretical system to guide its application and benefit all teachers and students.

2 Methodology and Data Sources

"Bilingual education" mentioned in this paper refers to that carried out in Chinese universities at present. University bilingual education has been popularized in steps all over the country to comply with the general trend of China's opening-up policy. The research on its status quo and frontier trends is a challenging project. In this paper, burst detection method with the information visualization tool CiteSpace, is employed to summarize and analyze some guiding education and teaching theories, which illustrates the frontier trend of China's bilingual education field. Burst detection arithmetic is used to detect the sudden acceleration of research enthusiasm in a certain discipline. The information visualization tool CiteSpace was developed by Pro. Chen Chaomai of Drexel University as a visualized tool of mapping knowledge domain, which displays the evolution course of some research fronts of an academic field based on relevant articles within a certain period through burst detection technology and arithmetic. In CiteSpace software, burst detection is applied into two kinds of variables: the frequency of words or phrases in citing articles and the quotation frequency obtained by cited articles.

The data adopted in this paper are fall from Chinese Journal Full-text Database of China National Knowledge Infrastructure (CNKI). Setting the topic "bilingual education" including "English" as retrieving expressions, we have retrieved the full-text database of CNKI journals, the retrieving time quantum confined within 10 years during 2003-2013. Altogether, 3328 data are obtained, each of which mainly includes the author(s), title, keywords, and abstract of an article. The last retrieving day was on April 4th, 2014.

3 The Frontier Trend Analysis of Bilingual Education

Analyzing the frontier trend of some academic field is significant for understanding its latest research orientation and predicting its development direction^[1]. The frontier trend can be defined as a series of emergent dynamic concepts and potential research questions which is the appearance of large numbers of theory trends and new themes. Those terms at high word frequency growth rate are determined as frontier terms of academic research^[2]. A great innovation in scientific knowledge map research, the function of Burst Detection, is added into CiteSpace software. Burst terms refer to the terminology surging into the articles published within some years, fit for the development tendency of

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representation research fronts^[3]. The downloaded data are input into CiteSpace software, then with Burst Detection technology and arithmetic those terms at high frequency change rate are detected from plenty of subject terms by inspecting temporal distribution of word frequency to determine the frontier domains and development tendency of China's bilingual education mainly by both changing trend of word frequency^[4]. After operating CiteSpace software, a burst term list is obtained to indicate in clarity the chronological distribution and bursting intensity of burst terms, as is shown in Figure 1, Figure 2, Figure 3, and Figure 4.

keywords	Year	Strength	Begin	End	2003 - 2013
English	2003	14.6914	2003	2005	
Chinese	2003	9.5578	2003	2006	
English teacher	2003	6.6397	2003	2005	
English teaching	2003	6.5719	2003	2003	
Teaching	2003	6.2143	2003	2004	
Investigation & analysis	2003	5.9777	2003	2005	
Foreign language studying	2003	5.0102	2003	2004	
Medical English major	2003	4.8005	2003	2005	
The second language	2003	4.5135	2003	2006	
School	2003	4.2842	2003	2005	
College English	2003	4.2811	2003	2005	
Method	2003	4.2492	2003	2005	
Teaching language	2003	4.0786	2003	2006	
University	2003	3.9803	2003	2004	
English education reform	2003	3.9803	2003	2004	
Bilingual education	2003	3.8376	2003	2004	
Specialized-course teaching	2003	3.7124	2003	2003	
Native language	2003	3.6425	2003	2006	
Using English	2003	3.5633	2003	2003	
Specialized English course	2003	3.376	2003	2004	
Terminology	2003	3.3299	2003	2004	
Multimedia courseware	2003	3.1958	2003	2004	
Bilingual phenomenon	2003	3.118	2003	2003	
Studying English	2003	3.0682	2003	2003	
Pressure	2003	2.9062	2003	2004	
Medical English teaching	2003	2.8159	2003	2004	
Students	2003	2.7702	2003	2004	
Foreign language level	2003	2.7362	2003	2005	
Stomatology	2003	2.718	2003	2005	
English course for specific purposes	2003	2.5916	2003	2004	
International Metropolis	2003	2.5736	2003	2003	
Primary and secondary schools	2003	2.5702	2003	2004	
Class teaching	2003	2.5667	2003	2003	
Professional quality	2003	2.5582	2003	2005	
Specialized foreign language	2003	2.5582	2003	2005	

Figure 1 The Burst Term List Based on CiteSpace Software (2003)



Figure 2 The Burst Term List Based on CiteSpace Software(2004-2006)

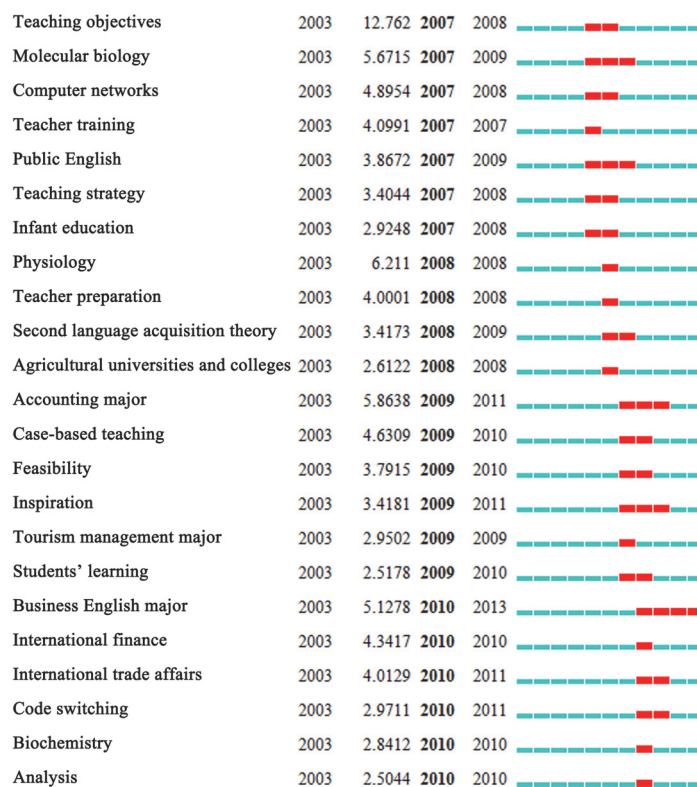


Figure 3 The Burst Term List Based on CiteSpace Software (2007-2010)

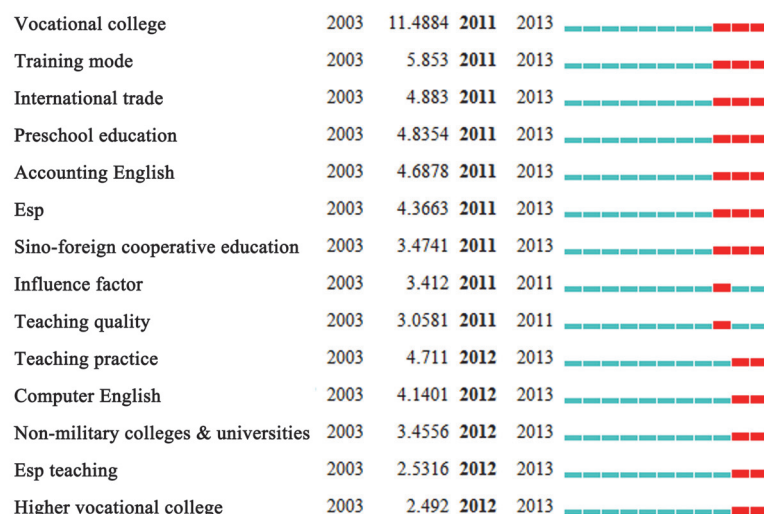


Figure 4 The Burst Term List Based on CiteSpace Software (2011-2012)

3.1 Trend variation of front burst terms in years – the issue of policy has become the division of bilingual education research

According to the burst term list produced by operation of CiteSpace, we have drawn the burst term distribution about China’s bilingual education research during 2003-2013, as is shown in Figure 5.



Figure 5 The Burst Term Distribution about China’s Bilingual Education Research during 2003-2013

Judging from the distribution in each year, burst terms during 2003-2004 are of great numbers. There were respectively 36 and 15 in those two years, with big difference from other years when the number of burst terms were all under 10. According to their yearly variation, high fluctuation existed from 2003 to 2004, while low fluctuation occurred during 2005-2013 with fairly small yearly variation amplitude. Therefore, based on the distribution of burst terms in years, the frontier trend of China’s bilingual education research from 2003-2013 is divided into 2 phases: the starting phase during 2003-2004, and the stationary phase during 2005-2013. It is well known that policy, practice and theory promote and influence each other. Policy guides practice; practice influences theoretic research; theory promotes further perfection of policy^[5]. In *Several Opinions on Reinforcing Undergraduate Teaching and Improving Teaching Quality in Universities*, Ministry of Education clearly demands that universities actively promote the use of foreign languages including English to teach common required and specialized courses in respect to undergraduate education. With the guidance of this policy, bilingual education work has begun to spread and scholars have started their exploration into bilingual education. After some amendments in 2004, Ministry of Education released *the Evaluation Scheme of Undergraduate Teaching Proficiency in General Institutes of Higher Education (Trial Implementation)* which formulated rigid index to bilingual education in biotechnology, information technology, finance, law, etc., and included bilingual education into fixed points of evaluation and inspection of undergraduate teaching proficiency^[6]. The issue of those policies best explains the yearly distribution

trend of burst terms in China's bilingual education research fronts, becoming the division of frontier variation in bilingual education research.

3.2 Trend change of research front content – bilingual education research presents the tree-form atlas of the “trunk-branch-leaf” approach

Since the issue of relevant policies in 2001, research enthusiasm has sprung up about bilingual education in the academic circle. Nevertheless, it is found by deliberating upon the burst terms in 2003 that most research in this period remained in the preliminary discussion about concepts, fundamental theories and relevant fields of bilingual education. From 2004 bilingual education research in China began to be further deepened. Scholars worked a great deal on the specific key elements of bilingual education. In this period, lots of burst terms started to occur such as original teaching material, English teaching material, teachers, specialized English level, English-Chinese bilingual, turning into the research fronts. After anatomization, however, it turns out that the research of fundamental theories still prevailed. As a consequence, this period (2003-2004) can be considered as the starting point of theoretical research of bilingual education. What is more, according to Figure 2, Figure 3, and Figure 4, some burst terms similar to those in the theoretical period still occurred after 2005, indicating that enthusiasm for theoretical research of bilingual education had always been very high. This theoretical research was closely related to the following research front topics, becoming their knowledge basis and theoretical source. Since Ministry of Education issues the Amendments about bilingual education in 2004, scholars have begun to switch the attention focus from fundamental research to practical exploration of implementing bilingual teaching in certain academic fields. The burst term “human anatomy” appeared in 2005 and the burst terms representing medicine “seven-year program” and “medical students” appeared in 2006, which means bilingual education in medical courses became the research front in this period. With the relevant fruit and inspiration of bilingual education research in medical courses, scholars began to expand their study into wider application domain. In 2007, bursting rate of terms representing specific disciplines was increasing such as “molecular biology”, “computer networks”, “infant education”, “physiology”, “accounting major” etc. During this period the research fronts are characterized by diversification, specialization and domain intersection, known as a very active period throughout the evolution process of frontier research. It is worth mentioning that since 2010 those keywords with high bursting rate, such as international finance, international trade affairs, international trade, ESP English, increased as greatly as blowout, becoming most active research front trend recently. These fruits emerge constantly in large numbers, providing new viewpoints and injecting new vitality into China's bilingual education research.

It is revealed that China's bilingual education research fronts at early stage mainly focused on general and comprehensive study, and macro exploration of its basic principles, which has maintained great enthusiasm so far. But the research in later period was different in that some studies gradually appeared directing at specialized orientations and became the mainstream. For instance, many bilingual education research fruits about some disciplines have got published, such as medical curriculum, biological technology, computer science, finance and trade, and ESP etc., to make China's bilingual education research take on a tree-form atlas approach of “trunk-branch-leaf”. The subsequent research fronts will develop along this approach.

4 Conclusion

This paper adopts the academic papers as research objects highly relevant to bilingual education published in CNKI periodical full-text database during 2003-2013 and uses the information visualization tool CiteSpace to conduct fronting analysis and visualized demonstration of China's bilingual education research. The main conclusion is as follows:

With Burst Detection method and CiteSpace software, the research analysis is made to China's bilingual education research. Judging by chronological change of number of burst terms, the high fluctuation state was during 2003-2004, while the low fluctuation state during 2005-2013 with small yearly variation amplitude. The cause lies mostly in mutual promotion and influence of policies, practices, and theories. Documents of Ministry of Education, Several Opinions on Reinforcing Undergraduate Teaching and Improving Teaching Quality in Universities in 2001 and the Evaluation Scheme of Undergraduate Teaching Proficiency in General Institutes of Higher Education (Trial Implementation) in 2004, have become the great divide of bilingual education research front variation.

In terms of the contents change of research fronts, the burst terms during 2003-2004 are all related to the basic concepts and theories of bilingual education. Hence, this period can be viewed as the

starting point of its theoretical research. In the later period, such burst terms still appeared continuously, which indicated that the theoretical research enthusiasm kept existing actively and it was closely related to the subsequent research front topics as their knowledge base and theoretical sources. It is essential to explain that in later period of bilingual education research, the research fronts are characterized by diversification and the burst terms representing subject major increases as blowout, indicating that many studies directing at bilingual education specialized orientations spring up in great numbers to become new research fronts. Recently, the research front of China's bilingual education is about bilingual education in financial trade major. To sum up, the research front trend of China's bilingual education evolves as tree-form atlas and the future research fronts will develop along this path.

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Contrastive Rhetoric Theory and ESL Writing

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Abstract: The theory of contrastive rhetoric (CR), pioneered by Kaplan in 1966, focuses on two main perspectives: a) the unique rhetorical features of each language and culture; and b) the interferences of first language (L1) rhetorical conventions in English as a Second Language (hereafter, ESL) writing. Through examining the rhetorical differences between Chinese and English along with a brief review of the development of CR theory and pedagogical implications, this paper contends that the study of CR theory has exerted beneficial influences on ESL writing.

Key words: Contrastive rhetoric; ESL writing; Differences; Pedagogical implications

1 Introduction

It seems reasonable to assume that different cultures would orient their discourses in different ways. Each culture has its specific writing conventions: preferred length of sentences, choice of vocabulary, acceptability of using first person, extent of using passive voice, degree to which writers are permitted to interpret, amount of metaphorical language accepted. The studies of the culture-specific difference in writings of another language fall into the scope of Contrastive Rhetoric.

Contrastive rhetoric (hereafter, CR) as a promising area of linguistic study and second language (L2) research, proposes valuable generalizations about how people structure written work and how learners learn to write. The theory of CR, pioneered by Kaplan in 1966, focuses on two main perspectives: a) the unique rhetorical features of each language and culture; and b) the interferences of first language (L1) rhetorical conventions in English as a Second Language (hereafter, ESL) writing.

2 Development of CR Theory

Through examining nearly seven hundred English essays written by University of South California students from all over the world, Kaplan (1966) identified five different rhetorical organization patterns, each of which he claimed represents a kind of cultural thought pattern: English, Semitic, Oriental, Romance and Russian. English rhetoric is logically linear based on its linear thought pattern; while the Oriental thought pattern is presented as spiral and circular, which leads to an indirect rhetorical pattern (Kaplan 1966). In Classical CR theory, Kaplan (1966) suggested that L2 learners' using single words or sentences correctly does not imply producing effective paragraphs or essays because of their different ways of logical thinking, which are largely affected by their own cultures (Kaplan 1966). In other word, culture plays a crucial role in ESL writing. Kaplan recognized that mastering of English rhetorical patterns was simply beyond the students' reach, with their abilities to largely control English sentence structures. They were always displaying rhetorical styles unlike those of native English speakers. They were not incorrect, but only different. This led him to conclude that there existed a relationship between a society's culture and its mode of verbal expression. He coined the term "contrastive rhetoric" for the new field, parallel with contrastive analysis of phonological and grammatical structures, with the purpose of facilitating writing in a second language. Based on this research, he put forward two hypotheses, which are later considered as the fundamental assumptions for traditional contrastive rhetoric:

(1) Each language has culturally specific rhetorical conventions. People from different cultures think and write by employing culturally determined rhetoric and logic.

(2) The rhetorical conventions of students' first language interfere with their second language writing.

Though Classical CR theory has opened up a new direction of rhetorical research, it has met with some difficulties and criticisms in regard to its inadequacy of empirical research, the privileged standards of native English speakers' writing, and the overgeneralization of organizational patterns, which will be elaborated later. Among many critics, Connor (1996) advanced two major revisions in her Revised CR theory (Connor 2002, 2003). First, the Revised CR theory moved from the text linguistic perspective to studying writing as an activity perception; that is, writing is examined as process rather than product.

Second, Connor's (1996) Revised CR theory is based on a multi- theoretical framework. According

to the framework, in addition to linguistic relativity theory, the theory of applied linguistics, the theory of rhetoric, the theory of text linguistics, the theory of discourse types genres, the theory of literacy and the theory of translation aim at cultural effects in ESL writing. All these help build a stronger and richer theoretical web for CR theory, and pave the way for new directions in CR studies.

Connor (2002, 2003) has in recent years further revised and expanded CR theory in terms of redefining culture, literacy, and critical pedagogy. One paradigm proposed by Connor (2002) has gained wide popularity among many contrastive rhetoricians, i.e. cultural differences should be taught in order to help writers to be proficient in the target language writing. Besides these new developments, current CR theory has embraced other dimensions, such as analyzing particular cultural writing styles and explaining different writing patterns (Connor 2003).

In China, there is a long history of contrastive studies between Chinese and English, which have been concerned with many aspects of language and related fields such as lexicon, syntax, semantics, pragmatics, rhetoric, culture and psychology. But in terms of contrastive rhetoric, a complete system has not formed yet. Only after 1989 did Kaplan's view that discourse structure varies widely with cultural-linguistic systems receive considerable attention in Chinese academia (Coe & Hu Shuzhong, 1989; Wang Moxi and Li jin, 1993; Lin Dajin, 1994; He Shanfen, 2002; Tao Jiawei, 1998; Wen Qiufang and Guo Chunjie, 1998). Just like things happened in overseas, no consensus has been reached among Chinese scholars as well, as Kaplan's claim is either in the midst of pros and cons or met with neutral attitudes. Coe and Hu Shuzhong (1989) reached three conclusions of English and Chinese contrastive rhetoric studies: firstly, there is one discourse form identified as "inductive" in Chinese similar to that in English, another is like what Kaplan called the spiral structure, and some others demonstrate non-English rhetorical patterns. Secondly, though it is almost impossible that the eight-legged essay form still exerts a direct influence over modern Chinese writing, it reflects a habitual mode of thinking. Thirdly, the textual structure in English constructed by Chinese writers is neither fully like the English text by English natives, nor identical to the Chinese text by Chinese writers.

Liu Lijin (2004) contrastively analyzes English textual patterns composed by Chinese ESL learners and English native writers from the perspective of semantics, and points out that Chinese writers prefer coordination to subordination, while the latter is the dominant pattern in English writing. Wang Moxi and Lijin (1993) carried out empirical surveys of Chinese ESL thought patterns according to the three standards of discourse patterns set by Michael Hoey (1983), the problem-solution pattern, the general-specific pattern, and the matching pattern. After surveying, they find out that the general-specific pattern, the base of English writing, is most lacking in Chinese students' essays. The dominant one is the problem-solution pattern in which the writer does not start his/her essay with a thesis statement, but rather, by dropping a hint for the reader to take, until a solution to the set problem is finally supplied in the concluding paragraph. Tao Jiawei (1998) emphasizes the impact of cultural difference on writing and believes that writing is the representation of culture.

3 Generalized Differences Between Chinese and English Rhetoric

3.1 "Linear" vs "Spiral" textual patterns

As early as 1966, the famous Kaplan's "doodles" contrasted a straight-line Western approach with a spiral Oriental thought process. He pointed out that the structure of English exposition is linear, because a paragraph in English typically begins with a topic sentence supported by examples that are related to the central theme. Actually, this kind of linear structure not only appears in the individual paragraph, but also in the whole passage of the typical English exposition. The employment of one definite sentence to elucidate the central idea is always required in English essays, and the sentence, usually called thesis, is often presented very early in the essay. According to English style manuals, which can be easily found everywhere in China, say that an essay should have a thesis. A thesis is a straightforward statement of the main point of the essay. In a short essay of several paragraphs, the thesis should appear in the first paragraph, while in a longer essay, the thesis might be delayed until after a bit of preliminary introductions. But in any event, the reader should be able to determine the main point within the first formal section of the text. Accordingly, each section of the essay, each paragraph should have a topic sentence, and that sentence is required at the beginning of each paragraph. Stern (1981) concluded that "good paragraphs always (or usually) contain identifiable topic sentences which always (or usually) occur toward the beginning of the paragraphs". Thus, whether from sentences (subject - predicate -object) to paragraphs (one topic sentence- supporting sentences-conclusion) or to texts (a thesis statement- development - epilogue), all strictly follow linear structures. And this kind of

linear structure is best realized by the deductive pattern - the preferred structure for an essay within the western tradition. (Scollon & Scollon, 1991)

Contrary to the essential rule of the use of a “thesis” and a “topic sentence” in English writing, the Oriental texts prefer the rule of “from surface to core”, which means that one thought ought to reach a topic gradually and “systematically”, and this “systematic” way is best realized by the inductive pattern. That is, thesis often occurs at the latter part of the text, some at the very end, and some even with no thesis statement at all. Furthermore, English writing by Chinese students are often viewed as “lack of unity”, as relevant facts and irrelevant ones are often mixed together into one paragraph. Kaplan (1972) remarked once that although the ESL essays did include an introduction, a body, and a conclusion, “along the way” there was a lot of seemingly unnecessary wandering around the topic.

The indirect or spiral textual development is to a great extent attributed to the traditional Chinese rhetorical structure: qi-cheng-zhuan-he. (Cai Guanjun, 1993) “Qi” means the opening of an essay. “Cheng” is the preliminary discussion of the topic of the essay. It may be realized by a paragraph, or a sentence, or a conjunction. In the part of “Zhuan”, a much emphasized aspect of organization in Chinese writing, the essay abruptly develops into a subtopic which is only indirectly related to the thesis statement. And it is exactly in this part that the essay deviates from the central idea and breaks the unity of the whole text in western eyes. The last part – “He”, is the summary of the whole essay. (Si Hongxia, 2002) Si went on to owe the preference for the qi-cheng-zhuan-he style among Chinese writers to the notion of avoiding monotonous or boring in writing.

The linear and non-linear textual patterns recognized in English and Oriental texts have caught attentions of linguistics at home and abroad long before. They concluded that the opening part of the English texts tells people where the argument/talk is going, while that of the Chinese ones tells people where the argument/talk is coming from (Jia Xuerui, 2001), and thus they called the deductive pattern the unmarked English exposition rhetorical structure, and the inductive one the unmarked Chinese exposition rhetorical structure.

3.2 “Logic” vs “Emotion” in paragraph partition

Western culture emphasizes the integration of meaning. Paragraphs are formed mainly through logic. Most of the paragraphs are conventional units, not arbitrary ones (Becker, 1976). The principle of paragraph partition is that each paragraph should represent a distinct unit of thought. Each paragraph is viewed as a semantic unit, and this unity is represented by a key sentence, from which the rest of the paragraph develops. Every sentence in the rest of the paragraph should be relevant to the topic sentence, while erasing materials that are irrelevant. Here, the notion of semantic paragraph is introduced. Semantic paragraph is a kind of language unit between text and natural paragraph. In English writing, in most cases, one natural paragraph conveys one sub-point, thus corresponding to one semantic paragraph.

Through endeavors of Lindly Murray (1808) and Joseph August (1862), Alexander Bain finally put forward the standard pattern of English paragraphs in “English Composition and Rhetoric” in 1866. In the book, he treated the development of paragraphs as a kind of deductive system. Paragraphs are developed through a logically ordered sequence of statements, with one controlling idea represented by a topic sentence put at the beginning of paragraphs. He further raised six principles in separating paragraphs: explicit reference, parallel structure, topic sentence, consecutive arrangement, global unity, and subordination. (Cai Jigang, 2003)

Due to the negative influence from the rhetorical pattern of Chinese on paragraph partition, many ESL students in China “have a habit of separating the topic and conclusion into separate paragraphs” (Mao Ronggui, 1997), in an effort to highlight the conclusion, which is differing greatly from the English way that the paragraph does not end until everything that the writer has to say about the topic sentence has been said, and only change the paragraph when introducing a new idea.

3.3 Non-innovation vs. innovation in modeling

A variety of studies offer the insight that Chinese writers are more likely to comply with conventional writing rules than are Western writers (Matalene 1985). For instance, some researchers believe that Chinese traditional examination system is responsible for this rhetorical feature (Bloom 1981; Clyne 1994; Kaplan 1966; Liu 1990). Tracing back to the Sui dynasty (607 AD), the traditional Chinese examination system has exerted a significant impact on the Chinese language (Miyazaki 1963). Through examining the civic service examination of imperial China, Miyazaki stated that this examination emphasized a person's compliance and loyalty to the sovereignty, since passing this examination means to step into the upper society. Since the main purpose of this exam is to select officials for monarchy, it consisted of writing an essay with extremely rigid rules in order to show obedience (Levenson 1968). The eight-legged essay, requiring fixed Confucian content and a rigidly

prescriptive structure, was employed and developed as a highly valued traditional genre for this civic service exam (Kaplan 1966). Kaplan argued that the eight-legged conventional form has exerted a profound influence on Chinese rhetoric, which follows the pattern of beginning transition turn synthesis (Liu 1990). This new model is equally rigid, which writers tend to focus on without innovation just as they once did. In other words, Liu claimed that the non-innovative writing model continues unabated.

Philosophically, Oliver (1971) stated that this rhetorical feature comes from the principle of loyalty and obedience emphasized in Confucianism, which highlights the absolute obedience to and total respect for authority and seniority. Another critical factor that leads to this non-innovation rhetorical feature for Chinese writers is the principle of Chinese social decency in Chinese social relationship (Graham & Lam 2003). In view of Graham and Lamps description, social decency means to keep to the conduct and speech of a series of standards that are determined by various cultural contexts. By analyzing Chinese negotiation, Graham and Lam (2003) claimed that westerners are frequently confused why sometimes Chinese behave so formally even in casual circumstances. As a matter of fact, acting formally caters to Chinese social decency because formality is an indicator of a person's social status. As a result, writing can be seen as a form of exercising a certain social function. Consequently, Chinese written discourse normally follows the preset forms without much innovation.

3.4 “Writer-Responsible” vs “Reader-Responsible” rhetoric

Hinds (1987) categorizes the rhetoric of various cultures into two patterns-writer versus reader responsibility, according to the degree of the writer's duty to explicitly provide explanations of propositions, as opposed to the degree to which the reader is required to make inferential bridges between propositions and deduce meaning from a text. Based on these criteria, he analyzed English as belonging to the writer-responsible pattern, Japanese as belonging to the reader-responsible pattern, and Chinese as being in transition from the reader-to-writer- responsible pattern.

In English writing, the requirement of clear thesis statement, the inevitable topic sentence in each paragraph, the logical arrangement of propositions, is kept strictly to ensure readers to easily understand and follow the text. "The desire to write or to speak clearly is an integral and historically long standing part of English culture." (Scollon, 2002) The writer is expected to know the characteristics of his/her audience before s/he begins to write, and it is the writer's responsibility to guide his/her audience to an understanding of the written texts. The reader needs to be convinced of the validity of the writer's position and that the aim is put more on the writer to explicitly provide explanations of propositions.

Comparatively, in Chinese rhetoric, indirect communication is preferred and extreme stances are avoided, in an effort to keep social relationship in harmony and to save each other's face. "To be indirect in both spoken and written discourse, to expect the audience to infer meanings rather than to have them spelled out is a defining characteristic of Chinese rhetoric." (Matalene, 1985) It is common in Chinese writing to hold the intention of the writer, and to delay it until the end of the essay. This requires more reader involvement by evoking communal knowledge between reader and writer. And it is the shared knowledge that controls the interpretation of the essay. It is the duty of the reader to understand what the writer has intended, to be able to read between the lines, not the duty of the writer to communicate his ideas in a clear and direct way.

4 The Impacts of Rhetorical Differences on ESL Writing

The impacts of the aforementioned rhetorical differences on ESL writing can be seen in some Chinese ESL learners. Some studies have examined the impact of indirect and circular organization in Chinese students' ESL writing. For example, Fagan and Cheong's (1987) analysis of 60 English compositions written by Chinese ESL ninth graders in Singapore showed that 50.9% of students still employed the traditional Chinese four-part model of qi-cheng-zhuan-he, an obvious transfer of the indirect organization from Chinese to English writing. Through examining a Chinese writing class in Taiwan, Chou (1989) claimed that qi-cheng-zhuan-he was still being taught in Taiwanese schools. The students had two options while writing an essay: 1) Qi conceals the main thesis through a sub-theme, Cheng develops the sub-theme. Zhuan introduces the main theme, and he concludes; or 2) Qi introduces the main theme, Cheng develops the main theme, Zhuan provides an anecdotal example, and he concludes. In contrast, the standard three-step pattern in English is: 1) introducing the main theme; 2) developing the main thesis; and 3) concluding (Kaplan 1966).

Furthermore, Matalene's (1985) analysis of English essays written by Chinese ESL students revealed many awkward narration and unrelated statements before the arguments. Also, these English compositions tended to refer to historical philosophies and rely on customs and authorities, rather than

express the writers' own viewpoints freely and directly. Matalene further stated that factual sentences occurred in these ESL essays more often than in native English writing, and indicated that this rhetorical characteristic should be identified by ESL writing teachers and appropriate teaching syllabus should be adopted to address this issue.

Having discussed the impacts of rhetorical differences on ESL writing, it seems that rhetorical differences are significantly affected by writers' cultural backgrounds. Even so, one cannot deny that CR theory still has limitations. For instance, because essays analyzed are written by students in their developmental stages, with the development of students' L2 proficiency, rhetorical structures would change (Noor 2001). Thus, CR theory needs to take into account ESL learners' writing development as well.

5 Pedagogical Implications of CR Theory

Many researchers indicate that the most advantages of CR theory are to help ESL teachers with teaching ESL writing and to provide writing guidance for ESL students, which informs ESL writing learners in terms of conceptual learning, paying attention to discourse level, and Kirkpatrick's (1997) Seven Principles (Chen & Sanchez 2001; Kirkpatrick 1997; Kaplan 2005). Through investigating how cultural thinking and discourse organizational patterns influence Chinese ESL learners' writing skills, Gonzalez et al. (2001) proposed that an important implication for ESL learners is to achieve conceptual learning, which means learning how native speakers think and how to use social and cultural conventions in specific contexts, i.e. learning target language thought patterns and its pragmatics, such as "idiomatic expressions, adaptation to audience, and content knowledge domain" (Gonzalez et al. 2001). Gonzalez et al. further stated that conceptual learning will lead students to become bi-cognitive and bicultural, and ultimately become a confident bilingual through transcending the semantic and pragmatic knowledge in syntactic and grammatical learning.

Shen's (1989) account reveals that bicultural conceptual learning is instrumental to target language learning and writing, which suggests that conceptual learning should be included in ESL teaching curricula.

Kirkpatrick (1997) presented seven principles about pedagogic CR theory: a) because rhetorical features of a language can only be drawn out through examining authentic essays, L2 learners should be exposed to large quantities of L2 materials to understand L2 rhetorical structures; b) there must be stylistic symmetries in two examined essays, in terms of the same genre; c) writers should always bear in mind the potential readers; d) it is impossible to find out prescriptive manuals for learning L2 writing; e) models are important while learning L2 rhetorical patterns; f) practice makes perfect; and g) CR theory is evolving over time. Kirkpatrick's seven principles provide useful principles for teaching ESL writing, and ESL teachers can adopt them critically according to the teaching environment.

Furthermore, in Kaplan's (2005) latest work on CR theory, he pointed out that the most value of CR theory lies in helping to create an environment which takes into consideration not only sentence structure but also structural differences in discourse across languages. That is, CR theory turns the teachers' focus in teaching from the sentence level to the discourse level. Also, Kaplan claims that rhetorical patterns and texts may differ widely across cultures, and ESL writing needs to focus more on influences of cross-cultural knowledge.

With the intent of facilitating "reading and writing in English, creative use of the second language, and the ability to express one's ideas in text in the second language" (Kaplan, 2001), contrastive rhetoric studies potentially have a great deal to offer ESL writing teachers in theory, as it describes culturally based schemas at the paragraph level in written discourse. According to Ulla Connor (1996), "Contrastive rhetoric is an area of research in second language acquisition that identifies problems in composition encountered by second language writers and, by referring to the rhetorical strategies of the first language, attempts to explain them." At this point, however, the immediate practical use of the findings of contrastive rhetoric into ESL classroom is not as clear as it once thought to be due to its complex nature. In a sense, this change can be positive, as it becomes much less likely to put the hypothesis into use prescriptively in the classroom. Contrasting rhetorical patterns with the aim of changing the behavior of users who are not native speakers is a form of behaviorism which is no longer acceptable in linguistic research or language education. (Kachru, Y. 1997)

Anyway, contrastive rhetoric is the first serious attempt by applied linguistics in the United States to explain second language writing. Before, writing was neglected as an area of study because of the emphasis on teaching spoken language during the dominance of audio-lingual methodology. The most

obvious application of the findings of contrastive rhetoric is directly related to the power of raising cultural awareness among ESL teachers and students (Raimes, 1991; Leki, 1991). Examining the rhetorical practices of a culture other than our own can make us more aware of our own rhetorical value system and can provide us with a clearer understanding of the culture we study. As a matter of fact, not a few of ESL teachers take it for granted that logic is universal and it never occurs to them to consider the differences and similarities of two linguistic systems. So they merely ask their students to adopt linear rhetorical patterns mechanically in writing English essays. They will “probably simply more or less impose typical English forms on all nonnative speakers, regardless of their L1, in much the same way English grammar is imposed” (Leki, 1991). As for students, the findings of contrastive rhetoric can often produce sudden enlightenment, as they become conscious of the implicit assumptions behind the way they construct their essays and behind the way English does. They will clear off their previously mistaken ideas about writing and will no longer view themselves as lack of talents for efficient writers and build up their self-confidence again, once they realize that their trouble in English writing does not result from individual inadequacies, but from different rhetorical traditions.

Furthermore, the exploration of rhetorical contrasts across cultures may also help us to avoid uncritically adopting writing techniques from native language into second language contexts, since writing is a process of negotiation between self-expression and social norms. Away from a particular cultural and rhetorical context, the so-called elegant writing can find no reality. In short, through the study of contrastive rhetoric, we can better understand the limits as well as the virtues of our rhetorical traditions.

6 Conclusion

As contrastive rhetoric directly addresses the problem area in which learners’ knowledge of L1 rhetoric norms interferes with the acquisition of L2, the study of CR can shed light on the improvement of teaching English writing. Reader expectations, which are internalized as patterns of discourse, are the primary reason for cross-cultural differences in writing styles. English teachers should help English major students enhance their awareness about these differences and the very reasons behind them. Only in this way will the students gradually form the habit of applying culture-embedded textual patterns to their English writings consciously and then subconsciously or even unconsciously.

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Analysis of Ideological and Moral Quality Education in College Students' Career Planning Teaching*

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Abstract: In college students' career planning teaching, ideological and moral quality education plays an important role that cannot be ignored, and is directly related to their professional ethics and thoughts and behavior. This paper, combining with practical situation, analyzes the deviation of ideological cognition existing in college students' career planning, and on this basis, proposes pertinence solving solutions, in order to provide colleagues some useful suggestions and draw more attention on ideological and moral quality education in college students' career planning.

Key words: College students; Career planning; Ideological and moral quality; Education

1 Introduction

As in 2008 the Ministry of Education clearly put forward the requirement that colleges and universities should give more guidance in college students' career planning and employment, career planning series courses get the attention of major colleges and universities. Especially in the "CPC Central Committee and State Council Suggestion on Further Strengthening and Improving Ideological and Political Education" (the 16th document released by CPC Central Committee in 2004), it is clearly stated that "ideological and political education should be merged into all aspects of college students' professional learning and infiltrate into all aspects of teaching, research and social service", which fully demonstrates the importance of ideological and moral quality education.

Scholars have also been actively explored merging the ideological and moral education into college students' career planning teaching. Chen Chunyi and Gao Peijun hold that the relationship of college students' ideological and political education and career planning manifests at consistency in educational objectives, staggered feature in educational content and complementarities in educational role (Chen Chunyi, Gao Peijun, 2010). Qu Shanxiao thinks that the ideological and political education should be carried out throughout the college period, with pertinence ideological and political education according to the different characteristics of freshman stage, professional learning stage and graduation stage (Qu Shanxiao, 2010). College students' subject consciousness enhances, their needs and values increasingly diverse, and they are more concerned about their own growth and future development. At the same time, problems of lacking awareness of career planning, weak professional ability and vagueness of the objective also widely exist among college students.

Therefore, this phenomenon indicates that in China there is a certain gap between college students' professional ability and social development needs currently, and professionalism and occupation principle need to be urgently improved and enhanced. College students' career is inseparable from the edification of ideological and political education, which is the moral foundation of career development of the college students and the guarantee and force of college students' sustainable occupational development (Du Bin, Gao Shutao, 2015). Ideological and political education is the bridge for college students to achieve all-round development of morality, intelligence, physique, aesthetic ability, and is the necessary choice for college students to noble moral virtue and to achieve self-value (Yi Yumei, 2013).

In China, the ideological and political education has not guided college students' career planning for a long time. Many theories about educating college students' career planning are still being established and perfected. The educational content of ideological and political education is subject to various factors, lacking pertinence for college students' career planning. In career planning courses, deviation of ideological cognition still exists widely among college students.

2 Deviation of Ideological Cognition in College Students' Career Planning

We collected data from the graduates the Wuhan University of Technology in 2014, the

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questionnaires were distributed to 2500 employees. Among them, 1950 (78 percent) responded to the survey, and 73.03 percent were male, 26.97 percent were female. The data shows that deviation of ideological cognition still exists widely among college students in career planning courses.

2.1 College students' lacking a clear understanding of career planning

The prevalent priority issue is that most college students do not really know the meaning of career planning. Although many students aspire to their own future career, they just stay at the level of longing, and do not own it as motivation to study and plan their own learning and practice in college, without any preparation for their ideal career. Since they do not form clear career goal, they tend to feel confused and overwhelmed when they graduate, and cannot find a job they really want. Table 1 is the Person-Post Matching data from the graduates of Wuhan University of Technology in 2014. College students' lacking a clear understanding of career planning leads to their blindness in the process of selecting and obtaining employment.

Table 1 Person-Post Matching Data from the Graduates of WHUT in 2014

	Strongly Match	Match	Neutral	Mismatch	Strongly mismatch
Professional Values	12.50%	43.55%	27.83%	12.19%	3.93%
Professional Interest	15.72%	41.12%	28.69%	9.75%	4.72%
Professional Personality	15.09%	44.58%	28.38%	9.43%	2.52%
Professional Ability	14.70%	47.17%	28.46%	7.31%	2.36%

2.2 College students' inaccurate judgment of professional quality

An excellent university graduate, in addition to having a professional knowledge structure and strong practical capability, should also have a sound personality, healthy body and mind, and some humanities accomplishment. However, in fact, even though many students have "good" test scores in subjects, they are weak in terms of professional ethics, psychological quality, teamwork spirit and practical ability. From table 1, a common problem is that college students cannot accurately judge their own professional ability, thus positioning their career ideally. College students judge inaccurately their own professional quality, resulting in the deviation. The wide gap between ideal and reality leads to a sense of loss and frustration among college students. The occurring of professional judgment error is mainly due to students' lack of ability and unrealistic expectations, and colleges' lack of career education.

2.3 College students' standards of professional values tending to be pragmatic

The fact that today's society is in a transitional period and market-oriented economic reform continues to develop directly affects the professional values of college students, which have also undergone some changes. College students begin to pay attention to personal values, wages and benefits as well as treatment of work unit, and their career expectations tend to be idealistic, unrealistic and overstating. In career choice, college students' standards of professional values tend to be pragmatic, putting more emphasis on the economic value, while ignoring the ideal value of the profession.

3 Ideological and Political Education Approaches Based on College Students' Career Planning

3.1 Guidance of ideological and political education

In college students' career planning and employment guidance education, with ideological and political education as guidance, students' inherent potential of focus on improving their ideological and moral qualities can be aroused. Due to the strong pertinence in career planning, college students can learn about the employment situation in the whole society, the industries and the careers. After this, they determine their future career goals through self-assessment, and then plan their lives. In the process of career planning, career awareness of college students will be further strengthened, career aspirations further clarified, and professional quality further improved, providing a strong impetus for their growth and development. Therefore, in college students' career planning and employment guidance education, colleges and universities should regard ideological and political education as guidance, enable students to acquire a proper understanding of their interests, abilities, attitude, personality, ability, limitations and other personality characteristics through college students' career design, self-management and self-awareness, strengthen the college students' understanding and awareness of career planning and personal development, and ultimately inspire and mobilize college students' inherent power of conscious

development and active learning, so as to fundamentally improve the professional quality of college students.

3.2 Comprehensive and systematic integration of the ideological and political education content

In college students' career planning and employment guidance education, the content of ideological and political education should be comprehensively and systematically integrated into teaching. Since college students' career planning education is a gradual process with laws, the laws of ideological and political education must be correctly grasped. For example, in the first year of college, professional consciousness cultivation and talent education should be conducted, to make students understand the importance of their own career planning and help them develop career plans for realizing their career aspirations. In the sophomore year, students' successful awareness of career should be consolidated to stimulate students' interest in their own professional and develop their professionalism. In the junior year, focus is put on education of college students' professional knowledge and professional ethics, and exercise of students' various occupational abilities, to improve students' overall capacity of social adaptation. In the senior year, there should be guidance of psychological test, tips, policy and other aspects, and pre-job skills training related to their majors, conducting pre-employment training and focusing on individualized instruction. Thus, the ideological and political education can play a great incentive, coordinating and guiding role, making educational content more in line with educational objectives.

3.3 Use of various educational means

In college students' career planning and employment guidance education, means of education should be diversified, and form of college students' ideological and political education enriched. In colleges and universities' traditional ideological and political education, teaching is mainly conducted in a systematic, conscious and organized way, and classroom becomes the main site and the main channel for students to accept teachers' ideological and political education. However, the main feature of career planning education is focusing on personalization, with students as educational body. Therefore, in the ideological and moral qualities education, diverse educational means should be used, for example, combining theoretical education and practical education, focusing on complementarities of classroom instruction and after-school guidance, and combining classroom teaching and network interaction. Through rich forms of education, the ideological and moral qualities of students can ultimately be improved. In addition, colleges and universities should promote the practice of educational theory and strengthen the practical aspects, for example, establishing employment and practice base and providing the opportunity of visit or internship in companies during summer vacation. By receiving active guidance and further exploring vocational society, college students can truly understand the needs of society in the actual work environment and have a clear understanding of their capabilities and their development, and form the correct employment outlook, career outlook and values.

4 Conclusion

The diverse form of ideological and political education can create optimized ideological platform for career planning course and inject fresh vitality to career planning education, to help students achieve double harvest in thought and career.

Ideological and moral qualities can provide college students with scientific value orientation of occupational selection and provide spiritual protection for further improvement of the psychological quality, so in college students' career planning and employment guidance education, ideological and moral qualities education has extremely important theoretical and practical significance. We should combine problems existing in college students' vocational ideological and moral qualities, further explore the ideological and political education, and ultimately promote development of career and employment guidance education, to improve students' overall professional level.

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Analysis of Moral Deviation in Netnews Post-Bumping

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Abstract: Netnews post-bumping is beloved by netizens because of its openness, convenience and anonymity. By Netnews post-bumping, netizens can not only voice their opinions about news events but also express their demands, which makes the internet become a staging grounds for online public opinion and public opinion. In virtual cyberspace, due to the anonymity of commenter's identity, their behaviors are unhindered by "acquaintances" in the real world, so they tend to do whatever as they wish. By gathering firsthand data of Netnews post-bumping, with concrete data in detail, this paper is going to analyze hot topics involving in Netnews post-bumping as well as the characteristics of the main groups, who have anomic behaviors in comments. And then coupled with current social situation and cognitive psychology, reasons leading to moral deviation will be analyzed with the method of content analysis.

Key words: Online comments; Online morality; Online behavior; Moral deviation; Group polarization

1 Introduction

With the development of internet, network has infiltrated into every aspect of the social life. According to the 34th Statistical Report on Internet Development in China released by CNNIC in July, 2014, as it unfolded, up to the 30th of June, of all the netizens, 632 million used broadband and 527 million used mobile phones to access the Internet, and the popularization rate of the internet has reached 49.6%^[1]. Psychological and ethical issues shown by people in cyber space have already become an important topic under research for sociologist both at home and abroad. Literature review^[2-3] have discussed issues, such as ethical subject, network behavior regulation, internet privacy and rights online from the angle of philosophy and ethics, aiming at establishing a viable network ethical norm. Literature review^[4] has studied the values of public opinion in mass incidents online. Literature review^[5] has explored identity cognition in cyberspace from the perspective of anonymity, in which both advantages and disadvantages that anonymity brings to the cyber space has been analyzed. Literature review^[6] combed the research status of network morality both at home and abroad in recent years. However, the study of cyberspace are restricted to the appearance of network behavior, ignoring of the crowd structure and psychological behavior behind the network behavior.

2 Analysis of Hotspot in Netnews Bump-posting

Online comments refer to opinions given by netizens based on news facts or very serious social problems and events. In the network society, by using online comments, netizens can express their opinions freely. Comments include all the posts and reply in We Chat, micro blog and forum, as well as all the left comments on news reports. But this paper will mainly discuss some left comments, posts and reply on news reports. Internet aligns well with the development tendency of multi-cultural and value diversity objectively, so it is popular to internet users of all ages and then rebounds vigorously.

1) Incidents regarding to officials

When the involved subjects in incidents are government agencies or administrative institutions, such as government officials, civil servants, the police etc., it is particularly easy for netizens to pick them up. Generally speaking, once incidents concerning to officials, government or civil servants occur, netizens tend to make negative judgments, which is a typical feature of online public opinion. Official corruption, officials' behavior, lifestyle and ever wearing can be the center of attention among Internet users. If officials are involved in news, no matter it is positive or negative, comments given by internet users always turn out to be negative. on 8th February 2015, an article titled A college student in Hunan province having been beat to death by a "guan er dai"---Police said the murder had been arrested published in Xinhua.com on 8th February 2015. 271038 have participated in this news and 5565 pieces of comments have been gathered. Because subjects involved in this news are "guan er dai" and officials, it has received widespread attention. But almost all the comments are directed at the view that the police has shielded "guan er dai", questioning about police's impartiality in law enforcement, and the police has even been attacked with abusive comments. In those incidents regarding to officials, without objective analysis and no careful reading, some internet users just belittle and irony towards their

personality according to the headline to express their anger and question and to show their dissatisfaction towards both the government and the official freely.

2) Livelihood issues

Another type of events that wins a large number of online comments are grassroots and major social events which are relevant to most people. The main reason is that those events are bound up with people's life, so they can resonate with both sides in emotion easily. And common netizens can also find a sense of identification and a sense of existence more easily in those events. The news whose title is IOUs of the New Fourth Army are identified as imitation Family members say they reserve the rights to be identified again published on 23rd January 2015, has attracted 84581 internet users and 6933 pieces of comments in total. One of those comments---The authentic is fake. The false is fake Unwilling to be cashed. So what? Has won an approval of 15018; another piece of comment---No compensation for the lost money in bank. Don't count on it, if it is true, so what? Has won an approval of 13257, just few objective comments included. The fact is that no matter the IOUs are fake or not, netizens' subjective assertion in the comment is that it is believed to be fake without objective basis, which fully testifies that the public are doubtful to the government and the experts and that the credibility of the government and the experts is inadequate.

3) Incidents regarding to the rich

Besides, the news regarding to the rich and the high-profile celebrities have attracted the most public attention as well. And most of comments given by netizens regarding to the mentioned subjects are negative. On 8th February 2015, the news titled Wangfeng proposed a marriage with a 9 carat diamond ring Zhang zhiyi moved to tears and friends and relatives wishing the very best of the marriage was published on Sohu.com. 116765 has participated in this news and 11110 pieces of comments have been gathered. The comment---As for them, where they is divorce, there is hurt has won an approval of 20252; and another comment---if your think they will get a divorce, add in, has won a posted threads of 17573. In all, 90 percent of the comments online are mainly either ridiculous or abusive in words. In fact, this wedding news should have been blessed. Due to the subjects involved in the news are celebrities, the comments turns out to be full of scolds sound.

In conclusion, in all the online comments, netizens show an objective and negative attitude towards incidents regarding to officials, the rich and the high-profile, and they show a wait-and-see & doubtful attitude towards positive information regarding to those groups. As for the negative information, the basic ecology on the internet is that internet users stand on the opposite side against the rich and the officials. But when it comes to the social events considering to every ordinary people, most of the comments are neutral and rational.

3 Features of Netnews Post-bumping

The analysis of Netnews post-bumping found that the features of which can be summarized as follows:

Diversification. The network society is virtual, anonymous, borderless etc. and instantaneous interactions can be realized, which can make online comments diversified and non-mainstream in value delivery and interest demands. The diversification of social needs can lead to the diversification of value views. When people are in an open, free and equal discourse space, the diversification of value views can be reflected over different words and sounds. Opinions cognition and are varied from person to person on the same problem. Under this circumstance, unreasonable behaviors such as: abuse, conflict, defamation and privacy disclosure will develop easily.

Randomness. Network can break the limitations of space and time. While big news events become the focus on the internet, they can spread quickly to be public hotspots. Network is not only a magnifying glass, but also a loudspeaker to the public opinion. In the virtual world, without face-to-face community supervision, netizens, whose self-control ability are poor, may be prone to be unpredictable and random in words and behaviors on the internet.

Discrepancy. Post-bumping is one of the most active and acute part of public sentiment. Via post-bumping, forum, blog or tweet, internet users have a greater say to express their opinion and sentiment freely. Due to limited value for law and ethical values in the cyber space, internet users who lack self-discipline, may comment some irresponsible remarks. Under the influence of public opinion, some tiny things usually turn out to be "tornadoes", and then they will have a huge impact on their cognition, leading to cognitive bias.

Anonymousness. The internet is a fictitious world. Since the identity of netizens is concealed, the

rules limiting the netizens and effective supervision are inadequate, internet can be a space where internet users vent their emotions naturally. Lacking of the pressure in the presence of others, internet commenter can express their most realistic idea in the anonymous space freely. And under the network environment of not to name, the separation between the knowing and doing of moral subject can be worse. Since anonymous or pseudonymous comment on the internet are legal, and netizens needn't be responsible for their verbal gaffe, driving netizens' deeds and words on the internet to be irrational or violent.

4 Reasons Leading to Moral Deviation in Bump-Posting

4.1 Analysis of main internet users with moral deviation

According to the 34th Statistical Report on Internet Development in China released by CNNIC in July, 2014. Characteristics of internet users in China are young and of low degree, among which netizens who are in his tens or twenties account for the largest proportion, with a percentage of 55.2%. And the degree of most internet users is not high. Those with a college degree or below account for 79.3% of all the internet users. Based on the analysis of age structure and educated structure of those who have moral deviation, the largest group in internet users are young men in cities and towns who have a bunch of time searching on the internet. Those internet users are young people with low degree, limited job prospect, low income and weak economic foundation. So they tend to hate the society and conduct internet abuse or attack. At the same time, since they are poor in legal system consciousness and self-discipline consciousness, and they have a very low position in the realistic society and a poor social identity, they enjoy looking for existence in the virtual world to seek stimulation, aimed at expressing themselves.

In a virtual network environment, the ability of self-control formed based on inside guidelines and social norm will be greatly weakened or no more exist, which will in turn make their network behaviors out of control due to disinhibition. Moreover, those internet users can get a fair and free rights of speech, unreachable sense of equality and freedom via the internet^[7].

4.2 Analysis of reasons leading to moral deviation

1) Psychological condition in convergence of interest

All social phenomena can be probed from the angle of interest, and the results can always be more close to its essence^[8]. Since the network society is universal, the standard of value in network society is diversified, and the social groups involved in network are different, groups coming from various hierarchies hope to set up their own standard of value according to their interests, and desire to be accepted by others. So post-bumping is also an interest game developed by different groups so as to maintain their own standard of value.

When the news events happen, people of different hierarchies judge the relevance between themselves and the news object, resonance value condition and emotion resonance according to the roles they plays in the news object, and then they can express their position and opinion directly or indirectly. Generally speaking, those positions and opinions begin in the best of their interest, which are all effected and restricted by many inner drives. If the interest of news object is in line with the interest of main internet users, they may tend to make positive evaluation so as to maximize their own interests; if the interest of news object can be harmful or of potential harm to the interest of main internet users, the principle body of commenter will quickly form the same or similar ideology to maintain their own interest.

2) Psychological condition to vent dissatisfaction and emotion

Freud says, "people have a tendency to outbound their gathering strength, if this desire can be satisfied, they will be filled with a kind of pleasure, or they will be depressed". Along with the development of construction economy, together with income gap narrowed, social wealth gap widened, difficulties encountered in securing employment and buying a house and the missing of social justice, considerable public go into panic. As a result, their negative emotions can be easily ignited. When the object of news event aligns well with the anxiety of the public, it could be a chance for the public to vent their dissatisfaction and emotion. At that time, all their comments aiming at expressing their negative emotion have nothing to do with the event itself actually. Online comments driven by such kind of emotion are filled with words which do not conform to the truth, or are irresponsible, one-sided and extreme, with strong individualism.

Public opinions concerning relevant officials are negative. And the content involving in online comments are also mainly sarcastic, with a scurrilous attack upon the officials. Being tagged and

stigmatized by the public opinion, all the comments regarding to officials are neither negative nor abusive. And those groups who called for rational look at these issues are tagged with a poster of Mouthpiece of the authority, having a place which is opposite to the public opinion.

4.3 The network group polarization phenomenon.

While giving online comments, internet users can easily be influenced by group polarization, which refer to the phenomenon that a sizeable network group who express the words or conduct the behaviors which is deviating from the things itself^[9]. Events concerning to the great changes of society structure, conflicts between different groups in interest and complication of social contradiction are easy to trigger internet users' attention and discussion. If the group consistency degree is high, the network group polarization phenomenon may happens easily. When a certain aspect of the event touches the tripping point of the social emotion, it can trigger internet users' attention and discussion. And at that time, the emotions gathered by internet users are also negative. For example, all the critical comments, and even abusive attacks given by internet users towards incidents regarding to the rich or the officials due to the psychology of hating the officials or the rich are can be called the network group polarization phenomenon. Just the same as the dilemma in collective action, internet users get together as a particular group, some irrational situations can occur as well. During the transmission of the online public opinion, discussions upon social hotspots occur by means of group discussions, such as forums. These ways of discussion are easy to result in groups' emotionality and extreme since the internet is virtual and anonymous. The polarization phenomena triggering by bad online comments is a primary cause of network moral deviation.

5 Countermeasures

Firstly, reconstruct the media by starting from social responsibility consciousness. Secondly, advocate Internet users for conducting civilized criticism and reasonable comment, and social media for shouldering more social responsibility. In real life, without any in-depth study and research, some media reporters reported with a strong subjective tendency, for example, by using some attractive titles to increase traffic. At the same time, some injustice and false report may be reprinted in the network media, which can make Internet users have cognitive bias, producing malicious influence on social values, and even leading to lost and confusion. The mass media can guide public opinion in society. So in order to provide the public with actual, objective and injustice report, media should conduct independently of any interest group, strictly abide to the news principia, and uphold the requisite of journalistic professionalism. In this way, it can guide the public opinion to develop in a rational direction. That is to say, it is very important to strengthen media's social responsibility consciousness.

According to the discusses concerning to the main Internet users who have moral deviation above, most Internet users' qualifications are not high. Those Internet users are only educated in primary and secondary education stages—Compulsory Education in China. But at present, due to the current exam system, Compulsory Education in China has been under influence. For example, little attention was paid to moral education, so graduates of junior secondary schools may be serious in moral deviation, especially those who comes from rural areas. Thus the moral and psychology education in the Nine-Year Compulsory Education should be strengthened. Value the individual and cultivate the Internet users, as a basic moral quality of a netizen, can help cultivate the teenagers to form a moral character of respect others, themselves and the facts. After this moral rule was transformed into an individual's internal moral demand, he or she can cultivate a better moral habit and moral belief.

Rule and use the net by law, network behaviors should be taken in legal track. As for news and information, information symmetry should be stressed. On one hand, netizens' freedom of speech can be ensured; on the other hand, uncivilized words and illegal network behaviors can be prevented. Define clear the responsibilities, duty and rights of online marks by law can not only guarantee Internet users to enjoy legal right of information, participation, expression and supervision, but also to express their opinions civilly, reasonably and responsibly. Furthermore, network technology should be strived for novelty, for example, to identify harmful information by technologies, such as keyword recognition, text mining, etc. By this way, harmful information can be identified and unhealthy information can be shielded, so abusive and aggress comments can be hidden so as to purify the network environment.

6 Conclusion

Netnews post-bumping, is the rights of speech shared by every Internet users. But whether those online comments are civilized or not, matters to the socialist construction of political civilization,

material progress and spiritual civilization, as well as the healthy growth of juveniles. The value orientation of post-bumping, which plays an ignorant part in promoting and building a harmonious society can be the guide to the value Orientation of the whole community directly or indirectly. Both the government agencies, news media and all the Internet users should work together to ensure the cyber space develop orderly and healthy. By advocating for civilized criticism and reasonable comment, resisting disgusting network culture and purifying network environment, can not only make the internet to be a ground where Internet users can speak out their opinions freely, but also a key position where the socialist political civilization and spiritual civilization embodies.

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The Present Development Conditions and Studies on Countermeasures Concerning College-Graduate Village Officials

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Abstract: The plan of college-graduate village officials has, to some extent, accelerated and driven the harmonious development of China's society, improvement of village officials' qualifications as well as the construction of new villages. However, in terms of the reality, there still exist some problems in this respect. This paper takes village officials with college degrees in Hubei Province as an example and observes all aspects of them by adopting theoretical studies, field survey, questionnaires, etc. We investigate and analyze the present conditions of such officials. Finally, this paper gives several suggestions to build a sound, long work mechanism and to ensure better implementation this plan.

Key words: College-graduate village official; Countryside; Present conditions; Countermeasure

1 Introduction

With the construction of the socialist new village, governments of all levels have issued some relevant policies to select college graduates to work in rural regions, i.e., college-graduate village officials. As a part of these policies, which is of great significance to develop socialist new village construction, it consolidates CPC's ruling foundation and fosters alternative talents for China and the CPC.

Recently, domestic scholars have done positive researches on the plan of "college-graduate village officials", which mainly evolve the significance, implementation conditions and countermeasures of this plan. In terms of its significance, scholars mainly study on some aspects, such as college graduates' employment, grass-root construction, talent fostering of new villages, team building of cadres, etc. For the effects of this plan, most scholars believe that the implementation of college-graduate village officials is significant to enhance new village construction, to improve talent fostering, to solve graduates' employment, to move forward the integration of urban and rural areas and to boost ruling foundation of the CPC. Some of them also raise some questions, such as the present legal difficulties, motivation and the rule of talent flow. With the implementation and deepening of the plan of village officials with college degree, many institutions and scholars have conducted summaries, surveys and analysis, which are in general positive. Some of them find that the work process of these officials are facing difficulties, thus, it is the key problem to seek for positive guidance, policy support, system guarantee, mechanism creativity and sound development of this plan. They believe that only by seeking out countermeasures of these difficulties that the plan can be guaranteed to proceed positively. Besides, as it is a unique Chinese policy, no oversea literature has been found about this issue.

2 The Development and Achievement of College Student Village Official Policy

2.1 The policy development of college-degree village officials

The college-degree village officials refer to college graduates with associate degrees and/or above of the year or the previous who come to rural regions (including communities) to be the secretary of Party branch in the village, director assistant of the village committee or be in others positions in the Party committee or the village committee, whose job scope is mostly community or village affairs. Since the middle of 1990s, this plan began to carry out and experienced a rapid development with profound accumulation. It is called "Policy of College-degree Village Officials" which encompasses a series of system arrangements and related administration, trainings and appraisals. Policies in different places vary with names like "Plan of One College Graduate for One Village", and some remain the original name.

Since 1995, this policy has a history more than a decade. Based on features in different phases, the policies of college-degree village officials can be divided into 3 phases, namely, the starting phase, the developing phase and the popularizing phase. The period 1995-2001 is the starting phase, which can be dated back to the "Young Talent Project" in Fengxian County, Jiangsu Province in 1995. After this, relevant policies were issued in Hainan Province, Ningbo in Zhejiang Province, Huailai County in Hebei Province. 2002-2005 is the developing phase. With increasing attention on issues of agriculture, villages and farmers as well as graduates' difficulties in employment, policies of college-degree village officials have been generally acknowledged and popularized. From 2006 to the present it is the popularizing

phase. Since the announcement of “Opinions on Guiding College Graduates to Work in Rural Areas” by the central committee, most provinces in China began to stipulate policies related to college-graduate village officials and promotion of these officials. By the end of February, 2008, 28 provinces, cities and autonomous prefectures have launched the plan of college-degree village officials. They come to villages to take a job and the plan has entered a completely new era of development.

2.2 Achievements of college student village official policy

Policies of college-degree village officials impose positive influence and effects on rural regions without any doubts. Village officials with college degrees review the rural regions from a new perspective, exploit business opportunities for profits and transform villages with new ideas and technologies. They gradually change farmers' ideals and life with their own comments and behaviors, which brings wholly new temperament to the villages.

Firstly, optimizing the structure of grass-root officials. At present, among these officials, some negative phenomena exist, such as aged officials, low educational level, weakness in accepting new ideas and objects, outdated thinking pattern with new social trend and requirements by the development of new situations. College-degree village officials are young, knowledgeable, cultured, dynamic, mentally liberal and flexible. They can be trained and fostered to be new rural officials with modern administration ideas and agricultural technologies. Furthermore, they have better comprehensive qualities, legal awareness, which make them able to deal with affairs based on laws and regulations, being proper to advance democratic and legal construction of village-level organizations.

Secondly, promoting the all-way development of rural economy and society. The construction targets of new villages include not only increasing in farmers' income, but also promotion in their spiritual life and living standards. This issue is evolved with economy, society, culture and education, etc. Villages at present need a long-term oriented and scientific planning likewise, as well as cracking of development difficulties. College-degree village officials rejuvenate the work in rural areas with their practical efficiency and pursuit of creativity and changes, who lead villages to grow with more targets under the help of their new knowledge and new thinking patterns.

Thirdly, expanding employment forms and ameliorating employment pressure. Recently, graduates' employment pressure is increasing as the job market is increasingly competitive, being one of the hottest social issues. The policy of college-degree village officials is undoubtedly seeking for new chances for students. Faced with the present fierce employment situation, some college graduates find a number of chances in villages, which as a result start their own business there. That can be regarded as a way to expand job opportunities and relieve the pressure.

3 An Analysis of College-Degree Village Officials Conditions:Hubei Province as an Example

3.1 Survey methods and features of subjects

Table 1 Main Features

Items	Category	Percentage (%)
Sex	Male	60
	Female	40
Age	Under 22	11
	22~24	23
	25-28	41
	Above 28	25
Political status	Member of CPC	52
	League member	38
	People	9
	Democratic Party	1
Education	Postgraduate	5
	Undergraduate	76
	College	19
Years being officer	T≤0.5 year	18
	0.5 year<T≤1.0 year	25
	1.0 year<T≤1.5 year	24
	1.5 year<T≤2.0 year	9
	T≥2.0 year	24

During the promotion of the plan of college-degree village officials, much is under exploration with a number of problems to be solved. We analyze a series of contents of this plan such as its development issues via questionnaires to further understand these officials' current conditions and problems.

This survey emphasizes on quantitative questionnaire. The sampling plan is divided into 4 levels and selects 5 prefectures in Hubei Province, together with 16 urban districts, 10 county-level cities and 12 counties encompassing 126 college-degree village officials with 100 effective feedbacks. From the view of the officials themselves, we survey and understand their present work and their views and consideration of the job. While we will present the research results in a more detailed, direct way.

According to the analysis results, main features of 100 subjects are as follows:

3.2 Problems college-degree village officials are facing

We analyze the main features and strive to understand their routine work, actual difficulties and salaries and benefits. Problems are found as follows:

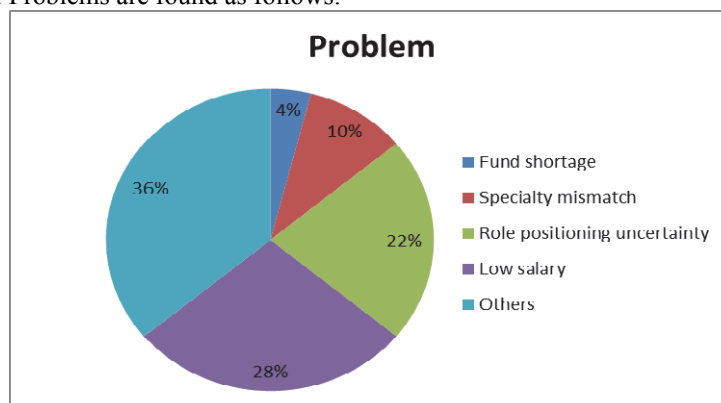


Figure 1 Problem

3.2.1 Specialty mismatch and a lack of applied skills

From Figure 1 we can see that the specialty mismatch is one of the largest difficulties for college-degree village officials, taking up 28%. That leads to their lack of knowledge in actual work. Most of them majored liberal arts, accounting for 46%, while those with agricultural science degrees only take up 5%. When villagers ask them agricultural questions, they fail to answer, which makes them hard to adapt to grass-root work.

3.2.2 Difficulties in start-up business and fund shortage

It is an important item to encourage college-degree village officials to start their own business locally. However, the implementation of this policy is hard. According to table 2, the most challenging difficulty in grass-root work is fund shortage in developing programs, accounting for 36%. Reasons can be divided into 2 types: 1. stagnant local economy leads to tight financial conditions and loan application there is difficult; 2. the government only focuses on the administration by collage-degree officials. It issues a series of policies; however, when it comes to supporting star-ups, concrete items are hard to be materialized such as funds, venues, etc.

3.2.3 Uncertain role positioning

When college-degree village officials come to rural areas, they are usually brought temporarily by town administration as document administrator and actually do not be in the post. Thus, they will not genuinely integrate into grass-root organization construction in rural areas. Besides, as they lack experience in rural areas, they are interfered by local officials and cannot successfully finish their work. While they often act as the village head or secretary assistant, and they usually meet problems which contradict with their lack of practice. The rural work is trivial, complicated and interrelated. Once such matters are not properly dealt, they will not be recognized by villagers in a short period.

3.2.4 Low salaries and poor recognition

Salaries are material foundation for the policy of college-degree village officials, so officials' satisfaction towards their salaries is an important index to determine whether to continue their terms. Most college-degree village officials use their salaries to pay for food, communication fee and transport each month, with some inevitable social activities, so most of them have nothing left in the end of each month. Sometimes they even have to borrow money from their families and friends to support their life. Therefore many college-degree village officials are unsatisfied with their salaries.

Besides, factors like marriage, frequent job transfer and relation with villagers will partly influence

the development of the plan.

4 Countermeasures of Advancing College-Degree Village Officials' Vocational Development

The college-degree village officials offer opportunities for the reconstruction of the relation between China and its society; they are the third party to participate in grass-root and rural administration; and they are an important way of enhancing grass-root organization construction of new-type villages in China. Being a special policy in the transitional period of China, college-degree village officials have great merits in terms of their execution ability. Nevertheless, during the implementation, such a new policy needs constant experience summary and then draws up corresponding countermeasures for problems in the project of college-degree village officials.

4.1 Guarantee of policy legalization and standardization of systems and procedures

Rule of law is China's fundamental guideline of country governing. To complete the policy of college-degree village officials, firstly, it is required to stipulate related laws and regulations as the foundation of the policy. The identity of college-degree village officials should be ensured and the title of "college-degree village officials" should have supporting laws. Such village officials should be allowed to take part in the democratic election of the village committee to be real village administrators. The CPC branch and the Organization Department of counties should further define the job scope and responsibilities of college-degree village officials, as well as their work and job characters. These officials should be allowed to join or listed in the conferences of the village committee and the party branch, as well as the administration and decision-making of village affairs instead of acting as a document administrator in grass-root organizations.

4.2 Guarantee of financial support and increase in compensation and benefits

To have college-degree village officials serve for a long period steadily and well, it is key to improve all compensation and benefits, which directly affect their job satisfaction. Thus, the appraisal of grass-root organization construction should evolve officials' basic salaries, subsidies stipulated by the central government, and social insurance. Improving college-degree village officials' compensation and benefits is beneficiary for college graduates to stabilize in tough environment, which then help them adapt to their job and motivate them to the largest extent.

4.3 Improving the mechanism of selection and appointment of college-degree village officials

It is a key part of implementing the plan of college-degree village officials to choose excellent graduates with knowledge and good moral qualities. To achieve this goal, the authorities should firstly abide by the principle of "fair, justice and public" and select qualified knowledgeable college graduates for rural areas after strict selection procedures. The selection process should be transparent, while the process and result should be posted publicly. Furthermore, combined with local requirements for talents, the authorities should select college graduates in a targeted way to define their future roles in rural work.

4.4 Improving mechanism of employment and contract termination

When the college-degree village officials' contracts are coming to end, it is necessary to properly guide their present or even future career planning. Enterprises should be encouraged to employ college-degree village officials whose contracts have terminated. These should be done to help them work in rural areas without any worries and perform well. Besides, another approach of their career development is to encourage starting their own business, to have such awareness and to improve abilities of starting business. In terms of college-degree village officials' further academic pursuit, I believe they should be supported with some policies to advance academically.

5 Conclusion

The policy of college-degree village officials is an important strategic arrangement by the CPC central committee and this policy is of great significance to grass-root organization construction in new-type villages in China. At present, this project is under continuous development and improvement. Therefore, to select qualified college graduates working in rural regions is of profound and deep strategic significance to foster backup officials for daily administration and the CPC affairs. This survey and analysis impose positive effects on establishing work mechanism of college-degree village officials in Hubei Province, as well as the advancement of college-degree village officials.

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The Application of Fuzziology to Translation Quality Assessment and Management*

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Abstract: Translation quality assessment and management (TQAM) is an indispensable part of translation studies, and with the advent of translation activities, translation qualities have always been discussed, evaluated and criticized. By introducing the theory of fuzziology, this paper aims at setting up a fuzziology-based TQAM model, attempts to offer a qualitative and quantitative combined TQAM approach, and intends to prove that the fuzziology-based evaluative approach could avoid over subjectivity and inconsistent criteria in TQAM. After a thorough study, the author concludes that it is feasible to apply fuzziology to TQAM study, and a fuzziology-based TQAM model will make translation assessment and management more objective and comprehensive.

Key words: Fuzziology; Translation quality assessment and management; Model; Parameter

1 Introduction

In an age when communication becomes almost inconceivable without translation, special attention needs to be paid to the quality of translations. TQAM is an indispensable part of translation studies, which comes shoulder by shoulder with translation practice and translation teaching. For years, translation scholars and experts focus on general translation criticism, making some subjective criticism and giving some error analysis.

In 1965, Professor Lotfi A. Zadeh of Berkeley University of California published his paper on Fuzzy Sets, in which he first introduced the concept of a class with unsharp boundaries. It is widely accepted that the publication of Fuzzy Sets marked the birth of a new discipline—fuzziology. Fuzziology is the study about fuzziness in our human life, and it is the product of modern science. When the traditional mathematics can not fulfill its role to solve all the complex problems, and can not give precise description or measurement to things without clear-cut borderlines, fuzziology comes into being.

With the introduction of fuzziology to linguistics, fuzziology is no longer a new term in translation studies. According to fuzzy linguistics, fuzziness is an innate feature of language, which can be easily seen in both Chinese and English. As translation is an activity between two languages, fuzziness becomes an unavoidable problem in translation as well. The discovery of fuzziness in translation provides new approaches to TQAM research.

2 Basic Terms in Fuzziology

2.1 Fuzziness

Fuzziology is the study about fuzziness in our human life. In a broad sense, fuzziness is the opposite of being precise. Everything that cannot be defined precisely and everything that has no clearly described boundaries in space or time are considered to be fuzzy. In a narrow sense, fuzziness primarily relates to the definition of fuzzy sets as proposed by Zadeh (1965), that is, the indeterminate property of belongingness.

2.2 Fuzzy logic

Fuzzy logic is a superset of traditional logic dealing with the concept of partial truth—truth values between completely true and completely false. It was first introduced by Dr. Zadeh in 1965 as a means to model the uncertainty of natural language. This allows for values between 0 and 1, and the concept of “maybe.” Specifically, it allows partial membership in a set.

2.3 Fuzzy set

Before elaborating on fuzzy set, a brief introduction to the classical set theory could be necessary and helpful. In the classical set theory, set is defined as the collection of homogenous elements. Anything that belongs to the set is called an element. The classical set theory is based upon the classical logic system. For example, there is an arbitrary element x and a set A , the relationship between x and A could only be: x belongs to set A or x does not belong to A , which can be expressed in the mathematical

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formula as:

$$f_A(x) = \begin{cases} 1, & x \in A \\ 0, & x \notin A \end{cases} \tag{1}$$

From the above formula, we can see that the classical set theory is a binary, absolute prescription on the belongingness of explicit elements. It imposes rigid membership requirements upon the objects within the set. An object is either completely in the set, or it is not in the set at all.

Fuzzy set is an extension of the classical set theory used in fuzzy logic, the introduction of which is to describe elements with indefinite belongingness. A fuzzy set is characterized by a membership-degree function, which maps the members of the Universe into the unit interval [0, 1]. The value 0 means that the member is not included in the given set, 1 describes a fully included member. The values between 0 and 1 characterize fuzzy members. For any fuzzy set A, μ_A represents the membership function, and $\mu_{A(x)}$ indicates the degree of membership that x belongs to set A and is, usually, expressed as a number between 0 and 1:

$$\mu_A(x): X \rightarrow [0, 1] \tag{2}$$

For the universe U ($U = \{x_1, x_2, \dots, x_n\}$), A is a fuzzy set in the Universe, μ_i is the degree that x_n belongs to A. According to Zadeh, fuzzy set A can be expressed as:

$$A = \frac{\mu_1}{x_1} + \frac{\mu_2}{x_2} + \dots + \frac{\mu_n}{x_n} \tag{3}$$

It is worth mentioning that the right part of the equation does not mean any mathematical calculation, in the fraction $\frac{\mu_i}{x_i}$, the denominator is the element in the Universe, while the numerator refers to the degree of membership that this element belongs to set A. The mark “+” in the equation does not mean fuzzy plus, and it just refers to the concept of a set and means the accumulation of elements.

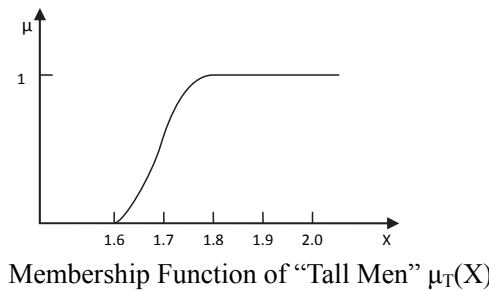
2.4 Degree of membership (DOM)

Degree of Membership indicates the degree that an element belongs to a set. It serves as the foundation in fuzziology application. If we want to make a quantitative analysis of a fuzzy object, we must first set the DOM, and then give a practical membership function. As discussed above, the elements in a fuzzy set normally do not have an absolute membership; in contrast, the membership changes gradually from total-belongingness to non-belongingness. Therefore, the DOM value of an element in a fuzzy set is usually between 0 and 1. A higher DOM value marks a higher degree that an element belongs to a set.

Tallness is a fuzzy concept, and if we take “Tall Men” as a set, then a man who is 1.5 or 1.6 meters tall is not tall at all, so the degree of this man belonging to the fuzzy set “Tall Men” is 0. A man who is 1.8 or 2 meters is absolutely tall, so the DOM of this man belonging to the fuzzy set “Tall Men” is 1. In order to understand the DOM better, we can set the DOM according to our daily experience and express the membership function in a figure. The membership function can be expressed as:

$$\mu_A(x) = \begin{cases} 0, & x \leq 1.6 \\ (x - 1.6) / 2, & 1.6 \leq x \leq 1.8 \\ 1, & x \geq 1.8 \end{cases} \tag{4}$$

Accordingly, we can draw a figure of the membership function “tall men” and “Short Men respectively:



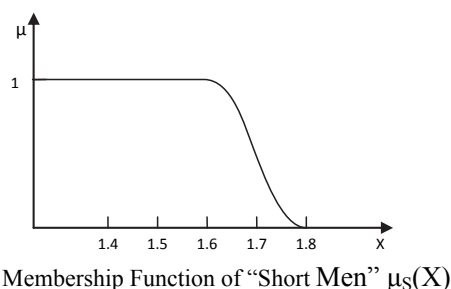


Figure 1 Membership Function of "Tall Men" $\mu_T(X)$

Whether or not a membership function is practical cannot be decided by a single DOM value, and what counts is that the DOM values should reflect the relative belongingness between the elements and a fuzzy set. Then how to determine the DOM value of an element in a fuzzy set? There are generally two ways: one is to give or fix the DOM values by experts in a particular field; the other is to determine the DOM values through fuzzy statistics, that is, the values are decided by the concentrating tendency shown among common people. DOM is a measurement to the fuzziness of things. The objectivity of fuzziness decides the objectivity of DOM.

2.5 Linguistic variables

The concept of linguistic variables introduced by Zadeh is an alternative approach to modeling human thinking. Information is expressed in terms of fuzzy sets instead of crisp numbers. A linguistic variable is a quintuple $\{x, T(x), X, G, M\}$ where x is the name of the variable, $T(x)$ is the set of linguistic terms (or values), X is the universe of discourse, G is a syntactic (grammatical) rule that generates the linguistic values, and M is a semantic rule which provides meanings for the linguistic values. Linguistic variables are usually adverbs or adjectives used to describe the belonging relations between an element and a fuzzy set, and are frequently listed in a grading linear chain.

3 Fuzziology and Translation

If we want to study the property of translation, we need to know something about the property of language first. Fuzziness, as one of the most arresting and complex features of language, might also be an objective property of translation. The exploration of the property of fuzziness in translation would provide a theoretical basis for the application of fuzziology to TQAM.

3.1 Fuzziness—the innate feature of language

Language is used to describe the objective world. Compared with the infinite objects in the universe, language is relatively limited and finite; moreover, there are lots of objects which cannot be categorized clearly in the world. Therefore, fuzziness is an innate feature of language, and it is ubiquitous in language.

3.2 Fuzziness— an objective property of translation

Translation is an activity between two languages, so the study of translation should go hand in hand with the study of language. According to our conclusion above that fuzziness is the innate feature of language; we can bravely infer that fuzziness is inevitable in the activities of translation.

3.2.1 Fuzziness in the process of translation

Up till now, translation is an activity mainly conducted in human mind; thus, human thinking becomes a main factor in the process of translation. It is widely accepted that human beings have both precise and fuzzy thinking competences. For example, when we calculate a formula "two plus two," we can get the answer "four," and this is the result of precise thinking; and when we figure out the sentence "He is ten times the man you are" means "He is much cleverer than you," we are using fuzzy thinking although there is a precise number "ten times" in the sentence. Whether we notice it or not, we are incessantly using fuzzy thinking in daily life; likewise, translators may consciously or unconsciously use fuzzy thinking when they analyze the information of the source language text (SLT), transfer information from source language (SL) to target language (TL), and reorganize the information. As a result of fuzzy thinking, we can be certain that fuzziness is omnipresent in the process of translation.

3.2.2 Fuzziness in translation criteria

Translation criterion is a tool used to guide translation practice and measure the quality of

translations. Ever since the emergence of translation activities, different translation criteria have been put forward. The changing feature of translation criterion and the complexity of translation activities jointly result in the fuzziness of translation criterion.

4 Translation Quality Assessment and Management

Viewing from the previous studies, TQAM models can be divided into two main types: models with a quantitative dimension, and non-quantitative, textological models. A review on TQAM study in the west and at home will keep us informed of the great achievements in TQAM study and its status quo.

4.1 TQAM study home and abroad

The pioneer in TQAM study was the German translation theorist Katharina Reiss. Her great work *Translation Criticism: the Potentials & Limitations* has long since achieved the status of a pioneer work in the study of translation criticism and also opened a window for the study of TQAM.

Several years after the pioneering work of Reiss, another German scholar, Juliane House, published her PhD dissertation "A Model for Translation Quality Assessment".

In China, translation criticism and assessment have been viewed and practiced as an act of error analysis for quite a long time. Although the inadequacy of this traditional translation criticism is gradually realized by some translation critics and theorists, translation assessment and management, to a large extent, is still spontaneous and impressionistic. In general, the domestic TQAM study lags relatively behind, comparing with the findings of TQAM research in western countries.

4.2 Attempts of applying fuzziology in TQAM

Fuzziology was born in the west, and has been widely used in many different disciplines, but the writer has found no reference of combining fuzziology with TQAM abroad at present. While in China, there are some scholars who have made such attempts.

In 1987, Fan Shouyi made an initiative attempt on applying fuzziology to translation assessment. His article, *Fuzzy Mathematics and Translation Assessment*, published on the Chinese Translators Journal aimed at exploring a quantitative evaluation method, so as to compensate the deficiency in the traditional qualitative evaluation method. In the article, Fan Shouyi took faithfulness as the translation criterion, and set the DOM empirically. Based upon Fan Shouyi's research findings, Mu Lei made a further study on applying fuzzy mathematics to translation assessment and management, in which she enlarged the criterion from "faithfulness" to "faithfulness" "fluency" and "elegancy" and proposed that certain weighting should be given to the three criteria according to the characteristic and requirement of the translation. Mu Lei's research is a further step in this interdisciplinary study and her suggestion of using computer to assess the quality of translation is instructive and prospective.

Obviously, by introducing a new theory and method, Fan Shouyi and Mu Lei's contribution to translation studies is great with regard to TQAM, but their limitation is they didn't further study a detailed and reliable TQAM model based upon fuzziology.

5 The Construction and Application of a Fuzziology-based TQAM Model

The previous study has made a thorough investigation on the relationship between fuzziology and translation. After careful examination, we have found that fuzziness is both the innate feature of language and an objective property of translation. In accordance with the analysis in 3.2, the descriptions about the nature of translation, the criteria of translation and the process of translation all possess fuzzy features; hereby, we should also consider this fuzzy property of translation in assessing and managing the quality of translation.

5.1 The establishment of fuzzy set and fuzzy elements in TQAM

As introduced in 2.3, fuzzy set is an extension of the classical set theory used in fuzzy logic, which is used to describe elements with indefinite belongingness. TQAM takes translated versions as its main research object. In evaluating and managing a translation, we may often make judgments as: this version is good, that one is bad, and that is all without any further steps. However, to give comprehensive and objective assessment and management, we have to go further by studying how good a version is, and to what extent one version is better than others. As we may notice here, both good translations and bad translations are fuzzy sets, because there is no absolute criterion to mark a good translation or a bad translation; in the same way, there is not a clear-cut borderline between good translations and bad translations. We can choose the fuzzy words "good" or "bad" to denote the fuzzy sets in TQAM; similarly, we may use other fuzzy expressions such as "appropriate", "inappropriate," "faithful," "close"

and so on. The name of the fuzzy set is normally decided by the superlative criterion we will use in the assessment and management.

In TQAM, fuzzy set covers a wide scope, and the elements belonging to the fuzzy set can refer to any translated versions. For instance, we establish “good translations” as fuzzy set A, and an arbitrary translated text X is an element of A. Whatever the case, this element X belongs to A with a certain DOM. If X is a distinguished version, then X has a higher degree of belonging to A, and the DOM might reach 0.95, and if X is a poor version, it may have a very lower degree of belonging to fuzzy set A, and the DOM might only be 0.1.

5.2 The establishment of DOM in TQAM

The elements of a fuzzy set change gradually from belonging-to to not-belonging-to from the kernel part of a set to the peripheral part. So the degree of an element’s belongingness to a fuzzy set can be marked by the values between 0 and 1. From the concept of DOM, we know that a common set is actually the special case of a fuzzy set: there are only two values for DM, 0 and 1. That is, in a common set, an element in the universe either belongs to the set or doesn’t belong to it. The significance in the concept of fuzzy set lies in that it gives much attention to the elements standing between the outer (DM=0) and the kernel (DM=1).

The concept of DOM is the cornerstone of applying fuzziology to solving practical problems. In TQAM, DOM also plays a quite significant role. In some cases, the DOM values are directly used to judge the quality of a translation or to compare the quality of different translated versions with the same SLT. Then how to determine the DOM value in TQAM?

In 1.4, we have already discussed that there are generally two ways to determine the DOM value of an element in a fuzzy set. One is to set up a DOM value by the experts in the particular field empirically. Although this method cannot be deprived of subjective influence, DOM values given by experts are relatively reliable and objective. If we want to get a more objective and scientific DOM, we may also choose to use fuzzy statistics, that is, the values are determined by the concentrating tendency shown among common people. DOM value is a kind of quantitative prescription, but not the same to the measurements of height or length in physics. Different people might give different DOM values to the same translation. The differences between the values don’t count much, what is of importance is that the values should indicate the relative belonging relations between the elements and a fuzzy set. For the time being, as there are not many people setting foot in the research of the application of fuzziology to TQAM, the DOM value is generally given by translation experts based on their empirical research and professional knowledge, as is the case in Fan Shouyi’s article, in which the DOM values are given by the professor himself. If the fuzziology-based TQAM model can be widespread or be used in machine translation, related research on setting up DOM values through fuzzy statistics will be more popular and easier.

5.3 The criterion of TQAM and concrete parameters

To evaluate the quality of a translation, an appropriate criterion is certainly needed. Viewing the translation history at home and abroad, translation criterion has been a key issue in translation theory over the last 3000 years. Gu Zhengkun ascribed any efforts and attempts of setting up an absolute translation criterion to the one-dimensional and stereotyped thinking modes. In his opinion, specific translation criterion is not exclusive, whereas, there should be multiple criteria. Gu Zhengkun’s multi-criteria system incidentally explains the fuzziness of translation criteria. To make translation assessment and management more objective, a superlative standard is needed. Gu Zhengkun replaces the commonly used “faithfulness,” and “equivalence” with “closest approximation,” and he believes “closest approximation” as a superlative criterion is more objective because any translation is an attempt to come as approximate as possible to the ST. In this paper, we will quote Gu Zhengkun’s “closest approximation” as the comprehensive and superlative criterion in TQAM.

As Professor Gu himself comments: “closest approximation” is an abstract concept, to judge whether translation has a high degree of approximation, we need to set some concrete parameters. The next questions, then, are about “How many concrete standards or parameters should be set?” and “What kind of parameters should be chosen?” In theory, there might be numerous parameters, but to list all the possible parameters does not have any practical meaning. What means is that the parameters should be set according to the specific conditions such as the types of texts, the demands of the receptors and so forth.

In this paper, the goal is to present a new approach for translation assessment and management, so the author will just concentrate on several key concrete parameters. Generally, the objective assessment and management of a translated text seeks to measure the degree of efficiency of the translation with

regard to the syntactic, semantic and pragmatic function. Taking into account the above mentioned factors we are supposed to consider in TQAM as well as referring to the parameters raised by Fan Shouyi, we can highlight six parameters, which are: syntactical structure, semantic collocation, pragmatic function, rhetoric, style, and transformation of cultural images.

5.4 Setting of weight

The use of multi-dimensional translation criteria keeps us from being too arbitrary in TQAM contrasting to the use of only one criterion. Multiple criteria enable evaluators to assess a translation from different angles and levels, which thus does more justice to both the translation and the translator. However, the simple use of multiple criteria is still not enough to make the assessment objective. For each individual translation, the parameters may have different importance. For example, in scientific translations, the importance of rhetoric may be less than that in literary translations. As a result, we should allocate different weight values to the parameters by careful analysis of the specific ST and TT. Weight is usually abbreviated as “W” in mathematics and statistics, and one rule we must obey in determining the weight values is that the total number of all the weight values amounts to 1, which can be expressed as the following formula:

$$W_1+W_2+...+W_i=1 \tag{5}$$

With the introducing of weight, the process of assessment and management can be divided into two steps: first, assess the translation according to each separate parameter and get the DOM value of these parameters; second, make a comprehensive assessment in terms of weight allocated to each parameter and the final evaluative result is the value of the superlative criterion. In this paper, the final result will be the degree of approximation.

5.5 The construction of the fuzziology-based TQAM model

After discussing all the possible factors that may be involved in the model, we will explain in detail how the fuzziology-based TQAM model works. In fuzziology, the belonging relationship between an element and a fuzzy set is usually expressed in linguistic variables. The variables are listed in a grading linear chain that starts from one extreme and ends at another. For the convenience of calculation, the variables can be changed to the corresponding DOM values between 0 and 1. According to the superlative criterion, we can list the linguistic variables and its corresponding DOM values in the following table:

Table 1 Linguistic Variables and DOM Values

Order	Linguistic variables	Corresponding DOM Values
A	Extremely Approximate	0.9
B	Very Approximate	0.8
C	Rather Approximate	0.7
D	Relatively Approximate	0.6
E	Not Approximate	0.5
F	A Little Far	0.4
G	Rather Far	0.3
H	Very Far	0.2
I	Extremely Far	0.1

If we regard “relatively approximate” translation to be adequate, then DOM values below 0.6 will be inadequate. These linguistic variables will also be used to mark the value of each parameter, and thus they together combine a universe of comments. Suppose U is a set of the minor parameters, and V is a set to mark the goodness of the translation, then the two sets can be expressed as:

$$U = \{u|u_1, u_2...u_6\} (u_1=\text{syntactical structure}, u_2=\text{semantic collocation}...)$$

$$V = \{v|v_1, v_2...v_9\} (v_1=\text{extremely approximate}, v_2=\text{very approximate}...)$$

In the following, the method of fuzziology-based TQAM will be introduced in three steps.

First, evaluate the translated version based upon the individual parameter. If the version is composed of ten sentences, we can first assess the sentences separately, get the DOM of each sentence, and then calculate the average DOM value of all the sentences, which will be the DOM value of the version. To make things simpler, here we will take the whole version as an evaluation unit. Suppose there are 10 experts to evaluate the version, and the DOM value for each parameter is:

$$Ru_1 = \{0, 0.2, 0.6, 0.2, 0, 0, 0, 0, 0\}$$

$$\begin{aligned}
 Ru_2 &= \{0.1, 0.1, 0.5, 0.1, 0.2, 0, 0, 0, 0\} \\
 Ru_3 &= \{0, 0.1, 0.3, 0.3, 0.2, 0, 0.1, 0, 0\} \\
 Ru_4 &= \{0.1, 0.1, 0.4, 0.1, 0.2, 0.1, 0, 0, 0\} \\
 Ru_5 &= \{0, 0.2, 0.3, 0.1, 0.1, 0.2, 0.1, 0, 0\} \\
 Ru_6 &= \{0.1, 0.1, 0.5, 0.1, 0.1, 0.1, 0, 0, 0\}
 \end{aligned}$$

Accordingly, we can have a fuzzy matrix:

$$R = \begin{matrix}
 & \begin{matrix} 0 & 0.2 & 0.6 & 0.2 & 0 & 0 & 0 & 0 & 0 \end{matrix} \\
 \begin{matrix} 0 \\ 0.1 \\ 0 \\ 0.1 \\ 0 \\ 0.1 \end{matrix} & \begin{matrix} 0.1 & 0.1 & 0.5 & 0.1 & 0.2 & 0 & 0 & 0 & 0 \\
 0 & 0.1 & 0.3 & 0.3 & 0.2 & 0 & 0.1 & 0 & 0 \\
 0.1 & 0.1 & 0.4 & 0.1 & 0.2 & 0.1 & 0 & 0 & 0 \\
 0 & 0.2 & 0.3 & 0.1 & 0.1 & 0.2 & 0.1 & 0 & 0 \\
 0.1 & 0.1 & 0.5 & 0.1 & 0.1 & 0.1 & 0 & 0 & 0 \end{matrix}
 \end{matrix}$$

Second, allocate different weight values to the parameters according to the characteristics of the text:

$$A = (0.3, 0.3, 0.1, 0.1, 0.1, 0.1)$$

Third, give comprehensive evaluation to the version:

$$\begin{aligned}
 B &= A \bullet R \\
 &= (0.05, 0.14, 0.48, 0.15, 0.12, 0.04, 0.02, 0, 0)
 \end{aligned}$$

The result is a comprehensive considering of the six parameters, and shows the percentage of the degree of approximation between the ST and the TT. Referring to table 1, we can work out the DOM value of the translated version by applying the corresponding DOM values of each linguistic variable to the formula:

$$\begin{aligned}
 \text{DOM} &= 0.9 \times 5\% + 0.8 \times 14\% + 0.7 \times 48\% + 0.6 \times 15\% + 0.5 \times 12\% + 0.4 \times 4\% + 0.3 \times 2\% + 0 + 0 \\
 &= 0.665
 \end{aligned}$$

Thus, we can conclude that the translated version is approximate to the original text with a degree of 0.665, and comparing value with the linguistic variables in table 1, this version is relatively approximate to the ST.

So far we have discussed the method of applying fuzziology to TQAM, and the practical value of this TQAM model is obvious.

First, the application of fuzziology to TQAM makes the evaluation more objective. As has been demonstrated above, this model takes into account the different factors that may influence the objectivity of the assessment and management, for instance, the setting of parameters and considerations of giving different weight to the parameters.

Second, in this TQAM model, qualitative and quantitative techniques are combined, so a consistent and reliable result can be reached. As there is always a numerical value to show the goodness of a translation, it makes the comparison among different versions easier.

Third, the fuzziology-based TQAM model is largely an open model, that is to say, it is widely applicable. To evaluate different text types, what we should do is to change the parameters or alter the weight values, yet, the overall method remains the same.

6 Conclusion

From the discussions and analysis in this paper, it can be concluded that it is feasible to apply fuzziology to TQAM and the practical values of the fuzziology-based TQAM model should be great. First, it makes TQAM more objective because this model takes into account the different factors that may influence the objectivity of the assessment. Second, the combination of qualitative and quantitative techniques in this TQAM model makes it easier to compare the goodness of different versions with the same SLT. Third, the fuzziology-based TQAM model being largely an open model is widely applicable. In addition, this model should play an important part in translation teaching, because it will help the teachers to assess and manage the students' translation exercises and tests more objectively and thoroughly, which in turn, will improve students' competence and promote translation teaching.

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Study on the Influence of Lexical Chunk on the Development of Non-English Majors' Oral English Proficiency

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Abstract: This study was accomplished to examine whether the lexical chunks could improve non-English majors' oral proficiency. Two classes of non-English majors participated in this experiment which lasted ten weeks with a hundred periods. The teaching methodology of the experimental class was lexical approach while the teaching methodology of the control class was functional approach. The researcher hopes that this study can to some degree help to expand the range to improve spoken language teaching and learning.

Key words: Lexical chunk; Non-english majors; Lexical approach; Oral english proficiency

1 Introduction

In recent years, Lexical chunks research has been popular. Lexical chunks refer to those multi-word units with relatively fixed form. Lexical chunks are usually prefabricated units which are stored and memorized as a whole. They are convenient and useful for speaker to retrieve from memory to generate spoken language. The development of corpus linguistics shows that 70 percent of natural utterances are completed by the semi-fixed "chunks" existing between words and fixed phrases (Altenberg, 1991). Lewis (1993) proposes that lexical chunks learning and teaching can improve learners' language proficiency by the means of lexical approach. Whether oral proficiency, as one of the important goals of foreign language teaching, could be improved by the means of lexical approach began to draw close attention from researchers. It is very common in China that most Chinese EFL learners can not speak English proficiently even after they have learned English for many years. Researches in the field studying the relation between lexical chunk and Chinese EFL learners oral proficiency is quite few. It is undoubtedly significant to probe into this question.

2 Methodology

2.1 Research questions

This research is going to address the following two questions:

- 1) To what degree will lexical chunk approach influence students' oral proficiency?
- 2) What is the better approach to lexical chunk teaching?

2.2. Subjects

60 sophomores in 2 classes in Non-English Majors in Wuhan Textile University (WTU) responded to the Vocabulary Learning Strategies Questionnaire and English Vocabulary Test. Among the 60 subjects, there were 35 females and 25 males. The age group ranges from 19 to 21 with an average of 20. The subjects are divided into 2 classes and each class has 30 trainees. One class is designed as control class and another one is the experiment class.

Table 1 The Descriptive Statistics of the Pretest Scores of the Control Class and the Experimental Class Group Statistics

Class		N	Mean	Std. Deviation	Std. Error Mean
Pretest Score	control class	30	9.563	1.1409	.2083
	experimental class	30	9.473	1.1808	.2155

The descriptive statistics of the pretest scores of the control class and the experimental class shows that the mean of the control class is 9.563 and the mean of the experimental class is 9.473.

The significance of the test of equality of variance is .798, far above .05. Thus an independent sample T-test can be conducted subsequently. The descriptive statistics displays that the significance level is .765, far above .05, signifying that the trainees in both the control class and the experimental class were at almost same level in terms of the oral English before the experiment.

Table 2 Independent Samples T-Test of Pretest Scores Between Control Class and Experimental Class

	Equality of Variances		Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	.066	.798	.300	58	.765	.0900	.2997
Equal variances not assumed			.300	57.932	.765	.0900	.2997

3 Results and Discussion

3.1 Statistical comparison of control group’ oral proficiency in pre- and post- oral test

Table 3 the Descriptive Statistics of the Paired Sample T Test Between Pretest Score and Posttest Score in Control Group

	Mean	N	Std. Deviation	Std. Error Mean
Control Pretest Score	9.563	30	1.1409	.2083
group Posttest Score	9.770	30	1.1659	.2129

Table 4 Correlation Test Statistics of the Paired Sample T Test Between Pretest Score and Posttest Score in Control Group

	N	Correlation	Sig.
Control Pretest Score & Posttest Score	30	.983	.000

The correlation between the pretest scores and the posttest scores is .983 and the significance is .000. Thus a paired samples test of the pretest scores test and the posttest scores of the control class can be conducted.

Table 5 Paired Samples Test of Students’ Pre- and Post- Test (Control Group)

Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
			Lower	Upper			
-.2067	.2164	.0395	-.2875	-.1258	-5.230	29	.000

From table5 above, we can see that, the sig is .000 which means there is significant difference between the pretest scores and the posttest scores of the control group, in other words, the trainees of the controlled class have made significant progress. The functional teaching methodology was employed in this class and it is a very popular teaching method in the EFL class in China.

3.2 Statistical comparison of experimental group’ oral proficiency in pre- and post- oral test

After the above paired samples test, the author consequently conducted another paired samples test of the experimental class for a purpose to make clear if there is a significant difference between the pretest scores and the posttest scores, thus the progress of the experiment after its pretest will be known. The test result is as follows:

Table 6 the descriptive statistics of the paired sample T test between pretest score and posttest score in experimental group.

Table 6 Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Experim Pretest Score	9.473	30	1.1806	.2155
ental Posttest Score	10.373	30	1.1123	.2031

Table7 the correlation test statistics of the paired sample T test between pretest score and posttest

score in experimental group.

Table 7 Paired Samples Correlations

		N	Correlation	Sig.
Experimental group	Pretest Score & Posttest Score	30	.993	.000

The test of the paired samples correlations shows that the correlation between the pretest scores and the posttest scores in the control class is .983 and the significance is .000. Thus a paired samples test of the pretest scores and the posttest scores of the experimental class can be conducted.

Table 8 Paired Samples Test of students' Pre- and Post- Test (experimental group)

Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
			Lower	Upper			
-.9000	.1554	.0284	-.9580	-.8420	-31.729	29	.000

Data in Table 8 above shows that, the sig is .000, signifying there is significant difference between the pretest scores and posttest scores of the experimental class. In other words, the language proficiency of students in this class has increased significantly, comparing with the level before experiment. In the experimental class, functional teaching approach was also employed, meanwhile, a new approach was also introduced, and that is lexical approach. Lexical approach is a teaching approach that is centered on chunks learning activities which in the end serve to improve the language learners' competence level. Lexical approach should be combined with other teaching approaches to maximize its pedagogical effect. Its advantage over other teaching methods is that lexical approach can bridge the opposition between the structuralist teaching approach and the functional approach or the other teaching approaches because of its at grammaticalized lexis nature which could be processed and stored as "chunks", and the "chunks" can also be "copied" into larger and larger structures of "chunks" which can serve all kinds of language functions as called. In other words, "chunk" itself, an independent language unit, can make itself an easy way to be remembered and used so that language learning could be efficient.

3.3 The difference of students' language proficiency between control group and experimental group after Experiment

Because the paired samples test still can not tell which class' oral proficiency level is higher than the other, than the author conducted the independent samples test of between the posttest scores of the experimental class and the control class to see if there is a significant difference between the posttest oral proficiency level of the control class and its counterpart of the experimental class. The result is as follows:

Table 9 The Descriptive Statistics of the Posttest Scores of the Control Class and the Experimental Class

Class		N	Mean	Std. Deviation	Std. Error Mean
Posttest Score	control class	30	9.770	1.1659	.2129
	experimental class	30	10.373	1.1123	.2031

Descriptive statistics displays that the mean of the control class is 9.77, and the mean of the experimental class is 10.373.

Levene's Test for Equality of Variances		t-test for Equality of Means							
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
							Lower	Upper	
.272	.604	-2.051	58	.045	-.6033	.2942	-1.1922	-.0144	
		-2.051	57.872	.045	-.6033	.2942	-1.1923	-.0144	

After the experiment, a significant difference can be found between the two groups of students. Table 4 above shows that, after a three-month training program, the language proficiency of students in the experimental group is higher than their counterparts in control group (Mean= $-.6033$), and the difference is of great significance (sig = 0.045).

3.4 Degree of the influence of lexical chunk approach on students' oral proficiency.

In the author's opinion, though both the functional approach and the chunk approach proved to be effective in improving students' language proficiency, to the special learner group as the non-English majors in this experiment, by applying the chunk approach, the teacher could inform them of more targeted and meaningful basic language knowledge to strengthen their language foundation and improve their self-confidence as well. In the followed interviews, student X from the control group revealed that, though the teacher has provided them a lot of communication patterns by tending to the functional approach, these communication patterns and formats are very necessary for their future communication abroad. But due to the fact that most trainees at their age have a weak language foundation, a lot of language knowledge has already been forgotten with the passage of time, besides, the busy work leaves them with little time to digest and absorb, not to mention the independent learning of language knowledge as vocabulary, phrases, language structure and so on. Even though they made some efforts toward this direction, they often get frustrated as no appropriate approach can be found. In such case lexical approach is a good choice to solidify the trainees' language knowledge; lexical approach is also a good way to develop the trainees' self-learning ability. Student F from the experimental class confessed that, the chunk approach introduced employed by teacher is very helpful for his learning of vocabulary and phrases. After learning and trying of this new approach, his efficiency of language learning, including the memorization of words, the reciting of texts have been improved clearly, so is his self-confidence, as a result, his oral proficiency is improved.

4 Conclusion

This teaching research shows that lexical chunk has significant influence on oral English proficiency. The score increase of the experiment class is more significant than that made by the control class. This research shows that even non-English majors can also master great number of lexical chunks to speak English correctly and proficiently and that lexical chunk has positive influence on oral proficiency in both broad and narrow senses. As for its limitations, firstly, length of the training is only 3 months. Data collection of three months seems not long enough to back up a perfectly cogent result. Thus a plan of long term experiment is necessary to consolidate the result. Secondly, the number of sample cases is not big enough to produce more convincing results. The author supports the idea that it is natural and effective for lexical approach to combine with functional approach.

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Current Situation and Countermeasures of Interpreting Teaching in China

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Abstract: The status quo of market demand for interpreters has presented a tremendous challenge to interpreting teaching in universities. In virtue of the theories and methods of bibliometrics, this paper analyzes the development of interpreting teaching in China from the perspective of time and space development orientation and hence proposes some countermeasures in favor of its future development. The analysis results indicate that: at present, the research of interpreting teaching in China is steadily advancing and developing; interpreting teaching has been comprehensively improved, but the research gross is insufficient and the research topics are disperse, unfocused and discontinuous; research areas of most institutions are relatively narrow and single, and the main topics of each institution are prominent whereas the main institutions of each topic are obvious; three countermeasures are proposed to improve the future development of the interpreting teaching in China.

Key words: Interpreting teaching; Spatial and temporal analysis; Co-occurrence analysis; Visualization

1 Introduction

With the formation of the omnibearing and multi-field pattern of opening to the outside world, exchanges between China and foreign countries have become increasingly frequent and the Chinese interpreting market demand for highly skilled interpreters in various fields has been escalating^[1]. From the first UN translation training class established in Beijing Foreign Studies Institute in 1979 to official enrollment of Master of Translation and Interpreting (MTI) in 2008, China's interpreting teaching has achieved striking progress within no more than 30 years, a number of new changes occurring. Likewise, our interpreting teaching practices and researches have caught more and more attention in recent years^[2].

Based on the status survey of interpreting teaching evaluation for undergraduate translation majors, Zhang Min (2015) has analyzed the present problems and proposed that the solutions rest in establishing a complete interpreting teaching evaluation system^[3]. Based on the present situation of English-interpreting teaching in Chinese institutes of nationalities, Zhang Jinwei and Zhang Liyu (2015) have put forward a multi-dimensional and integrated new reform model of interpreting teaching in institutes of nationalities by intensifying the research to those individual factors such as interpreting teaching objectives, syllabus, basic education, characteristic teaching materials, curriculum system, teaching methods, and evaluation system^[4]. Based on the five research topics of teaching model, teaching method, technological tool, independent study, and corpus development, Liu Zhen and He Mingjia (2014) have conducted statistic analysis of papers in the field of computer-assisted interpreting teaching and raised some relevant advice accordingly^[5]. Jia Rongxiang (2010) has suggested that universities should reinforce undergraduate interpreting training in the aspect of college English interpreting course arrangement and guide the college English interpreting teaching, starting with interpreting test, and that universities should help improve educators' own interpreting proficiency and teaching awareness and renew their educational ideals^[6].

In order to understand the general development and research status of interpreting teaching in China, we have conducted a bibliometric analysis about the journal articles published by scholars studying interpreting. From the angle of combination of qualitative method and quantitative method, we have analyzed the timing sequence development and spatial development of interpreting teaching in China and come up with countermeasures for the future development accordingly, hoping to offer some reference for the research and discipline construction of interpreting teaching of China.

2 Data Sources and Processing and Researching Methods

2.1 Data sources and processing method

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All the data used in this paper are from *China Academic Journals Full-text Database* of CNKI (China National Knowledge Internet). Document retrieval is made with unlimited number of years and unlimited journal source category, interpreting teaching being the topic, matched pattern being precision. After removing conference notices, periodical directories, book reviews, calls for papers, instructions for authors, news in brief, and documents without keywords, authors, and institutions, we obtained 1497 papers meeting the standards and set up a database, the data of which were downloaded on May, 31, 2015.

The collected data were processed: to begin with, via the self-compiled program the field data, such as time, keywords, institution, etc., are transformed into the format which can be processed by Bibexcel software; then, a broken line graph is drawn to show the document quantity changes with time, and the time-keyword co-occurrence matrix is structured and the 2-norms network graph is visualized to dig into the timing sequence development status of interpreting teaching; thirdly, the major research institutions in interpreting teaching field are counted to structure the institution-keyword co-occurrence matrix and visualize the 2-norms network graph, in order to analyze the spatial development status of interpreting teaching; finally, some countermeasures are proposed, which are favorable for the future development of interpreting teaching in China.

2.2 Researching methods

(1) Co-occurrence analysis: the analysis quantifying the co-occurring information in various carriers to reveal its content correlation and underlying information. In bibliometrical studies, some relevance is bound to exist between the co-occurring characteristic items and its degree can be measured by co-occurrence frequency. Mainly through establishing time-keyword co-occurrence matrix and institution-keyword co-occurrence matrix, this paper explores the variation trend of China's interpreting teaching research topics with time and the major research topics of different institutions in this field.

(2) Visualization method: the technology which transforms data into graphs or images shown on the screen and processes them interactively by using computer graphics and image processing techniques. In the late of the 20th century, visualization method was gradually applied into information analysis because it could directly and effectively display the information analysis result, discover concealed information, making up for the deficiency of traditional information analysis. This paper vividly demonstrates the status quo of interpreting teaching in China and makes a further analysis by drawing the time-keyword and institution-keyword 2-norms network graph with UCINET software.

3 The Timing Sequence Development Status of Interpreting Teaching

3.1 Analysis about number of published papers in time dimension

The statistic analysis is performed about the publication year of data concentration journal articles and the broken line graph is drawn to show the change of document quantity in different years, as is displayed in Fig. 1.

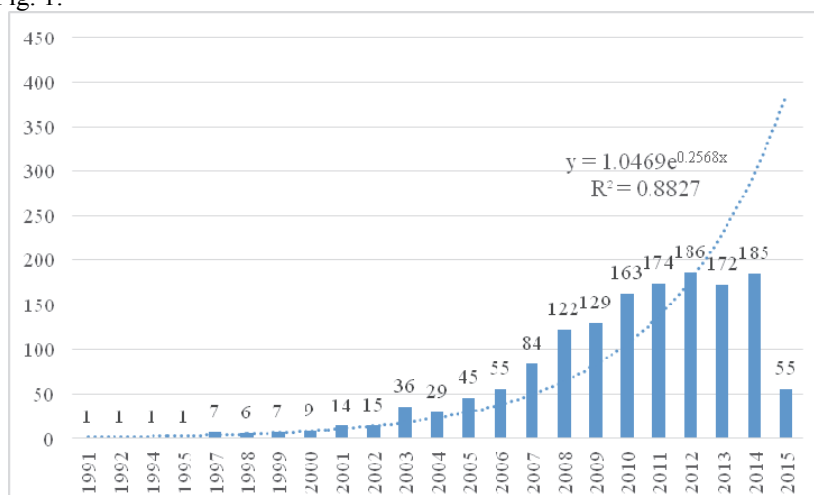


Figure 1 The Broken Line Graph about Sequential Variation of Document Publishing

By looking into Fig. 1, the number of journal articles about interpreting teaching was relatively fewer published in each year before 2002, and its growth rate was slow; since 2003 the number of articles has been soaring rapidly and continuously, reaching the peak value of 186 in 2012, which

indicates an increasing number of scholars were engaged into the research of interpreting teaching; hereafter, its growth rate tended to be flat, meaning the China's interpreting teaching research boosted and developed steadily. A trend line is added into the graph. When trying adding the exponential trend line, the maximum of coefficient of determination R^2 is obtained as 0.8827 with fairly high fitting degree, and the trend line equation is $y = 1.0469e^{0.2568x}$, indicating that the number of journal articles about interpreting teaching has increased in approximately exponential trend in the last two decades, which satisfies the Price document exponential growth law.

3.2 Analysis about research topics in time dimension

Keywords are the concentration and refinement of the core content of an article. If a certain keyword occurs repeatedly in the articles of this field, it reflects that this keyword or the research topic represented by it is the research hotspot in the field, and that the more frequent the keyword occurs, the hotter the research about this field is^[7]. Based on keyword frequency statistics, this paper analyzes the research topics of the retrieved interpreting teaching articles. As the basis of the database establishment in this paper, "interpreting teaching", "interpreting", "teaching" are without keyword statistic significance, so they are omitted during counting word frequency. When handling keywords, we firstly merge the synonyms and near-synonyms, then preprocess the fields of the keywords and transform them into the format which can be identified by Bibexcel, and finally count the word frequency with Bibexcel. Statistically, 1497 articles include 2424 keywords whose total frequency is 5823.

To show the time-dependent trend of topics clearly, the keyword-time 2-dimensional matrix is structured, in which the time-dependent trend of the top 10 frequent keywords are shown in Table 1. And the 2-dimensional matrix is led into UCINET software to draw the time-keyword 2-norms network graph with NETDRAW plug-in, as is shown in Fig. 2.

Table 1 The Time-dependent Trend of the Top 10 Frequent Keywords

	1991	1992	1994	1995	1997	1998	1999	2000	2001	2002	2003	2004
interpreting course	1	0	0	1	4	3	3	2	1	0	4	4
interpreting competence	0	0	0	0	0	1	1	0	1	0	1	1
interpreting skill	0	0	0	0	0	0	0	0	0	1	0	1
simultaneous interpretation	1	0	0	0	1	1	2	1	2	1	2	3
English major	0	0	0	0	1	1	0	0	0	0	0	0
English interpretation	0	0	0	0	0	0	0	0	0	0	1	0
teaching model	0	0	0	0	0	0	0	0	0	0	0	0
consecutive interpreting	0	0	0	0	0	1	1	1	0	0	1	3
teaching method	0	0	0	0	0	0	0	1	1	0	0	0
curriculum provision	0	0	0	0	0	0	0	0	0	0	1	0
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
interpreting course	0	1	2	5	2	1	4	2	2	1	0	43
interpreting competence	1	0	5	1	4	3	7	3	6	6	1	42
interpreting skill	2	1	3	4	1	4	6	6	7	5	0	41
simultaneous interpretation	3	1	7	3	1	2	1	4	0	2	2	40
English major	1	1	2	4	2	4	7	3	2	8	1	37
English interpretation	2	1	3	4	2	1	3	4	7	5	4	37
teaching model	3	0	2	3	7	2	4	5	6	3	1	36
consecutive interpreting	3	0	3	2	1	3	4	5	3	3	2	36
teaching method	1	1	2	3	5	5	5	4	3	3	0	34
curriculum provision	0	1	1	5	7	2	5	3	1	6	0	32

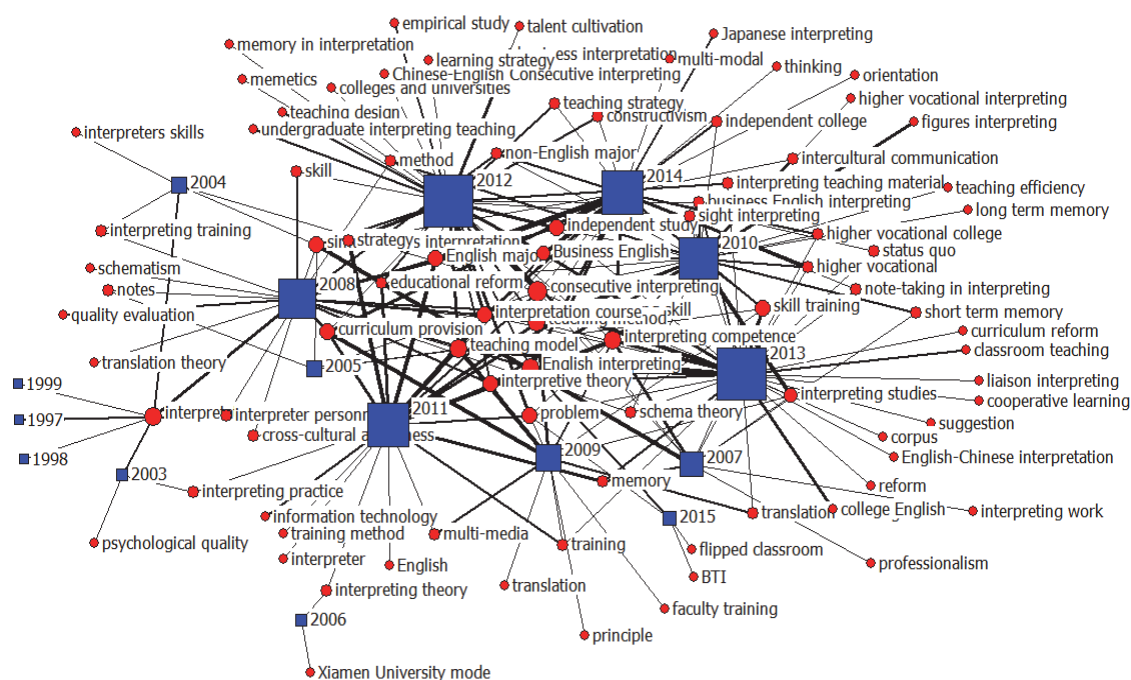


Figure 2 The Time-Keyword 2-Norms Network Graph When Threshold is 3

In Fig. 2, square nodes represent time and round ones keywords. The size of nodes represents their degree; the thickness of lines stands for the weight, reflecting the co-occurrence frequency of time and keywords. To show the time-dependent trend of keywords clearly, the threshold value is set to be 3 and nodes are deleted. With Table 1, Fig. 2 and background data, it is discovered:

(1) In terms of time, before 2002 the research topics of interpreting teaching were disperse and inconspicuous. Only the interpreting course was steadily studied for many times in 1997, 1998, and 1999. During 2003-2007, the research of interpreting teaching was mainly the summary of teaching methods and practical experiences. The research topics in this period included interpreting practice, interpreting training, interpreting skills, interpreting theory, Xiamen University mode, simultaneous interpreting, consecutive interpreting, notes, professionalism, interpreting work, interpreting studies, etc., indicating that the contemporary interpreting teaching research had been extended to interpreting theory, skill and method and that the relevant research about interpreting teaching had been consolidated and promoted all the time. Since 2008, the number of journal articles about interpreting teaching has increased rapidly. For one thing, some research topics such as teaching model, consecutive interpreting, interpreting competence, business English, problems and countermeasures of interpreting teaching etc., have been studied continuously, which are both hot subjects of interpreting teaching in China and core research topics; for another, some characteristic research topics occur each year. For instance, 2008 concerned translation theory and schematism, and quality assessment of interpreting teaching; 2009 concerned the translation and interpreting principles and faculty training; 2010 concerned teaching efficiency, figures interpreting and high vocational interpreting; 2011 concerned information technology and training method; 2012 concerned undergraduate interpreting teaching, memetics, learning strategy, memory in interpretation; Chinese-English consecutive interpreting, teaching design and talent cultivation etc.; 2013 concerned liaison interpreting, English-Chinese interpreting, and class teaching reform etc.; 2014 concerned Japanese interpreting and multimoding theory; 2015 concerned BTI (bachelor of translation and interpreting) and translation class etc.

(2) In terms of topics, the hot topics of interpreting teaching are not prominent, which are reflected as lack of keywords with high frequency. But the present research range is relatively comprehensive, involving all aspects of interpreting teaching development. Through induction and reorganization, all the keywords are divided into 11 general categories: theory and model research, teaching method and strategy research, curriculum provision research, syllabus research, faculty training research, teaching test and evaluation research, reformation and countermeasure research, application domain research, sci-tech method research, introduction and comparison research of overseas interpreting teaching, and other comprehensive researches. To sum up, as an important component of interpreting research,

interpreting teaching still develops in a comprehensive way, though it is not paid enough attention to and short of research quantity and prominent emphasis.

4 Spatial Development Status of Interpreting Teaching

4.1 Analysis of prolific institutions

Due to different ways of labeling institutions by different authors, this paper only takes the names of first-grade institutions for unification. For instance, Information Management Department of English School in Guangdong University of Foreign Studies is just labeled as Guangdong University of Foreign Studies. By analyzing the authors' institutions, it is discovered that totally 687 institutions are involved in writing articles with interpreting teaching topic. Among them, 79 institutions have got no less than 5 articles published, accounting for 11.50% of the total number of institutions. And those 79 institutions have got 648 articles published altogether, making up 43.29% of the total number of articles. There are 394 institutions writing only 1 article, representing 57.35% of the total number of institution. Those institutions with no less than 8 articles getting published are listed in Table 2.

Table 2 Institutions with No Less Than 8 Articles and Their Numbers of Articles

No.	names	number of articles	No.	names	number of articles
1	Guangdong University of Foreign Studies	56	12	Gannan Normal University	11
2	Shanghai International Studies University	35	13	Harbin University of Science and Technology	10
3	Guangxi University	24	14	Xiamen University	10
4	Beijing Language and Culture University	17	15	China University of Mining and Technology	10
5	Nanjing University	14	16	Sichuan International Studies University	9
6	Beijing International Studies University	13	17	University of Hainan	9
7	Zhejiang Wanli University	13	18	Shenzhen Polytechnic	8
8	Guangxi Normal University	12	19	Beijing Foreign Studies University	8
9	Dalian University of Foreign Languages	12	20	Hubei University of Economics	8
10	Northeastern University	12	21	Jilin Huaqiao Foreign Languages Institute	8
11	Hengyang Normal College	11	22	Shenyang Normal University	8

Table 2 reveals that all the 22 institutions with no less than 8 articles getting published are universities, mainly language universities, normal universities and comprehensive universities. Among them, Guangdong University of Foreign Studies has the greatest number of published articles – 56 articles. This university is not merely one of the 19 universities in the world to offer top translation talents to the UN, but one of the 3 most prestigious universities of foreign languages affiliated with Ministry of Education (the other two are Beijing Foreign Studies University and Shanghai International Studies University), and has the national-level teaching staff of English interpretation. Shanghai International Studies University ranks second. It is the first university of foreign languages after the establishment of People's Republic of China. Having the leading Graduate School of Translation and Interpreting in Asia and International Association of Conference Interpreters (AIIC) with the highest global grade, this university is the only Chinese (including HongKong, Macao and Taiwan) educational institution for professional conference interpreting ranking in the top 15 in the world. Guangxi University ranks third. The predecessor of its foreign languages school was the college English teaching department in School of Humanity and Law set up in 1947 which enrolled the first term of English majors. And the university also set up the excellent course English Interpretation. Other universities are similar in number of published articles. All of these 22 universities are the nucleus of interpreting teaching research in China.

4.2 Research topic analysis in spatial dimension

By studying the institution-keyword co-occurrence network graph, on the one hand, the main research topics of each institution in the field of interpreting teaching can be discovered. On the other hand, the major institution in the field of interpreting teaching can be discovered and some potential cooperative institutions can be excavated. Our self-compiled program is used to process the original data

to structure the keyword-institution 2-norms data matrix, some of which are shown in Table 3. Then the 2-dimensional matrix is imported into UCINET software to draw the keyword-institution 2-norms network graph by using NETDRAW plug-in, as is shown in Fig. 3.

Table 3 The Keyword-Institution 2-Norms Data Matrix

	Guangdong University of Foreign Studies	Shanghai International Studies University	Guangxi University	Nanjing University	...
Interpretation course	1	1	0	0	...
Interpreting competence	2	1	0	2	...
Interpreting skill	2	1	0	0	...
Simultaneous interpretation	3	2	0	0	...
English major	0	1	1	0	...
...



Figure 3 The Keyword-Institution 2-Norms Network Graph When Threshold is 2

In Fig. 3, square nodes represent institutions and round nodes keywords. Size of nodes represents the degree of nodes; thickness of lines the weight, reflecting the co-occurrence frequency of institution and keyword. To clearly demonstrate the network graph, the threshold value is set to be 2, and those acnodes are deleted. Through Fig. 3 and background data, it is revealed that:

(1) Although in China there are numerous institutions engaged in interpreting teaching research, the research fields of most are narrow and single. Fig. 3 illustrates that the research fields of Guangdong University of Foreign Studies are the most extensive and Shanghai International Studies University takes second place, while other universities are less prominent. For one thing, it is in direct proportion to the number of published articles of the certain institution. The greater the number of published articles is, the more fields the institution is engaged in. For another, 19 keywords in Table 3 are linked with Guangdong University of Foreign Studies and 10 keywords with Shanghai International Studies University, while no more than 5 keywords are linked with any other university.

(2) The main research topics of each institution are prominent. Because the threshold value in Fig. 3 is set to be 2, the keywords linked with institutions are studied at least twice. For instance, the research topics about interpreting teaching in Guangdong University of Foreign Studies which are studied more than twice include: interpreter competence, interpreting study, interpretation course, corpus, topic-based interpreting, method, simultaneous interpretation, network environment, figure pattern, translatology,

introspection, interpreting skills, interpreting training, translation theory, independent college, interpreting competence, interpreting quality assessment, Translators Association of China, and English interpretation; the research topics about interpreting teaching in Shanghai International Studies University which are studied more than twice include: interpreter, simultaneous interpretation, skill, formative evaluation, notes, miss of interpretation, advanced interpretation, interpretive theory, independent study, and interpretation process.

(3) The major institutions studying each research topic are obvious. For example, the major institutions studying simultaneous interpretation include Guangdong University of Foreign Studies, Shanghai International Studies University, Xiamen University, Beijing Foreign Studies University, and Beijing Language and Culture University; the major institutions studying English interpretation include Guangdong University of Foreign Studies, Pingdingsan Institute of Technology, Hainan Foreign Language College of Professional Education, Wuhan University of Science and Technology, Tieling Normal College, and Jilin Huajiao University of Foreign Languages; the major institutions studying interpreting competence include Guangdong University of Foreign Studies, Lanzhou Commercial College, Nanjing University, Xi'an Fanyi University, and Guangdong University of Technology; and so on. Potential cooperative relationship lies in those major institutions studying the same topic. Promoting cooperation among those institutions is more beneficial to the development of interpreting teaching research in China.

5 The Future Development Countermeasures of Interpreting Teaching

By analyzing the timing sequence and spatial development status of interpreting teaching, it is revealed that although China's interpreting teaching research has developed in a very comprehensive way, limitations still exist such as insufficient gross research quantity and less prominent emphasis. What is more, most institutions have narrow and singly research fields, disperse topics and lack of continuity. To solve those deficiencies, 3 ideas are presented to improve the future development of interpreting teaching in China.

(1) The national Ministry of Education and the decision-making level of universities are supposed to think highly of interpreting teaching development. Reformation and development of any course teaching cannot be done without financial and authoritative support. As a result, in order to promote the future development of interpreting teaching, firstly the national Ministry of Education should increase the investment into scientific research funds for interpreting, guaranteeing teachers to carry out scientific research and then improving the gross research quantity; secondly universities should regulate teaching plan and increase practical teaching programs for interpreting according to actual conditions; thirdly, universities should update teaching equipment to provide favorable hardware facilities for interpreting teaching; fourthly, universities should train teachers of interpretation course to improve the faculty continuously^[8].

(2) Set up unified syllabus and curriculum system, and formulate assessment criteria of interpreting teaching. In the present interpreting teaching research, the limitations of less prominent emphasis, disperse topics, and lack of continuity are caused by no unified syllabus and curriculum system. Each institution researches, teaches, and assesses in its own traditional way, being out of line with the time and lacking in assessment standards, systematicness and scientificity. Setting up unified syllabus and curriculum system can guarantee universities to follow the guidance in interpreting teaching and to grasp the key points; assigning reasonable assessment criteria avails the constant self-detection of the institutions and guarantees the quality and quantity of teaching.

(3) Promote the mutual exchange and cooperation between different institutions. This paper states that both Guangdong University of Foreign Studies and Shanghai International Studies University take the leading positions whether in curriculum provision or the number of published articles. But there are few cooperative articles between these two universities, between the two universities and other institutions, or among other institutions. One single institution only has fixed knowledge structure and thinking mode, and limited manpower and material resources. To overcome the restriction, different institutions, esp. the leading institutions, are supposed to be promoted to reinforce mutual exchange and cooperation to draw on each other's strength and form colony heterosis, conquering the challenges jointly and creating new achievement impossible to a single individual.

6 Conclusion

Based on bibliometric analysis about the journal articles in the field of interpreting teaching, this paper analyzes the development status of interpreting teaching in China and reaches the following conclusion:

Firstly, the number of the journal articles about interpreting teaching published each year in China satisfies the Price document exponential growth law, and the present number of articles has reached the fastigium, meaning that the present interpreting teaching research is steadily advancing and developing.

Secondly, from the angle of time development tendency the gross research quantity of China's interpreting teaching is insufficient, research topics are disperse, and emphasis is less prominent and incontinuous. But it still has achieved comprehensive development.

Thirdly, from the angle of space development tendency, though many institutions in China have begun to be engaged in interpreting teaching research, the research fields of most are narrow and single. However, the main research topics of different institutions are prominent and the major institutions studying each topic are obvious.

Fourthly, three ideas are put forward to improve the future development of interpreting teaching: the national Ministry of Education and the decision-making level of universities should think highly of interpreting teaching development; set up unified syllabus and curriculum system, and formulate the assessment criteria of interpreting teaching; promote the mutual exchange and cooperation between different institutions.

In spite of some conclusion, two problems still exist: the similar keywords are processed without perfect refinement; the threshold value is set artificially during drawing the network graph, which cannot bring about the overall reflection of network details. But those problems do not influence the reference value of this paper.

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Study on Effective Reading Strategies of Web-Based Autonomous Learning*

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Abstract: As modern college English teaching reform being put into practice, students are required to learn autonomously. Therefore, studying the effective learning methods of autonomous learning becomes more and more important. This study was conducted among more than 50 students on web-based autonomous learning. Results indicate that students' metacognitive strategy and cognitive strategy are positively correlated with their reading test scores, while the socio-affective strategy is not highly correlated with reading performance. Among the metacognitive strategies, the strategy of selective attention, self-monitoring, self-evaluation are highly correlated with their reading achievements, they are the effective reading strategies; among the cognitive strategies, note-taking appears to be the most effective strategy, follows by the strategy of syntax, transfer, and grammar; while cooperative strategy is the only effective strategy among the socio-affective strategy. The findings have both theoretical and pedagogical implications. It provides actual statistics for the impact of reading autonomous learning strategies on reading performance. At the same time it pushes forward the college English teaching innovation.

Key words: Autonomous learning; Learning strategy; Reading; Network technology

1 Introduction

The field of language learning has been in a constant state of motion over the last twenty years. The main change has been a shift from teaching method to the language learner. More attention has been paid to the language learner's individual difference related to language learning. Research in fields such as psychology, cognitive psychology, sociology, linguistics and others, added to our knowledge of how language learning takes place.

With the development of college English reform, students are required to learn autonomously. Therefore, making a research of the effective learning methods of autonomous learning becomes more and more important. While reading is an important step in English learning, students' reading ability directly affects their listening, speaking and writing ability, so finding out a set of reasonable and effective reading strategies of autonomous learning is the key problem the English learners will face, the same is true for English teaching. The accumulation of reading is the key in English learning. A lot of students spend much time on reading training and get little effect. English teachers also put much energy in this aspect, but up to now many students rely on their own experience and methods, so a set of scientific and effective reading strategies is greatly needed.

This study made a survey of the reading strategy in autonomous learning of some classes, mainly from Material Science & Chemistry Engineering College in China University of Geosciences, and it also compared their reading scores with the reading strategies. The purpose is to find the correlation between reading ability and effective reading strategies, and to explore more reasonable and effective reading strategies and methods for college English learners, and this research will provide valuable suggestions and pedagogical implications for English teachers.

2 Theoretical Basis

2.1 Autonomous learning

For many years, "autonomy" in language learning has been a popular focus for discussion in the West. It is generally accepted that language learning requires the active involvement of learners. Language can only be learned and not be taught. The focus of classroom activities has shifted from teacher-centered to learner-centered. The goal of language teaching is to help learners to become independent from their teachers in their learning and use of language. Although there has always been the Chinese idea of Zi Xue(self-teaching), the idea is different from the concept of autonomous learning and is only peripheral in the Chinese educational culture. The goal of education is the facilitation of

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change and learning. Learning how to learn is more important than being taught something from the superior vantage point of a teacher (Cao Rongping, 2003). The current situation of EFL is that many students are used to an educational setting in which teachers overtly control the activities of the group in a relatively formal manner, emphasize the memorization of grammatical rules and vocabulary, administer frequent achievement tests, and generally requires their students to maintain a passive and subordinate role.

2.2 Application of multimedia to language learning

Key writings on hypertext were mainly published in the 1970s and 1980s. After this period, the focus and terminology shifts to multimedia even though much of the content and many of the issues remain the same. But there are also additional advantages more central to language learning. For example, Montali and Lewandowski (1996) review studies conducted with first language secondary school students favoring multimedia as a way of improving reading skills among average and less-skilled readers. They suggest that readers who enjoy reading tend to read more and are more motivated to read and that a computer can be useful in promoting interest.

2.3 Reading

An increasingly common view in the research literature is that reading is essentially divided into two components: decoding and comprehension. The latter is often described as consisting of parsing sentences, understanding sentences in discourse, building a discourse structure, and then integrating this understanding with what one already knows. This comprehension process, however, is not seen as unique to reading, but also describes the process of listening (Alderson, 2000).

Modern psycho-linguistics and cognitive linguistics hold that reading is a kind of complicated and active-thinking mentation, it is a thinking process in which the readers sift, test, process and combine the information according to their own knowledge and experience, it is a kind of relatively independent cognitive behavior.

3 Data and Methodology

3.1 Subject

The subjects in this study were first-year non-English majors from China University of Geosciences. A random sample of 60 students enrolled in the course was drawn mainly from Material Science & Chemistry Engineering College. It is a pity that 9 students failed to respond to the questionnaire correctly or they did not have the reading scores. Therefore, the data adopted for statistical analysis are from 51 autonomous learners.

3.2 Aim

The purpose of this study is to find out the correlation between reading ability and reading strategies, and to explore more reasonable and effective reading strategies and methods for college English learners to consult, and it also provide valuable suggestions and pedagogical implications for English teachers to improve their teaching.

3.3 Instruments

The questionnaire and oral interviews were employed to collect data and information for this study. The following is a brief description of the instruments.

3.3.1 Questionnaire

The questionnaire is employed to elicit autonomous learners' attitudes towards reading studies and multimedia environment and their individual experiences in the reading strategies. The questionnaire consists of the following three parts:

Part A includes the students' attitudes towards English reading learning under the multimedia environment. The statements in Part A were adopted from Wen Qiufang's "On English Learning strategies" (1996). Part B is about students' hopes and suggestions on English learning. Part C aims at examining students' actual use of reading strategies, designed on the basis of O'Malley and Chamot's (1990) typology on learning strategies and Vandergrift's (1997) comprehensive description on individual reading strategies. These statements fall into the following 3 major dimensions: metacognitive strategies, cognitive strategies and social/affective strategies. It is composed of 36 statements, some of which were adopted from Oxford's (1990:293-300) Strategy Inventory for Language Learning. The raw data were processed by means of Statistical Package for Social Science (SPSS Software).

3.3.2 Interviews

The interviews are mainly based on the following questions: 1)Autonomous learning and classroom teaching, which one do you prefer? 2) Do you think applying appropriate reading strategies is important?

3) Do you think strategy training and the teacher’s instruction a must in autonomous learning model? 4) What are the problems the multimedia environment existing now?

4 Results

This section presents the research results as well as corresponding analysis. First is the respective analysis of 3 main strategies: metacognitive strategies, cognitive strategies and social strategies (Table 1, Table 2, Table 3). Secondly analyzing the relationship between various strategies and reading achievements (Table 4, Table5, Table 6).

3.4.1 Correlation between 3 main strategies use and reading performance

Table 1 Correlations Between Metacognitive Strategies and Reading Scores

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	.316(*)
	Sig. (2-tailed)	.	.024
	N	51	51
VAR00002	Pearson Correlation	.316(*)	1
	Sig. (2-tailed)	.024	.
	N	51	51

Correlation is significant at the 0.05 level (2-tailed).

In the questionnaire, 15 questions belong to the metacognitive strategies. The sub- strategies include planning strategy(S1,S4); advanced preparation strategy(S3, S28); self-management strategy (S2,S13,S32); self-monitoring strategy(S8,S9,S33); direct attention strategy(S6); selective attention strategy(S7); self-evaluation strategy(S11,S12,S36). I designed 5 choices(A,B,C,D,E) for each question, and valued them in different scores, A=5 scores, B=4 scores, C=3 scores, D=2 scores, E=1 score. At last, I added the scores of the 15 questions as VAR00001, VAR00002 is the students’ reading scores, then the result of the correlation between metacognitive strategies and reading scores is as above chart.

Table 2 Correlations Between Cognitive Strategies and Reading Scores

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	.342(*)
	Sig. (2-tailed)	.	.014
	N	51	51
VAR00002	Pearson Correlation	.342(*)	1
	Sig. (2-tailed)	.014	.
	N	51	51

Correlation is significant at the 0.05 level (2-tailed).

In the questionnaire, 14 questions belong to the cognitive strategies. The sub- strategies include predicting strategy(S14,S15); association strategy(S27); note-taking strategy (S5,S21); syntax strategy (S18); gist reading strategy (S16,S20,S22); grammar strategy (S10,S34); transfer strategy(S17,S35), substitution strategy(S19). Then I added the scores of the 14 questions as VAR00001, VAR00002 is the students’ reading scores, then the result of the correlation between cognitive strategies and reading scores is as above chart.

Table 3 Correlations Between Affective/Social Strategies and Reading Scores

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	-.130
	Sig. (2-tailed)	.	.361
	N	51	51
VAR00002	Pearson Correlation	-.130	1
	Sig. (2-tailed)	.361	.
	N	51	51

In the questionnaire, 7 questions belong to the affective/social strategies. The sub- strategies include questioning for clarification strategy(S31); cooperation strategy(S23,S29); self-reinforcement strategy (S25,S26); self-talk strategy(S24,S30). Then I added the scores of the 7 questions as VAR00001, VAR00002 is the students' reading scores, then the result of the correlation between affective/social strategies and reading scores is as above chart.

The three tables show that metacognitive strategies and cognitive strategies are highly correlated with the students' reading scores, both of the correlation is significant at the 0.05 level. While affective/social strategies has not positive correlation with the corresponding reading achievements.

3.4.2 Correlation between sub-strategies use and reading performance

Table 4 Correlation Coefficient Between Metacognitive Strategy Use and Reading Scores

Categories of Strategies	Sub-categories of Strategies	Pearson Correlation
Metacognitive Strategies	Planning	0.060
	Advance preparation	0.166
	Self-management	0.216
	Self-monitoring	0.399 **
	Direct Attention	0.225
	Selective Attention	0.480**
	Self-evaluation	0.437**

This table indicates that among metacognitive strategies, self-monitoring (R=0.399**); selective attention(R=0.480**) and self-evaluation (R=0.437**) are positively highly correlated with the reading comprehension scores. Among metacognitive strategies, strategy of selective attention has the highest correlation with reading scores, self-evaluation is also closely related with the readers' achievements. Besides these two strategies, the employment of self-monitoring strategy also plays a positive role in reading test. The significant correlation coefficients indicate that the strategies of selective attention, self-monitoring and self-evaluation are of great help to the students for improving their reading comprehension ability. They all belong to the effective reading strategies.

Table 5 Correlation Coefficient Between Cognitive Strategy Use and Reading Scores

Categories of Strategies	Sub-categories of Strategies	Pearson Correlation
Cognitive Strategies	Predicting	0.150
	Association	-0.141
	Note-taking	0.695**
	Syntax	0.467**
	Gist reading	0.213
	Grammar	0.328*
	Transfer	0.352 *
	Substitution	0.104

Among cognitive strategies, note-taking(R=0.695**), syntax(R=0.467**), grammar(R=0.328*) and transfer(R=0.352*) are also positively correlated with reading scores. However, the data shows that association strategy(R=-0.141) has a negative correlation with reading achievement. Among the cognitive strategies, note taking turned out to be the most effective strategy. It positively correlated with the students' performance on reading comprehension test at a significant level of 0.01. In addition to note taking strategy, strategy of syntax, strategy of grammar and transfer among cognitive strategies also show high correlation with the readers' performance.

Table 6 Correlation Coefficient Between Affective Strategy Use and Reading Scores

Categories of Strategies	Sub-categories of Strategies	Pearson Correlation
Affective & Social Strategies.	Questioning for clarification	0.178
	Cooperation	0.275*
	Self-reinforcement	0.163
	Self-talk	0.139

As for affective and social strategies, cooperation($R=0.275^*$) strategy also has close correlation with the reading results. Only cooperation strategy is correlated with students' reading comprehension performance.

3.4.3 Interviews

In addition to the questionnaire, some students were chosen to take the oral interviews in order to reflect some information that could not be directly got through written forms. This interview also reveals the students' attitudes and hopes toward autonomous learning model. The interviews are mainly based on the following questions: 1) Autonomous learning and classroom teaching, which one do you prefer? 2) Do you think applying appropriate reading strategies is important? 3) Do you think strategy training and the teacher's instruction a must in autonomous learning model? 4) What are the problems the multimedia environment existing now? The results are as follows:

First, among the 15 interviewees, 12 students preferred autonomous learning model. For the reason that they have more freedom in controlling their own learning pace under the autonomous learning model, so they can allocate different time on different learning emphasis. They welcome the autonomous learning model, they think that it is a very good way to work on English reading learning at their own pace. Whereas 3 students preferred teacher-centered classroom. Second, 100% of the 15 interviewees believed that applying appropriate reading strategy is important in reading comprehension. Third, all the 15 interviewees agreed that teachers' instructions and strategy training is a must even in the autonomous learning model.

5 Conclusion

The results were analyzed in terms of reading strategies with the help of SPSS. The major findings obtained from the statistical analysis of 51 subjects' data are as follows: Firstly, metacognitive strategies and cognitive strategies affect students' reading performance greatly, while social/affective strategies are not closely correlated with their reading achievements. Both of the correlation between metacognitive strategy and reading performance, cognitive strategy and reading performance are significant at the 0.05 level. Secondly, the strategy of self-monitoring, selective attention, self-evaluation among the metacognitive strategy are the three most effective strategies for the improvement of reading comprehension ability; among the cognitive strategy, the strategy of note-taking and syntax are the two most effective strategies for students' reading achievements, followed by the strategy of transfer and the strategy of grammar; as for socio-affective strategy, only the strategy of cooperation plays an important role in reading performance. The findings have both theoretical and pedagogical implications. It provides actual statistics for the impact of reading autonomous learning strategies on reading performance. At the same time it pushes forward the college English teaching innovation.

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Investigation on Discipline Factor Impact upon Peer Influence in Moral Education of Chinese Undergraduate*

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Abstract: In recent years, the moral education of undergraduate has shown less attractive trends. Peer education was applied into moral education as a useful exploration. In this study, the impact of peer education was evaluated on three basic factors: gender, grade and discipline. This survey was involved in undergraduates of seven disciplines in PR china. The results showed that most undergraduates were sensitive to peer influence: and sought help immediately from their peers in difficulty during school; peers played a positive role in the concrete behaviors. In three basic factors, only discipline causes significant difference on peer influence. The disciplines in undergraduate education bring out the different culture and the formation of wisdom, and this discrepancy might come from the teaching methodology, discipline personality and the mindset of discipline education, which impact upon the value and judgment of undergraduates. Peer education in moral education should be taken according to the different discipline personalities.

Key words: Peer; Gender; Grade discipline; Empirical research

1 Introduction

From the previous literatures, the peer education has been widely used in America and Europe, and its mechanism of peer education is based on the psychological theology among a sense of sociology groups, and capable to relieve the problems in the individual or social level by the effective peer communication.^[1] The academic Status of Peer influence in China is showed the following characteristics: In the first place, the procedure of peer work is similar in a certain degree, such as selecting peer counselor (peer counselor, psychological committee member, etc.), carrying out all activities through training and coaching. Even senior student of the high grade or members in student union could be selected as peer educator for their substantial experience, ideological consciousness, communication capacity, sense of responsibility and benevolence.^[2]

Second, there were still deficiencies in the practical and theoretical researches. Most descriptions on the related methods are insufficient in the theoretical researches, and the statistical analysis rarely applied in the practical researches. Moreover, it cannot be taken for granted that peer has some positive influence on students as this premise of peer education, and this applicable premise is a lack of support from empirical research. The majority studies approval the psychological factors in peer influence under the hypothesis that peer have the same effect on all different college students. There was little further investigation on whether other factors can cause differences in peer influence on college campus.

Third, Instead of most researches on students, only few empirical researches have involved the perspectives of educators on peer education. A empirical research of Nanjing University in china have put out peer psychological counseling, and the project participants join in the peer consulting through interviews in the whole process. It is regarded that peer counseling is capable to solve the contradiction between demand and supply in psychological counseling. And counselors of peer education proposed to help others at same time which was an effective way to enhance the mental health status.

Forth, researches on peer influence in China are still in the primary stage, which still exists in the operational level in moral education. A system of theories on peer influence in China does not form yet. In the present literatures, the concept of peer education in china was gradually formed as follows: peer education mainly applied in the field of mental health, which gradually was extended to the funding system of the financially strapped students, the adaptability education of new pupil, and career planning of graduate.

Therefore, Peer influence was elucidated from the four perspectives of the size of impact from peer counseling upon undergraduate, the optimal objective to seek help in difficulty during school,

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the various attitudes towards peer proposal, and the subsequent behaviors under the impact of peer comment. Possibility of peer education was discussed as an effective measure at the operational level to strengthen moral education of China.

2 Materials and Methods

This survey was carried out in Wuhan University of Technology and permitted by the ethics and academic committee of this university. 1000 undergraduates have anticipated this research, which involved seven disciplines: art and design, literature, management, electrical and mechanical, law, educational technology, science during the four years of undergraduate education. A total of 260 questionnaires were randomly distributed to 1000 undergraduates, and all questionnaires were collected, and the recovery rate of 260 questionnaires is 100%. In this research, boys and girls accounted for 58.1% and 41.9% respectively; each university grade accounted for 33.5%, 31.9%, 18.1%, 16.5% from freshmen to senior respectively; the various disciplines categories of engineering, science, law, literature, management, art, education accounted for 40:40:40:40:40:40:20. The education undergraduates in this survey were much less compared to other disciplines because the enrollment of disciplines was very low.

The questionnaire of the survey consists of two parts; the first part is the basic information about students including gender, grade and discipline, and the second part is the subjective evaluation content. These subjective questions were designed to evaluate how deep the students were influenced from their peers, who was the first choice to listen to or seek solutions, what extent to accept the peer proposals, whether to put peer opinions into the practical behaviors. The comparisons of the overall data were information on gender, grade and discipline, and it was investigated whether there are significant differences on information. These factors had been taken into account in the four perspectives: (1) the impact from peer was subjectively evaluated in undergraduates, and these impacts are divided into five levels from minimal, small, medium, large to great. The evaluations could reflect the impact from peer directly, and might reflect the world outlook of undergraduates indirectly. Therefore, the impact from peer may affect the behavioral attitude of undergraduates in the future. (2) The first counseling object was analyzed for the college students in difficulties on campus. The first objective to seek help was an important factor on following behavior, and the impact from the first suggestion is very deep and difficult to change according to the principle of primary effect. (3) The attitudes towards peer opinions were evaluated, and these attitudes may directly affect the acceptance and absorption towards peer opinions. (4) The transformation from the peer opinions to the concrete behaviors is evaluated in students.

All statistics in the survey were conducted by software packages SPSS 18.0. The three basic factors of gender, grade and discipline were used to analyze peer influence in students. Factors of gender, grade and discipline were performed as the independent variables to evaluate the attitude on peer influence, the optimal objective to seek help, absorbing the proposals from their peers, as well as whether to put into action. The independent samples T-test analysis was used to analyze the first assumption that students are subject to peer influence. A single factor ANOVA test verified other three assumptions that the different gender presents no difference towards peer influence; the different grades present fairly different towards peer influence; the background of different disciplines presents considerable difference towards peer influence. Discipline factors are determined whether there are differences on the concrete behavior following peer influence, assuming that the various disciplines are the same towards peer influence.

3 Results

3.1 It was estimated that the gender factor of undergraduate affected peer influence in difference.

In 260 samples of the survey (151 male and 109 female), it was determined whether gender factor had significant influence on peer education in statistics. The means of peer influence were generally assumed equal in the comparisons of male and female groups. Together gender factor in peer influence do not produce a significant difference between male and female by independent samples T test (Table 1). Both of boy and girl are sensitive for peer influence.

Table 1 Gender Factor in Peer Influence Presents No Significant Difference Between Male and Female Undergraduate by Independent Samples T test

	151 Male cases Mean (SD)	109 Female cases Mean (SD)	T	<i>p</i>
The size of impact from peer counseling upon undergraduate	3.06(1.103)	2.96(1.027)	0.7 1	> 0.0 5
The optimal objective to seek help for undergraduate in difficulty during school	2.48(0.782)	2.35(0.886)	1.2 3	> 0.0 5
The various attitudes towards peer proposal taken by undergraduates	2.91(0.692)	2.89(0.416)	0.3 5	> 0.0 5
The various subsequent behaviors under the impact of peer comments	3.87(1.100)	4.02(1.018)	1.1 3	> 0.0 5

3.2 It was estimated that the grade factor of undergraduate affected peer influence in difference.

87 freshmen, 83 sophomores, 47 juniors, and 43 seniors were included in this survey of 260 samples. It was determined whether there was difference on peer influence by grade factor of undergraduate. It was assumed that the mean of peer influence in four grades was equal in general. The results showed no significant difference by a single factor ANOVA test. Homogeneity of variance, Levene statistic 1.996, $P = 0.115$, can be considered as the homogeneity of variance ($P > 0.05$). Analysis of variance, $F = 2.387$, $Sig = 0.07$ ($\alpha = 0.05$ level), thought that grade factor of peer influence did not exist significant difference.

Furthermore, the grade factor in this survey showed no significant difference on the three perspectives of peer influence: the optimal objective to seek help, the various attitudes taken by undergraduates and the concrete behaviors following peer comments. Therefore, the grade factor in whole process of peer influence did not exhibit significant differences, and the undergraduates at all grades might be sensitive to the various form of peer education.

3.3 It was estimated that discipline factor significantly affected peer influence in difference.

(1) Discipline factor was investigated in the size of impact from peer counseling.

In this survey of 260 samples, seven disciplines were involved in engineering, science, law, literature, management, science, art, educational technology. It was to determine whether discipline factor was affected differently in the perspective of the size of impact. It was assumed that the means of peer influence in these seven disciplines were equal in average. The results showed significant difference by a single factor ANOVA test in Table 2.

Table 2 The Size of the Impact from Peer Counseling was Investigated in the Different Disciplines

Disciplines	number	Mean(Standard deviation)	95% confidence interval of mean
Art and Design	40	2.95(1.037)	2.62-3.28
Literature	40	3.48(1.086)	3.13-3.82
Management	40	2.53(0.847)	2.25-2.80
Electrical and Mechanical	40	2.70(0.966)	2.39-3.01
Law	40	3.25(1.256)	2.85-3.65
Educational Technology	20	3.60(1.142)	3.07-4.13
Science	40	2.93(0.829)	2.66-3.19
Total	260	3.02(1.071)	2.89-3.15

The changes of the impact size from peer influence were significantly caused by different disciplines by a single factor ANOVA, $F(6, 253) = 5.019$, $p = 0.000$, $\eta^2 = 0.11$.

Tukey's post-test program demonstrated that, Management ($M = 2.53$, $SD = 0.85$), Engineering ($M = 2.70$, $SD = 0.97$), Science ($M = 2.93$, $SD = 0.83$), Art ($M = 2.95$, the $SD = 1.04$), Law ($M = 3.25$, $SD = 1.26$) between undergraduate disciplines showed no significant difference on the size of peer impact. Science, art, law, literature ($M = 3.48$, $SD = 1.09$), education ($M = 3.6$, $SD = 1.14$) showed no significant difference on the impact size of peer influence, and management, engineering, literature, education on impact size from peer appear significant difference. In the previous five disciplines, the means of peer influence on Science and Art were significantly less than that of Literature and Education. According to the questionnaire option of sort, the means of peer influence on Management and Engineering were significantly more than that of Literature and Education.

(2) Discipline factor was investigated in the optimal objective to seek help for undergraduate in difficulty during school.

The survey of 260 samples, discipline factors were determine whether there are differences on first objectives for peer influence. It was assumed that the optimal objective for help was equal overall in the different disciplines. The results showed no significant difference by a single factor ANOVA test in Table3.

Table 3 The Optimal Objective to Seek Help for Undergraduate was Investigated in the Different Disciplines

Disciplines	number	Mean(Standard deviation)	95% confidence interval of mean
Art and Design	40	2.28(0.816)	2.01-2.54
Literature	40	2.55(0.815)	2.29-2.81
Management	40	2.55(0.815)	2.29-2.81
Electrical and Mechanical	40	2.48(0.716)	2.25-2.70
Law	40	2.50(0.816)	2.24-2.76
Educational Technology	20	2.30(0.923)	1.87-2.73
Science	40	2.28(0.933)	1.98-2.57
Total	260	2.43(0.828)	2.33-2.53

Note: The changes of the optimal objective to seek help cannot be significantly caused by different disciplines for undergraduates in difficulty, $F(6, 253) = 0.89, p > 0.05$

There was no significant difference on who was optimal objective for help among different disciplines, $F(6, 253) = 0.89, p > 0.05$. In the seven different disciplines such as Management, Engineering, Science, Arts, Law, Literature, and Education, it was roughly the same on mean who was first objective turned for help. It indicated that the optimal objective to seek help was their peers for undergraduate of each discipline in difficulty during school.

(3) Discipline factor was investigated in the various attitudes taken by undergraduates towards peer proposals.

The survey of 260 samples, disciplines factor was determined if there are differences in attitudes towards absorbing the peer views. It was assumed that the attitude of various disciplines students was same on the whole. The result showed significant difference by a single factor ANOVA test in Table 4.

Table 4 The Various Attitudes towards Peer Proposals was Investigated in the Different Disciplines

Disciplines	number	Mean(Standard deviation)	95% confidence interval of mean
Art and Design	40	2.58(0.747)	2.34-2.81
Literature	40	2.93(0.350)	2.81-3.04
Management	40	2.85(0.483)	2.70-3.00
Electrical and Mechanical	40	3.10(0.841)	2.83-3.37
Law	40	2.98(0.423)	2.84-3.11
Educational Technology	20	3.10(0.447)	2.89-3.31
Science	40	2.90(0.496)	2.74-3.06
Total	260	2.90(0.591)	2.83-2.98

Note:The changes of attitudes towards peer proposals was significantly caused by the different disciplines for undergraduate, $F(6, 253) = 3.52, p < 0.05, \eta^2 = 0.08$.

Tukey post hoc test procedures demonstrated that, there was no significant difference on mean change of the attitude of these five discipline undergraduates, Art ($M = 2.58, SD = 0.75$), Management ($M = 2.85, SD = 0.48$), Science ($M = 2.90, SD = 0.50$), Literature ($M = 2.93, SD = 0.35$), Law ($M = 2.98, SD = 0.42$). In the six disciplines of Management, Literature, Law, Engineering ($M = 3.10, SD = 0.84$), Education ($M = 3.10, SD = 0.45$), the mean of attitude towards peer presented no significant difference, but the mean of impact size of peer influence in the Art was significantly less than that of Engineering, and Education. According to the questionnaire option of sort, Art students presented more active to absorb the peer views, while undergraduates of Engineering and Education were even more conservative for the peer views.

(4) The discipline factor was investigated in the concrete behaviors under the peer impacts.

In the survey of 260 samples, it was determined whether there are differences on concrete behavior following peer influence in the different disciplines. It was assumed that the behavior affected by peer influence in various discipline was the same as the whole, the results showed significance in Table 5 by a single factor ANOVA test.

Table 5 The Various Subsequent Behaviors Under Peer Comments was Investigated in the Different Disciplines

Disciplines	number	Mean(Standard deviation)	95% confidence interval of mean
Art and Design	40	3.58(1.107)	3.22-3.93
Literature	40	4.10(0.928)	3.80-4.40
Management	40	4.43(0.958)	4.12-4.73
Electrical and Mechanical	40	3.80(0.966)	3.49-4.11
Law	40	3.98(1.121)	3.62-4.33
Educational Technology	20	3.50(1.357)	2.86-4.14
Science	40	3.93(0.971)	3.61-4.24
Total	260	3.93(1.067)	3.80-4.06

The mean changes of concrete behaviors following peer counseling was significantly caused by the different disciplines, $F(6, 253) = 3.41, p < 0.05, \eta^2 = 0.07$.

Tukey post hoc test procedures demonstrated that, Educational technology ($M=3.50, SD = 1.36$), Arts and design ($M = 3.58, SD = 1.11$), Engineering ($M = 3.80, SD = 0.97$), Science ($M = 3.93, SD = 0.97$), Law ($M = 3.98, SD = 1.12$), Literature ($M = 4.1, SD = 0.93$), in these six disciplines, there was no significant difference on the attitude towards peer views. There was no significant difference in the acceptance attitude towards peer in Education, Art Management, but undergraduate of Education and Art appears significant more inclined to put into perform than that of Management. According to the questionnaire option of sort, the undergraduate of management showed more positive identity of peer education and putted into action. The undergraduates of Education and Art were relatively weak in identity of peer education and relatively less zealous to action.

4 Discussions

4.1 The cause of the discrepancies from discipline factors in peer influence

According to this empirical study on peer influence, gender and grade factors do not present significant differences at all grades, but discipline factors appear significant differences in statistics. In this survey, it is essential to probe the relationship between peer education and discipline factors as independent variable. Whatever discipline the undergraduates were in difficulty at school, peers were the first choice for help. This first choice showed high consistency in various disciplines, which proves once again that peer influence should be the primary considerations in moral education.

This survey indicates that undergraduate of management and engineering disciplines is more sensitive to peer influence than that of literature and education; Art students are more likely to absorb the opinions from their peers, but that of engineering and education take even more conservative views on suggestion from the peer; Management undergraduate is more positive to perform peer suggestion under the feeling of similar identity, while undergraduate of education and art is lack of peer influence because of the relatively weak feeling of identity on and relatively less active to put into practice.

These discrepancies from different disciplines should mainly come from the discipline personality, which was gradually cultivated and formed in stage of undergraduate education. The so-called discipline personality is the sum of the individual psychological characteristics in the specific discipline. And discipline personality was deduced from learning and practical activities, which was distinguished from that of other disciplines. Discipline personalities present a certain tendency of specific awareness and characteristic of specific discipline capacity. Scholars have pointed out that the discipline personality is the actual existence with stability^[3]. The discipline personalities could determine the specialized and professionalized model of thinking. For example, their thoughts of art students show the iconic features, while mathematical and philosophical students think more abstract and profound way. The mindset and methods in the discipline education could impact on the value perspective and judgments of the undergraduate.

4.2 How do the discipline personalities make influence on moral education?

The cultivation of the discipline personality mainly derived from the three sources: the class teaching of specialized professors, the social practice of the related discipline and the public comment towards the related discipline. Its discipline personality influences on moral education were interpreted as follow:

First, the discipline values were permeated into the undergraduate outlook on life, world and value by teaching in the classroom. The undergraduate may not be fond of the traditional moral education while they regarded that the value and judgment from professional class was indispensable skill or useful knowledge, which is also easier for students to accept and internalize. For instance, because discipline personalities of law focus on pursuing fairness and justice, this discipline personality of law anticipate establishing the internal social values of law students. It always leads law students to judge the actual problem and interpret the social phenomena by the perspective of fairness and justice.

Second, the peers from the same discipline can correct the values from class teaching in some degree. What's more, the professional practice is the first stage that the undergraduates transform theoretical knowledge into practical application. Peer clarifications on the nature of discipline in professional practice were combined with student's own professional experiences. This combination of interpretation will put great influence towards employment option in future even after the student leave the practice site back to learn professional knowledge again. For instance, advertising students have the great enthusiasm to apply for rare internship places in 3A advertising agency; on the contrary, they have the hesitation to sign contract with this same company after graduation.

At last, this network comments on the related disciplines significantly affected the behavior and choice of undergraduate. The network public opinion on related discipline becomes one of the important channels for student to contact his unknown professional world. Because the network comments were in favor of the social status of government officials, this prejudice pushes college students into the civil government instead of in the undeveloped western.

In the perspective of the formation of discipline personalities, it is an important link to connect moral education with professional knowledge.

4.3 How do peer educations combine with discipline educations in moral education?

First, the discipline personalities should be understood further because the key in pedagogy principles is to teach students according to their aptitude and discipline personality. Only after the different demands based on discipline personalities was known fully, peer educational activities could be opened up on this major premise, and it is the foundation of peer education.

Second, there are important to carry out the peer activities according to the different discipline personalities. So this research indeed confirms that, it is necessary to carry out the different form of peer education for different disciplines, and the operational characteristics of specific disciplines were recommended in detail.

Third, the early warning system and interventional mechanism should be established in all peer activities because the consequences of peer influence are absolutely a two-edged weapon. The concept of peer determines the wide scope of peers in the undergraduate activities. The educator of moral education cannot restrict undergraduates to contact with their peers around, but establish early warning system and interventional mechanism to avoid the negative influence from the peer activities. In the opinion of authors, the concrete peer activity on campus is selected for communication or guidance, which process is a part of generalized peer education. Although its effect of this measure is also limited, it just represents the tip of the iceberg in peer resources. It is indispensable for educator to found observer system so as to early warn the indication of non-mainstream values and intervene promptly.

5 Conclusion

The results showed that most undergraduates were sensitive to peer influence: and sought help immediately from their peers in difficulty during school; peers played a positive role in the concrete behaviors. In three basic factors, only discipline cause significant difference on peer influence. The disciplines in undergraduate education bring out the different culture and the formation of wisdom, and this discrepancy might come from the teaching methodology, discipline personality and the mindset of discipline education, which impact upon the value and judgment of undergraduates. Peer education in moral education should be taken according to the different discipline personalities.

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Work-to-Family Conflict and Task Performance: The Mediating Role of Contextual Performance*

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Abstract: Based on the conservation of resources theory, we used quantitative analysis method to test the influence of work-to-family conflict (WFC) on the task performance and contextual performance. We found that WFC doesn't have a negative effect on task performance. WFC has a negative effect on job dedication and interpersonal facilitation. Interpersonal facilitation and job dedication fully mediate the relationship between WFC and task performance. The results enrich the study on work family conflict and job performance, and provide a useful implication for the enterprise to manage employee's work family conflict and job performance.

Key words: Work-to-family conflict; Task performance; Job dedication; Interpersonal facilitation

1 Introduction

Work and family represent two important spheres in an adult's social life (Mian zhang,2012) If employees cannot manage various problems that emerge from work and family domains,they experience work- family conflict (Osman .M,2014) . According to Greenhaus and Beutell (1985), work-family conflict is defined as a "form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respects" .Accordingly, work-family conflict occurs in two distinguishable directions: family interfering with work (i.e., family-to-work conflict, FWC) and work interfering with family (i.e., work-to-family conflict, WFC; e.g., Frone, Russell, & Cooper, 1992; Kelloway, Gottlieb, & Barham, 1999).

Previous studies have mostly studied the relationship between the work-family conflict and the outcome variables based on the Hobfoll's Conservation of Resources theory. COR theory(Hobfoll,1989) points out that the employees in experiencing conflict will use their limited resources (e.g. time, energy, etc.) to deal with problems they face, the consumption of these resources will make employees cannot meet the demands of their job duties or responsibilities at home , which will bring some negative consequences. Scholars have pointed out that the relationship between family and work has a direct impact on the performance of employees (Van Steenbergen and Ellemers,2009) and a research found emotional exhaustion fully mediate the relationship between work-family conflict and job performance (Osman M.Karatepe, 2013). But there is also a study found that the correlation between WFC with task performance and contextual performance are not significant, so the author calls for more empirical studies to examine the relationship between WFC and task performance with contextual performance (Lori A ,2011)。

As previous studies have mostly studied the relationship between work-family conflict and job performance limited in central formal job responsibilities and ignored the interpersonal and autonomous behaviors (Conway, 1999), namely used task performance instead of job performance (Emin,2007).According to the two-dimensional performance model (Borman and Motowidlo,1993), job performance should package task performance and contextual performance. Therefore, some scholars (Dawn S. Carlson et al., 2008) pointed out in the study of the relationship between work and family .Future studies need to study the relationship between work-family conflict and task performance with contextual performance together.

According to the match-domain perspective, WFC will better predict the variables in work domain than FWC (eg, Turnover intentions) (Amstad,2011;Christoph,2014). Therefore, this article based on the COR theory(Hobfoll,1989),choose WFC as the antecedent variable to test the relationships between WFC and task performance with contextual performance. Since the contextual performance is defined as the extral-role behavior that beneficial to the development of the organization, and has a supporting role to task performance (Borman & Motowidlo, 1993),this article assumes that WFC will indirectly influence task performance through contextual performance.

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2 Conceptual Background and Hypotheses

Task performance is defined as a specific work-related role performance, it comes from the cognitive ability, knowledge, work efficiency and work experience of the employees. According to the COR theory (Hobfoll,1989), when employees experience WFC, they tend to protect the existing resources are not consumed, so we think it will make the resources for the task performance reduced, and thus will negatively affect the task performance.

When employees experience WFC, it will tend to reduce the role of independent behavior to protect the constant consumption of resources, in order to reduce the pressure on their own (Samuel, 2008).This will encourages individuals to narrow their behavioral and attitudinal focus (Fredrickson, 1998; Fredrickson and Losada,2005). As individuals narrow their focus at work, core job tasks likely have greater priority than more discretionary activities such as working extra hours (indicative of job dedication) or department lunches/ socials (indicative of interpersonal facilitation)(Dawn S., 2008) . Studies have found that WFC has a negative impact on the job dedication and interpersonal promotion(Carlson,2008).While in China, according to the authors' knowledge, empirical research on work-family conflict and contextual performance is also relatively scarce. So based on the COR theory(Hobfoll,1989), the author assumes that employees who in the experience of WFC, will continue to consume the limited resources, which makes them do not have enough resources to perform extra role behavior, such as job dedication and interpersonal facilitation. In summary, we propose the following hypothesis:

H1: WFC has a negative effect on task performance.

H2: WFC has a negative effect on job dedication.

H3 :WFC has a negative effect on interpersonal facilitation.

When employees experience work-family conflict, staff time, energy and other resources will continue to consume, the employees will don't have sufficient resources to deal with the work-related things (Hobfll, 1989), such as the promotion of interpersonal behavior, making extra dedication to work roles, and as the contextual performance has an important role in promoting task performance (Van Scotter & Motowidlo, 1996), this will make WFC has a indirect negative impact on the task performance. Since the task performance are the main responsibilities of the job, and contextual performance generated from the promotion of interpersonal relationship and employee behavior's for task completion, we think that the impact of the promotion by the WFC, will affect the task performance. Based on the above analysis, we propose the following hypothesis;

H4:Interpersonal facilitation mediates the relationship between WFC and task performance

H5:Job dedication mediates the relationship between WFC and task performance

Comprehensive above, the theoretical model of this paper is:

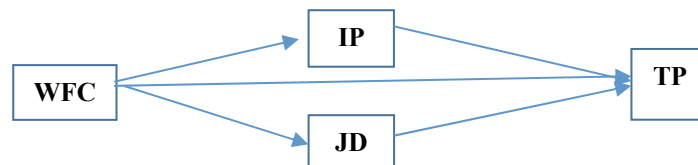


Figure 1 Theoretocal model

3 Method

3.1 Sample

We collected survey data from the MBA students of the Wuhan University of Technology. A total of 350 questionnaires were distributed to the students. A total of 289 questionnaires were retrieved by the cut-off date for data collection. 58 questionnaires were eliminated because of incomplete information. Consequently, 231 questionnaires were retrieved, yielding a response rate of 79.9percent.Table 1 descriptive statistics for sample characteristics.

Table 1 Descriptive Statistics for Sample Characteristics.

Sample characteristics	Result
Sex	Male (52.8%), Female (47.2%)
Marital status	Married (67.1%), Unmarried (32.9%)
Organizational tenure	1-3years (21.6%) 4-6years (22.9%) 7-9years (14.7%) over 10 years (40.7%)

3.2 Measures

All the variables in our study were measured with well-established scales. Items in the scales were originally in English. We followed the process of back translation to ensure the quality of the measurements (Brislin et al., 1973). If not otherwise indicated, items had to be answered on a seven-point Likert scale ranging from 1 “I do not agree at all” to 7 “I completely agree”.

Work-to-family conflict(WFC): We assessed work-to-family conflict with Frone and Yardley’s (1996) scale. The scale contains 6 items. A sample item is “My job or career keeps me from spending the amount of time I would like to spend with my family.”, The alpha coefficient for this scale was .85.

Task performance(TP): We used a seven-item scale developed by Williams and Anderson (1991) to assess task performance. A sample includes “Fulfills responsibilities specified in job description” .The alpha coefficient for this scale was .90.

Contextual performance: We assessed contextual performance with Van Scotter and Motowidlo’s (1996) scale. This scale contains two aspects: job dedication(JD) and interpersonal facilitation(IP). Job dedication was measured with eight items. An example item is, “He/she is personally committed to meeting high performance standards.” The alpha coefficient for this scale was .85. Interpersonal facilitation was measured with six items. An example item is, “He/she maintains positive attitudes in dealing with difficult people.” The alpha coefficient for this scale was .91.

Controll variables: We controlled for participant’s gender(1=male and 2= female), marital status(1=unmarried and 2=married)and organitional tenure (1<3years,2=4-6years, 3=7-9years, 4>10years).

3.3 Data analysis

The collected data was analysed using SPSS 22.0 and Amos 22.0 software programs. We used confirmatory factor analysis to test validity of the proposed measurement, and then we performed linear regression analysis to test the hypotheses.

4 Result

According to the table 2, four-factor model fit the data better, therefore, the proposed theoretical four-factor model was acceptable. Table 3 shows the means, standard deviations, and correlations of composite measures for the model constructs. It indicates that WFC had no significant correlation with task performance, but WFC had a significant negative correlation with Job dedication ($r = -0.21, p < 0.01$) and Interpersonal facilitation ($r = -0.25, p < 0.01$). Job dedication, interpersonal facilitation and task performance are significantly positively correlated.

Table 2 Model Fit for Confirmatory Factor Analysis.

Model	Factor-structure	X ² /df	NNFI	CFI	RMSEA	AIC
Four-factor	WFC,JD,IP,TP	2.808	0.904	0.919	0.089	446.274
Three-factor	WFC,JD+IP,TP	3.995	0.842	0.863	0.114	605.326
Two-factor	WFC,JD+IP+TP	6.552	0.707	0.743	0.155	952.015
One-factor	WFC+JD+IP+TP	10.770	0.484	0.545	0.206	1525.987

Table 3 Descriptive Statistic and Correlation among Variables

Variables	Mean	SD	1	2	3	4	5	6	7
1. Gender	1.47	0.50	-						
2. MS	1.33	0.47	0.08	--					
3. OT	2.74	1.20	-0.08	-0.63**	-				
4. WFC	3.38	1.37	-0.13	-0.05	0.07	(0.85)			
5. JD	5.87	0.77	0.04	-0.14*	0.05	-0.21**	(0.85)		
6. IP	5.87	0.97	0.15*	-0.06	0.07	-0.25**	0.68**	(0.91)	
7. TP	5.65	0.94	0.03	-0.15*	0.06	-0.11	0.55**	0.57**	(0.90)

Note: MS=Matital status, OT=Organizational tenure, WFC=Work-to-family conflict, JD= Job dedication, IP= Interpersonal facilitation, TP=Task performance. * $p < 0.05$, ** $p < 0.01$, two-tailed test.

We used the linear regression analysis to test the hypotheses. According to table 4, WFC doesn’t have a negative effect on task performance ($\beta = -0.079$, null). WFC has a negative effect on job dedication (model 4, $\beta = -0.12, p < 0.01$). WFC has a negative effect on interpersonal facilitation (model 2, $\beta = -0.162, p < 0.01$). Interpersonal facilitation and job dedication fully mediate the relationship between WFC and task performance (See model 9, model 10). So H1 is rejected, and H2, H3, H4, H5 are supported.

Table 4 The Results of Linear Regression Analysis

Variables	IP		JD		TP					
	model1	model2	model3	model4	model5	model6	model7	model8	model9	model10
Controll										
Constant	5.353**	5.946**	6.276	6.714**	6.144**	3.062**	2.011**	6.431**	2.010**	2.957**
Gender	0.306*	0.252*	0.081	0.041	0.075	-0.101	0.021	0.049	0.022	-0.098
MS	-0.060	-0.58	-0.307	-0.305*	-0.370*	-0.335*	-0.168	-0.369*	-0.168	-0.335*
OT	0.054	0.066	-0.042	-0.033	-0.040	-0.071	-0.013	-0.035	-0.013	-0.073
Independent										
WFC		-0.162**		-0.120**				-0.079	0.000	0.016
IP					0.576**					0.581**
JD		0.054**					0.658**		0.659**	
ΔR^2				0.044**		0.324**	0.298**	0.013	0.285**	0.311**

5 Conclusion

Our study has several limitations that highlight fruitful avenues for future research. First, because all our measures are based on self-reports, common method bias may have inflated the observed relationship. Second, we cannot draw strong causal inferences from this research. Future research is needed to test our results with different samples. As we just tested the relationship between work-to-family conflict and task performance and contextual performance, it would be worthwhile to examine the relationship between family-to-work conflict and task performance and contextual performance. We found that WFC doesn't have a negative effect on task performance directly, but it can influence task performance through job dedication and interpersonal facilitation. In order to ensure the task performance, companies need to pay more attention to WFC. The results have enriched the study on work-family conflict and job performance, we hope those would be useful for the future research.

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A Patchwork Planet: Self-Reconstruction Through Penetration into the Heterotopia

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Abstract: American southern writer Anne Tyler is attracting increasing research interest in China today. *A Patchwork Planet* is a typical Tyler novel that addresses much more than the superficial subject matter of family and marriage like other mature Tyler stories, and is worthy of in-depth analysis. *A Patchwork Planet* is clearly an Ego-reconstruction story. And Tyler ingeniously shapes it into a Lacanian Ego-construction structure and embeds it into a background of two contrastive spaces. The paper thus approaches the novel from both a psychological and a spatial perspective and unfolds the Lacanian self-reconstruction structure of the novel and discloses the interwoven theme of the aging heterotopia. Finally the paper concludes that Tyler shows her concern for and belief in the value of the neglected aging heterotopia in *A Patchwork Planet* by making it a decisive instrument in realizing the self-reconstruction of the protagonist.

Key words: Ego; Self-reconstruction; Heterotopia; Theme of old age

1 Introduction

When it comes to contemporary American woman writers, Anne Tyler undoubtedly holds a very important position, especially as a southern writer. As a matter of fact, Anne Tyler is compared to Jane Austen, Eudora Welty and John Updike in the literary circle for her keen observation and expertise presentation of her eternal subject matter, the intricate familial relationships. Years of industrious work earned her various important prizes such as the Pulitzer Prize for Fiction, the National Book Critics Circle Award, and the Sunday Times Award for Literary Excellence, to name but a few. The Telegraph even remarks that “Tyler’s unflinching fictional portraits of family life should secure her a place at the literary top table”¹

Successful as Anne Tyler is in her publishing career, research effort on her works is quite limited in America. This might be because as a southern writer, Tyler’s chosen field of subject matter is of familiar everyday life, looking quite dwarfed in front of the southern giant Faulkner’s grand narration. Besides, many Tyler novels are branded as bestsellers which would automatically disfavor Tyler from some research consideration. Most Tyler reviews are publishers’ or editors’ reviews. The few serious critical studies as represented by Paul Bail’s *Anne Tyler: A Critical Companion*, Alice Petry’s *Understanding Anne Tyler*, and Voelker’s *Art and Accidental in Anne Tyler*, though each presenting insights into themes, styles and art of Tyler’s works, their analyses all cover several Tyler’s works that makes it impossible for them to give any work concerned a detailed and thorough treatment.

However, Tyler’s works are worth close investigation. In addition to her widely acknowledged “fully developed characters”, “brilliantly imagined and absolutely accurate detail” and “rigorous and artful style” and “astute and open language”², Tyler is really good at penetrating the ordinary to reveal the extraordinary, like Eudora Welty. Maybe because of this, Tyler’s works are gaining more and more research interest in the past few years in China. Tyler’s studies in China generally go to two types, those on her as an author and those on her works. Of all Tyler’s works, *Dinner at Homesick Restaurant* (Liang Jianwei, 2013; Huang Feifei, 2011), *Breathing Lessons* (Wang Yumei, 2006), *The Amateur Marriage* (Liu Xiaobo, 2011) and *The Accidental Tourist* (Li Mengshi, 2014) are most appealing to many Chinese scholars. The paper takes one other typical novel of Tyler’s, *A Patchwork Planet*, to be its target of study. Yu Jiaqi (2012) did a comparative study of *A Patchwork Planet* and *Catcher in the Rye* to reveal the theme of loss and return in her master thesis. Exclusive reviews on *A Patchwork Planet* are not found in publication. The paper would approach the novel from both the psychological perspective and the spatial perspective to appreciate the structural and humanistic themes of the novel.

¹ James Walton. *A Spool of Blue Thread* by Anne Tyler, review: 'far from cosy'. The Telegraph, <http://www.telegraph.co.uk/culture/books/bookreviews/11392004/A-Spool-of-Blue-Thread-by-Anne-Tyler.html>. data accessed: 2015-6-23.

² Anne Tyler. Wikipedia. https://en.wikipedia.org/wiki/Anne_Tyler. data accessed: 2015-6-23.

2 The Lacanian Ego-reconstruction Structure

A Patchwork Planet has a clear structure of Lacanian Ego-reconstruction process. Jacques Lacan's Ego theory is complicated and multi-phased. Among them, the early phases of Ego development are well-acknowledged, such as the Mirror Stage and the Oedipus Period. A Patchwork Planet shows a clear mold of the Mirror-Stage and the Oedipus-Period process.

2.1 Lacan's mirror stage and the oedipus period

According to Lacan, ego-construction is a process of self-alienation that starts from the Mirror stage and lasts one's whole life long. At the Mirror Stage, by watching its own image in the mirror, the baby learns to separate itself from the environment, and gradually acquires the sense of Ego that launches it on the way to the final acquisition of self-identity. The key step here is the building of the self-consciousness of Ego through identification with the mirror reflection. By manipulating the mirror images, the baby begins to separate itself from the surroundings; hence the Ego takes shape. Following the Mirror stage, the development of Ego faces two other crucial periods, namely the early and late Oedipus periods, whereby the child has to go through two identifications successfully. Failures to fulfill the identification requirements during the two periods would result in developmental Ego problems and confusion of self-identity in the future. At the early Oedipus period, the child needs to feel secured in its attachment to the mother. To achieve that, the child has to identify with the mother's "phallus". Only when it becomes the mother's "phallus" can the child enjoy the mother's love. Later the child realizes that mother does not possess "phallus" because Father takes it away from mother. The inclusion of Father into the picture signifies the entry into the late Oedipus period. Now the child faces a problem: should it accept Father's taking away of the "phallus"? Accepting it would mean the denial of the child's own desire. The only way out of the dilemma is to identify with the father. Identification with the father signifies the end of the Oedipus period. Father is not the father in real life; it is more a symbol of laws and order. (Huang Zuo, 2005)

2.2 The lacanian ego-reconstruction structure of the novel

A Patchwork Planet is in structure a literary metaphorical story of the process of Lacan's Ego-construction, here specifically an Ego-reconstruction through the Mirror Stage and the Oedipus period.

At the very beginning of the story, the protagonist Barnaby Gaitlin is 29 years old and seems stuck as a loser in life, divorced and outcast by his family, and having serious self-identity problems. The story begins with a train journey in which Barnaby meets his "Gaitlin angel" Sophia and they then begin to date. With the dates going on, Barnaby talks about his past to Sophia, and literally begins a journey of self-reflection. The novel begins with self-reflection and ends with self-reflection, echoing right to the Mirror Stage and its lasting influence.

Although their relationship does not work out at the end, Sophia is really an angel to Barnaby as she takes him to re-examine rationally his inner self, giving him a chance to rebuild his Ego. She may not be a common "Gaitlin angel" of material wealth, but she is surely an angel of great spiritual wealth to Barnaby. Here, Sophia functions quite vividly as the mirror, metaphorically allowing Barnaby to separate his true self from the confusing environment and to launch on a new journey of self-reconstruction.

By reflecting repeatedly upon his obsession of spying into other's family albums on his thieving missions to their privileged neighbors in the past, Barnaby's first major step of Ego-reconstruction accomplishes when he finally realizes that his real point in making these missions was to find an answer to a tormenting question of his: can he ever change? He was afraid unconsciously that he would always be a hopeless shame to his family. The realization gives Barnaby confidence to have faith in him again and convinces him that he was not a down-and-out trouble-maker who has no future, laying down a sound base for the Ego development in the future.

Barnaby's next major step of Ego-reconstruction is the fixation of his relationship problem with his mother, mimicking the early Oedipus period. Barnaby used to feel great frustration when dealing with his mother, as he seemed never able to fulfill his mother's wish. The sense of failure to become his mother's "phallus" made it impossible for Barnaby to correctly evaluate his mother's love toward him. Therefore, Barnaby encounters relationship difficulties with his mother, a result from the failed early Oedipus period. When Barnaby can rationally assess his situation and takes control of his life, he finally decides to right his relation with his mother and takes initiative in solving it. After several confrontations, his mother eventually admits in words to him that "you are always my boy". Barnaby then sees his mother's love under the hard mask of blaming him all the time. They two reconcile, hence the successful

ending of the early Oedipus period.

Then it comes to the final part of identifying with the Father. According to Lacan, Father here represents actually not the physical father in life, but rather a symbol of laws and order. In the past, Barnaby always wished to become a man like his father or the other successful Gaitlin men who met their “angel” and made their fortune. Obviously he was not successful in this aspect. He could barely support himself. However, as the story and Barnaby’s reflection progresses, Barnaby gradually learns that it is the general populace who made the Gaitlin’s fortune, not the assumed “angel”. With this knowledge, Barnaby critically evaluates his family belief and forms his own value, thus finishing up his identification with the Father. The Oedipus period is accomplished. Until then, the self-reconstruction of Barnaby is structurally complete, and the story stops.

3 The Aging Heterotopias and Theme of Old Age

Like other great works of art, *A Patchwork Planet* is not a single-themed work. The Lacanian self-reconstruction feature is only one structural theme of the novel. *A Patchwork Planet* is also a novel of Third Space. Tyler achieves it by setting this self-reconstruction story in two paralleling spaces – the mainstream self-sufficient society and the endangered heterotopias of the aging society of the underprivileged, and letting the protagonist Barnaby Gaitlin, a confused loser from the mainstream society, reconstruct his Ego, regain confidence and develop wise attitudes toward life only through the support, strength and wisdom from this long neglected heterotopia of the poor old.

3.1 Heterotopia and its significance to the mainstream society

Heterotopia is a term first used by Michel Foucault to stress the heterogeneity of the space we live in. According to Foucault, we human beings are not living in void, but rather in a network of relationships. The various relationships define every space we live in, while no two spaces mutually commensurate or overlap. Unlike utopia, which is non-existent, heterotopia truly exists in each culture. Foucault concludes that the various heterotopias share the following features: every culture has its own particular types of heterotopias in absolute existence; their functions may change with times; they can juxtapose several mutually exclusive spaces in one physical site, and it is in special relation to time; heterotopias are independent spaces, accessible and permeable, and they could create a fantasy space that makes the real world seem unreal and they are of great and varied significance to the outside world where they reside. (Soja, 2005)

American culture is hostile toward old age. The deep-rooted American value of independence makes old age especially agonizing and the aging society exceptionally trivial and elusive. The aging society is a typical heterotopia in the American society that bears every feature Foucault concludes, a heterogeneous space that exists along side and in contrast to the mainstream affluent American society, which is marginalized and silenced that waits to be projected against the established order.

3.2 The Heterotopia of the poor old in *A Patchwork Planet* and the theme of old age

In *A Patchwork Planet*, readers travel between two spaces with the protagonist Barnaby Gaitlin, the mainstream world we are familiar with and represented by Barnaby’s parents’ society and a completely different world as represented by Barnaby’s working space. Barnaby works for “Rent-A-Back,” a business that sends strong young people to help old folks put their Christmas trees up, move furniture, bring in the groceries, take out the trash – whatever they need to continue to live independently. The world the old folks inhabit is neglected and lonely as their children seldom come, and the grandchildren’s visits and broken hips dominate it. The old folks even make it look uglier than it should be. Like the old scrimp even on Barnaby and his colleagues’ service hours by complaining that they were not doing the Christmas tree the way they wished and asking them to redo it without paying fees for the extra hours taken since it’s their fault. They are bitter-tongued, their conversations are uninteresting and they are deep-down afraid of the outside fast-changing world. However, such a seemingly unappealing world gives Barnaby irreplaceable support during the very hard days of trying moment and saves Barnaby from self-destruction.

Consider what the affluent society left Barnaby? A young man confused in youth by the hypocritical sparkling world around him and grown into a shameful son to his parents, a good-for-nothing husband, a better-off without father, and a hopeless loser in life. The whole world seems in conflict with Barnaby.

What did the other world give Barnaby? Salvation! Tyler shows the value of the old to the general society in three phases during Barnaby’s transformation process through self-reconstruction. The first aid comes when Barnaby is dismissed from his work as unreliable as he sells a board to a customer as

the customer demands and puts the store at a disadvantage. The customer, also boss of “Rent-A-Back”, sees him as a responsible and reliable young man and offers him a job on the spot. She never doubts Barnaby even after knowing his entire history and has always held him as a trust-worthy young man whom she finally makes the successor of her business. That’s the first and also an ever-lasting trust Barnaby has never received in his other mainstream affluent society. The trust pulls Barnaby to hang on to the right track of life and leads him into the heterotopia world that finally contributes to his self-reconstruction.

Barnaby encounters his second life crisis when Sophia’s aunt Grace accuses him of stealing her money. To make things worse, Barnaby then is trying to work out his problem with his mother by saving to pay back his mother. The whole “civilized” world suspects him. Deep down, Sophia may never truly trust him. Upon realization of this, even Barnaby himself gives up trying to convince others of his innocence. At this time the old folks he works for reach out their hands voluntarily and book extra hours from him to show that they believing in him. The unconditional trust warms Barnaby up, and encourages him to get over the hardest trial of reconciliation with his mother. The second aid delivers Barnaby over the early Oedipus period of self-reconstruction.

During the last critical period of identifying with Father, the late Oedipus period, the old folks Barnaby work for make him understand that the Gaitlin angels are not the assumed supernatural beings that take shape in front of the Gaitlin men to pass on their messages, but rather the common populace, who bought the Twinforms his great grandfather manufactured and laid the very foundation of the Gaitlin’s fortune. Similarly, the average buying stockholders make the fortune for his brother. The understanding helps Barnaby critically assess his family concept of success and reforms his own life values, adding a perfect finishing touch to his self-reconstruction.

From the heterotopia of the old folk, Barnaby receives trust, support and wisdom that his mainstream society denies him. The aging heterotopia turns a complete loser from the mainstream society into a saved man of confidence and sound Ego. By stressing that Barnaby’s self-reconstruction is made possible only because of the help from the aging society, especially in contrast to the destructive influence of the mainstream society on young Barnaby, Tyler embeds in a more prominent theme in the story: the old are valuable and their wisdom functions to the advantage of the mainstream society.

4 Conclusion

A Patchwork Planet is a novel of multi-themes, among which the theme of self-reconstruction and the theme of old age are closely interwoven. The paper focuses first on illustrating how the novel is literarily molded on Lacan’s Ego-construction process through the Mirror Stage and the Oedipus period, and then on uncovering interwoven the theme of old age. By emphasizing that Barnaby’s self-reconstruction is made possible only through assistance from the aging heterotopia, Tyler seems to assert that the value of the aging society should be reconsidered, that the typical marginalized and silenced heterotopia should be reevaluated in the American society, just as Eudora Welty states in her article “Must the Novelist Crude”, “...morality as shown through human relationships is the whole heart of fiction, and the serious writer has never lived who dealt with anything else”. (Welty, 2002)

There must be many other ways to appreciate A Patchwork Planet and other Tyler stories for the benefits of our understanding of art and life. The paper is meant to share in the endeavor and invite more discussions.

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A Case Study on Teaching Models for Non-English Majors' Intercultural Sensitivity

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Abstract: The intercultural sensitivity is an important component in intercultural competence. The relationship between intercultural sensitivity and intercultural competence is a positive correlation. Therefore, it is of great necessity to increase people's intercultural sensitivity in order to cultivate their intercultural competence. The focus of this thesis is to experiment various teaching materials and methods and to find an appropriate and efficient teaching model for intercultural sensitivity teaching in China.

Key words: Intercultural sensitivity; Teaching model; Non-English majors

1 Introduction

With China's opening to the outside world, the interaction between people from different cultures is increasing with each passing day. Culture gradually earns more weight in the society. Many scholars show great interest in it and are dedicated to this cause in the aim of an understanding and effective communication between different cultures. In the field of education, educators are showing concern on how to increase people's intercultural competence in intercultural communication. Intercultural sensitivity/awareness is one of the major components in intercultural competence. Bennett (1993:22) defines intercultural sensitivity as the recognition that "cultures differ fundamentally from one another in the way they maintain patterns of differentiation, or worldviews," and as a person's capacity to "differentiate phenomena in a variety of ways". Moran's (2003) Cultural Experience Model. Also Cushner (1997) tended to evaluate people's intercultural sensitivity in the following aspects: cultural integration, behavior response, intellectual interaction, attitudes and empathy. Various instruments developed by intercultural professionals, for instance, Intercultural Development Inventory (IDI), Inventory of Intercultural Sensitivity, the Intercultural Sensitivity Scale and Intercultural Sensitivity Inventory, are used to measure intercultural sensitivity/awareness. Therefore, in the field of intercultural studies, systematic and scientific ways in measuring intercultural sensitivity have been presented by foreign researchers. By using the scientific instruments, educators can experiment and find effective intercultural teaching methods.

2 Literature Review

2.1 Definition of intercultural sensitivity

The term of intercultural sensitivity has considerable theoretical and practical significance for the study and teaching of intercultural communication. According to Bennett (1993), intercultural sensitivity is the construction of reality as increasingly capable of accommodating cultural difference that constitutes intercultural development. Song (2014) argues that this dimension of intercultural competence includes self-esteem, self-monitoring, empathy, open-mindedness, nonjudgmental and non-evaluative attitude, etc. From the psychological perspective, intercultural sensitivity is how we respond to differences. It consists of three responses, namely, affective response and cognitive response. So the working definition of intercultural sensitivity for this study is the sensitivity to the importance of cultural diversity and cultural similarity in every aspect of culture as well as the ability to accept, appreciate and adapt to other cultures.

2.2 Researches on intercultural sensitivity teaching

The Developmental Model of Intercultural Sensitivity (DMIS) was created by Dr. Milton Bennett in 1993 as a framework in order to explain the reactions of people to cultural difference. Using concepts from cognitive psychology and constructivism, he organized these observations into six stages of increasing sensitivity to cultural difference. Hanvey's (1979: 46-56) model of culture learning interprets this process as one of learners' increasing awareness, culminating in their subjective understanding of the culture from the perspectives of its members. In this model, learners shift their attitudes toward the culture, progressing from "unbelievable" to "believable," each with two distinct feelings attached. For Hanvey, the subjective nature of this awareness is essential. It represents a "felt" understanding, resulting from learners' extended living and working in the culture.

3 Method

This survey employed a combined methodology of quantitative study and qualitative study. Questionnaire was designed to obtain data. In this part, the author not only displayed the research questions, the subjects, the trainer, instruments of the survey, but also gave a detailed description of the research procedures and the intercultural teaching workshop design.

3.1 Research questions

1) Before teaching, what is the students' current level of intercultural sensitivity? Is there any significant difference in intercultural sensitivity between the students who are planning to go abroad and the students who are just to stay at home?

2) Is the current teaching model applicable and effective in intercultural sensitivity teaching?

3) Are the teaching methods employed in intercultural sensitivity teaching applicable and effective? Which one or ones are greatly appreciated by the Chinese university students?

3.2 Information of the subjects and the trainer

The subjects in this special teaching program were all non-English majors who entered Wuhan Textile University (WTU) in the year of 2014. The teaching program was carried out in the first semester of their second year on campus. Forty-one subjects enrolled in the College of Electrical and Electronic Engineering, were involved in the experimental group while the other forty-one subjects, also with 6 females (14.6%) and 35 males (85.4%), enrolled in the Institute of Energy and Power, were involved in the control group. The students have learnt English for at least 7 years.

3.3 Instrument

A total inventory score was obtained by adding the various subscale scores together. Considering the English proficiency of some students, a Chinese version of the questionnaire, which was examined and approved by experts in this field, was also administered to help the participants in order to have a better understanding of all the items stated in the inventory. Before both the pretest and the posttest, students were told by the instructor that their responses to the questionnaire had no influence on their final evaluation for their English course.

3.4 Research procedures

At the beginning of the teaching project, all the participants in experimental group and control group were told to answer the questionnaire as the pretest. After that, only the experimental group participated in the specially designed teaching program in addition to College English courses whereas the control group just had routine English classes. The teaching program lasted six weeks. It consisted of 7 sections. At the conclusion of six weeks, all participants in the experimental group and the control group retook the rearranged inventory to finish the posttest.

3.5 Data collection

Sets of the scores of the questionnaire were collected, two paired (pretest-posttest) sample t-tests were carried out in the control group and the experimental group respectively to see whether the two groups had some progress or not after a period of six weeks. An independent sample t-test was also used to see whether or not there was a significant difference in the posttest between the control group and the experimental group. All the analyses were performed using Statistical Package for Social Sciences (SPSS) version 11.5. The data from the interview were documented and summarized.

4 Findings and Discussion

4.1 Results of the two paired sample t-tests results of the paired sample t-test for the control group

Table 1 Paired Samples Statistics for the Control Group

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRETOTAL	133.0976	41	8.85947	1.38362
	POSTTOTAL	149.9024	41	7.62498	1.19082
Pair 2	PREC	39.2683	41	4.08671	.63824
	POSTC	46.6585	41	4.81980	.75273
Pair 3	PREB	23.6585	41	2.89491	.45211
	POSTB	26.2439	41	2.82649	.44142
Pair 4	PREI	25.4146	41	3.66043	.57166
	POSTI	27.7805	41	2.85055	.44518
Pair 5	PREA	22.7317	41	3.47149	.54216
	POSTA	25.0244	41	3.37259	.52671
Pair 6	PREE	22.0244	41	3.65026	.57007
	POSTE	24.1951	41	2.81265	.43926

Note: POSTTOTAL means the total score of the questionnaire

Table 2 Paired Samples Test for the Control Group

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PRETOTAL - POSTOTAL	-16.8049	5.99675	.93653	-18.6977	-14.9121	-17.944	40	.000
Pair 2	PREC - POSTC	-7.3902	4.81081	.75132	-8.9087	-5.8718	-9.836	40	.000
Pair 3	PREB - POSTB	-2.5854	3.22471	.50362	-3.6032	-1.5675	-5.134	40	.000
Pair 4	PREI - POSTI	-2.3659	4.49864	.70257	-3.7858	-.9459	-3.367	40	.002
Pair 5	PREA - POSTA	-2.2927	4.71828	.73687	-3.7820	-.8034	-3.111	40	.003
Pair 6	PREE - POSTE	-2.1707	4.35260	.67976	-3.5446	-.7969	-3.193	40	.003

In this section, paired sample t-test was conducted to compare the difference before and after the teaching program for the control group. In the table of paired sample of statistics, the mean score was 133.0976 for PRETOTAL and 149.9024 for POSTTOTAL (see table 1). A review of the mean scores of the five sub-scales also indicated that all the posttest mean scores were more or less higher than the ones of the pretest. However, the significances for each item analyzed were 0.000, 0.000, 0.000, 0.002, 0.003, 0.003 (see table 2) which indicating the significant difference between PRETOTAL and POSTTOTAL as well as between all the other sub-scales tested. This revealed that then intercultural sensitivity of the control group had been raised. Results of the Paired Sample T-test for the Experimental Group

Table 3 Paired Samples Statistics for the Experimental Group

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRETOTAL	133.3415	41	16.67425	2.60408
	POSTOTAL	167.1707	41	8.19421	1.27972
Pair 2	PREC	40.5122	41	8.31301	1.29827
	POSTC	53.5366	41	5.57269	87031
Pair 3	PREB	23.8537	41	3.34336	52214
	POSTB	28.0000	41	2.60768	40725
Pair 4	PREI	24.1220	41	3.75630	58663
	POSTI	31.0732	41	3.02812	47291
Pair 5	PREA	22.3902	41	5.17628	80840
	POSTA	28.0488	41	2.91506	45526
Pair 6	PREE	22.4634	41	2.33557	36475
	POSTE	26.5122	41	2.32510	36312

Table 4 Paired Samples Test for the Experimental Group

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PRETOTAL - POSTOTAL	-33.8293	10.16834	1.58803	-37.0388	-30.6197	-21.303	40	.000
Pair 2	PREC - POSTC	-13.0244	6.32253	.98741	-15.0200	-11.0288	-13.190	40	.000
Pair 3	PREB - POSTB	-4.1463	3.35828	.52448	-5.2063	-3.0863	-7.906	40	.000
Pair 4	PREI - POSTI	-6.9512	4.54396	.70965	-8.3855	-5.5170	-9.795	40	.000
Pair 5	PREA - POSTA	-5.6585	5.36474	.83783	-7.3519	-3.9652	-6.754	40	.000
Pair 6	PREE - POSTE	-4.0488	3.39817	.53071	-5.1214	-2.9762	-7.629	40	.000

In this section, paired sample t-test was conducted again to compare the difference before and after the teaching program for the experimental group. In table 3, the mean score was 133.3415 for PRETOTAL and 167.1707 for POSTTOTAL. A review of the mean scores of the five sub-scales also indicated that all the posttest mean scores were more or less higher than the ones of the pretest. However, the significances for each item analyzed were all 0.000 (see table 4), which indicating the significant difference between PPRETOTAL and POSTTOTAL as well as between all the other sub-scales examined. This revealed that the intercultural sensitivity of the experimental group had also been increased.

4.2 Major findings and discussion

Based on the results presented in the questionnaire, some major findings as well as discussion were presented below.

4.2.1 Higher levels of intercultural sensitivity for the would-be-abroad group

As it is demonstrated in the results, the would-be-abroad students were more inter-culturally sensitive than the would-be-home students. The former group demonstrated greater strengths in the aspects of cultural integration, behavioral response, intellectual interaction as well as attitude

4.2.2 The effectiveness of the teaching model

The different performances in the posttest between the control group and the experimental group indicated that both the teaching model and the teaching methods or techniques were quite successful and effective in intercultural sensitivity teaching. The teaching model is quite applicable and effective.

4.2.3 The applicability and appreciation of the teaching methods

The teaching methods experimented in the whole teaching program were group discussion, lectures, written materials, films, case studies, computer-based teaching, situation games, intercultural exercises, contrast culture teaching, cross-cultural dialogues, immersion, as well as art and culture. These methods as a whole played an important role in raising trainees' intercultural awareness. From the interview, three methods were greatly appreciated by the trainees, namely, art and culture, film, as well as simulation games.

5 Conclusions

This current research has several major findings. First, before teaching, the students with the intention of going abroad outperformed the students without this intention in intercultural sensitivity test. The would-be-abroad demonstrated higher level of intercultural sensitivity. Secondly, after teaching, the teaching model employed in the experiment was proven to be quite effective in intercultural sensitivity teaching in China. Thirdly, the teaching methods adopted were quite applicable. The methods most appreciated by the trainees were art and culture, films, as well as simulation games. The results of this survey reveal several implications in the setting of English teaching and intercultural teaching in China. This research suffers from two limitations. First, this study is considered to be limited number of subjects. It only has two groups of students gathered together at the same time for training. Second, this study is in the lack of real world experience of interaction and communication with foreigners. Based on the two limitations, further researches are suggested to be carried out among larger groups of Chinese university students coming from all over the country and to be held activities of interaction and communication with foreigners, to verify the results of this study.

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A Case Study of Content-Based Instruction Program on EFL

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Abstract: Centered on fostering students' foreign language competence advancing in the knowledge of a subject matter, content-based instruction (CBI) has been widely used in a variety of models in recent years. Three most common ones at post-secondary level are theme-based courses, sheltered courses, and adjunct courses. Based on the theme-based model, this study aims at investigating the effect of CBI on non-English major students' language performance. Semi-structured interview techniques were used to examine students' attitudes and effect of CBI. Results indicate that the application of content-based instruction in foreign language class could enhance students' language proficiency as well as cognitive ability. Interview results also provide in-depth information that further supports the experimental findings. Additionally, several pedagogical implications in content-based instruction programs are provided.

Key words: Content-based instruction; Theme-based model; Intercultural communication course; Foreign language

1 Introduction

As an approach to second and foreign language teaching, content-based instruction (CBI) is relatively a newcomer to the field. It first appeared on the general language teaching scene in the 1980s, and has gained increasing popularity and wider application in the 21st century. CBI is intended to foster the integration of language and content, viewing "language as a medium for learning content and content as a resource for learning and improving language" (Stoller, 2002). According to Met (1991), natural language acquisition occurs in context, which is never learned separated from meaning, and CBI provides a context for meaningful communication to occur.

Since content-based teaching is the teaching of content or information in the language being learned with little or no explicit effort to teach the language itself, courses in CBI programs generally require an integrated rather than a discrete skill approach: instead of "leaning" reading, writing, speaking, and listening skills, learners "use" language to learn about a topic, make presentations, debate related issues and write reports. The rationale is that the students will "learn language through content" as a result of "leaning content through language" (Chapple & Curtis, 2000). Grabe and Stoller (1997) suggest seven rationales for CBI that can be summarized in the following points:

- 1) In content-based classrooms, students are exposed to a substantial amount of language while learning content.
- 2) CBI supports contextualized learning; students are taught useful language that is embedded within relevant discourse contexts rather than as isolated language fragments.
- 3) The use of coherently developed content sources allows students to call on their own prior knowledge to learn additional language and content material.
- 4) In a content-based classroom, students are exposed to complex information and are involved in demanding activities which can lead to intrinsic motivation.
- 5) CBI lends itself well to strategy instruction and practice, as theme units naturally require and recycle important strategies across varying content and learning tasks.
- 6) CBI allows greater flexibility and adaptability to be built into the curriculum and activity sequences.
- 7) CBI lends itself to student-centered classroom activities.

2 Models of CBI

It is in post-secondary education that CBI offers the richest variety of proposals, among which three models are generally considered: theme-based model, sheltered model and adjunct model.

2.1 Theme-based model

Theme-based language course is structured around topics or themes. Such courses typically deal with several topics along its progression and the major curricular units are organized by themes that are chosen to be appropriate to student academic and cognitive interests, educational aims, and institutional demands. Major principles underlying theme-based model contain automaticity, meaningful learning, intrinsic motivation, and communicative competence (Brown, 2001).

A key characteristic of these courses is the interest in the concept of integrated skills. Students are required to make presentations and oral reports, engage in discussions and debates, give oral or

written response to issues related to the topics, or write summaries and commentaries. Their oral passages or written texts also serve as an optimal foundation for further exploring other areas like grammar, vocabulary, language awareness, etc. Different skills and language analysis are therefore integrated around the selected topics in a meaningful, coherent manner. In theme-based model, language instructors are responsible for language and content instruction (Brinton et al., 1989). The theme-based model is mainly employed in adult schools, language institutions, and all other language programs.

2.2 Sheltered model

Sheltered instruction is an approach to use second language acquisition strategies while teaching content area instruction. The term “sheltered” derives from the model’s deliberate separation of second language students from native speakers of the target language for the purpose of content instruction. In the sheltered model, an academic subject matter is taught by content instructors in content areas, such as science, history, literature or business by using language and context to make the information comprehensible. In order to meet the desired result, there has to be an accommodation of the instruction to the students’ level of proficiency in the language.

Characteristics of sheltered instruction include comprehensible inputs, warm and affective environments, high levels of student interaction, student-centered, hands-on tasks, and comprehensive planning (Echevarria & Graves, 2003). It also facilitates the development of language abilities for students to meet the course aims: if properly conducted, sheltered courses can offer a very effective approach for integrating language development and content learning for students whose language abilities are not developed enough

2.3 Adjunct model

Adjunct model constitutes a more sophisticated pattern for the integration of language and content. It aims at connecting a specially designed language course with a regular academic course. In the adjunct model, students enroll in two linked courses simultaneously—a content course and a language course. The content instructor focuses on academic concepts while the language instructor emphasizes language skills using the content-area subject as a background for contextualizing the language learning process (Brinton et al., 1989). Thus, the adjunct courses work as support classes for regular subject matter courses, and offer great opportunities to develop the academic strategies necessary to cope with real academic content. The rationale of this model is that the linked courses can assist students developing academic coping strategies and cognitive skills which can be transferred to other disciplines. In addition, the fact that the course deals with real academic subject matter helps to increase motivation in terms of mastering both the language and the content.

To sum up, although sharing certain features such as using authentic tasks and materials, these three models of CBI differ in several ways, including the course aim and learning objectives, instructor’s roles, students’ proficiency levels, and evaluation approaches. Based on the theme-based model of CBI, the following study was intended to investigate the effect of CBI on non-English major students’ language performance.

3 Methodology

3.1 Subjects

The subjects in this study were 132 freshmen, including 87 male and 45 female non-English majors at Wuhan University of Technology, China. Most of the subjects had received formal English instruction for about nine years before conducting the study. The subjects took Intercultural Communication as a required course in the fall of 2013 academic year.

3.2 Learning contexts

Subjects in the study received a 90-minute instruction per week, lasting for 16 weeks, with Intercultural Communication (by Chang Junyue, Lu Chunmei, and Zhao Yongqing) being used as the teaching material. The curriculum, mainly applying the theme-based model, is elaborated as follows in terms of course aims, course objectives, and teaching approaches.

3.2.1 Course aims

The aims of the reading course were divided into two parts: content and linguistic aims. The content aims included: 1) students could develop a clear mind of the features of communication; 2) students could lay the foundation for appreciating Chinese culture as well as western culture; and 3) students would become interested in intercultural communication and therefore develop their autonomous learning ability. The linguistic aim was mainly to help students use freely the target

language, English in this study, to analyze problems and solve problems. In the meantime, the development of better intercultural communication strategies is also appreciated.

3.2.2 Course objectives

Based on the course aims, course objectives were made including 1) developing background knowledge of content; 2) acquiring key vocabulary of content; 3) identifying intercultural communication elements such as verbal communication, nonverbal communication, cross-cultural communication, culture shock, cultural etiquette, etc. and 4) arousing students' interest in intercultural communication. Linguistic objectives included 1) predicting the possible responses of Chinese people as well as foreigners under certain circumstances; 2) figuring out proper responses so as to avoid misunderstanding in intercultural communication; and 3) acquiring intercultural communication strategies.

3.2.3 Teaching approaches

The researcher adopted the student-centered pedagogy to conduct the course. Students were required to collect adequate information about the subject matter before class and then make presentations about it in class. Related cases were also discussed by the students to figure out the proper communication strategies used in particular situation. Thus the students were given substantial opportunity to use the language to have a better knowledge about the content. The teacher in class mainly demonstrated his instruction in language and content by helping students organize their discussion, offering enough background information to clarify the content being learnt, and making timely comment on students' performances.

3.3 Procedure

As is mentioned above, the purpose of this study was to investigate the effect of CBI on non-English major students' language performance. Three assumptions were made in advance in terms of linguistic ability, cognitive development, motivation, and teachers' role in applying the content-based instruction: 1) The application of content-based instruction can enhance students' language ability of using English. 2) The process of completing the content-related tasks consequently helps the students with their cognitive skill development. 3) Students are motivated to be more interested in intercultural communication through learning English language. Accordingly, the curriculum was carried out with the following procedure:

3.3.1 Pre-learning test and questionnaire survey

A pre-learning test was conducted during the first week of the course. Test items were divided into two parts to figure out 1) the subjects' English proficiency level and 2) the subjects' cognition level including how much they know about culture, communication and intercultural communication strategies before instruction, 50 points respectively. Questionnaire design mainly focused on students' motivation of L2 learning, students' attitude towards CBI courses, and their expectation from the course.

3.3.2 Post-learning test and end-term questionnaire survey

At the end of the 16-week training, a post-learning test was employed to investigate the learning outcomes. The test items were the same as those of the pre-learning test. Questionnaire design mainly focused on students' motivation of L2 learning, students' attitude towards CBI courses, and their evaluation of the course.

3.3.3 Semi-Structured interview

In addition to the tests and surveys, a semi-structured interview was also employed in the study at the end of the course. The researcher randomly selected 20 subjects as the interviewees to answer six predetermined questions with regard to the subjects' past, present learning experiences, and their opinions about CBI course.

4 Results

To examine the effect of CBI on students' general English proficiency, a paired-test was employed to investigate whether there is a significant difference between the pre- and post-learning test administered in this study. The results of language proficiency part show that the mean score of the pre-test was 32.3 while the mean increased to 39.5 after the 16-week instruction, which demonstrates a statistical difference between the two tests. Therefore, we can safely conclude that the CBI course had a prominent effect in increasing students' general English proficiency. As for the cognitive part which is related to the content matter, the mean increased from 29.4 of pre-learning test to 43.6 of post-learning test. The significant difference reveals that the process of completing the content-related tasks such as class presentation provide substantial opportunities for the students to practice language since they have

to decide what kind of information to use and how to attain the information, experiencing a process of information analyzing and synthesizing before presenting the self-collected information. Consequently, such tasks help the students with their cognition development in the content area.

According to the interview results, most participants hold positive attitudes toward the teaching of a specific subject matter. For example, almost all the interviewees, 19 out of 20 (95%) reported that content-based instruction about intercultural communication helped them understand culture differences better. 13 of them (65%) even reported that they had a clearer mind of why Chinese people behave in a particular way under certain circumstances. This suggested that students tended to take Chinese people's behavior for granted so that they used to overlook cultural differences when communicating with foreigners. Moreover, 16 interviewees (80%) expressed they were more confident in adopting proper communicative strategies to avoid misunderstanding, more interested in intercultural communication, and more desired to develop their English level. As for the diverse activities designed for the class, most students agree that through the process of problem solving, they had a clear framework about communication and such activities had lowered their anxiety in using the language since no right answers were offered. At the same time, they also lay emphasis on teacher's feedback and proper instruction in class such as building background knowledge, timely comments on students' presentation, and comprehensible input, etc. However, some of the interviewees complained that the activities were time-consuming (8 out of 20) and felt the course of little use in enhancing their language proficiency (5 out of 20).

5 Conclusion

The findings of this study clearly point out the significant difference the CBI course has made on non-English majors. The findings are related to one content-based instruction program in particular. Still, the result of the study proves that content-based instruction can be utilized as a way of providing a meaningful context for language instruction while at the same time providing a vehicle for reinforcing academic skills. Furthermore, CBI has been regarded as an effective approach to improve students' language skills and develop critical thinking as well (Huang, 2003). The results of the study also confirm that students made great gains in analytical ability and developed their language strategy, showing that students gain cognitive development by involving in a variety of thinking processes in the CBI program. Thus, this particular CBI program is proved to be effective, motivating, and particularly advantageous for language students. Many psychological and pedagogical benefits, including self-confidence, high motivation, low anxiety, cognitive development, and language proficiency, are promoted by the utilization of CBI program.

CBI in China is still at its initial stage, and the approach itself does not guarantee success. In theory, CBI is mixed with other language approaches such as bilingual education and English language for specific purposes. However, an effective CBI program depends heavily on its implementation, that is, the teachers' appropriate use of the approach, which is closely associated with the teachers' understanding of CBI. Although large amount of professional literature argues for the benefits of content-based instruction, little research is done on how it is appropriated and carried out by foreign language teachers in class and how teachers actually weave together foreign language and academic content instruction. It is hoped that the study may offer implications for language teachers as well as syllabus and material designers to further research and practice on some critical issues such as teaching materials, teachers' development and teaching models.

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Development and Tendency Analysis of Information Literacy Research Based on Web of ScienceTM

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Abstract: This paper carried out overall analysis on information literacy research using bibliometric method from different angles such as the influence power, author, journal, keywords based on web of scienceTM. It proposed that university and university libraries are the backbones of information literacy research, and the research methods of information literacy are no longer limited to the field of library and information science and social science, inter - science crossing and penetration have become irreversible trends, especially the application of information technology and computer technology attracted much attention. In addition, due to the late start, the research in China has a very big gap compared with foreign countries. The conclusion is that future efforts should be made to build a good scientific research environment and concentrate superior forces to form the research team of three-dimensional knowledge structure so as to improve the quantity and the academic influence of information literacy research in China.

Key words: Information literacy; H-index; Statistical analysis; Coauthor ratio; Bibliometrics

1 Introduction

“information literacy” was first proposed by the chairman of the American Information Industry Association—Paul Zurkowski in 1974. He defined it as “the technology and skills to look for, evaluate and effectively use the information to get answers to the questions utilizing a lot of information and the main source of information.”^[1] We all know that the Information Literacy Meeting of Experts, organized by the US National Commission on Library and Information Science and the National Forum on Information Literacy proposed several Information Literacy principles, the so-called 《THE PRAGUE DECLARATION "TOWARDS AN INFORMATION LITERATE SOCIETY"》 in September, 2003.^[2] In the context, the experts proposed for the urgent consideration on Information Literacy of governments, civil society and the international community. It announced that information literacy was becoming an important social factor as well as the prerequisite for people to join the information society. This caused a wide range of responses in the field of information science and libraries. The amount of literature has obviously increased from then on.

Information literacy has always been a research hotspot in the field of information science in foreign countries since the late 70's. Foreign scholars mainly concerned about the connotation, property, training target, aptitude test, model construction and effective evaluation method of the information literacy in the past 40 years. The aim of their research is to help people improve the level of information literacy and to realize the standardization and popularization of information literacy evaluation. In recent years, the study in foreign countries gradually transformed from the subjective evaluation to the experimental evaluation. However, in general, the quantitative research on the information literacy is still lacking.

The researches in China due to the late start have a very big gap compared with foreign countries. They are focused on the summary of foreign research theories and still in the discussion stage of the research method at present. The specific model of information literacy testing and evaluation has not been constructed yet, therefore, the quantitative study is in serious shortage. Actually, since the introduction of the concept of information literacy from abroad in the mid 90's, the Chinese scholars generally valued theory but ignored practice and lacked innovation in their research work, a lot of their works are translation or reviews of foreign related literature, few of them form their own opinions. In addition, most of the researchers in China did not clarify the specific purpose of their research results, so they need further thinking of the significance of study.

2 Data and Methodology

In order to survey the development of information literacy studies all over the world and forecast the future trend, the writer executed a retrieval in the database “Web of ScienceTM” with “information literacy” as the subject term. Specific retrieval conditions are these: 1) Topic=(information literac*) OR

(information literat*) OR (information qualit*); 2) Indexes: SCI-EXPANDED, SSCI, CPCI-S, CPCI-SSH; 3) Timespan: All years; 4) Research Areas: INFORMATION SCIENCE LIBRARY SCIENCE. The retrieval returns 1128 papers. Then the writer carries out the analysis using bibliometric method from different angles such as the influence power, author, journal, keywords, etc. so as to reveal the inner law of information literacy research and make an accurate judgment of the future research direction.

3 Statistical Analysis and Discovery

3.1 The influence power analysis

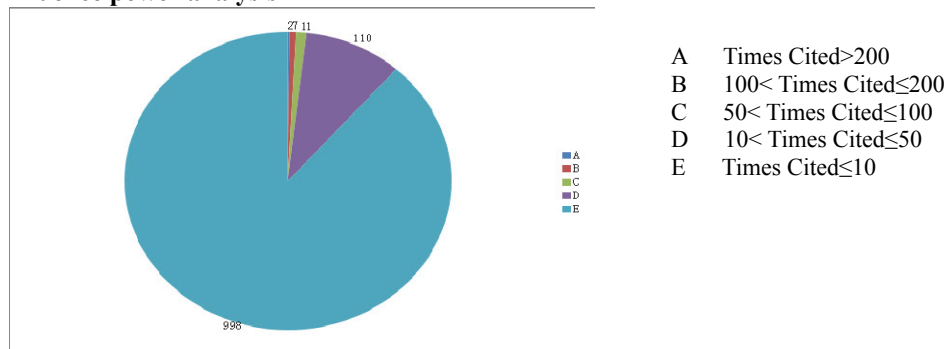


Figure 1 Distribution Map of Cited Frequency of Papers

The cited times is the important index of the influence power of a paper. The total cited times of all the 1128 papers is 6984, divided by 1128 is the international average cited times 6.19. The highest average cited times is 29.25 of Holland, followed by Taiwan, 11.73. U.S.A. ranks third, 9.72. The average cited times of Chinese authors is 3, it is below the international average cited times. This indicates that the Chinese scholars are relatively lack in academic influence in this field. Visible by Figure 1, the low cited papers occupy the majority (of which zero cited papers 528), which shows that most of the papers receive little attention. And there are 9 papers of which the cited times is higher than 9. These 9 high cited papers were published between 2002 and 2008. 7 from America, 1 from Holland, 1 from Taiwan. So America obviously has a leading position in the field of information literacy research. The research area of 8 of these papers is “computer science, information system”, the proportion is as high as 89%. This shows that the application of information technology and computer technology is a focus for concern but just relatively scarce in the research field of information literacy, so we can draw a conclusion that the development of new information resources and software is the innovation and breakthrough of this subject.

Among them the highest cited paper is from DeLone, WH^[3] of Kogod Business Administration College of American University published in 2003, it was cited 1207 times in all, the annual mean cited times is up to 101. DeLone (2003) discussed the utility of the updated DeLone and McLean Information Systems (IS) Success Model, focusing especially on research efforts that apply, validate, challenge, and propose enhancements to the original model.

3.2 Author analysis

We can find the high-yield authors and core authors in the research area of information literacy through the analysis of authors. In addition, we can get hold of their background as well as their researching trends so as to tap the potential information and direct the cooperation accordingly.

3.2.1 Nationality of authors

Despite the 79 papers without country information, the top few countries sorted by the number of papers are America (426), England (94), Australia (87), Canada (54) and Spain (44), respectively accounted for 37.8%, 7.7%, 4.8%, 3.9%, 8.3%. China ranks in the 12th (16), accounting for 1.4%. And research in China clearly started late, the earliest paper published in 2007, the subsequent research was not continuous and tended to be stable until 2011 without much promotion. Visible by Figure 2, the research results in China are very few compared with the U.S.A. and other developed countries. This is due in large part to the slow development of information literacy education and poor informationization degree in China.

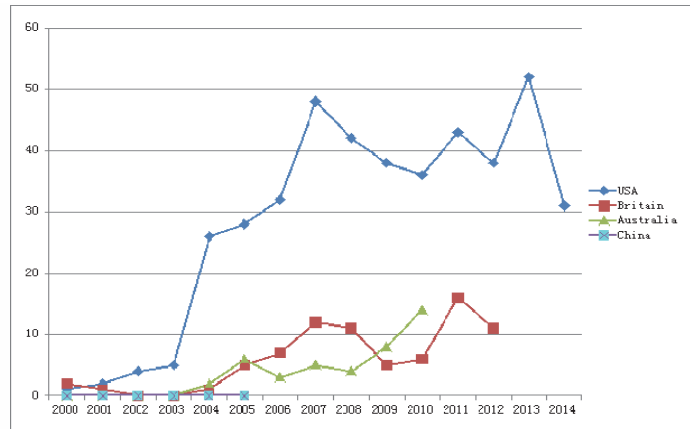


Figure 2 Comparison of Papers Published in China, USA, Britain, Australia

3.2.2 Co-authorship analysis

Add all the numbers of authors together, divided by the number of papers according to the national classification, we can get the average number of authors in different countries. After calculation, the average numbers of authors of the United States, Britain and Australia are 1.80、1.74、1.84 respectively, the data is very close. China's data is 2.81, significantly higher than the data of above mentioned countries, and also higher than the international average number of authors 1.91. This indicates that co-authors in China are more common. In fact, there are 14 co-author articles in China, the co-authorship ratios as high as 87.5%. 6 articles of them belong to the cooperation within the department, 2 belong to the inter-school cooperation, 3 belong to the intercollegiate cooperation, 3 belong to the cross-border cooperation. This shows that Chinese scholars are good at cooperation, scientific researchers in various fields are deeply influenced by the idea of “two heads are better than one”. And Chinese scholars dare to change and innovate the forms of cooperation, not to stick to one pattern. It is indeed deserving praise.

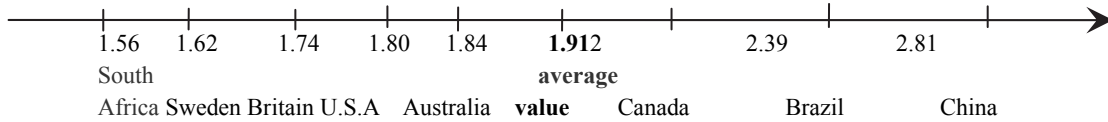


Figure 3 Average Numbers of Authors

3.2.3 High-yield authors and core authors

After statistical analysis, it is found that the highest yield author was Pinto, Maria in Spain who has published 18 papers. Calculated according to the price law^[4] $N=0.749*\sqrt{x}$ (the number of papers of the highest yield author), the lowest number of papers of core author candidate is 3.18. But I think that only relying on the amount of papers to determine the core author is not scientific, we should integrate that with the study of the cited case of papers. So h-index^[5] (a scientific evaluation index proposed by Professor J.E.Hirsh, an American Statistical physicist in 2005, refers to at most h articles of a writer cited at least h times) is introduced. It is considered that the higher the h index is, the greater the writer's academic influence. According to the statistics, there are 22 people who published more than 4 papers, the total number of papers published by them is 142, accounting for 12.6% of the total number of papers. The distribution range of their h indices is from 0 to 7. The study also finds that with the increase of the h index, the number of core authors decreased sharply. Among them, the h indices of 12 people exceed 3, 7 people exceed 4, but only 3 people exceed 5. Details can be seen below in Table 1.

Table 1 H Index List of Authors with 4 or More Papers

H-index	0	1	2	3	4	5	6	7
Number of people	4	3	3	5	4	1	1	1
Proportion	18.18%	13.64%	13.64%	22.73%	18.18%	4.55%	4.55%	4.55%

The 7 authors whose h indices and published papers amount exceed 4 are identified as the core authors in the field of information literacy research. They are Lloyd, Annemaree in Australia, Julien, Heidi and Badke, William in Canada, Pinto, Maria in Spain, Gross, Melissa, Oakleaf, Megan and Stvilia, Besiki in the U.S.A. They have published 66 papers in total, 9.43 papers per capita. Specific data see Table 2.

Table 2 Core Authors

Core authors	Nationality	H index	Number of papers	Co-author proportion	Total cited times	Cited times per paper
Lloyd, Annemaree	Australia	7	13	23.08%	201	15.46
Julien, Heidi	Canada	6	9	88.89%	101	11.22
Pinto, Maria	Spain	5	18	72.22%	79	4.39
Gross, Melissa	U.S.A.	4	5	100%	86	17.2
Oakleaf, Megan	U.S.A.	4	8	37.5%	44	5.5
Badke, William	Canada	4	9	0	25	2.78
Stvilia, Besiki	U.S.A.	4	4	100%	142	35.5

American authors occupy 3 places in the 7 seats of core authors, Canadian 2, Australian 1, Spanish 1. The highest total cited times belong to Lloyd, Annemaree (201) in Australia, the highest cited times per paper belong to Stvilia, Besiki (35.5) in the U.S.A. From the angle of institutional analysis, these 7 core authors are all from University, moreover, Stvilia, Besiki and Gross, Melissa are both from Florida State Univ, Coll Commun & Informat, Sch Lib & Informat Studies. So we can learn that university and library are still the backbone of the information literacy research. Gross, Melissa's research team has 2 members, Stvilia, Besiki's research team has 7 members. All this information would help us to track the core authors and their teams so as to get the latest research trends and progress in time.

Co-authorship also shows diversification. The highest is 100%, the lowest is 0. The two authors of the 100% co-authorship ratio are Stvilia, Besiki and Gross, Melissa mentioned above, and the highest cited times per paper also belong to them (35.5 and 17.2 respectively). This shows that the sense of teamwork between the United States scholars is strong thus the academic level of their cooperative research results is high. At the same time, the total and per paper cited times of the author of the lowest co-authorship ratio are both the lowest (25 and 2.78). The enlightenment is that in the case of increasing difficulty of the research work, a paper with appropriate partners can be complementary in the knowledge structure and the research methods, so that it can give full play to the collective wisdom and power and achieve a high level of research results. Therefore, in order to improve our country's academic influence in the field of information literacy research, we should give support in scientific research and talents import policies, form multidisciplinary research teams, encourage deep, multidimensional cooperation between authors and various subjects. These are our urgent affairs.

3.3 Journal analysis

3.3.1 Journal discipline distribution

The 71 journals on which 1128 papers were published cover 10 subjects. Horizontal comparison is shown in Figure 4. We can see that discipline distribution is extremely uneven. "information science and Library Science" and "computer science, information systems" are the most important orientations in percentage, which contain 74.5% and 20.9% separately. This shows that the librarians are still the main force in the field of information literacy research, followed by the technicians engaged in the design of information system and the software development who have science and engineering background. Because the promotion of information literacy research is to a large extent dependent on the application of information technology and the development of stable and reliable information system as a support, so technicians occupy a considerable proportion. Other subjects covered include management, law, humanities, communication, artificial intelligence etc., but haven't formed dimensions yet. It reveals that something has been attempted in the interdisciplinary study of information literacy, but it is still not mature and has not formed academic influence. But look to the future, the intersection and infiltration of various disciplines are inevitable trends and necessary methods of scientific research. I believe that the cooperation and innovation based on subject dimension would certainly cause the formation of the new research hotspots in information literacy.

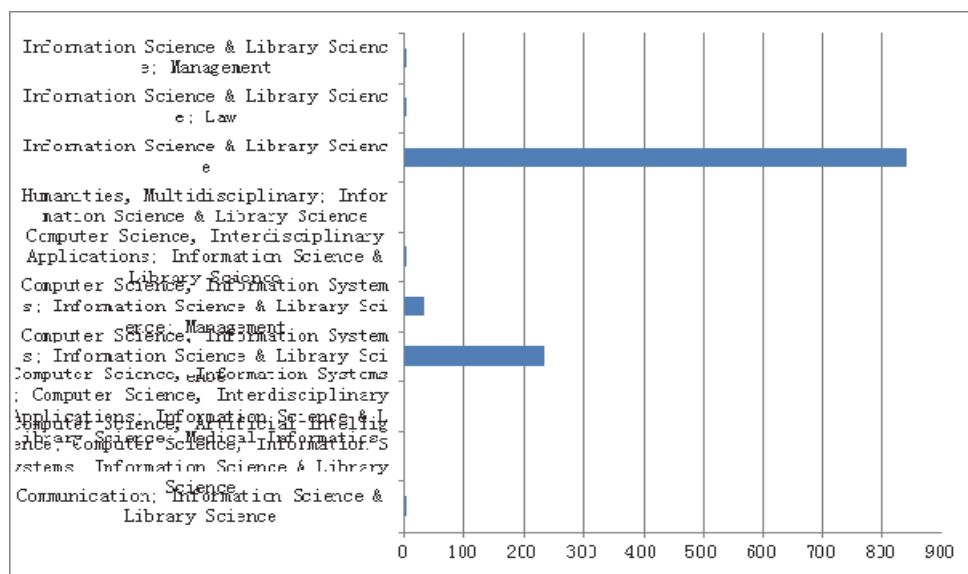


Figure 4 Subject Distribution of Journals

3.3.2 Core journal analysis

As mentioned above, 1128 papers were published in 71 journals, so the average load is 15.89. Using Brad Ford's law^[14] to analyze, we can divide the journals into core areas, related areas and non related areas according to the number of published papers on information literacy in descending order, meanwhile, the number of papers of each partition is roughly equal. The result is that the corresponding number of journals per partition is 6, 11, 54, not completely accord with the distribution law of $1 : n : n^2$ ^[15]. So we can conclude that the periodical collection of information literacy research is still developing, and needs to be optimized and perfected. The following 6 journals are recognized as the core journals of information literacy research.

Table 3 List of Core Journals

Journal	Number of papers	Proportion	Impact factor	Cited times per paper	Place of publication
JOURNAL OF ACADEMIC LIBRARIANSHIP	136	12.06%	0.574	4.51	U.S.A.
PORTAL-LIBRARIES AND THE ACADEMY	65	5.76%	0.651	3.94	U.S.A.
INFORMATION RESEARCH-AN INTERNATIONAL ELECTRONIC JOURNAL	58	5.14%	0.660	0.88	Britain
OLLEGE & RESEARCH LIBRARIES	50	4.43%	1.333	4.38	U.S.A.
JOURNAL OF LIBRARIANSHIP AND INFORMATION SCIENCE	49	4.34%	0.273	4.08	Britain
JOURNAL OF THE AMERICAN SOCIETY FOR INFORMATION SCIENCE AND TECHNOLOGY	46	4.08%	2.230	18.78	U.S.A.

These 6 core journals published a total of 404 papers, accounting for 35.8% of the total number of articles. The first 5 journals are the sources of SSCI, and the sixth one is the source of SCI. The research methods and achievements of information literacy are mainly those of social sciences. And the impact factors of these journals are generally not high. This reflects from another perspective that the impact factors of journals of library science and information science are relatively low. As can be seen from Table 3, the «JOURNAL OF ACADEMIC LIBRARIANSHIP» published the most papers (136), accounting for 12.06% of the total number. And the highest cited times per paper belongs to the «JOURNAL OF THE AMERICAN SOCIETY FOR INFORMATION SCIENCE AND TECHNOLOGY», which reaches 18.78. This shows that although the proportion of the research topics of combining information technology with information literacy theory is not high, but they indeed got

great attention, we have reason to believe they are bound to be the development direction and focus of study on information literacy in the future.

3.4 Keyword analysis

Analyzing all the key words appear in the 1128 documents statistically, removing the “information literacy” 、 “information quality” used as the search words, we get a total of 757 key words. There are 12 key words of which the frequency is more than 10, as shown in Table 4.

Table 4 High Frequency Key Words

Key words	Frequency
Academic libraries	34
higher education	24
University libraries	22
Worldwide web	20
Libraries	20
information retrieval	17
library instruction	15
Librarians	13
Service quality	13
information seeking	10
User satisfaction	10
Web 2.0	10

The above high frequency keywords are divided into three categories. The first category is of education: higher education、 Academic libraries、 University libraries、 library instruction、 Libraries、 Librarians; The second is of technology: Worldwide web、 information retrieval、 Web 2.0、 information seeking; Then the category of evaluation and perception: Service quality、 User satisfaction. So education and technology are the two supporting pillars of information literacy research. Based on technology, serving education (especially higher education) is the inherent law and development track of the information literacy research. At the same time, the user experience and evaluation of information system performance are gaining increasing concern from the researchers.

4 Conclusion

Through the comprehensive statistical analysis of the information literacy literature collected in web of scienceTM, I believe that: ①The publication of the PRAGUE DECLARATION in 2003 greatly contributed to the development of the information literacy research, and then the amount of documents enormously increased; ②Several developed countries such as the United States, Britain and Australia are pioneers in the field of information literacy research, especially the United States, both the number and quality of American papers are remarkable; ③University and university libraries are the backbones of information literacy research, some of the high yield authors and their team's research results are of high academic level, deserving our sustained attention; ④With the rapid development of computer information technology, the research methods of information literacy are no longer limited to the field of library and information science and social science, inter-science crossing and penetration have become irreversible trends, especially the application of information technology and computer technology attracted much attention; ⑤With the rapid development of the network and the need of “lifelong learning” is accepted by more and more people, “people” as the core factor as well as the service object of the information system, their natural attributes (Consciousness and attitude) and social attributes (the ability to exchange information and evaluate information) are obtaining more and more attention. The evaluation of information system performance and assessment on user experience will be the future research directions of the scholars; ⑥Due to the late start, the research in China has a very big gap compared with foreign countries. Both the quantity and the academic influence of it are not high. Future efforts should be made to build a good scientific research environment and concentrate superior forces

to form the research team of three-dimensional knowledge structure. On this basis, increasing the range and depth of the discipline cooperation should be the top priority.

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Cross-Border Investment -Culture is a Challenging Factor for the HR Management to the Chinese Enterprises

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Abstract: Most of the companies in china are now extending their business activities from china to the outside countries. Cross-border investment needs comprehensive assessment of cultural environment from various aspects for the better management of human resources. It has added challenges of having to deal with both national and organizational culture differences. In this paper the researchers analyze the cultural dimensions of the Chinese cross border investment using Hofstede cultural dimension theory. The most challenging factor in the cultural changing environment is the proper utilization of human resource management specially to manage their performance. This paper highlighted some cultural differences and links with the human resource management. It is the human resource management which needs more attention while investing outside the country. Otherwise most of the enterprises resources will be wasted due to non-productive conflicts of the human resource management. Although the internal and external factors of the human resource management environment are mostly same, treatment or the function of these variables change from country to country due to the cultural dimensions. The researchers highlighted some cultural dimensions which always vary from country to country which must be clearly understood by those companies interested to invest in cross boarder countries.

Key words: Cultural Dimensions; Environment; Human resource management diversification

1 Introduction

Globalization of firm's operations, or an increased level of firm's involvement in exchanging goods and services, information, personnel across national boundaries create challenging for its human resource management (Rugman & Verbeke, 2004). Due to cultural variances the way of communication is also changed. One of the biggest challenges is language (Marschan-Piekkari, Welch and Welch, 1999b). Poor culture-fit has often been mentioned as one reason why Merger and Acquisition has not produced the outcomes as organizations hope for (Cartwright & Schoenberg, 2006). Day to day booming economic activities turn the world business scenario and it increased level of exchange of goods and services, information, finance and personnel across national borders (Rugman & Verbeke-2004). The worldwide business entities are now moving from one country to another country in search of markets to sell their products as well as to find out cheap labor and low cost raw materials. China is one of those countries whose economy is grooming day by day. Chinese government is now entering into various contracts and agreements with worldwide countries. For example there are a lot of agreements between Sino-African countries. The Chinese government also announced mega project with the name "One Belt One Road". This project will link all central Asian countries through Silk Road- The one Belt and one Road Initiative aims to promote the connectivity of Asian, European and African continents and their adjacent seas, establish and strengthen partnerships among the countries along the Belt and Road, set up all-dimensional, multi-tiered and composite connectivity networks, and realize diversified, independent, balanced and sustainable development in these countries (Issued by the National Development and Reform Commission-March 2015). China is already working on Pak-China Economic Corridor and Asian Infrastructure Investment Bank (AIIB) –International financial institution proposed by the government of China. Many other huge projects are under consideration with various major region of the world. But if you're doing business abroad, you'll quickly realize that not everyone wants to do business the way you do. The modern globalization is influencing the strategic trends of the companies and the biggest challenge for HR executives (Mark E Mendenhall, Robert J. Jansen, 2003). There are other main challenges for the Human Resource Management Executives. According to the research conducted by Mark E Mendenhall, Robert J. Jansen (2003) following five big challenges were identified:

- Enhancing Global business strategy
- Aligning HR issues with the business strategy.
- Designing and leading changed

- Building Global Corporate culture
- Developing Global leaders

There may be further challenges but here we will only focus challenges related to Human Resource Management. It is not an easy task to move human resource personnel from one corporate culture to another corporate culture. According to Thanousorn Vongprasuth(2014), in their article Globalization, foreign direct investment, and urban growth management, the modern globalization has lead not only to the expansion of the boundaries of market and communication but also spread of culture awareness among consumer all over the world. In the first stage of the globalization social, economical and political activities are distributed across boundaries such as events, decisions and activities. These activities and movements have consequences for individual and communities in the distant regions of the globe (McGrew and Held, 2007). So the globalization actually creates an environment where the less develop and developed communities interact with each other (Mazrui, 2001). In addition, the constructed environment of a city, the strong process of a globalization and localization clash (Mahgoub, 2004). When working in the global commercial environment, knowledge of the impact of cultural differences is one of the keys to international business success. (www.WorldBusinessCulture). Sun Jun lee, Joongwha Kim (2014) in their research work regarding the Cultural Clashes in cross border mergers and acquisitions mentioned that whether either national or organizational culture differences in the cross boarder investment lead dysfunctional outcomes. Various researcher in a view that the national cultural differences in cross boarder merger and acquisitions has positive effects as compare to corporate culture has largely negative impact(Larsson & Lubatkin, 2001). While there is a comfort level in staying within your own language and cultural parameters, you may miss some wonderful and profitable opportunities if you do so. In this global economy, opportunities often exist world-wide, even for smaller businesses. But we must be prepared to move beyond the comfortable environment of your known world. Working through an interpreter can be a challenge, but if you choose wisely, a good interpreter can be a business asset, making your “dream” of global expansion a “reality.” (Jennifer Roney, PhD). The explanation above clearly presumes that the national cultural differences in cross-border investment can be successfully managed if we timely and correct post-acquisition strategies are properly implemented. In this case there are lot of areas where the researcher can do lot of research work for the effective implementation of these post-acquisition strategies (Sun-Jan Lee, Joongwha Kim, Byung II Park, 2014.) By keeping above facts now it is very important to Chinese companies to go and thoroughly study the cross-border investment environment in term of cultural variance. As we know that every enterprises always faces two different kind of environment, internal and external environment when it operate a business within the boundaries of their countries. These same variables also exist in the cross boarder but with the different scenario due to cultural variance.

2 Literature Review

2.1 Human Resource

The knowledge, experience and capability of an organization’s workforce is determining factor of success. So becoming the world class level human resource management, the highly regarded companies also face lot of difficulties (Mark E. Mendenhall j.Stewart Black, 2003). According to them the real challenging job to maintain standard HR management at global level is the competent leadership. For this reason, organizations pay particular attention to the recruitment of staff and also to engage in the training of staff and volunteers to build the organization’s capability. In pursuing both recruitment and training strategies organizations are often limited by their financial strength. Jemison & Sitkin (1986) argued that the great cultural differences between the two enterprises are likely to lead to cultural ambiguity. The greater the cultural distance, the more the conflict faced. Nevertheless, training of staff is an essential aspect of good business management, and even in difficult financial circumstances is an achievable strategy. International business deals not only cross borders, they also cross cultures. Culture strongly influences how people think, communicate, and behave. It also affects the kinds of transactions they make and the way they negotiate them. Differences in culture between business executives—for example, between a Chinese public sector plant manager in Shanghai and a Canadian division head of a family company in Toronto— can create barriers that impede or completely stymie the negotiating process (The top ten ways that culture can affect international negotiation-IVEY Business Journal). When you add the issues of a multi-generational workforce and growing cultural diversity, it is no surprise that people management is mentioned to be by far the most considerable challenge facing companies over the next five to ten years. According to a 2013 survey of 636 C-level and senior executives by

The Economist Intelligence Unit, sponsored by the SHRM Foundation the most challenging factor that organization will face in future is people management in the organization. It may be ageing, skill or may be diversified human resource. So the human resource management is core issue while investing in cross border (SHRN Foundation- Shaping the Future of HR). When a company start business outside the country, it need same requirements as we mentioned above but due to cultural variances it need to better understanding of cross boarder culture because the different background cultural people has different attitude towards the organization. For example according to culture of one country the people are giving importance for their individual betterment and they think that if we individually strong then it automatically give benefited to the organization. Because if individual is skilled and knowledgeable he will definitely utilize his skill for the organization. But some other cultural background people give more importance to their organization. So this is the example of the cultural difference. Although both thinking the betterment of the organization but the course of action is different. According to the Bo Xu, Junmin Yang, and Xi Jiang (2003), in their article Effects of Cultural Difference on Cross-border M&A Integration, to succeed internationally, Chinese construction companies should pay attention particularly on the cultural sensitive approach. Furthermore, it is also important to understand the relationship of cultural issues and organizational decisions. According to them the enterprises must focused on those issues which are shared by the different cultural background people rather than individual differences. A particular group reacts in general in the same way to a given stimulus; understanding culture can help to determine or anticipate how team members of a similar cultural background might react in various situations. Subsequently, the study will briefly examine the frame-work of cross-cultural dimensions developed by Hofstede (2001) based from the Chinese construction companies as the conceptual paradigm of the current study.

2.2 How Cultural Differences make difficult to Manage Human resources:

As we know that some conflicts are very useful to the organizations because they lead towards creativity within organizations but some conflicts decrease the effectiveness of the organization. The researchers view that the cultural conflicts decrease the productivity of the organizations. So this kind of issues faced by the organizations which working internationally. Jemison & Sitkin (1986) argued that the great cultural differences between the two enterprises are likely to lead to cultural uncertainty. The greater the cultural space, the more conflict. The investigational results show that investors often hold negative attitude toward obvious cultural differences between acquisitions. The differences in corporate culture (Management style) are likely the main reason for acquisitions not being able to achieve the desired objectives. Some scholars distinguished national culture and corporate culture and asserted that national cultural differences indicate the cross-border M & A performance not being satisfactory. National culture has greater impact because of they are inflexible and not easy to be altered. The lack of coordination and measures of conflicts is the main reason for the poor results of operations caused by mergers and acquisitions.

2.3 How to convert the cultural differences in to opportunities in terms of Human Resource Management through different strategies

Experts say that diversity is the strength. It means that we can boost up our business internationally if we understand the cross-border culture properly. The process of continuous learning and modification strategies further enhance the dynamic capabilities (Teece, 1998). Dynamic capabilities mean the development of global management capabilities. So the diversified human resources increase in the efficiency of the human resource out if the implementation is aligned with the cultural back ground. According to Harvey and Novicevic(2000) , a successful global manager will have to possess a complex amalgamation of technical, functional, cultural and political skills. It means that a skillful human resource executive can drive the effective output from the diver's cultural background human resource. The other main point is that for the better usage of divers HR need coaching. As per HR expert Eliza Hermann (2005), without the knowledge, skills, and inherent curiosity about how to work with different people and get through an organization, the leaders are not going to achieve their full potential. So better understanding of the cultural variance can be achieved. According to Schon Beechler(2009), a global mindset synthesizes the ability to integrate diversity across the culture and market. Think globally and act locally. To minimize the challenges the organization which are operating their business must translate the globalization into the local culture, but one must keep in their mind that sometime this strategy may isolate the organization from its head office so there must be in midway (V.Chiesa, 1996). Many experts view that there is a positive relationship among the level of institutionalization, strategic management and human resource management (Cinar, Fatih, 2013). So for the batter human resource management at global level we must institutionalization the cultural dimensions. Even though we are

considering that the globalization is a big challenge for the organizations but it also provides lot of opportunities in terms of expanding market and diverse culture (L.Stone, Dedrick, 2015.). Most of the theories in HR examine the degree to which individual's culture values influence the acceptance and effectiveness of the HR practices (Aycan, 2000).

2.4 Hofstede cultural dimensions theory

Hofstede ascertain the Chinese culture through the lens of the 6-D Model, we can get a good indication of the deep drivers of Chinese culture relative to other world cultures. In his 6-D Model he focused on six dimensions, power distance, individualism, masculinity, uncertainty, long-term orientation and indulgence

His Findings

Power distance: This dimension deals with the fact that all individuals in societies are not equal –at 80 China sits in the higher rankings of Power Distance Indicators – i.e. a society that believes that inequalities amongst people are acceptable. The subordinate-superior relationship tends to be polarized and there is no defense against power abuse by superiors. Individuals are influenced by formal authority and sanctions and are in general optimistic about people's capacity for leadership and initiative. People should not have aspirations beyond their rank. So in this kind of cultural background Manager will be directive mind and the subordinate always depend himself on the manager. For the effective HR practices, it needs to understand the perception of employees to words the distribution of power because HR will need to understand the pertinent issue and contribute to effective change management through proactive participation in organization (Hertog et al., 2010).

Individualism: The fundamental issue addressed by this dimension is the degree of interdependence a society maintains among its members. At a score of 20 China is a highly collectivist culture where people act in the interests of the group and not necessarily of themselves. In-group considerations affect hiring and promotions with closer in-groups (such as family) are getting preferential treatment. Employee commitment to the organization (but not necessarily to the people in the organization) is low. Whereas relationships with colleagues are cooperative for in-groups they are cold or even hostile to out-groups. Personal relationships prevail over task and company. If we look at this dimension in HR prospective both cultural dimensions are use full to the organization because both directly or indirectly benefit to the organization. If an employee improve his personal skills it automatically positively impact on the organization as well. So while global HR management it is very important to understand the orientation of the HR workforce and according to Ananthram, Christopher Chan (2013) the Global HR must create harmonization of the Global and Local HR policies and procedures. It can be only success full if HR executive understand the different orientation towards their goals of the employees.

Masculinity: The other main dimension is Masculinity. The researcher used two words Masculinity and another is feminine. Masculinity refers more priority to work as compare to freedom or family life. Chinese people ore motivated by achievement and other success. That's way they are committed to their targets. The Researcher himself experience about the students. Chinese students are always struggling for the highest score. The HR executive must consider these kinds of cultural differences while they are designing various global strategies regarding Human Resources

Uncertainty avoidance: The uncertainty and avoidance dimension has to do with the way that a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? This ambiguity brings with it anxiety and different cultures have learnt to deal with this anxiety in different ways. The extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these is reflected in the UAI score. At 30 China has a low score on uncertainty avoidance. Truth may be relative though in the immediate social circles there is concern for Truth with a capital T and rules (but not necessarily laws) abound. Nonetheless, adherence to laws and rules may be flexible to suit the actual situation and pragmatism is a fact of life. The Chinese are comfortable with ambiguity; the Chinese language is full of ambiguous meanings that can be difficult for Western people to follow. Chinese are adaptable and entrepreneurial. At the time of writing the majority (70% -80%) of Chinese businesses tend to be small to medium sized and family owned.

Long Term Orientation: This dimension describes how every society has to maintain some links with its own past while dealing with the challenges of the present and future, and societies priorities these two existential goals differently. Normative societies who score low on this dimension, for example, prefer to maintain time-honored traditions and norms while viewing societal change with suspicion. Those with a culture which scores high, on the other hand, take a more pragmatic approach:

they encourage thrift and efforts in modern education as a way to prepare for the future. China scores 87 in this dimension, which means that it is a very pragmatic culture. In societies with a pragmatic orientation, people believe that truth depends very much on situation, context and time. They show an ability to adapt traditions easily to changed conditions, a strong propensity to save and invest thriftiness, and perseverance in achieving results.

Indulgence: One challenge that confronts humanity, now and in the past, is the degree to which little children are socialized. Without socialization we do not become “human”. This dimension is defined as the extent to which people try to control their desires and impulses, based on the way they were raised. Relatively weak control is called “indulgence” and relatively strong control is called “restraint”. Cultures can, therefore, be described as indulgent or restrained. China is a restrained society as can be seen in its low score of 24 in this dimension. Societies with a low score in this dimension have a tendency to cynicism and pessimism. Also, in contrast to indulgent societies, restrained societies do not put much emphasis on leisure time and control the gratification of their desires. People with this orientation have the perception that their actions are restrained by social norms and feel that indulging themselves is somewhat wrong.

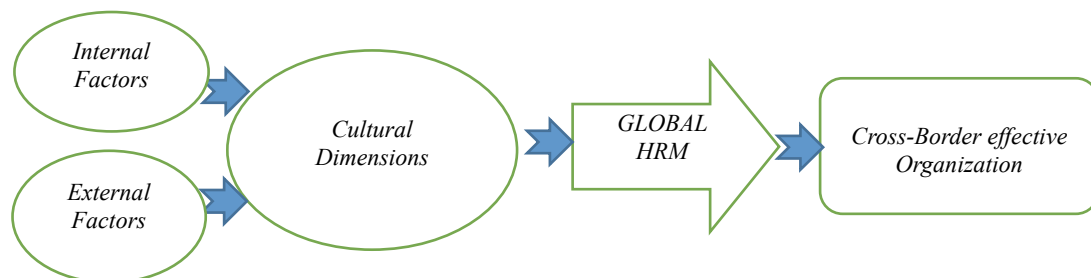
Basically the above dimension is very helpful to understand the cultural aspect and orientation of the HR force. It is proven that the better understanding the cultural aspect of the global HR lead to create knowledge in the organization which later on become the basis for the innovation. By referring the article written by the Lapina, Maurance, Starineca(2014),they mentioned that, the most commonly emerging factors of the human resource management supporting the development of knowledge management is organizational culture. So the organizational culture reflects the motivation of the employees. The employees will be motivated when the organization understands the cultural aspects and orientation of the employees with other factors. As we know for the global implementation of effective HR policies it needs competent leadership also. The better understanding of the global culture leads to better Global leader. Globalization increased the demand to develop competent global leader and puts the significance pressure on the corporate HRM to develop new venues of influence on firm strategic to demonstrate clearly its value – adding contribution to firm performance (Morison, 2000; Wright & Snell, 1998).

In short although the cultural variance at global level is a big challenge for the Human Resource Management, but it provides lot of other chances to grow up speedily. According to the Mei Lu, Chen, Huang, and Chien, (2015), the demographic diversity positively moderates the HRM-store performance relation. The other most aspect in this regard is global communication. Globalization of the firm operation leads to an increase level of the firm involvement in global communication. This creates a challenge for the employees. One such challenge is foreign language at work (Marschan-Piekkari, Welch & Welch 1999b) mention in the article written by (Yamao & Sekiguchi, 2015).

According to the Ping Deng & Monica Yang (2015), in the last two decades, Outward Foreign Direct Investment (OFDI) from emerging economies has grown massively and has become an important engine for the global economic growth. According to the World investment Report (2014), emerging economies accounted for more than one third of Global OFDI flows in 2013. China is the largest source of OFDI among the emerging countries.

So it is now important to understand the cultural dimension for the better management of HR. After the above scholarly discussion the Sung Jun lee, Joongwha Kim, and Byung II park (20150) concluded that to effectively tackle this challenge, it is critical to separate the concept of the culture in to two following subordinate concepts and examine how they are interrelated (1) the concept of culture and (2) the boundaries of the culture.

3 Model Development



After above scholarly discussion an effective Human Resource Management mitigate the Cross – border day functional conflicts if it is battery managed. Another main conclusion is that the global human resource management always effected by various cultural dimension of the work force. Because various cultural background work force has different orientation towards the targets and objectives. So the batter understand of their cultural aspects lead to effective global human resource management. The most important thing is that the internal and external environmental factors also effected by the cultural diversification. In short better understanding of culture is the of the cross – border countries is the one of wise strategic decision to more output from the global human resource and which automatically lead the cross – border effective organization. The great Hofstede done a very great job by giving the five modal dimension theory to understand the cultural dimension of any country. Through this modal the researcher measured and comparison of different south Asia , European and African countries. The future research in this regard is the central Asian countries. There is a need to measure the culture of these countries through this modal. This research work will definitely very useful future investment in these countries through One belt One Road.

4 Conclusion

After above scholarly discussion it is cleared that better understanding of the cross-border culture as well as allying with them within the limitations of once own country is the successful criteria for the Chinese companies which want to invest outside the country.

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Students' Behavioral Intention and Acceptance of E-Recruitment System: An Empirical Study in Bangladesh

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Abstract: Internet users in Bangladesh increased day by day. That's the reason most of organization is using e-recruitment system to attract and recruit the best employees. Our study has drawn-out UTAUT model to determine university students' adoption factors and responses to this new technology in Bangladesh. A total of 288 applicants a gain access to and is reviewed on the e-recruitment system adoption factor analysis. This study used convenience sampling method and data analysis Smart PLS 2.0, a PLS software package for model fit. Research findings showed that performance expectancy facilitating conditions, self-efficacy, and have significant influence on behavior intention. Also behavior intention showed positive influence towards using e-recruitment system. Our Trial results showed that the self-efficacy plays a significant role in influencing e-recruitment system usage compared to other external factors.

Key words: E-recruitment; UTAUT model

1 Introduction

Most of the companies face their own unique challenges in recruiting. Wider technology progresses have also begun to disrupt the talent industry, setting the stage for a self-motivated and exciting future for recruiting strategies. That's why more than fifteen years' trend of recruitment shifts towards online resources. But very few scholars conducted survey regarding jobseekers responses to e-recruitment processes because researchers have only begun to notice this topic ^[1-5]. Currently, one of the most leading SBC Internet Services provider conducted survey in Australia on e-recruitment system and acquired findings that 82 % of college graduates will use the Internet to search for job openings or information on careers, and 66 % actually e-mails a résumé to prospective employers. Their major finding was that the Internet is a popular recruiting tool, especially for reaching prospective employees in their twenties and thirties. In Bangladesh number of internet subscribers is increasing day by day and it has reached 37172.05 thousand at the end of 2014 ^[6]. The connectivity through the internet is being served various purposes, including the E-recruiting. The scope of online recruiting is expanding in Bangladesh. However, there is no research conducted on the topic of the adoption of e-recruitment system in Bangladesh. This paper attempts to use UTAUT model introduced by Venkatesh, Morris ^[7] which is most personalized and popular model to draw the framework of why individual acceptance and use of technology. This model is used to identify major factors influencing students' behavioral intention in using E-recruitment system. The findings of the current paper not only provides an awareness for the owner of the organization how they effectively use their recruitment websites, but also providing a theoretical background to reduce the weaknesses relating to former studies in the area of online recruitment technology acceptance. This study was also an attempt to fill the gap by analyzing the issues of behavior intention of university students and acceptance of e-recruitment system in the context of Bangladesh.

2 Literature Review

2.1 E-recruitment

Recently e-recruitment is the use of technology and electronic resources for the process of attracting, selecting and managing the recruitment in a company. It is also known as online recruiting, social recruiting or Internet recruiting, which turns out to be a part of electronic Human Resource Management (e-HRM) ^[4]. Many organizations use internet as a source of recruitment. Avinash S. Kapse ^[8] said that e-recruitment system will conduct all the recruitment activities done by the technology. Their main task is to advertise job vacancies through worldwide web for jobseekers. Applicants send their applications or curriculum vitae through the Internet. According to Darrag, Mohamed ^[9], e-recruitment facilitated HR activities by linking pin between the potential candidates and the vacant positions in an organization through the internet. Barber ^[10] researches and provides significant information about the benefit of firms to use this system and familiarize a more theory-driven explanation of e-recruitment

adoption and factors influencing jobseekers' behavioral intentions to use organizations' recruitment websites.

2.2 Unified theory of acceptance and use of technology (UTAUT)

The latest and most utilized theory development by Venkatesh, Morris [7] in the field of individual technology acceptance concept that is 'The Unified Theory of Acceptance and Use of Technology (UTAUT).' The UTAUT model combination of eight models based on information system include the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), Model Combining the Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT). They each attempt to predict and explain user behavior using a variety of independent variables.

2.3 Proposed research model and hypothesis

The present study attempts to address this issue by applying the highly validated The Unified Theory of Acceptance and Use of Technology (UTAUT) as the research framework to analyze and understand students' behavioral intention towards E-recruitment system. The extended UTAUT encompasses external variable "Self-Efficacy"^[11].

Table 1 Operational Definitions of Proposed Factor Affecting E-recruitment system

Variable	Description
1. Performance Expectancy (PE)	The degree to which a student believes that using e-recruitment system will help him or her attain gains in job performance [7].
2. Effort Expectancy (EE)	The degree of comfort associated with the use of e-recruitment system for a student [7].
3. Facilitating conditions (FC)	The degree to which a student believes that an organizational and technical infrastructure exists to support the use of e-recruitment system [7].
4. Social Influence (SI)	The degree to which a student perceives that important others believe that they should use the e-recruitment system [7].
5. Behavioral intention to use the system (BI)	Students' intention to adopt the e- recruitment technology for job seeking [7].
6. User adoption on E-recruitment system (ATUT)	Student Attitude toward using e- recruitment technology [7].
7. Self-Efficacy (SE)	Student's beliefs about their abilities to produce selected levels of performance that exercise influence over events that affect their work performance [7, 11, 12].

Table 2 Proposed Hypothesis

Hypothesis	Number	Internet and technology/e- recruitment system adoption Supporting studies
Performance expectancy (PE), Effort expectancy (EE), Social influence (SI), and Self-Efficacy (SE) will have a positive and significant influence behavioral intention to use e -recruitment system.	Hypothesis(1-4)	Davis [13], Lee and Chung [14], Venkatesh, Morris [7].
Facilitating conditions (FC) have a positive and significant influence on user adoption of e-recruitment system.	Hypothesis 5	Moore and Benbasat [15], Venkatesh, Morris [7].
Usage behavioral intention will have a positive and significant influence on user adoption (ATUT) on e-recruitment system.	Hypothesis 6	Davis [13], Venkatesh, Morris [7].

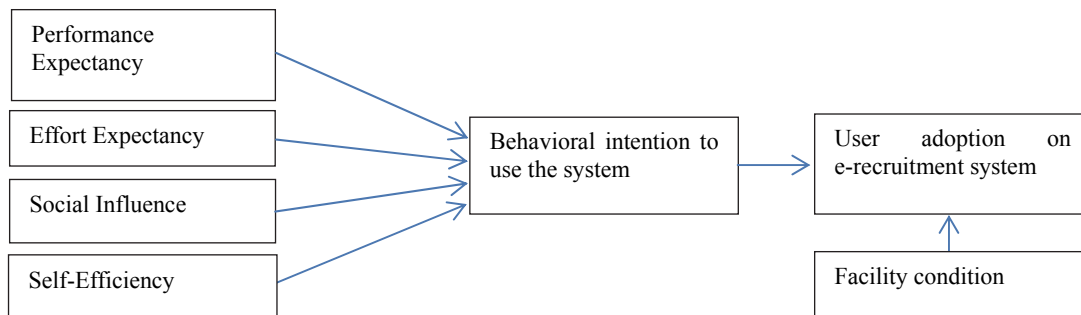


Figure 1 Proposed Research Model

3 Methods and Data Management

Convenience sampling method has been used which appears to be appropriate and cost effective^[16]. The targeted respondents were university students in Bangladesh. The survey instrument is a 7-point Likert scale questionnaire survey, divided into three sections. It has adopted 11 constructs from different studies on internet, technology and recruitment adoption from different countries. They are performance expectancy by Davis^[13] & Venkatesh, Morris^[7], effort expectancy by Davis^[13] & Venkatesh, Morris^[7], facilitating conditions, social influence and behavioral intention to use the system by Venkatesh, Morris^[7], perceived benefit by Lee and Chung^[14]. For data analysis, SPSS (Statistical Package for Social Science) 20 and Smart PLS 2.0 were used.

4 Result and Analysis

The demographic information of the respondents (N=288) has been reported below the table (3):

Table 3 Demographic Profile of the Respondents

Aspects	Frequency	%	Aspects	Frequency	%	Aspects	Frequency	%
Education			Marital Status			Occupation		
Secondary	2	1	Married	19	6	Employed	11	4
Bachelor	178	62	Single	267	3	Unemployed	88	30
Master	106	36	Widowed	2	1	Housewife	3	1
Others	2	1				Others	186	65
			Age:					
Gender			<20	2	1			
Male	201	70	20-30	286	99			
Female	87	30						

4.1 Analysis of the measurement model

Smart PLS 2.0, a PLS software packages this software was used to calculate path coefficients and to determine the paths' significance in the model using the bootstrapping function Hansmann^[17]. Ahlemann^[18] illustrated that internal consistency reliability shown by composite reliability (CR) value should be at least 0.7, and convergent validity measured by Average Variance Extracted (AVE) that should be at least 0.5. For validity, Table 4 (Discriminant Validity) and Table 5 (Convergent Validity Reports) report that all constructs pass through the validity tests. Discriminant validity analysis (Table 4) reports a very good result which shows that the square root of the average variance extracted (AVE) of each construct is higher than the construct's highest correlation with any other construct in this study. Table 5 reports the convergent validity and it shows that the factor loadings (all > 0.50), average variance extracted (AVE > 0.50) and composite reliability (>0.919) are within the rule of thumb. Therefore, both validity and reliability analyses suggest that these constructs are valid and reliable for further advance^[19].

Table 4 Latent Variable Correlations Matrix for Discriminant Validity

	ATUT	BI	EEffi	FCon	PEffi	SInflu	SoEffi
ATUT	0.860						
BI	0.603	0.982					
EEffi	0.517	0.457	0.889				
FCon	0.370	0.318	0.489	0.838			
PEffi	0.568	0.488	0.579	0.374	0.799		
SInflu	0.426	0.413	0.455	0.331	0.453	0.900	
SoEffi	0.434	0.400	0.483	0.325	0.385	0.329	0.903

Table 5 Convergent Validity, Discriminant Validity, and Reliability

Factors	Loadings	Indicators Reliability	Composite Reliability	AVE
ATUT1	0.830	0.688	0.919	0.740
ATUT2	0.902	0.813		
ATUT3	0.832	0.693		
ATUT4	0.875	0.766		
BI1	0.949	0.901	0.945	0.903
BI2	0.955	0.912		
BI3	0.947	0.897		
EE1	0.877	0.769	0.938	0.790
EE2	0.883	0.779		
EE3	0.897	0.805		
EE4	0.897	0.804		

FC1	0.913	0.834	0.903	0.702
FC2	0.901	0.812		
FC3	0.768	0.590		
FC4	0.755	0.571		
PE1	0.860	0.739	0.875	0.638
PE2	0.809	0.655		
PE3	0.818	0.668		
PE4	0.700	0.489		
SI1	0.889	0.790	0.945	0.810
SI2	0.915	0.837		
SI3	0.903	0.815		
SI4	0.893	0.798		
SE1	0.914	0.835	0.930	0.815
SE2	0.932	0.869		
SE3	0.860	0.739		

4.2 Path (Structural) diagram

Standardized coefficient (β), percentage of variance explained (R^2), and significance levels of the path model relationships have been mentioned in Figure (2). Hair Jr., Hult^[19] mentioned the rule of thumb that for sample sizes of up to about 1,000 observations, path coefficients with standardized values above 0.20 are usually significant and those with values below 0.10 are usually not significant. Path coefficients (β s) are above 0.10 which is above the minimum threshold. Findings have shown that Standardized coefficients (β s) of BI→ATUT is 0.540 ($p<.01$), EE→BI ($p<.10$) is 0.144, FC→ATUT is 0.198 ($p<.10$), PE→BI is 0.260 ($p<.10$), SI→BI is 0.173 (not significant), and SE→BI is 0.174 ($p<.10$) which are found significant at different levels. Therefore, all but one (effect of social influence on behavior intension) have been proved in this analysis. As a matter of fact, EE, PE, SI, and SE are describing 33.30% variance (R^2) in BI while BI and FC explain 39.9% variance (R^2) in ATUT.

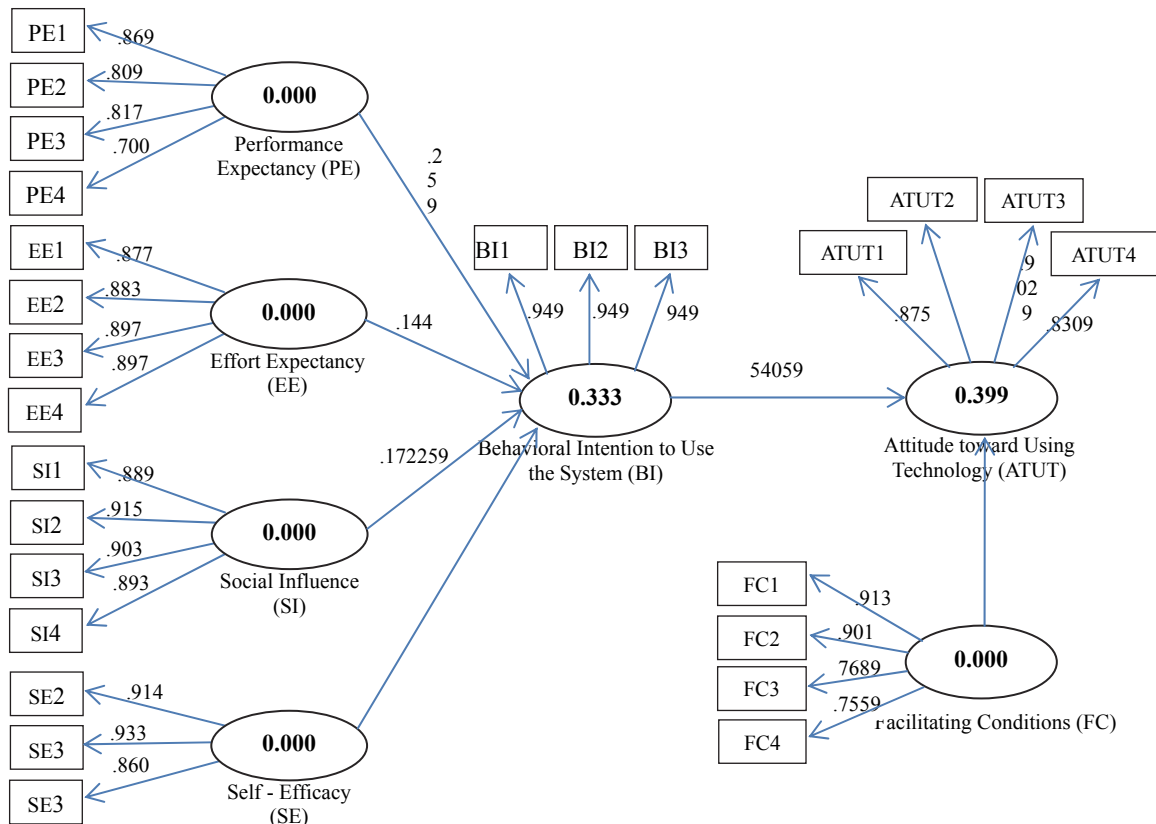


Figure 2 Path Model of the R-Recruitment System Adoption.

5 Discussion and Findings

This section will discuss the results of our proposed research model by extending UTAUT model. Findings of the study describe relationship Independent variable with the dependent variable use UTAUT model. Our tested hypotheses results are summarized in following table.

Table 6 Summary of Tested Results

	IV → DV	This result was consistent with previous researches findings	comments
H ₁	Performance Expectancy → Behavioral Intention	Akbar ^[20] , Alwahaishi and Snásel ^[21] , Davis ^[13] , Jong and Wang ^[22] , Venkatesh, Morris ^[7] .	This result highlights that performance expectancy create strong impression on student behavior for using e-recruitment system.
H ₂	Effort Expectancy → Behavioral Intention	AlAwadhi and Morris ^[23] , Al - Mamari, Corbitt ^[24] , Martins, Oliveira ^[25] , Moore and Benbasat ^[15] , Venkatesh and Bala ^[26] .	This result emphasizes that effort expectancy make strong effect on student behavior for using this e-recruitment system.
H ₃	Social Influence → Behavioral Intention	Alshehri ^[27] .	This result emphasizes that social influence was not considered to be a significant predictor in this model.
H ₄	Self-Efficacy → Usage Behavior	Gefen, Karahanna ^[11] , Lee and Chung ^[14] , Martins, Oliveira ^[25] , Yu ^[28] .	This result highlights that self-efficacy creates strong effect on student behavior for using this e-recruitment system.
H ₅	Facilitating Conditions → Usage Behavior	A Iahad, Rahim ^[29] , Martins, Oliveira ^[25] , Moore and Benbasat ^[15] , Venkatesh and Bala ^[26] , Venkatesh, Morris ^[7] .	This result highlights that Facilitating conditions create strong effect on student attitude towards for using this e-recruitment system.
H ₆	Behavioral Intention → Usage Behavior	A Iahad, Rahim ^[29] , Martins, Oliveira ^[25] , Venkatesh and Bala ^[26] , Venkatesh, Morris ^[7] .	This result gives emphasis to that usage behavioral intention creates strong effect on student attitude towards for using this e-recruitment system.

IV. Independent Variable; DV. Dependent Variable

6 Conclusion, Implications, and Limitations

This study checks the widespread applicability of the e-recruitment system with the help of Venkatesh, Morris ^[7] UTAUT model. This study finds the positive effects of three direct constructs among four constructs advised in UTAUT model on e-recruitment system adoption behavior on Bangladeshi student. Six hypotheses in this study are supported by the data except Social influence on behavioral intention for use e-recruitment system. The study has contributed towards an understanding of how self-efficacy (SE) factor impact on e-recruitment system for job-seeking specially university students in Bangladesh. It has provided a basis for similar studies to be conducted in other countries. With increased levels of technology diffusion and flow of skills across borders, an understanding of job-seeking behaviors and self-efficacy (SE) highly relevant to adopt technology ^[28, 30]. So adopt e-recruitment system self-efficacy play very important role for the student. The finding obtained from the research is beneficial to organization policy makers. It is suggested that all students in universities must undertake training and retraining on ICT program ^[23]. This will be helping them with practical and functional knowledge of computer; internet and associated area of ICT which inspire them for easily adoption on e-recruitment system. One of the limitations of this study was that the respondents were university student only who will be potential job seeker but existing employees who are working in an organization also use of e-recruitment system and may not represent the population in Bangladesh. On the other hand, the effect of moderators on UTAUT model constructs was not discussed in the paper.

Therefore, future research should consider the responses from this population and explore the influence of gender, age experience and voluntariness of use e- recruitment system. Researchers can compare the results and look the gap in order to further investigate on employee who will be looking for another new job. This will permit a stronger and a more reasonable standpoint on the research issues in future according to Bangladesh perspective.

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Online Resource Development and Utilization of Ideological and Political Education*

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Abstract: Online ideological and political education is based upon daily life and social practices. The key to this educational process lies in the effective development and utilization of network resources. The analysis of successful cases in network ideological and political education resources is conducive to revealing the features of network ideological and political education's subject, object, media, and environment, so as to construct the practicable principles of network ideological and political education resources development and utilization.

Key words: Online resources; Ideological and political education; Development and utilization; Case analysis

1 Introduction

China's access to international Internet in 1994 marks the beginning of online ideological and political education. This access revolutionizes the unilateral cramming mode of traditional ideological and political education, helping it transform from an instructor-centered into a learner-oriented education system, and thus liberating traditional moral education from its dull preaching and abstract inefficacy. The Internet, so to speak, brings abundance, diversity and vigor to ideological and political education. This new mode of education substantially expands its coverage, increases its contents and promotes its effectiveness.

As defined by Dr. Chen Huazhou in his monograph ^[1], the resources of ideological and political education refer to "the sum total of key factors on the Internet that can be used by educators to achieve ideological and political goals". These resources comprise of the data information transmitted through computer systems and managed by cyber applications, mainly in the form of cyber medium and cyber content. The latter further represents itself in instant messaging, online socializing, online trading, cloud services, resource sharing, objectified service, among others. Thus, online ideological and political education resources take various forms and fall in diverse categories, but what connects them is not the simple lump sum of them, but the interconnecting and dynamic dialectical relationship between them. Proper development and utilization of these online resources will help ideological and political education to realize its educational function and social function.

2 Online Resources of Ideological and Political Education: Categories and Characteristics

According to its functions at different levels, online resources of ideological and political education can be divided into four categories: subject resources, object resources, medium resources and environmental resources. Subject resources mainly refer to the browsing, non-interactive data obtained by the cyber subjects. As for the universities, the portal sites, news sites and Red Sites belong to this type. They must show themselves as the medium of ideological and political function, with certain amount of such contents and information as to convey the right messages that embody the subjects' political understanding and visions.

Object resources refer to interactive browsing websites, instant messaging and mobile client applications. At universities, object resources emphasizes the participation of the students, some portal sites, BBS, Baidu Tieba, Weibo, WeChat, QQ groups all belong to this category. As for the effect of object resources, its educational function works in a more concealed manner. As is pointed out by American scholar Herbert Marcuse, "The products indoctrinate and manipulate; they promote a false consciousness which is immune against its falsehood. And as these beneficial products become available to more individuals in more social classes, the indoctrination they carry ceases to be publicity; it

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becomes a way of life.”^[3] Effective development and use of object resources can help integrate ideological and political work with modern life, especially into the fluid, fragmented sections of social realities, and attract the general attention, spread the mainstream ideology and values.

Online medium resources refer mainly to the establishment and development of websites. University websites are usually built on the platforms of established social networks. Since the late 1950s, the world has been moving away from a Second Wave Society into a Third Wave Society. American futurologist Alvin Toffler once comments, whoever has command over information and the Internet will have the whole world. To achieve control over back-end databases of power sites can not only guide students study on the educator’s proposed tracks, but also provide the cyber political instructors with a platform to exert effective influence over students. The life and soul of online ideological and political education hinges upon whether the medium resources are effectively mastered by the educators.

In *The German Ideology*, Karl Marx says that human beings create their surroundings while the surroundings create the man in the same manner. Environmental resources of online ideological and political education can be understood as the *status quo* of the Internet, which is an important bank for the education. University students have their liberty in handling information, but they cannot get away from the cyber environment. Healthy cyber space usually includes the establishment of related working mechanism to guarantee the timely maintenance, and realization of ideological and education functions of the platform. Faced up with the fragmentation and decentralization tendency of We Media, the traditional, prim-looking online platform has more worries to deal with. Against the backdrop of big data and Cloud era, very little information can go far without ideal loading points or incidence matrices.

3 Development and Utilization of Online IPE Resources: Guiding Principles

The development and utilization of online ideological and political resources must respect the living laws of the Internet and information technology so as to maximize its integration with education, data and entertainment and realize the maximal benefits of the Internet Plus Initiative. Because there are many ways for online resources to change into educational resources, the proper way to achieve the goal not only depends on the educator’s vision, but also on the moral functions after these resources have been transformed.

First and foremost, the students-oriented conception should be highlighted in online ideological and political education. Resources development cannot live without the daily realities of university life. Both pure ideological propaganda and moral breakdown are running against the “people first” intention. Online ideological and political education on university campuses should be oriented toward the students and faculties, with their actual needs, personal benefits and well-beings in mind, and as a consequence, under proper thoughts orientation, the goal of “let me choose; I feel like choosing” can be achieved on many important stages.

Secondly, tradition and innovation should be integrated. Effective interfacing between traditional and new media brings forward new opportunities for the development and utilization of online educational resources. As commented by Chinese scholar Huan Kuan, “it is wise to change with the times, and sensible to manage differently in different cases”. Constant changes in cyber media require the ideological and political education at universities to change and innovate accordingly, so as to adapt to the latest development of the educational trend. Ideological and political education, as a social activity, is to face up with real life squarely and to improve the living quality through the life experience itself. With its “people first” orientation, this education is surely the most humane and humanistic one among all human activities.^[4]

Thirdly, borrowing and adhering are to be combined together. As part of the public services, online resources of ideological and political education can help extend the horizon, enrich the body of knowledge and tap the intellectual potentials. However, resource sharing does not mean copying foreign experience indiscriminately. Borrowing should be carried out on the basis of national conditions. When in China, telling Chinese stories in a Chinese voice is the best policy. Lu Xun once observed that only the national elements can be truly regarded as international. The development and utilization of online resources is after all a representation of national styles and traits featured specifically in its culture. Only by sticking to the combination of borrowing and adhering to national elements can the university students learn to cultivate their “cultural self-awareness” of traditional Chinese culture.

Fourthly, with “education for all” in mind, a macro cyber education map is to be designed. Online resources of ideological and political education should be fully made use of, and its consultative,

informational, cultural and socializing functions should be joined seamlessly with its educational function. Through its back feeding function, ideological and political education can realize its grand education blueprint in the foreseeable future.

4 Case Studies: Online Resources of Ideological and Political Education at Several Universities in Shanghai

From the ideological and political education resources, the ideological and political education resources are public goods, which has public goods non-competitive and non-exclusive character, is any one of the consumer products are not subjected to the same reduction in its consumption of others goods and services.

4.1 Subject resource development and utilization: characteristics and approaches

According to a feature of the main resources, strengthen the construction of the main resources is an effective way to develop the theme of resource utilization. Ideological and political education initiative innovation and broaden the channels resources to achieve good management, good development, make good use of network objectives. Shanghai University in branch construction and easy class success stories can have both fish and bear's paw of evidence. Shanghai University web site content more breakthroughs branch limitations gave lectures on college students time and space. In addition, the university hopes to enter the Party School of the large number of people, but limited by resource constraints teachers, places, and many colleges and universities, even rolling classes SCHOOL far can not meet the needs of students. Increase Shanghai University Online Party participants will neither reduce consumption of any consumer, it will not increase the cost of the network of educational resources consumption, the lectures moved on the network can not only solve the problem of teachers, number of students, school location, etc., also greatly expanded the coverage of the Party School.

4.2 Object resource development and utilization: data provision dynamics and resource potential

Interactive pages for interactive browsing, instant messaging tools, to achieve dynamic resource supply, mining network object resource potential. The new media will inevitably be replaced by the new media, always with a passion for college students and a fresh carrier coming in and out. Opening a new message channel for students to speak in public space is important, but it is hard to preach the policies by simply bland propaganda, or advertisement-like publicity. In this case, only a calm, professional voice, can help maintain the public speech in its correct order. Shanghai Polytechnic University, for instance, through its timely, immediate construction of the new media, not only tolerates the disorderly form of noisy voices, but also accepts moderate speculative reasoning in its Microblogging Circles. In addition to the official microblogging, micro-channel and other related services, Shanghai Polytechnic University officially registered in the record of 174 two new media, the formation of micro-blog, microblogging two micro one microarray, microarray innovative media technology to provide a variety of presentation and dissemination carrier, through the text data visualization, combined with video and audio visual presentation, increased information dissemination power.

4.3 E-class: an effective expansion and extension of online resources medium

In July 2014, the Central Publicity Department proposed five new requirements on media convergence, one of which is to have a business model. Propaganda proposed product design to fully consider the market dynamics issues with the product profitable conditions really have development potential. It emphasizes business model is not to make money but to make money, but rather to expand market share and disseminate coverage, enhance capacity for sustainable development. If the network platform content deletion viscous attract students to ideological and political education on empty talk. Shanghai to promote the education of the first to develop easy to classes is a successful network of ideological and political education resources support case, easy to shift the construction of Shanghai Ocean University has been particularly successful, Shanghai Marine University to build a data network behavior based on the platform of the acquisition system is easy to shift, according to established fixed network behavior model to achieve a user-friendly data collection school class behavior and the behavior of the data storage and management. Secondly, on the basis of data collected on the establishment of network behavior data analysis system, through the Internet using a network behavior data groups and the adoption of "Entropy Cooperative Network Behavior Analysis System" provides data analysis, dynamic analysis dynamic discovery and ideas of students and the focus of attention.

4.4 A virtuous circle: improved cyber environment under cyber ecology construction

In April 2015, through a network of 62 colleges and universities in Shanghai research found that current development build Shanghai University Network Environment maturing, gradually formed a

virtuous circle of ecological environment. Through the Shanghai Party Committee Propaganda Department 62 research universities learned Shanghai all universities have Chinese portal, and the other has a 3514 two Chinese websites, teacher groups, the number of student groups to reach the construction site 770, occupying the entire Secondary College site twenty two%. In addition to foreign language portals, Shanghai universities have 210 secondary foreign language websites. Wherein the number of 985, 211 class university foreign language secondary site to 175, accounting for 83.3%. The construction of secondary sites in foreign language for most universities, colleges, and private institutions is still in its infancy. Research shows that the opening of the school micro-channel platform of the school a total of 37 universities, the total number of secondary school official micro-channel currently in the record of 754. Faced with such a large network of resources, only the formation of a unified network management can ensure a virtuous cycle network environment. Research shows that Shanghai all universities have a clear site management and filing system. Website administration is centralized propaganda department or school to participate in the Propaganda Department has 37, accounting for about 60%, centralized department is run and Information Office or other departments has 25, accounting for about 40%. Universities website management modes include teacher management, student participation and teacher credentials management types. Visit website students fully managed just one school, accounts for less than 1.5%. From the management system of University of Shanghai website construction, administration, management point of view the current Shanghai universities in the construction site all have there is the text to be investigated, have to follow the law, enforcement of the law can be unified management rules and regulations, management practices website ensure the reliability and information security Web site operators, orderly and secure network operations for the network of ideological and political education work possible.

5 Conclusion

The Internet has brought a culture shock, college students the opportunity to come into contact with more and more knowledge outside school, and thus values are becoming increasingly diverse. Ideological and political education in a more open attitude turned to Students subtle daily life, with the spirit of the desire to mend debris scattered everywhere, guide students to explore the real life, the real pursuit, really good, really quality. Website is under network environment support interaction between subject and object of education, lack of sufficiently attractive site if and influence the effectiveness of the ideological and political education to speak of; the process of college students receive information in a way, thinking activities, personality psychology, behavior and even morphology of online discourse, have emerged new situations and different from the previous law. Only the effective development and use of the network subject, object, vector, ring resources to build overall comprehensive and dynamic living, full independent quality complex way of thinking, in order to effectively improve the effectiveness of ideological and political education.

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Study on Integration Mechanism of Multimodal Metaphor of Brand Names

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Abstract: This paper applies some research findings about linguistics and brand science, bases on metaphorical thinking, introduces conceptual integration, multimodal paths and some other cognitive theories and approaches to present and interpret the online dynamic meaning construction processes of brand names. The paper builds a Conceptual Integration Model of Multimodal Metaphor Construction of Brand Names under a cognitive angle and draws a conclusion that brand companies should pay attention to the influence resulted from relevance space of communication between brands and consumers. Besides, they can contribute to the control of brand effect and establishment of brand equity by a three-mode brand naming strategy, including visual sense, auditory sense and phonation.

Key words: Multimodal metaphor; Conceptual blending; Brand name; Brand equity

1 Introduction

Brand equity exists in consumers' minds. To establish brand equity is namely to cultivate a deep and wide awareness as well as a strong, special and favorable association (Keller, 2009). The choice of brand elements plays an important role in this process. Brand name is the basic core of those brand elements, the basis for both awareness and communication efforts (Aaker, 1991; Keller, 2009). It boasts a main advantage—to express the core theme of a brand in a simple and economical way as well as to arouse key association.

2 Literature Review

In essence, brand name are based on languages. Linguistic methods including phonetics, semantics, morphology, notation, etc. are the fundamental methods to assess brand names.

Most of the earlier researches related to brand name are produced by western researchers who focus more on the application of lexeme, phonetics, semantics, spelling rules and syntactic devices as well as the discussion about brand strategy of corporation on how to establish an inviting brand name. For instance, among 129 world top brands, 65% names of them begin with “A, B, C, K, M, P, S, T”, among which 4 (“B, K, P, T”) are plosive. Therefore, they have achieved some research findings such as the conclusion that western consumers prefer a plosive beginning and the influence of plosive on consumers' memory (Schloss, 1981). Besides, the application of phonetic symbolism in brand name is another popular subject. It is mainly embodied by two opposite principles of brand naming: Juliet principle and Joyce principle. Most western scholars who expertise in brand naming are in favor of the later one, which claims that phonetic elements tend to express its own meaning—a “feeling” of the meaning, which is different from the meaning of a word itself (Schloss, 1981; Klink, 2000; Yorkston and Menon, 2004; Lowrey and Shrum, 2007). With the rapid development of market segmentation, the number of brands is continuously increasing while the proper words which are suitable as brand names are becoming scarcer. The growth trend of some creative brand names which consist of alphabets and numbers has once gained the attention from some brand researchers, too (Boyd, 1985; Pavia and Costa, 1993; Collins, 1977).

Furthermore, Jean-Claude Usunier and Janet Shaner adopt a macroscopic angle of view and put forward a comprehensive framework for assessing the linguistic value of a brand which covers vision, sound, text and meaning (Jean-Claude Usunier & Janet Shaner, 2002). They point out that brand name, which is made up of various characters, is definitely the priority of a brand. It should be understood by its consumers and make a difference in spreading brand spirit. As shown in figure 1 (Jean-Claude Usunier & Janet Shaner, 2002), the language content of a brand name can influence the verbal communication, auditory sensation, understanding and interpretation of its consumers. The first step to assess a brand name is to put it into original language environment and inspect its language content, taking all aspects into consideration such as the connotative meaning of text, sound, vision, etc. Meanwhile, a brand name possesses both textual elements and visual factors. It is related to other language code, for example, the

artistic design of a brand name (including fonts and colors), brand logo and so on. A brand name is a complicated compound symbol which is constituted of characters (ideographic characters, alphabetic characters, etc.), phonetic elements according to original spelling (based on different specific language environments) as well as visual elements (including signs, figures, etc.).

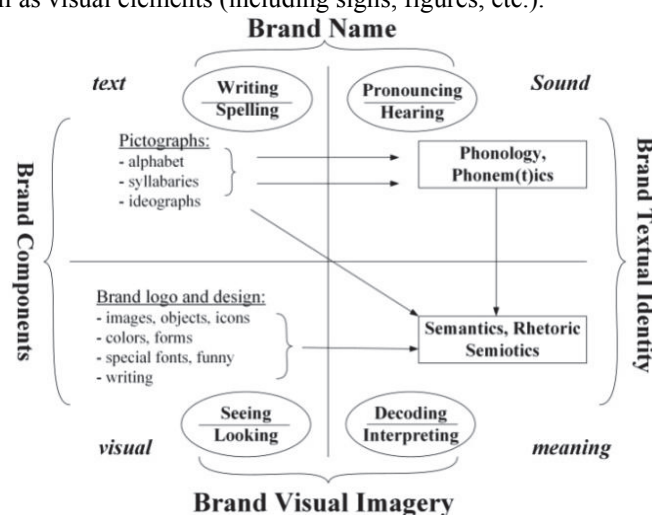


Figure 1 A Comprehensive Framework for Assessing the Linguistic Value of a Brand

The western research findings trigger the studies of brand naming. Those researchers start from a single linguistic element and conduct some elaborate studies on brand names which are based on languages in essence. At the same time, they develop a series of discussions about the standards of excellent brand naming (Collins, 1977; McNeal and Zeren, 1981; Perreault and McCarthy, 2004; Kotler and Armstrong, 2001; Keller, 2009) and expand their studies to some deeper aspects—how the linguistic value of a brand name makes contribution to the value of a brand.

Researches on Chinese brand names derive from the model of Chinese linguistic brand naming standards which is established based on linguistic elements. It is also applied to analyze different sorts of brand names corpus and a series of studies concentrating on the standards and features of Chinese brand naming (Chan and Huang, 1997; Chan and Huang, 2001a, Chan and Huang, 2001b). Subsequent researchers also conduct a wealth of profounder studies on more extensive product categories, the improvement of research framework, the comparison between Chinese and foreign brand names, etc. (Ian Wilson and Yuelu Huang, 2003; Tong Yimim, Ma Ningning, 2009; Zheng Lifang, 2010; Wang Lei, 2013; etc.). Besides, in the aspect of quantitative analysis of brand naming corpus, Li Fei, Wu Shuilong, etc. use linguistic elements and achieve two fundamental brand naming modes of the Chinese name of world-famous valuable brand (LI Fei, LI Xiang, 2004) as well as the naming features and modes of Chinese traditional brands (WU Shuilong, LU Taihong, SU Wen, 2010).

3 Methodology

Brand is a compound symbol which consists of name, trademark, slogan, advertising image, commercial song, packaging and other elements, among which only name has “sound”, “form” and “meaning”. The name of a brand has so many characteristics that it can contribute to build brand awareness as well as brand image. Hence, it becomes the core of a brand and is reputed as a generalist of establishing brand equity (Onzo and Kamei, 2002). We can witness the development history of foreign and Chinese researches about brand name according to the previous studies mentioned above. In early stages, brand names were studied in a microscopic angle of view. Researchers focused on a single linguistic element. However, researchers study them in an integrated perspective now, considering all related linguistic elements. Research methods vary from descriptive studies to empirical studies such as corpus learning and quantitative researches. Whereas, these researches all use real existing brand names as objects and are developed on the premise that those brand names are successful cases. As a result, they can be considered as an enterprise-oriented, analysis of brand naming consequences -focused, static research approach. Since brand equity exists in consumers’ minds, the standard used to assess whether a brand name has contribution to its brand should be based on consumer cognition effects of the brand name—brand naming activities should aim to achieve positive communication effect between a brand

name and consumers. Consequently, consumer cognition and effective communication between brand names and consumers, become the hot issue of further studies on brand names. In this respect, Jean-Claude Usunier and Janet Shaner have provided a preliminary framework. They put forward a comprehensive framework for assessing the linguistic value of a brand which covers characters, writing, spelling, pronunciation, audition, phonology, phonetics and other linguistic elements alike. They also expand their study domain from linguistic framework to other branches like semantics, rhetoric, semiology, etc. and introduce consumer cognitive and perceptual elements, assessing brand-consumer communication quality in a comprehensive way; thus providing a dynamic research perspective of brand name assessment. However, its limitations are also very obvious. For instance, the object of study is obscure. Apart from the brand name itself, there are also brand logo, font, color and other artistic designs. So there are flaws in disturbing factors control. Besides, the framework cannot describe the online dynamic process of consumers forming cognitive and perceptual effects toward brand names and it is too general because it doesn't take cultural, political, social and economic elements which have big influence on the linguistic value of a brand into account. Furthermore, the study is based on western language environment. Although that framework also considers visual effects, it only emphasizes the visual effects of brand logo and design while ignore the effects of Chinese, Japanese and other eastern languages' meaning, form and notation on consumers. Compared with other relevant researches, it has already stepped forward to introduce consumer cognition but it is still limited in the field of linguistics.

To sum up, researches about brand name have gone through an evolution. Researching approach changes from study of single angle to study of multi-angle, from static to dynamic. Given that previous studies still have limitations, taking advantages of theoretical achievements of different subjects to do interdisciplinary researches on brand naming has become a new study trend. This paper embraces the conviction that it is necessary to conduct a deep, online, dynamic study on consumers' awareness and perception of brand names. Considering the characteristic of "generalist" of a brand name and the trait of mass media focused on brand marketing, we can deduce that a brand name is not a pure textual content. Rather, it takes effect through cognitive and perceptual multi-paths, such as vision, hearing, sound, etc. which influence consumers' preferences, attitudes and purchasing behaviors. Studying the cognitive and perceptive process in consumers' mind about brand names enable us to realize fundamentally how a brand name influences its consumers, infuses meaning into consumers' minds and contributes to brand equity. Then it is a more objective research approach. In this study, we spare no effort to adopt cognitive semiotics and brand-related researches and introduce conceptual blending theory, multimodal approaches and other advanced cognitive theories based on metaphorical thinking to establish a model of brand names' value construction under the cognitive perspective, thus making an online dynamic demonstration of the process of brand names' meaning construction.

4 The Construction of Integration Model of Multimodal Metaphor of Brand Names Studied in a Dynamic Perspective

The metaphorical thinking and "Mapping Theory" raised by Lakoff and his fellows as well as "Blending Theory" raised by Fauconnier and other scholars, have laid a solid foundation for cognitive theory of metaphor. Forceville and some other researchers expand the scope of metaphor study to images and other non-linguistic modal study and elevate it to conceptual level thus forming the concept of "Multimodal Metaphor".

4.1 Metaphor as a cognitive thinking

Scholars embrace different understandings toward metaphor in different period of time. Studied from rhetoric point of view, metaphor is only considered as a figure of speech. Nevertheless, contemporary cognitive science believes that metaphor, in essence, is a human way of thinking, a cognitive device, an indispensable pattern of human cognition. Lakoff, the founder of metaphor cognition study pointed out in his *Metaphors We Live By* that metaphor is the most fundamental feature of human conceptual system. It is the basis of human cognition, thinking, experience, languages and actions. Metaphor exists everywhere in our daily life and it decides the way we think and experience things. It constitutes human cognitive conceptual system. We can claim that metaphor is actually something related to conceptual relations and consider it as a way human think and act. Yet, thinking is recessive. We get accustomed to all kinds of metaphors in our daily, which means people get used to juxtaposing two kinds of things when thinking. Human use metaphors almost all the time unconsciously. The way of thinking of an information sender is reflected by metaphorical language and symbols alike, which enables the information receiver to understand and interpret. However, in the "Conceptual

Metaphor Theory”(CMT)raised by Lakoff and Johnson, they are convinced that metaphor shows the mapping from source domain to target domain and describes the working mechanism of concept system of thinking. When humans are to learn and describe the unknown during the cognitive process, we usually rely on the concepts or expressions that are already known, proceeding from the known to the unknown, from the exterior to the interior with imagination. The core of metaphor is to juxtapose something familiar with the unfamiliar and enhance human cognition of unfamiliar things through the mapping from the acquainted fields to unacquainted fields.

Metaphor theory, as a cognitive thinking, provides a consumer-oriented perspective of objective cognition process to studies of brand names. The first challenge of new products with which consumers are not familiar is to attract consumers as soon as possible—to be remembered, liked and purchased. A brand name is the main force in brand establishment. Its target is to contribute and it should have such influence. The brand naming strategy lies on how to use metaphorical elements which are easy for consumers to cognize and perceive, and spread its brand spirit to target consumers while the mission of a brand name is to establish the brand image which the brand owner want to infuse in consumers’ minds. Metaphor theory of cognitive thinking provides a strong research angle and a solid framework for researchers to figure out the mechanism of consumer cognition toward brand names. How the implicit metaphors embraced in explicit brand names influence consumers’ way of thinking and how they make contribution to brand equity are the crucial issue of effective brand establishments.

4.2 The development and main ideas of the conceptual blending theory

Fauconnier and other scholars put forward “the Conceptual Blending Theory” about construction of mental space based on “Conceptual Metaphor”. It claims that metaphor come from the mapping across mental spaces. Mental spaces are the conceptual packets set up based on partial understanding and action goals people achieve when communicating and thinking (Fauconnier&Turner 1996). They can be interpreted as an online dynamic concept contemporarily built during verbal communication. Blending Theory is namely a systematic illustration of all the mappings and the interactions of different mental spaces. In Fauconnier’s masterpiece, *Mental Spaces*, he focuses on the emergence of mental spaces, the blending of mental spaces caused by interactions as well as online meaning construction in natural language. In the fundamental work of this theory, *Mappings in Thought and Language*, he raises Conceptual Blending Theory systematically. As shown in figure 2(Fauconnier&Turner 1997), they demonstrate the relationships and interactions of different mental spaces and establish a four-dimension modal of meaning construction in natural language. They also reveal the online meaning construction in natural language and the mappings of different mental spaces. Fauconnier(1997) pointed out that the mappings between domains are at the heart of the unique human cognitive faculty of producing, transferring and processing meaning, while deals with the evidence for mapping and underlying domains offered by language structure and use. However, visible language is only the tip of the iceberg of invisible meaning construction..Meaning construction refers to the high-level, complex mental operations that apply within and across domains when we think, act, or communicate..Fauconnier and Turner also point out in their masterpiece, *The Way We Think* (Fauconnier & Turner 2002), that the dynamic constitutive principles of conceptual blending are partially the cross-space mappings concentrated on fractional and selective blends and emergent structures will occur in blending spaces.

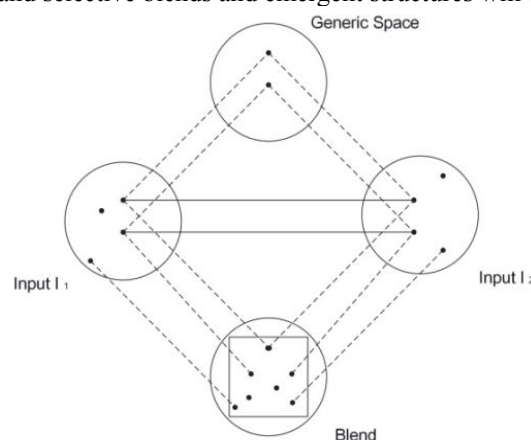


Figure 2 Working Mechanism of Conceptual Blending Theory

Conceptual Blending Theory provides a theoretical tool of “online meaning construction” of linguistic symbol for studies on brand name. According to this theory, we can deeply discuss the concept forming process of brand names in consumers’ minds and analyze the formation of consumers’ mental spaces and selective mappings which take shape during the brand name cognizing course based on metaphorical thinking. Thereby, we can make contributions to brand equity through controlling the brand effect resulted from brand name strategies.

4.3 Multimodal metaphor

Forceville(2009) defines “mode” as “a sign system interpretable because of a specific perception process”, and acceptance of this approach would link modes one-on-one to the five senses. There are different modes, at least, the following: pictorial signs, written signs, spoken signs, gestures, sounds, music, smells, tastes and touch. They define monomodal metaphors as metaphors whose target domain and source domain are exclusively or predominantly rendered in one mode. In contrast multimodal metaphors are metaphors whose target domain and source domain are each represented exclusively or predominantly in different modes. More scholars think that multimodal symbol should be an open system rather than the way Forceville defines it. It should cover different kinds of media symbols so mode can be broadly defined as “communication media systems which rely on senses”, and multimodal metaphors are metaphors which are transferred/relied on synergy between two or more modal signs (Peng 2011; Zhao 2013). According to the way brand names spread, we can find that the delivery of the meanings of brand name and its influence on consumers often rely on the synergistic effect of communication signs based on one or several senses in the midst of brand name-consumer as well as consumer-consumer communications. Nowadays, studies on multimodal metaphor are conducted in a variety of genres, such as advertisements, comics, strip pictures, animations, sign language, music, films and so on. But can interdisciplinary studies on multimodal metaphor be also applied to further studies on brand names? Given the comprehensive framework for assessing the linguistic value of a brand by Jean-Claude Usunier, we can learn that the linguistic value of a brand name is beyond the textual meaning. Instead, it derives from the comprehensive meaning formed by text, vision, sound. In this sense, a brand name has at least three modal features including textural, visual and audial features. Besides, if seen from the cognitive point of view, the situation is also obvious. Generally, a brand name has sensorial functions to stimulate consumers’ visual sense through the eye view, auditory sense by hearing, and the spread of a brand name depends on oral transmission, namely phonation. Although the sensorial functions of vocal organs are relatively private and not easy to perceive, we are accustomed to using “easy to pronounce” and “hard to pronounce” to assess the pronunciation of a brand name. In fact, consumers are very sensitive and concern much about the fact whether a brand name is easy to pronounce and whether it is easy to spread. All in all, cognition and perception of a brand name are related to at least three kinds of modes. Hence, theoretically multimodal metaphor theory can be applicable to the analysis of brand names.

The motivations of multimodal metaphor studies can be classified into three aspects. Firstly, in the fields of cognitive linguistics, people realize the shortage of pure linguistic metaphor studies. Secondly, the popularity of communicative means of multimodal metaphor has shifted the focus of scholars to multimodal discourse research. Thirdly, the humanities have advantages in interdisciplinary studies (Zhao, 2011). These three aspects exactly coincide well with the development of studies on brand names. Even though the main force of a brand name is language, people not only need text, voice, image, but also need multi-media information with the rapid development of multi-media and increase of spreading approaches. Brand companies have to pay more attention to the balance of visual and sound effect of brand names. On the other hand, vocabulary with real meanings can be used in brand naming is limited, the topic shifts to naming strategy of new brands. The meaning construction of a brand name in consumers’ minds by the synergistic effect of sound, form and meaning, goes beyond the real meaning of a word itself. Instead, meanings take shape in the deeper layer of consumer cognition. Besides, with the process of economic globalization and market segmentation and influenced by language, culture, politics, society, and consumer ethnography, etc., the meanings of brand names for different consumer markets as well as the process of meaning construction are not the same. Whether to adopt a standardized or a localized strategy aimed at consumer markets in different areas remains an important subject on brand naming in the era of globalization. We can make a conclusion that the development tendency of brand naming studies corresponds to that of studies on multimodal metaphor. Classifying brand names as multimodal discourse, applying interdisciplinary theoretical approaches, starting from cognitive metaphor perspective and inspecting the effect of consumer cognition through multimedia approaches are totally significant to further studies on brand names and brand equity.

4.4 The conceptual integration model of multimodal metaphor construction of brand names

Zhao(2013) puts forward the conceptual integration model of multimodal metaphor construction

based on the conceptual integration model of cognitive poetics imagery interpretation and the conceptual integration model of Fauconnier & Turner(2002) and applies it to metaphor analysis of political cartoons. As shown in figure 3(Zhao, 2013), the model adds multimodal representation space and relevance space based on context to the dynamic integrating process. Furthermore, it also takes the features of multimodal metaphor discourse and the interaction of metonymy and metaphor into consideration. This research relies on the model mentioned above and real communication mode between brand names and consumers, applies brand-related theories, and put forward the conceptual integration model of multimodal metaphor construction of brand names.

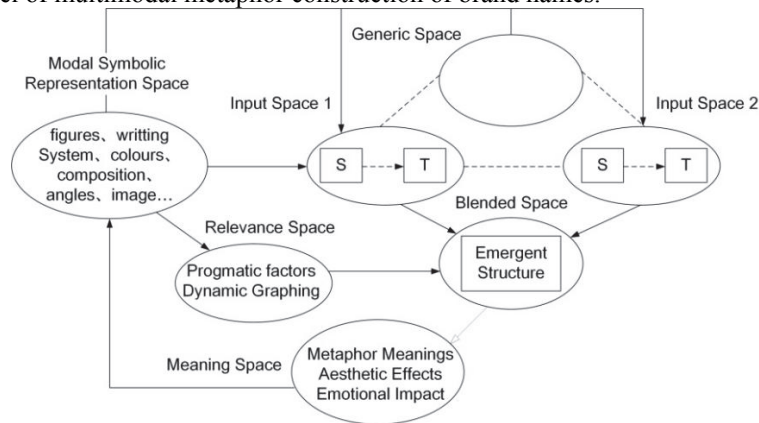


Figure 3 Conceptual Integration Model of Multimodal Metaphor

As shown in figure 4, this research believes that brand names are multimodal discourses which include visual sense (written signs), auditory sense (hearing), and Phonation (pronunciation). During the integrating process, linear unidimensional characteristics of language symbols and nonlinear characteristics of non-linguistic symbols, enable multimodal symbols to evolve into multi-dimensional and multi-directional ones. So the order of the perception, the paths of attention diversion, and the combination and change of modal symbols, can lead to the adjustment of the activated route directly.

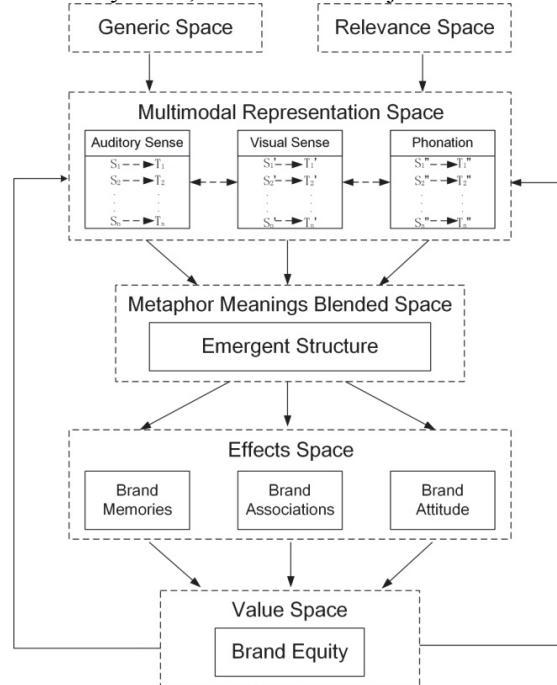


Figure 4 Integration Model of Multimodal Metaphor Construction of Brand Names

Influenced by cognitive elements, interpreters should also adjust the interpretation of multimodal symbolic representations for several times(Zhao, 2013). S and T represent the source domain and target domain of fundamental metaphor or metonymy while dashed arrows indicate the previous basic

mappings inside each multimodal input space of brand names as well as alternative mappings across spaces. All information led by generic spaces and relevance spaces, after basic mapping and trans-spaces, enter meaning blends alternatively and form emergent structure. The main points of Zhao's (2013) study about relevance spaces based on context are communicative subjects, medium, social cognition, cultural value, genre schema, aesthetic orientation and other varieties of pragmatic information. Nevertheless, the aim of this research is to study the interactions and communications between brand names and consumers, so the study pay more attention to language, culture, politics, economy, demography, nationalism and other factors which are closely related to the characteristics of consumers. Beside, this study believes that relevance spaces function not only in the stage of meaning integration, letting conceptual meanings and emotions, aesthetic meanings enter the meaning spaces together to demonstrate the real purpose of producers' artistic creation of multimodal metaphor, but also in the stage of basic mapping and metonymy in fact. In this sense, generic space and relevance space are members of up-class spaces which play a leading role during the meaning integrating process. According to Zhao (2013), the meaning space formed at last also has effect on or restrains the producers' choices and construction of multimodal signs in turn, and form a complete model based on meaning production and interpretation. Generally, the communication of metaphorical meanings of genres like literature and comics comes to an end in this course. Brand names are seemingly the same. The metaphorical meanings of them have taken shape in consumers' mind so far. However, according to Keller's theory (2009) the differences is that the standard of brand name selection lies in two dimensions: brand awareness (to recognition and recall) and brand association (perception). Moreover, however impressive a brand name is to a consumer, however abundant the brand association is, if that brand itself or all sorts of associations related to it cannot achieve consumers' appreciation and favor, it can never make positive contribution to brand equity. Thus, attitude toward brand names is the third dimension of brand names' devotion to brand equity. To conclude, this research proposes to consider three dimensions—cognition, perception and attitude as the expansion of the conceptual integration model of multimodal metaphor construction of brand names because they are the indispensable parts needed to assess the final formation of brand equity. As shown in the model of brand equity construction, the mission is to discuss the cognitive and perceptive effect of metaphorical meanings of brand names on consumers' inside world further; thus embodying the contribution of a brand name to brand equity from the model; to encourage the circulation of the interaction of the creator of a brand name and the brand name's target customers; to establish a unique conceptual integration model of multimodal metaphor construction of brand names and to provide a beneficial reference for brand value assessment.

5 Conclusion

This paper bases on researches related to brand names while put forwards the opinion that although a brand name is language in essence, researches on it should not be limited in the field of linguistics. Instead, researchers can set up an online dynamic perspective by integrating multidisciplinary research findings. This article bases on some research findings about linguistics and brand science, introduces metaphorical thinking, conceptual integration, multimodal paths and some other cognitive theory and approaches, and establishes a Integration Model of Multimodal Metaphor Construction of Brand Names under a cognitive angle. Furthermore, it presents and interprets the online dynamic meaning construction processes of brand names. Basing on fitting-analysis of researches about multimodal metaphor theory and brand names, it draws a conclusion that brand companies should pay attention to the influence resulted from relevance space of communication between brands and consumers. Besides, they can contribute to the control of brand effect and establishment of brand equity by making an appropriate brand naming strategy according to a three-mode path through visual sense, auditory sense and phonation. However, this research is still limited in the stage of theoretical framework establishment. It remains to be manifested and improved by case study, empirical investigations and experiments. Practical applications based on this theoretical framework need more studies and developments.

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Reflections on the Discussion about Co-Leading Program of CPC, Government and People of Basic Level

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Abstract: The Co-leading Program of CPC, Government and People of Basic Level is a comprehensive innovation for the basic level CPC organization to explore the construction of democracy and society governance mode of integrated innovation under the new situation, which was lead by the need of residents, organized by CPC committee on basic level, resourced by government and the society, and motivates resident to participate, to form a working mode that gathers CPC, government and people to negotiate, participate and regulate together. This, the way of “decided by government and accepted by resident” could be gradually transferred into “bilaterally agreed by both government and people”. we should consolidate and expand the achievements on the education practice of party's mass line, with the new requirements of Four Comprehensives Factors and the basic direction of localization, service-orientation and being open-ended to strengthen the construction of the primary Party organizations, deepen the co-leading program of CPC, government and people of basic level, to make construction of the primary Party organizations more vitality.

Key words: CPC organization; Co-leading program; The primary party

1 Introduction

The primary Party organizations is responsible for the connection with the masses, propaganda among the masses, organizing the masses, unite with the masses; it is mainly responsible for the implementation of the policies of the Party; and also it is the basic of the whole work and fighting capacity of the Party. The 18th CPC Central Committee drew up an important deployment for strengthening the organization construction of the primary Party organization, the third & fourth plenary session of the 18th CPC Central Committee raised new requirements about the primary Party organization to deep the further reform and comprehensively promote managing the country by law as a battle fortress.

Recently, China is in the final stages of building moderately prosperous society. Facing the new situation in the reform and opening up process about the interest redressal, the new changes between the Old and new contradictions of society, and the new situation of ideological diversity under the market economy, the construction of the primary Party organizations is facing many new challenges. Without a firm foundation, the earth trembled and the mountains swayed. How to consolidate and expand the achievements on the education practice of party's mass line, to strengthen the construction of the primary Party organizations, to make construction of the primary Party organizations more vitality, that is an important task for democratic political construction and political structure reform in our country. In the last few years, Beijing Chaoyang District closely around the target-“building a learning, service-oriented and innovative Marxist political Party”, to implement the co-leading program of CPC, government and people of basic level, give full play to the central role that the Party commands the overall situation and coordinates the efforts of all quarters, to improve the party's leadership and ruling ability, and then explore some useful experience.

2 The Genesis of the Co-Leading Program of CPC, Government and People of Basic level: Pay Attention to the Grass-Roots Level, Services for Residents

Over the past few years, the construction of grass-roots social in China has been vigorously promoted and standing in a new historical starting point, is also facing new development opportunities and favorable conditions. This is the important background for us to carry out the co-leading program of CPC, government and people of basic level.

1.1 The basic level's work is being noticed unprecedentedly

It is the first time for the community governance has been written in the report of the 18th CPC Central Committee. The third plenary session of the 18th CPC Central Committee further pointed out: “establish and improve the supervision mechanism about residents and villagers, promote the people help with self-management, self-service, self- education, self -supervision in community management,

public affairs at the grass-roots level and public welfare which is based on laws.” Mr. Xi Jinping - CPC Secretary General emphasized several times, to put more manpower, material and financial resources into the grass-root, put resources, service and management into the grass-roots as far as possible, make the grassroots could offer a better service and effective management for the masses.

1.2 The community construction is playing an unprecedented role

With the rapid development of the economic society, the community has become the aggregation point of social groups and supporting point of social life increasingly, has become the resource of stabilization, the support of guaranteeing the Peoples livelihood, the basic of promoting the development, the function of the community, “to meet people’s basic living needs, to provide last resort for people to fall back on in case of special difficulty”, has become more obvious.

1.3 The negotiations with the basic level were referred to an unprecedented height

Deliberative democracy of socialism is a great creation of Chinese Communist Party and the Chinese people. Deliberative democracy in China has a profound cultural foundation, theoretical basis, practical basis, system basis. In February 2015, the central committee of the communist party of China issued *Suggestions on Strengthening the Construction of Socialist Deliberative Democracy*, which explicitly put forward to push forward the grassroots consultation steadily, to improve it to the same height as negotiate with party consultation, negotiation with National People's Congress, with government, with Chinese people's political consultative conference (CPPCC) or people's organizations. A lot of decisions and work which are affinitive to the public interest mainly occurs at the grassroots. In accordance with the requirements of the consultation with people, negotiation for people, to establish and improve the construction about the coordination linkage mechanism of deliberative democracy at the grass-roots level, to carry out consultations at the grass-roots level steadily, to solve people's real difficulties and problems preferably, to resolve disputes on time, to promote social harmony and stability. Adhere to the broad participation, multiple layers, to guarantee people's right to know, to participate, to express and supervise preferably. The document also specifically mentioned that, the important decision among different administrative villages or communities, should be negotiated and organized by according to the need by villages, streets, and even the county (city, district, flag).

3 The Core of the Co-Leading Program of CPC, Government and People of Basic Level: Lead By CPC Committee, Develop Diversity

This program was first launched on “ask the politics” meeting of ChaoYang District in year 2011, and was developed to 24 basic organizations in 2012 to solve the problems of the residents. In 2013, the program was launched district-wildly, based on the past experience.

This program was lead by the need of residents, organized by CPC committee on basic level, resourced by government and the society, and motivates resident to participate, to form a working mode that gathers CPC, government and people to negotiate, participate and regulate together. This, the way of “decided by government and accepted by resident” could be gradually transferred into “bilaterally agreed by both government and people”. Before government makes the decision, opinions of people should be first relieved. The focus should be on aspects in living environment, social security, public service and so on, especially on small but critical problems. In this way, residents' ability of management could be cultivated, basic level of democratic environment could be built and residents could be better involved.

In daily work, below methods could be taken: utilize diverse way to develop people's need, plan and thoughts, and form related regulations or plans; launch door-to-door investigation by community team leaders and online communication; Organize experts, NPC member and residents to form independent evaluation system and launch performance evaluation. Residents' opinion should be asked and residents should be evolved in the process of decision making and supervising in the entire public service area. Community resident could launch independent research and voting, and experience compromise and negotiation by co-operation and competition. Thus, resident’s management ability and basic democratic environment could be improved. Platforms were built like ChaoWai residents online, CBD column on co-regulating, TuanJieHu online mailbox, 13 communities Twitter, XiangHeYuan Garden online message forum, YaYunCun QQ Chatgroup, etc. A total of 1479 cases were collected within 24 communities, including 6 aspects and 12 points, for instance, going-out, parking, elderly care, public order, environment, management, and even including community laundry and maintainence.

As result of long time practice, the program is a useful and effective method, which successfully coordinate the relationship of our three goals. With this projection, we could effectively safeguard the

democratic rights of the people as masters of the country and ensure we run the country according to law by adhere to the party's leadership. Because of this work's good effect and innovation, Chaoyang district get the prize of "Top ten innovation results in china Community Governance" by this new mode.

4 Furtherance of the Co-Leading Program of CPC, Government and People of BasicLevel: Integrated Development with Oriented Service

As party building work at community level plays a key role, we shall strengthen systematic building work and work out a mater plan. We shall improve the building work as a Marxist Political Party at community level, in line with the basic requirements of localization, service-orientation and being open-ended. We shall make efforts to advance reform, innovate system and perfect institution. In this process, we shall make use of the Additive Effect and Multiplier Effect of the co-leading program of CPC, government and people of basic level, so as to cultivate more promising projects with bigger success. In this way, we can promote the high-level integration of community and society, improve hard and soft power at the mean time, closely coordinate government guidance and self-governance by community residents. By doing so, we will make community service more reachable, the environment more comfortable, the management better regulated, residents' participation more ordered, the relation between government and people more harmonious and people's behaviors more civilized.

4.1 Incorporate the co-leading program of CPC, government and people of basic level into the planning of the overall societal development, and innovate social governance at community level

The key to improving the new social management pattern of "led by party committee, executed by government, coordinated with society, participated by the public and guaranteed by rule of law" is to improve the ability of social coordination and expand public participation. We shall start with the Co-consultation and Co-Governance Program among Party and Government organizations and the public at community level in the efforts to facilitate party organizations at community level in making use of their advantage in supporting, coordinating and guiding mass organizations, self-governance organizations, economic organizations and social organizations. We shall pace up promoting the restructuring of party organizations at community level, make more efforts to cultivate social organizations that are community-service-oriented, public-benefiting and co-operative. Special attention shall be given to the role of community self-governance party organizations, by extending community party organizations of all sorts to the grass-root, so as to fully cover all people and organizations, gradually elevate the level of organization among residents, enhance their sense of approval and belonging, thus effectively consolidating the attractiveness and integrity of community. We shall constantly intensify social responsibilities of organizations in the community, make more efforts in co-building among different areas and enlarge government-purchased services, give more play to social sectors in public service areas, gradually incorporate "non-governmental" resources into "governmental" resources, which shall play their independent roles under the leadership of party committees and under the guidance of government, so as to bring into being the grand pattern and new system for social building.

4.2 Incorporate the co-leading program of CPC, government and people of basic level into the great strategy of comprehensive reform in execution, and deepen the reform of social management at community level

Each measure for deepening the nation-wide comprehensive reform shall be finally executed and realized by communities. We shall rely on this program in deepening the reform of community management system, in which process full play shall be given to community party organizations in social service and city management, while facilitating community's work in coordinating supportive resources of all sorts in community management. Effective efforts shall be made to ease the community neighborhood committee's administrative burden, to ensure that community-level public service responsibilities are matched by power and funding.

4.3 Execute the co-leading program of CPC, government and people of basic level in the greater backdrop of carrying out in a deep-going way the mass line, and take a further step in safeguarding and improving people's well-being.

Communities are the front line of serving the people, thus the most close-related to the massive and their well-being. We shall take the Co-consultation and Co-Governance Program among Party and Government organizations and the public at community level as the key and rely on real practice in extensively building service-oriented party organizations at community level. In this process, we shall properly place leadership and management in serving the people, enhance community party

organizations' function of connecting the public, serving the public and uniting the public. In this way, we can enable community party organizations and the numerous party members and cadres to take root among the massive, to unite and guide the public in striving together for realizing the goal of building a moderately prosperous society and a harmonious and happy motherland. We shall properly handle the relation between serving people and self-service by the people, cultivate the backbone resources for serving people, organize and mobilize the public in participating in inter-dependent service and service of public interests, making the massive the participants as well as beneficiary of such services. We shall orientate our work at people's demand, promote cadres and practitioners of community committee to further transform their manner of work, further improve the system for serving the people and the platform for connecting demand and supply, so as to effectively handle problems occurring along the last remaining "one mile" on our journey of connecting and serving the people, thus improving the orientation accuracy of community services.

5 Conclusions

The co-leading program of CPC, government and people in Chaoyang district has achieved obvious comprehensive benefit, to promote the construction about democratic politics at the grass-roots level, to strengthen initiative of self-management, self-service through democratic consultation; to guide the various main to participate in social management, and the social governance vitality has been aroused effectively; to get close the relationship between party and masses, and resolve the conflicts between the jurisdictions effectively. Although the program still has some problems, we should summarize and improve it continuously from some aspects as system, procedures, methods, etc. However, the mode - co-leading program of CPC, government and people-can solve the problem involves the vital interests of the people effectively, will perform the strong vitality in democratic construction of and social governance grass-roots party organization democracy construction of the basic level CPC organization and social governance coruscate gives strong vitality.

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A Study of Chinese College Non-English Majors' Self-Efficacy in English Learning and Learner Autonomy

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Abstract: The cultivation of Learner Autonomy (LA) is regarded as the most important aim by the researchers of pedagogy, while researchers of psychology paid much more attention in the factors that influence LA and on the mental mechanism concerning LA. In view of the crucial roles self-efficacy played in learner autonomy, the present study intends to investigate the relationship between the two. In the light of the previous research, the present study proposes some learning strategies to improve college students' self-efficacy and learner autonomy.

Key words: Learner Autonomy; Self-efficacy; Non-English majors

1 Introduction

As Bian Yufang (2004) proposed that Chinese schools generally neglect cultivation of students' self-efficacy due to inadequate studies in China. The study of self-efficacy at home has proved that self-efficacy has correlated relationship with motivation attribution, goal setting and learning strategies, that students with high achievements have generally higher self-efficacy, and more confident in their capabilities in language learning (Ji Yianhong, 2003, Wang Zhenhong, 2000; Li Lijun, 2004). 2) Probing into the constructions of self-efficacy scales (Wang Lei, 1999; Bian Yufang, 2003; Zhang Shenhui, 2002). There is now a large body of researches on self-efficacy and English learning. However, very few study the relationship between self-efficacy and learner autonomy in English context. The purpose of this paper is to investigate Chinese college students' learner autonomy and their beliefs of self-efficacy in English learning and explore the relationship between learners' self-efficacy and learner autonomy in order to provide some practical strategies to improve their learner autonomy.

2 Methodology

2.1 Research questions

As the summary of literature mentioned, the present quantitative study investigates the relationship between college students' self-efficacy in English learning and their learner autonomy. The study addressed following three questions: 1) what is the overall situation of college non-English majors' self-efficacy in English learning? 2) What is the overall situation of college non-English majors' autonomy in English learning? 3) What is the relationship between college non-English majors' self-efficacy in English learning and learner autonomy?

2.2 Subjects

Non-English major undergraduate sophomores in Wuhan Textile University (WTU) are the subjects of this study. All the non-English major undergraduates in WTU are now studying under a three-level system. That is, after a proficiency test, they are divided into three groups in accordance with their scores. The ones with higher scores will study in Level Three (L3), with middle scores in Level Two (L2) and with lower scores in Level One (L1). All the three groups of students have participated in this study as they are sufficiently representative of the overall situation of college students' English learning. 240 questionnaires were distributed to the students in their class time and 220 (71 from L1 students; 94 L2 students; 55 L3 students) of the questionnaires were found to be valid.

2.3 Instruments

The instruments used in this study included the college non-English majors' English Learning Self-efficacy Questionnaire and Non-English Major Undergraduates' Autonomous English Learning Investigation Questionnaire.

2.4 Data analysis

Six intact classes were sampled in WTU. In order to get subjects' cooperation and make the investigation work as reliable as possible, the author of the thesis first made an agreement with their teachers and asked them to act as my survey assistants. 240 questionnaire sheets with both the two questionnaires were handed out in the interval of students' regular English class time. Students were required to do the questionnaires individually and were expected to finish it within 15 minutes.

Fortunately, due to the cooperation of English teachers, students could finish the sheets carefully in accordance with their real situation and 220 pieces of feedback were collected.

3 Results and Discussion

In this part, statistical results will be reported by conducting a series of correlation analyses, One-way ANOVAs, and Independent Samples T-test. One thing that needs our attention is that when presenting the means and standard deviations of the items in the questionnaire, in order to look at the situation more easily, we actually use the raw data, that is, the points before the change is made to certain items. But for other statistical analyses, we follow the rules of statistical analyses and thus use the changed data.

3.1 Overall situation of college students' self-efficacy in English learning

Table 1 The Means and Standard Deviations of All the Items in The General Self-efficacy Section

		N	Mean	Std Deviation	Std Error	Interval for mean		Min	max
						Lower Bound	Upper Bound		
SE1	L1	71	1.7606	.81879	.09717	1.5668	1.9544	1.00	4.00
	L2	94	1.6170	.89330	.09214	1.4341	1.8000	1.00	5.00
	L3	55	1.5091	.74219	.10008	1.3084	1.7079	1.00	5.00
	total	220	1.6364	.83559	.05634	1.5253	1.7474	1.00	5.00
SE2	L1	71	2.8732	.96997	.11511	2.6437	3.1028	1.00	5.00
	L2	94	3.2340	.99920	.10306	3.0294	3.4387	1.00	5.00
	L3	55	3.6545	.92733	.12504	3.4039	3.9052	1.00	5.00
	total	220	3.2227	1.0115	.06820	3.0883	3.3571	1.00	5.00
SE3	L1	71	2.3803	.90026	.10684	2.1672	2.5934	1.00	4.00
	L2	94	2.6170	1.12743	.11629	2.3861	2.8479	1.00	5.00
	L3	55	2.3455	.84367	.11376	2.1174	2.5735	1.00	5.00
	total	220	2.4727	.99505	.06709	2.3405	2.6049	1.00	5.00
SE4	L1	71	3.5775	1.12963	.13406	3.3101	3.8448	1.00	5.00
	L2	94	3.4255	1.23122	.12699	3.1734	3.6777	1.00	5.00
	L3	55	3.4000	1.16428	.15699	3.0853	3.7147	1.00	5.00
	total	220	3.4682	1.17969	.07953	3.3114	3.6249	1.00	5.00
SE5	L1	71	2.4366	.98172	.11651	2.2042	2.6690	1.00	5.00
	L2	94	2.2553	1.07699	.11108	2.0347	2.4759	1.00	5.00
	L3	55	1.6481	.93481	.12721	1.3930	1.9033	1.00	4.00
	total	220	2.1644	1.05379	.07121	2.0240	2.3047	1.00	5.00
SE6	L1	71	2.2817	.95891	.11380	2.0547	2.5087	1.00	5.00
	L2	94	2.1064	.97791	.10086	1.9061	2.3067	1.00	5.00
	L3	55	2.2182	.85399	.11515	1.9873	2.4490	1.00	5.00
	total	220	2.1909	.94115	.06345	2.0659	2.3160	1.00	5.00
SE7	L1	71	2.3521	.98704	.11714	2.1185	2.5857	1.00	4.00
	L2	94	2.1809	.99421	.10254	1.9772	2.3845	1.00	5.00
	L3	55	3.4182	.89899	.12234	1.8102	2.3009	1.00	5.00
	total	220	3.2727	.97151	.06565	2.0761	2.3349	1.00	5.00

Note: SE=Self-efficacy

For the convenience of reading, only the most significant parts of the original one-way ANOVA results are presented here. There is the need to explain the way of interpreting the data got from the one-way ANOVAs and how to decide which level is doing better than another on one item. If the value in the "sig." column is more than 0.05, then we can say there is no significant difference between the

two levels. If it is less than 0.05, then there is. Then we can look at the means for the three levels to judge which level does better on this item.

Table 2 One-way ANOVAS for the Items in The General Self-efficacy Section

Item	Level	Level	Sig.	Statistically Significant Difference
SE1	L1	L2	.550	NO
	L1	L3	.247	NO
	L2	L3	.748	NO
SE2	L1	L2	.064	NO
	L1	L3	.000	YES
	L2	L3	.041	YES
SE3	L1	L2	.318	NO
	L1	L3	.981	NO
	L2	L3	.274	NO
SE4	L1	L2	.717	NO
	L1	L3	.706	NO
	L2	L3	.992	NO
SE5	L1	L2	.524	NO
	L1	L3	.000	YES
	L2	L3	.003	YES
SE6	L1	L2	.498	NO
	L1	L3	.932	NO
	L2	L3	.784	NO
SE7	L1	L2	.533	NO
	L1	L3	.240	NO
	L2	L3	.751	NO

1) Results from item SE1 and corresponding discussion

SE1 stands for “I am confident that I can learn English well.” This is the most general one in all of the 29 self-efficacy items. From the corresponding lines in the above tables, we can see that there is no significant difference between the three groups on this points, and the means of all groups of students are around 1.5, which means “totally or completely agree”. That is to say, all three groups of students are quite confident that they can learn English well.

2) Results from item SE2 and corresponding discussion

SE2 stands for “After the English examination, I always feel the results will not be ideal”. This item tests students’ beliefs on their English achievements. From the above tables we can see that L3 students are inclined to disagree with this statement while L1 students are tend to agree with it. And the multiple comparison between the three groups shows that there is significant difference between L1 and L3, L2 and L3 students, while no significant difference between L1 and L2 students.

3) Results from item SE3 and corresponding discussion

SE3 stands for “I am confident that I can easily accomplish English tasks assigned by my teacher independently”. From the table we can see that there is no significant difference between all of the three groups and all students agree with the statement that they can accomplish English tasks assigned by their teachers independently.

4) Results from item SE4 and corresponding discussion

SE4 stands for “I don’t think I can control the fluctuations of my English achievements”. This is also a statement about students’ beliefs toward their English achievements and the questionnaire is also designed in an opposite way. That is to say, the higher the score the student get, the more efficacious he/she is. From the tables we can see that there is no significant difference between the three groups of students about this point. All students believe that they could control their own English achievement.

5) Results from item SE5 and corresponding discussion

SE5 stands for “I am confident that I will pass it if taking the CET-6 exam”. We can see from the above tables that although the means of L1 students is the highest (2.4366), it is still in the answer of “agree”, which means all groups of students tend to believe that they can pass CET-6. As to what extent they agree with the statement, the differences between L1 and L3, L2 and L3 students are significant, and no significant difference shows between L1 and L2 students.

6) Results from item SE6 and corresponding discussion

SE6 stands for “I am sure that I will never give up when I encounter difficult English tasks”. This statement is related to students’ beliefs toward difficulties, which is a very important sign of self-efficacy. From the above table we can see that no significant difference shows between all the three groups and all students believe that they will never give up when encountering difficult English tasks.

7) Results from item SE7 and corresponding discussion

SE7 stands for “I can stay calm in face of English challenge because I firmly believe in my own problem-solving abilities”. There is also no significant difference shows between all the three groups about this point and the means of all the three groups are around 2, which means they have confidence in their problem-solving abilities.

3.2 The relationship between college students’ self-efficacy in English learning and learner autonomy

This result shares the same points with many researches. Schunk (1990) found self-efficacy has close relationship with autonomous learning. Zimmerman had already pointed out that a learner’s self-efficacy would affect his or her motivation in learning through the processes of autonomous learning (Zimmerman, 2000). Gardner et al (2002:7-8) indicate that “the learner’s lack of confidence on the reliability of self-assessment” may lead to the fact that his “willingness to accept responsibility for assessment of reading has hardly changed.”

4 Conclusions

4.1 Major findings

Through all the above quantitative analyses, we can draw the following conclusions about the overall situation of college students’ English self-efficacy and learner autonomy and the correlation between the two. (1) College students’ self-efficacy in English learning are low as means for all three groups of students in both general and specific sections are around the midpoint, which means “not sure”. As for general self-efficacy, all the students of three levels basically hold a higher self-efficacy in their English learning than specific ones. And for specific self-efficacy, L3 students do better than the other two groups of students in most specific sections and they always hold a positive views on their abilities concerning specific English learning tasks, especially on reading and writing tasks, than L1 and L2 students do. (2) English self-efficacy and English learner autonomy are significantly correlated. Students with higher language self-efficacy are prone to learn autonomously. In turn, students who can learn autonomously tend to have higher language self-efficacy. The result of this study also offers us an additional area that can be addressed to help increase students’ English self-efficacy: learner autonomy. According to this study, English self-efficacy is positively related to English learner autonomy. Self-efficacy is enhanced when students are more autonomous learners. Therefore, it is encouraged to give students training on learner autonomy to help increase their English self-efficacy.

4.2 Limitation

Due to limited time and efforts, we only design and carry out the questionnaire, which intends to explore the relationship between college students’ self-efficacy and learner autonomy. The quantitative study is conducted only. It is suggested that future research can add qualitative methods such as open-ended questionnaire, interview, and then make the result more accurate, scientific and systematic.

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Promotion Effect of Library System Design on P.E Department Reference Room Construction

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Abstract: Taking Wuhan University of Technology (WHUT) library system as an example, this paper illustrates how to fix and complete testing system scientifically and reasonably in library system in meeting the undergraduate teaching level evaluation of ministry of education.. At the same time, this paper explores the problems appeared in the course of testing, and addresses solving methods to these problems. Practice shows that this testing system is preferable reliability, better operability and superior applicability.

Key words: Library system construction; Testing system; Index system; Testing method

1 Introduction

With the further development in the Teaching Assessment by the Ministry of National Higher Education, the library system based on the university teaching and research keeps pace with the time and builds self-evaluation system, which has played a good role in promoting the steady improvement on teaching and research.

In response for the documents “The General principles for University Library (Amendment)”, “Teaching Assessment Program for Undergraduates (Trial)” and “Basic teaching conditions to start universities and colleges (Trial)” issued by the Ministry of Education, Wuhan University of Technology (WHUT) ”encouraged by the goal “improving assessment, promoting construction, protecting quality, “has organized professionals and staff and formulated the” Evaluation Program on the College Branch Library System (College Library Reference Rooms) on the establishment of basic conditions, resource construction, reader service of the university library system.

2 The Build-Up of Evaluation System in College Branch Library System

The establishment of the evaluation system is to guarantee the rules to be implemented, help improve the management and readers service.

Table 1 Different levels of scoring statistics of the evaluation system

First levels	second levels	Score
1.Basic conditions	1.1 attention from leadership	2
	1.2 participation of staffs	2
	1.3 vocational level	3
	1.4 per capita use area of readers	3
	1.5 collection volumes of libraries	4
	1.6 annual fund investment	8
2.Resource construction	2.1 system Maintenance	5
	2.2 database building	2
	2.3 book recommendation	5
	2.4 internal resource construction	10
3.Reader service	3.1 opening hours	7
	3.2 service object	4
	3.3 annual reception of readership	6
	3.4 stack room and reading room Management	9
	3.5 special lecture	4
	3.6 document delivery	3
	3.7 search commissioning	2
	3.8 consulting	5
	3.9 management System	4
	3.10 statistics	7
	3.11 website construction	5

The Evaluation Program includes two levels. The first one refers to three items, such as basic

conditions, resource construction and reader service. The second contains 21 sub-items derived from the three on the first level, which includes six major projects. The program comprises 21 assessment score points, one of the important projects accounted for 47% of the total score 100 points.

3 The Designing Ideas of the Evaluation Library System

3.1 Basic Conditions

3.1.1 Attention from Leadership and the participation of staff

In Evaluation Program on the College Branch Library System, a set of strict rules and testing or assessing details have been figured out in terms of the first and second levels. While on the assessment to the second level “attention from leadership”, there are school leaders responsible for the branch tasks and actively support the work of the library. Meanwhile, on the assessment to the “the participation of staff”, it is qualified that the staff number of the College Branch should be determined and arranged according to the indication of university Personnel department (now tentatively for the staff and students in the ratio of 1:2000).

3.1.2 The reader areas per capita and the collection volumes

In library system construction, College branch libraries or reference rooms have great differences in the layout, building areas, funds, facilities, equipments and so on. The college branch libraries were supplied initially with books mostly on social science under the concept to run a library by self disciplines on laboratory scale, on which the investment of funds and the construction of the reference rooms are emphasized relatively. These factors are considered in comprehensive evaluations and the standards of assessment also have strict distinction.

According to the standards for " Collection volumes of libraries ", the literature accumulated amount in branch libraries should be ≥ 12000 (B 6000)volumes, the annual new volumes per capita should be increased to achieve or exceed this standards; Or 1 volume / reader / year (calculated by the number of teachers and students, with 30 Yuan / per volume for reference). While the literature accumulated amount in reference rooms should be up to 6000 volumes, annual new volumes per capita should reach or exceed to this number; Or 1 volume / reader / year.

3.1.3 Annual fund investment

The construction of university library system is a new tendency in the development of university libraries. The basic condition for its sustainable development is the annual successive investment.

Wuhan University of Technology (WHUT) advocates and offers great support to the construction of the library systems, by investing annually 700000—1000000 Yuan of funds to the college branch libraries (or reference rooms) for the establishment of literature resources, which greatly mobilized the self investing enthusiasm within college branch libraries (reference rooms). Thus, the annual invested funds have been increased to varying degrees. After the guarantee for purchasing books, magazines or electronic resources, the hardware conditions in college branch libraries have been improved every year.

The funds invested by the library of Wuhan University of Technology to its college branch libraries are divided into two parts. One of them is allocated according to the self constructive situations of the central library and according to a certain proportion of fund needs from college branch libraries (or rooms). The other one is self-financing portion. In the assessing process of Evaluation Program on the College Branch Library System, the annual fund investment is one of the critical reference factors. Furthermore, the funds have been detailed to every person's literature resource usage considering the number of undergraduate, graduates and doctoral students, staff of that year, in which 20 Yuan for undergraduates; 50 Yuan for graduates and doctoral students. The assessments are implemented according to the annual budgets and receipts.

3.2 Resources construction

3.2.1 Book recommendation

The quality of the literature resource construction in library systems directly comes from the recommendation information of the school staff and students, which comes from the active cooperation of the staff in college branch libraries and reference rooms. With the development and the application of INTERLIB service management system, the “Books recommendation” is not rigidly limited to the original paper periodicals recommendations. Readers now can log in directly from the library homepage, click on “Reader recommendation” at any time into the recommendation of books and periodicals in different forms, such as by registration, paper or electronic bibliography recommendations, from which they finally get the satisfaction for designed, refined, frontier literature resources.

Some libraries strive to achieve the recommendations on the concept of “Highlighting professional

focuses, collecting extensively advices, organizing scientific recommendations”, and organize periodically the previewing activities about some domestic and foreign recent books in form of window displaying, offer a large amount information about the related magazines, publishing institutions, web site addresses, telephone, e-mail and so on.

A variety of recommendation forms have improved the communications between readers and libraries on the demands for the literature resources and made the exchanges more convenient, fast, and time-saving. And meanwhile, it also makes the construction of the college branch library systems more characterized and more rational.

3.2.2 Internal resource construction

The foundation for the sustainable development of library system constructions is the characteristics. “Internal resource construction” in Evaluation Program on the College Branch Library System is considered to be one of the critical assessing items. The so-called “internal resources”, is “the literature and data related to the teaching and scientific researches , including domestic and international conference papers, conference materials, specifications, standards, the related internal data and collections, or the gifted texts. All these could benefit readers after processing.

3.3 Readers service

3.3.1 opening hours

The construction and development of University library system is inseparable from its original intention, that is readers service. Thus in formulating the Evaluation Program on the College Branch Library System of Wuhan University of Technology, service is highly emphasized. One of the service items “opening hours” has been included in the important assessment items. The qualification of the assessment is based on: The opening hours in college branch libraries are required to be ≥ 70 hours/week, and reference rooms 48 hours / week.

3.3.2 Annual reception of readership

The beneficial results in management have been focused. After formulating the library assessment system, great changes appear, for instance, books and materials previously can only be used by the readers inside this college, but now, after the implement of management regulations, the reading rooms, books, periodicals can face to all the readers in the whole university. The books are lined on shelves clearly in a strict accordance with the “Chinese Library Classification(CLC)”, and the logos of “CLC” 22 categories are put on the reading room walls, in favor of readers to search for literature or data. From then on, the number of readers and the number of borrowing and lending volumes have been greatly increased

3.3.3 Service extension

In the service for readers, the staffs in college branch library act themselves as the links or bridges from the libraries into the college services. The central library initiates many deep-seated services, such as one-hour lecture, document delivery, and some librarian service counterparts. We put this link or some other contacting work into the evaluation system, which plays a very good role in promoting in-depth services.

3.3.4 Website construction

Website is one of the most efficient windows for exchanging information. The website construction of library system is the important means and way of services for readers. In the assessment of Evaluation Program on the College Branch Library System of Wuhan University of Technology, it is required that the information relevant to college branch libraries on the websites should be clear and complete. Furthermore, these websites have the obligations to propagate the literature information for the central library, and guide readers to use those literature resources. With the maintenance and assistance by professionals, the information of reader services keeps always new and update, moreover, with the records of each updating.

4 Conclusion

The formulation and implementation of Evaluation Program on the College Branch Library System of Wuhan University of Technology, is a preliminary discussion on the designs and methods for the construction of the university library evaluation system. The establishment of the evaluation system of university library system makes the goal of the library system development more clear, including the developing goals on the short-term basis as well as the long-term basis. The goal in the near future is to reach the standard of the central library management, such as staff professionization, data, management, service standardization, the extension of library services, etc. The long-term goal contains, stimulating

the innovative ability of the library management, perfecting the multiple services, including, setting up work norms for the librarians of professional subjects, developing characteristic collection plans and service specifications, making further coordination between the center library and college branch libraries (rooms). Thus, a mighty cohesive force can be formed, which will arouse a greater creativity within

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The Risk Control and Management for the Grassroots Democracy Development within the Communist Party

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Abstract: At present, one of the urgent basic requests in the democracy building research area is how to identify and control risks in the grassroots level within the Chinese Communist Party. This paper utilizes the analytic hierarchy process to analyze the risk system at the grassroots level, locate and categorize risks, investigate the most important systematic risks in the risk system, summarize the systematic risks' characteristics, and finally examine the risk development trends. Building grassroots democracy within the Party is an experiment in democracy politics in China, which demonstrates its values in many aspects. Understanding and controlling risks in this process or experiment is a key strategic issue.

Key words: Risks in democracy construction at the grassroots level; Risk management; Systematic risk

1 Introduction

Grassroots democracy within the Party is a “test” in the Chinese Communist Party’s (“the Party”) democracy building area. Its value is multifaceted. The risks and challenges facing grassroots democracy building is one of the major highly strategic and forward-looking issues to be explored.

Grassroots democracy practice within the Party changes the existing practice of giving and receiving power. In this process of change, if significant interest conflicts or disagreements cannot be fully understood and effectively resolved, the conflicts would be escalated, and risk points would be formed.

With regards to risk theories, the international focus lies within social risk areas. Ulrich Beck (U.Beck) and Anthony Giddens (A.Giddens) represent institutional analysis; Scott Rush (S.Lash) represents cultural analysis; Ott temperature iNTERIOR (O.Renn) and Frank Knight (F.Knight) have made a beneficial exploration in the risk assessment and uncertainty research areas; Rosenthal 's (U.Rosenthal) explanation of the crisis has further deepened the understanding of the risks existence and transformation.

This paper is to explore the risk analysis and management issues within the democracy-building practice in the Party grassroots organizations. The particularity and complexity of the issues mentioned above determines the reference range of literature is mainly limited to the Chinese domestic related research.

In fact, the domestic research in this area is at the early stage, and the research paper and academic work of studying risks of inner-party democracy are rare. At present, the research of the inner-party democracy risk and prevention has focused on two aspects: one is the definition of the inner-party democracy risk; the other is the categorization of the inner-party democracy risk.

For example, the definition of the inner-party democracy risk includes risks from improper activities (THE PARTY scales Bin Zhao 2009) and also includes risks of emphasizing restrictions and influences from single or combined factors (TAN Jian 2013).

With regards to the classification of democracy risks, major classifications include 1) environment related risk classification (THE PARTY Zhao scales Bin 2009); 2) theory, system, organization, quality, and other factors related risk classification; 3) internal and external risk classification (Zhang Aijun, Xing Wenli 2006); 4) endogenous, exogenous, and derivative risk related classification (TAN Jian 2013).

Based on the current research findings, either for the definition or the classification of risk within the Party’s grassroots democracy, a core issue is identified: the precondition of developing democracy within the Party. For the democracy development within the Party during the social transition period, we should not simply focus on democracy itself; rather we should analyze the risk of grassroots democracy within the Party in the system of social transformation.

This article, based on the considerations listed above, mainly analyzes the systemic risk of grassroots democracy within the Party; proposes institutional risk, trending risk, aggregation risk, and interactive risk; raises questions about the identification of the risk sharpness and challenges of risk management.

2 The Role of Risk Management in Grassroots Democracy Building within the Party

The grassroots democracy building within the Party has made huge progresses and achievement in recent years. Meanwhile, in some regions and fields, as the democracy level has been elevated, the democratic atmosphere and environment have been improved, however, under the new democratic environment, a mature operation routine and system of the democracy ecological relationship has not been established. In other words, democracy exists for its appearance, while there is a considerable gap between the democratic development requirements and current democratic development level from the entire social structure and social psychology perspectives. Risks therefore would potentially be developed and accumulated. Additionally, information technology and high-tech wave have spread out to ordinary party members and masses. With the modern information exchange and information platform's help, non-mainstream information flow and exchange would be greatly increased. Traditional grassroots organizations inside the Party would encounter more and greater challenges in achieving and promoting building democracy within the Party. As it requires time and processes to understand risks associated with the construction of the Party grassroots democracy, the requirement of risk management will be profoundly manifested when the democratic process is deepening.

3 The Choice of Risk Management Views and Risk Classification

3.1 It is essential to establish the scientific view of risk management

Building grassroots democracy within the Party is a complicated and systematic project with pioneering and creative characteristics. This systematic project demands a necessary risk analysis and control management system. The virtuous cycle of this systematic project requires a necessary risk analysis and risk control management system. Developing structure and module of this systematic project are closely linked with the degree of managers' understanding risks and risk correlation analysis. As the grassroots democracy construction has been deepening, the complication of risks and correlation of risks would increase; therefore scientific risk management would become an inevitable choice. The above analysis demonstrates the requirement for risk management from a theoretical perspective.

Risk refers to unknown dangers. Most people define risks in building grassroots democracy within and outside the Party as being relatively remote. In a certain sense, risk is relatively small. However, where does relative remote risk come from? How to decide risk is relative small? How to define relative small risk? The above questions are rarely answered. Therefore, it is important to establish risk management concept which can be used to analyze risks and risk factors in practice.

In fact, many cases from building grassroots democracy within the Party have already illustrated the importance and necessity of establishing such a risk management concept. Democratic advancement will change the current system, impact interests and power distribution, and cause confliction. When confliction involving major stakeholders cannot be effectively resolved, it will be escalated and then risk points are formed, and such risk points would be possibly hidden in those pilot units. As such practice from pilot area is extended, these risk points will be revealed, and therefore establishing a risk management system is a necessity of choice.

3.2 Risk management mode selection: the analytic hierarchy process

Risk management by definition is to be able to regulate and resolve potential risks. The key is how to understand risks, analyze risks, and ultimately control and mitigate risks. Through risk management system, managers are able to control risks. Like other risks, risks of grassroots democracy within the Party have linear and nonlinear development characteristics. Single and multiple risk factors could be interacted with each other. Multiple risk factors and the interactions among them need to be analyzed. A comprehensive risk analysis system is critical to mitigate risks.

Risk transformation is a basic issue in grassroots democracy involving power system transformation, the democracy innovation and transformation, political and cultural transformation. Risk transformation is the most valuable risk research module when studying grassroots democracy risks within the Party. The basic thought is to acquire lessons and experiences from the said risk transformation to ensure risk analysis to be more targeted and systematic.

In the transformation of democracy, from the theory perspective, one opinion is that successful political transition is related to "cost calculation". According to the principles of cost calculation, some experts believe that "if powers could be opener to the public" the party could not only align requests from the opposite force and civil society with the operation of the formal political system, but also further deepen the regime's 'legitimacy', then the party could rightfully master subsequent reform

process and direction.”^[1]

From the political parties’ competition perspective, some believe in the one party pluralism from famous French political scientist Duverger. This theory is unique in the western political doctrine. According to this theory, the political democracy could also be achieved within one party via the internal competition not necessarily through multi-party competition.^[2]

From the practice perspective, Russia which has adopted the western model of democracy has been in the democracy transition period, because of its specific transformation characteristics. Russia has established a democracy framework. According to Robert Dahl’s seven basic characteristics of democracy politics: elected government, free and fair elections, universal suffrage, no restrictions on public position competition, freedom of speech, a variety of information sources to choose, freedom of association, Russia has had the basic conditions of democracy. However, based on the way it handled the conflict with Ukraine and how it handled Syria’s situation, Russia has demonstrated strong imprint of Authoritarian Politics. The democracy transition risk is that Russia has not found the democracy model which is aligned with Russian value and its behavior system. In Singapore, the People’s Action Party is inclusive of the existence of other political parties and allows other political parties to put forward their political views, and participate in elections. Despite its form of democracy, Singapore still demonstrates the “authoritarian political” characters in its democracy system. Countries like Singapore and Russia have developed non-endogenous model of democracy, therefore long-term systemic risks in these two countries’ democracy development and transition process still exist, and such risks are the most significant during constructing democracy models in these two countries. Based on the real demand for integrated risk management and relevant experience of democracy development abroad, we start with a simple and effective analytical method, chromatography analysis model, to analyze the risk system of grassroots democracy within the Party.

The analytic hierarchy process (AHP) is a structured technique for organizing and analyzing complex decisions based on mathematics and psychology. It was developed by Thomas L. Saaty in the 1970s and has been extensively studied and refined since then. Hierarchy and system, key parts of the method, are determined and defined through extensive research, discussion, expert interviews and risk classification. Grassroots democracy risks within the Party are classified in this analytical structure, and the classification includes system risk and entity risk. The risks and risk groups were simplified through classification, and then the risk contents and background are analyzed. (Refers to Figure 1)

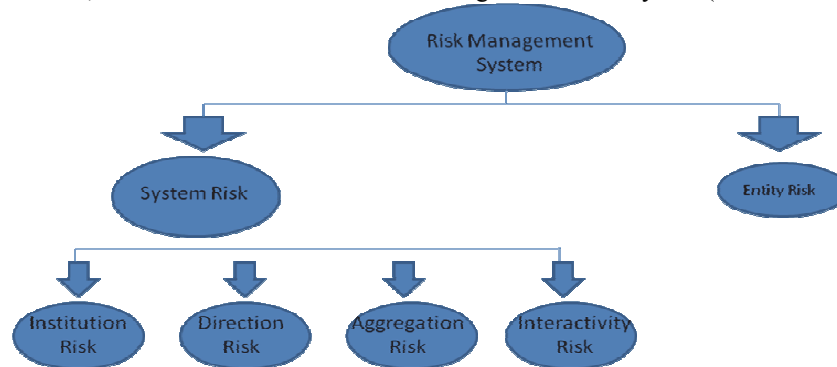


Figure 1 Risk Management System

In the process of survey, we realized that the subject risk/entity risk was broadly discussed and received fair attention; the system risk was not well understood by majority especially in the grassroots party workers.

3.3 Risk induction and identification

According to the analytic hierarchy process model, risks are classified as system risk and entity risk. System risk refers to risk review and analysis of the grassroots democracy development across the whole country; entity risk means risks when developing grassroots democracy within the Party. System risk dominates entity risk as system risk determines basic direction.

System risk of the grassroots democracy within the Party is an overall risk related to the overall economic and social development situation. System risk can include the following risk: Institution Risk, Direction Risk, Aggregation Risk and Interactivity Risk.

3.3.1 Institution Risk

This risk is the core risk in the grassroots democracy within the Party. Its manifestations are as

follows:

The first are constraints and conflicts in democracy design and path selection.

Currently, the overall design is based on the idea to protect the democratic rights of the Party members and build democracy with the basic contents of the “four democracies”. A complete and mature framework has not been established, and the choice of democracy paths and forms has been researched through pilot areas. However, the pilot experience has not demonstrated to be universally applicable.

Pilot grassroots democracy within the Party should be a regional trial in order to assist the major policy measures implemented throughout the county. This pilot trial should not exist in a long term, as long term trial would cause cluster risk which is difficult to mitigate.

A scientific design of democracy is necessary even though path selections could remain flexible. The overall framework and model structure must be clear and directional to guide the process of building grassroots democracy within the Party, to avoid uneven regional development and path dependency risks.

A theoretical issue in the confliction between democracy design and practice must be clarified, and this issue is how to scientifically insist and apply the gradual increment principle which has been well used in the economic reform and development but rarely mentioned in the democracy development by majority of people. The gradual increment method is the basic and core experience from the economic reform and could be well applied to democracy development.

The gradual increment progress is determined by external driving force, and once it is transformed into adaptive process, it will reflect the characteristics of phased development. The phased development is demonstration of leap or forthcoming performance and determined by the rule of inner development. The phased development is an indication of leap forward progress while gradual development comes from phased development. Therefore, balancing the gradual and phased progress is critical and basic to promote grassroots democracy development within the Party.

The second are constraints and conflicts between the democracy development progress and the lag of democracy conditions.

Grassroots democracy development within the Party has gained significant experience in the progress of developing “democracy in four areas” especially in the two areas: democracy management and democracy elections. Grassroots democracy development within the Party has promoted the innovation and development in inner-party democracy. However, grassroots democracy development within the Party is also facing huge challenges.

The first challenge is the contradictions between democracy development and democracy value. In the grassroots organizations, some democratic procedures and regulations have been used in operation; however, democratic value in the cadres has not been set up systematically. A large number of the Party members even don't understand the definition of democracy, nor do they understand how to exercise democratic rights. In this case, the requirement for democracy development and the Party members' democracy value cannot beneficially interact nor promote each other. Without having proper democracy value from the Party members, the democracy development would only linger in the appearance of democracy. Due to different understanding of democracy, democracy-building in many ways has been superficial, and even distorted to use non-democratic way to build democracy. This demonstrates it is urgent to employ a systematic way to cultivate democracy value in the party members. This conflict is a major risk point and it is one of the key aspects of whether the democratic process could leap forward.

The second challenge is the contradiction between the progress of grassroots democracy development within the Party and its related social supporting system. How to asset up a matured grassroots democracy system is important to fully employ the function of democracy. Currently, in many cases, certain aspects in the democracy development perform well, while the rest has yet to keep up. The democracy practice has continued to develop in depth, however, without a unified and clear overall planning and design, different regions and different units cannot be fully synchronized in the democracy development process due to the lack of unified and clear overall planning and design.

3.3.2 Direction Risk

The direction risk in the grassroots democracy development within the Party mainly comes from the following three aspects: democracy direction, total democracy, and democracy formalization.

Democracy direction refers to the guiding thoughts. Democracy has been viewed as a weapon by the Western hostile forces to break through China. Western countries have demonstrated much attention toward China's grassroots democracy development, and some international forces even conducted

in-depth analysis and research. Francis Fukuyama pointed out in his book "The end of history" that "the end of history means human ideological evolution end points and the universal dissemination of the western liberal system as the final form of human government."^[3] Some western countries have used democratization as a weapon to collapse developing countries. The democracy double standards in the United States of America could be used as an example of using democracy as a weapon. Even though the United States of America verbally vigorously propagates democracy, the democracy only serves America's national strategy and interests. The United States of America doesn't care the democracy contents as long as its purposes are achieved. For example, even though there were endless grievances in the Marcos era of the Philippines, Reagan administration still viewed Marcos' government as a good one.^[4] In fact, American politicians always employ democracy as a weapon. China never wanted to be the last abundance of Oasis when dreams come to end; China wanted to help those people living in ignorance, suffering, and tyranny to break those chains. Since 2011, many countries in the areas of Middle East, Northern Africa, and Eastern Europe have experienced political crisis which make people ponder whether America's democracy weapon exists in such areas. Some western democratic powers wanted to employ democracy to confront us; therefore, we have to be on guard toward those words and behaviors of demolishing the Party's policies, methods, and images and on guard towards advocating radical democratization.

Another risk is the total democracy which refers to wishful thinking and worship toward democracy reform. People believe that once democracy is implemented, it will naturally establish operational mechanisms which can cure long-standing illness. In fact, a thorough democratization means anarchism or extreme democracy. Ralf Dahrendorf in his book "History restart: From the fall of the Berlin Wall to the Iraq War," mentioned the society chaos in 1989 and subsequent years in the former Soviet Union and other countries of Eastern Europe come from the extreme democracy reforms. Some people hope to aggressively push democracy progress, and believe democracy can be achieved in one step process in China, because they believe China has multiple year experience in the grassroots democracy development. Endless experience has shown that, society will pay immeasurable costs if radical democracy is employed.

Another risk is democracy formalization. Democracy formalization includes two level contents: the first one is western-oriented democratic model. According to David Held's analysis, democracy models include protection type, development-oriented type, legitimate type, participation type, and negotiation type of democracy. Hayek views democracy as a tool to protect freedom, and freedom and law can counterbalance each other. The liberal tradition of western democracy model is the product of its endogenous development of social and cultural history. Copying the western democracy model to China's society would encourage radical democracy movements. Based on the worldwide experience, copying the western democracy model cannot produce competitiveness and source power while the risks associated with the transformation are eye-catching. The second one is democracy amplification. Is there any boundary for democracy? This is an important question in democracy development. Democracy is not universal medicine; therefore democracy cannot resolve all issues. Democracy can be used to resolve important, key and or core issues, however, democracy should not be blindly idolized, and should not be used without considering specific conditions.

3.3.3 Aggregation Risk

Aggregation risk refers to the risk from risk movement and conversion. Competition, accumulation, and amplification are the main features of this kind of risk which is a necessary complement for static risk analysis. In the process of grassroots democracy development within the Party, the grass-roots Party leadership faces competition, especially in the area of competitive elections. Traditional channels of the Party cadre arrangement have been unprecedentedly challenged. When competition factors are integrated into the process of grassroots democracy within the Party, uncertainty has greatly increased. This uncertainty brings forth the selection risk, which is limited from the perspective of a particular link, however, it can be accumulated and amplified into a regional or even holistic risk. The risk aggregation can be prominent regional, for example, strong competitive factors can be very strong in one region while can be weak in other regions. With the further advancement of democratic development, the risk aggregation gap among regions will contribute to a polarization pattern: some regions strongly demand competition democracy while others reject it. Regions with achievements in the democracy development will require expanding the democratic gain. If the rigid demand for democracy development becomes stronger and stronger, the potential energy of higher level democracy will be formed and will dominate the democracy progress. The result of this potential energy is likely to form a "Forced" democracy rigid demand risk, which is the most worthy of attention and prevention in the holistic risk. As Ulrich Beck

said, like wealth allocation, the risk allocation also follows the grading mode, it is just completely reversed. The wealth is always accumulated at the top of society while the risk is always accumulated at the bottom.[5]

In the formation of aggregation risk, democracy generalization is a key part. Its most direct impact is grassroots overuse the concept of democracy when participating in the democratic process. If democracy is used as a universal medicine, and the superiority of democracy infinitely is magnified, the traditional political structure and operation mode would be highly challenged and potential risk would be accumulated.

3.3.4 Interactivity risk

Throughout the course of the Party grassroots democracy development, the interaction among involved parties is an important part. The favorable interaction is essential to promote the democracy governance ability and construct a harmonious atmosphere in the democracy development progress. Interaction via the internet has become increasingly prominent and developed. Interaction exists in four types: complete contact, radioactive contact, linkage contact and ring contact [6]. (See the Figure 2 below)

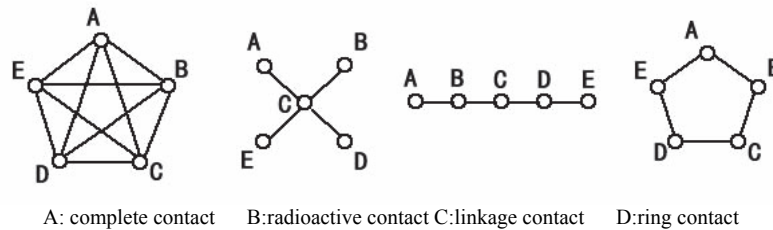


Figure 2 The Interaction of the Party Grassroots Democracy Development

Internet can penetrate into various interaction platforms. The interaction process via internet is called “wedge” which can be classified into three styles:

The first one is condition embedment. The network wedge is not unprincipled nor is unsupported; rather it is a platform wedge which is superior to other interaction styles. The internet network platform directly results in general association among internet network participants. The association will cause the interest interaction among involved parties, interaction of trust toward the information shared in the platforms, and finally interaction of value judgments among parties involved.

The second one is dimension embedment. It is multifarious when referring to judge and analysis from network involved parties. This kind of wedge with a general uncertainty is summarized as the dimensions of implementation. The state of the network wedge may be manifested to be multi-dimensional, and particularly the basic issue judgment may be a hybrid of the relative aggregation and absolute discrete distribution. Regardless of problems, the basic existence of the discrete distribution in the two dimensional differentiation and multi-dimensional differentiation in the network creates a broad and difficult analysis space for the network wedge.

The third one is function embedment. The internet network is a tool which might be used to serve certain political purposes. Once the internet network becomes the most familiar and broadly used interaction tool, people who have the strategic power in the internet network can use this tool to serve the political purposes via influencing participants in the internet network. The existence of the embedment strengthens the dependence on information exchange, and the closer relationship, the more influential the exchanged information will be. The uncertainty of controlling the information and the propagation speed will become important risk factors.

We have analyzed and summarized system risks in the grassroots democracy development within the Party. Now we introduce the risk sharpness concept and its identification. The risk sharpness refers to the critical space where the intersection of the rigid and brittle characteristics of risk lies. System risk sharpness is an external manifestation of how much the social contradictions impact on social operating order. The analysis of the risk sharpness is a process of sorting, ranking and arranging related risk factors. The framework of this analysis employs the five kind index systems. The first index refers to the implementing capacity index by political governing bodies; the second index refers to the willingness to participate from the political participants; the third index refers to recognition of democracy value; the forth index refers to the soundness of the mechanism to mediate conflicts and disputes; the fifth index refers to the stress test index of the risk system. Perform aggregative weighting toward the mentioned five indices to get the initial identification of the risk sharpness, then conduct integrating qualitative

analysis based on the quantitative and qualitative analysis and the data dimensional monitoring and control, eventually execute the final experience integration.

Risk sharpness identification to determine the form and level of risks has high practical value. The categorization and identification of risk sharpness provide a strong support to understand risk nature.

In addition to the system risk, ontological risk with low level ranking but strong technical nature exists in the grassroots democracy within the Party. Such risks include for example, programming risk and cost risk etc.

Since the ontological risk has less significant social and strategic impacts than the system risk, and the ontological risk has minimum impact on changing the progress of building democracy, we are not going to elaborate it.

4 Development and Challenges of Risks in Grassroots Democracy within the Party

4.1 The risk development mode of grassroots democracy within the Party

The grassroots democracy development within the Party has the characteristic of phase, so does the risk associated with it. The democracy development within the Party has different historical stages. Different stages with different historical tasks demonstrate its historical phases. We have gained a deeper knowledge of the grassroots democracy risk through different historical periods. The risk becomes more diverse and complicated as the grassroots democracy development within the Party progresses. Its features of development in different phases are mainly manifested as follows:

First, the concept of overall risk in the grassroots democracy within the Party was not established. Many people believe risks associated with grassroots democracy within the Party are remote, and the uncertainty and hidden factors are often ignored. Because the correlation study on grassroots democracy within the Party is not prominent, understanding associated risks Party is limited. This understanding is a gradual process, which demonstrates the phased nature of the democracy development.

Second, the phased nature of the system risk has not yet been revealed. Currently, because grassroots democracy development within the Party is at the primary stage, a number of significant policy measures are still in pilot stage. Therefore, the expression of ontological risk is relatively strong, and the system risk is not fully revealed. Under this circumstance, the system risk is restrained and it can only be embedded in the ontological risk while it remains cumulative effect with the backwardness resilience. Once the opportunity is ripe, the system risk will enter the appropriate development stage. As the restriction is broken, the system risk will be emerged. Therefore, the understanding of the phase characteristics of grassroots democracy within the Party is the solid foundation.

4.2 The risk sharpness of social conflicts

Grassroots democracy development within and outside the Party are all facing a major historical challenge which is the social contradiction development demonstrates increasingly significant influence over the democracy building process. The current social contradiction is represented by contradictions among various interests and interest stakeholders. The trend of spreading the grassroots democracy development within the Party out to the society has become a major challenge. An important practical issue is to apply democracy to the grassroots level to solve difficult problems. For example, currently Beijing is accelerating the process of integrating urban and rural areas, and the problems arising from the urban and rural fringe such as occupying lands and demolition have increasingly become social conflict-prone issues. How the grass-roots party branch functions in a positive way to guide the grassroots assisting the completion of the integrating urban and rural areas has become a practical requirement to mediate conflicts between cadres and masses, and resolve disputes among various interests. The difficulty to settle current dissensions have indicated the social conflicts' exacerbation.

The index system of the social contradictions sharpness is the risk identification system based on the combination of qualitative and quantitative analysis; it has certain significance for directions. The current degree of the social conflicts sharpness is directly related to efforts and performance to promote grassroots democracy development within the Party and associated effects. In a certain sense, the development of grassroots democracy within the Party and the risk sharpness are objectively correlated.

4.3 The system risk and the social value system

Forming efficient democracy order is basic yet powerful to promote the grassroots democracy development within the Party. For system risks facing grassroots democracy within the Party, the most powerful non institutional factor is the social order with the social value system as its core. With the deepening grassroots democracy development within the Party, the demand for democracy and

democracy promotion require find theoretical support and practical guarantee in the entire social value system. However, in reality, on one hand, a trend to recognize and advance democracy has been gradually formed; on the other hand, the lack of democracy soil and concerns toward democracy regulatory capacity are progressively revealed. This contradiction will be profoundly present during a certain period of the grassroots democracy development within the Party. The emergence of this contradiction will produce significant influence over the whole society value system and the entire social order, and will push the system risk to a higher level of the social order construction. Once the risk path is formed, the social value system needs to respond. Therefore we need to plan ahead in constructing the social order.

5 Conclusion

Risk management in the grassroots democracy development within the Party requires first establish an overall and systematic risk concept; build risk model analysis system; test the analysis results one by one; form a grassroots classification index system for the regulation of party democracy risk; develop a democratic institutional system of risk management in the reference index system. Additionally, "the soft power" has to be established to handle systemic risk and crisis. This is the social value system of democracy development.

These above two aspects being effectively combined and complementary would technically ensure the grassroots democracy development within the Party to be controllable, and to achieve the management effectiveness.

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Online Students Emotion Attention Research Between UT and OUC

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Abstract: Students at distance education show many distinguishing features in their learning, such as feeling insulation, losing of orientation, non-active, degree of their persistence and passing grade is lowest. The online community forum is very crucial for students to anticipate of time, space, and geographical constraints; to build a communication and interaction among them. In this paper, the quantity, registration ways, topics of discussion and degree of participation at online student community forum are compared between UT(University Tebuka)and OUC(Open University of China), We found that emotion attention online does good to promote online student affair management, and improve students' self-managementability .

Keywords: Student Affair; Online Forum; Student Management; Emotion Attention

1 Introduction

Distance education is a field of education that focuses on teaching methods and technology with the aim of delivering teaching, often on an individual basis, to students who are not physically present in a traditional educational setting such as a classroom. It has been described as "a process to create and provide access to learning when the source of information and the learners are separated by time and distance, or both. This shows one main feature of distance education is the separation of teaching and learning. Students at distance education show many distinguishing features in their learning, such as feeling insulation, losing of orientation, non-active, degree of their persistence and passing grade is lowest; and losing their awareness of sustainable learning communities. David Sewart regards in his paper, Student support services make up the element of distance education most nearly akin to traditional education: it is the interface between the institution and its students. The problem of management relates, therefore, to a subsystem which is apparently carrying out a traditional role and consequently might appear to observe the traditional management practices of education. This is a useful way of highlighting the role of the intermediaries in distance education and can avoid confusion with the traditional roles.

Ormond Simpson thinks that student support service contains all the services and activities apart from the production and delivery of course materials and resources. It has two aspects: academic support service and non-academic support service. non-academic support service means students studying for enjoyment as same as student affair management traditionally, they will be studying without any financial benefit in mind and may withdraw when they feel that they have gained the knowledge and skills they wanted without going forward for the final qualification.

The online community forum is a social relationship network of individuals who interact through specific media, potentially crossing geographical and political boundaries in order to pursue mutual interests or goals. Boetcher regards that in many cases the online community forum is also has equality of characteristic with the real community. Both have common interests, frequent interaction, and identification. Porter defines the online community forum as an aggregation of individuals interacting with same enthusiasm and giving support each other by partial or mediated by technology and guided by some norms or protocols.

2 Comparative Research

An online student community is a group of students with common interests who use the Internet (web sites, email, instant messaging, etc) to communicate, study together and share their resources over time. Online student communities have the power to create lasting and productive relationships where none existed before. It as a social relationship network has become to an interested study area for social researchers. the existence of the online community forum is very important and crucial for students to anticipate of time, space, and geographical constraints; to build a communication and interaction among them; to share their opinions, ideas, problems, or to build a friendship among them. in order to conduct the results, the performance of different forums be compared between UT and OUC. Some good disciplines and rules about the strategies and methods of student communications be summarised.

2.1 Quantity of Forums

There are seven online community forums for students at site of UT-Online Learning Center. The Online Forum of Faculty of Education Community, Faculty of Social and Political Science, Faculty of Economy, Faculty of Mathematic and Natural Science, Post Graduate, Computer-Based Examination Forum, and the Comments and UT-Online Community Forum [Figure 1]. First six forums are the courses forums, different programme students discuss academic questions at these forums. UT-Online Community Forum is a public forum for all students to communicate and share their opinions related to non-academic matters.



Figure 1 UT Online Forum

DianDa Online is the learning platform of OUC. The structure and classification of DianDa Online Student Community Forum are different from UT-Online forum. DianDa Online Student Community Forum bedevived into the program forum, the course forum and the public forum [Figure 2]. In the program forum, there are 28 undergraduate program forums and 59 junior college program forums. In the course forum, Every forum link with program forums. There have hundreds of course forum for student’s course learning. As same as UT-Online, there has a public community forum at DianDa Online, four special plates about campus culture, call center, technical support and exam support in this forum.



Figure 2 DianDa Online Forum

2.2 Registration Ways

The UT-Online community forums is not opened for the public. It can be accessed by UT’s students or tutor only[Figure 3]. They can access and participating at the Forum after they conduct “login” for activation by using user account has given by UT Administrator. It’s the same to say, Students must become members of UT-Online and had ID, they can only access the Forum. They must had and sent their e-mail address to be made correspondence and source for the administrator to facilitate problems or difficults they faced when they use the forum.

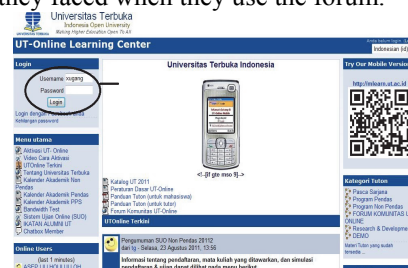


Figure 3 Register in UT-Online Forum

It's Very similar with UT-Online community forum. Dianda Online Student Community Forum is also 'a closed forum', which is not open for the public, and it also can be accessed by OUC's students and tutors only[Figure 4]. They can access and participate in the forum after they log in for activation by use user account given by IT administrator of OUC. The real-time communication panels and the non-real-time communication panels are established in forum. Students can not use the forum to publish anything advertisement, pornography, or anything which against regulations. Student expected do not post the same text-chats in many Forums.



Figure 4 Register in DianDa-Online Forum

2.3 Topics of Discussion

Through the research, I found that followings are main topics of discussion in UT-Online Forum[Figure 5]. About activation , how to login and take part in the discussion at UT-online Forum? About final examination, how prepare the examination? how to get examination exercise? and scope of test items to pass the examination. About acquaintanceships, it is related to students needs to get friends to discuss, to share ideas, experience, to solve their learning problems, to learn together, or to build face-to-face study groups. About non-academic, it is related to holiday and feast day ,online and offline activities, the communications of social problems, hobbies, hot topics in fashion and change things online etc.

Topic	Author	Replies	Last Post
Apakah Saya Sudah Tergantasi untuk UAS 2011 2	MADE SUAMBA	2	RANGGA EKAPRASETYA Sat, 13 Sep 2011, 17:56
Hi nice to meet you.	Ibu	13	SUDARYOYO Sat, 13 Sep 2011, 22:26
sukses focus dan bagi waktu... home	DEWI SETIHWATY	0	DEWI SETIHWATY Sat, 13 Sep 2011, 15:55
I am new here! Pls Help me...	DELVA NATALA SUMALAJ	7	DELVA NATALA SUMALAJ Sun, 12 Sep 2011, 17:06
maaf asan	KHANZA AZMAYIA PRADITYA	0	KHANZA AZMAYIA PRADITYA Sun, 12 Sep 2011, 16:56
sukses belajar sendiri	MUHAMMAD FAIRI	1	MADE SUAMBA Sun, 12 Sep 2011, 16:29
maaf kakak tidak sempat ditonton yang saya ikuti...	MURSHI	4	YULI LESTARI Mon, 11 Sep 2011, 11:29
Kunet Mahek	DEWIDENI SUKASNO	0	DEWIDENI SUKASNO Sat, 10 Sep 2011, 19:38
mohon bantuyannya, saya masih bingung bagaimana cara menggunakan tutor online	DELVA NATALA SUMALAJ	4	DELVA NATALA SUMALAJ Sun, 9 Sep 2011, 22:15
Salam kenal semuanya	NARWASTU PANGRAHAN	0	NARWASTU PANGRAHAN Sun, 9 Sep 2011, 18:07
Tutor online sudah adalah ?	IRIKUSASI	3	DEWI MURNGGAR Rab, 7 Sep 2011, 16:56
Mohon Pelecehan Ujian Listening	HANNA NAYAR	6	HENDRIH CITRA DANI Rab, 7 Sep 2011, 07:52
Sastra Inggris	STEVEN PANERUS	0	STEVEN PANERUS Rab, 17 Ago 2011, 08:36
I need help...	BAGA WANTI	1	SUDARYOYO Rab, 15 Ago 2011, 22:59
wha salam	YANAWA TARDA	2	ISKANDAR HIFI ...

Figure 5 Topics in UT-Online Forum

OUC students have the same topics to discussion[Figure 6]. Examination and non-academic are the most interesting topics for them. Students involved to intensive discussion, to share their opinions, ideas, and problems. At the same time, student union often organize kinds of online activities such as digital photography exhibition ,the debate on web and some offline activities ,e.g voluntary work, dine together, karaoke and journey).

Topic (Title)	Views	Replies	Last Post
1. [Topic Title]	4000	0	2011-09-10 10:00
2. [Topic Title]	2000	304	2011-09-10 10:00
3. [Topic Title]	1500	102	2011-09-10 10:00
4. [Topic Title]	1000	0	2011-09-10 10:00
5. [Topic Title]	800	0	2011-09-10 10:00
6. [Topic Title]	700	0	2011-09-10 10:00
7. [Topic Title]	600	0	2011-09-10 10:00
8. [Topic Title]	500	0	2011-09-10 10:00
9. [Topic Title]	400	0	2011-09-10 10:00
10. [Topic Title]	300	0	2011-09-10 10:00
11. [Topic Title]	200	0	2011-09-10 10:00
12. [Topic Title]	100	0	2011-09-10 10:00
13. [Topic Title]	100	0	2011-09-10 10:00
14. [Topic Title]	100	0	2011-09-10 10:00
15. [Topic Title]	100	0	2011-09-10 10:00

Figure 6 Topics in DianDa-Online Forum

2.4 Degree of Participation

An Analysis basic data from forums and questionnaire survey. According to data of forums, the participation Both of UT Online forum and DianDa Online forum are not very high as the figure shows[Figure 7].Students participation rate has been increasing from year to year. Students who participated in forums take more care about academic problems. They are passionate to Online Forum. A survey made for bandung’s UT students shows that 100% students are willing to communicate, interact, and to share their opinions related to academic or non-academic matters, or to build a friendship each other at forum.

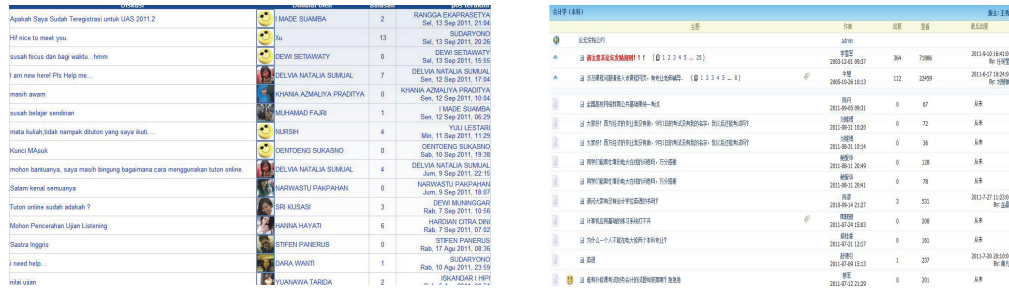


Figure 7 Degree of participation in UT-Online and Dianda On-line Forum

3 Some Strategies

The results of this research shows that the online student community forum is significance for students to build a communication and interaction each others. Students will be able to create or build friendship each other for fluency and efficacy of their study at community forum, and then they create or build a sustainable collective awareness among them to form a common vision and shared goals. There are very important to realize students' self-management. therefore, Some strategies about student's emotion attention must be done by university.

3.1 Analyzing Student Demands

Every student has his/her own hobbies and study habits for age difference and work variability. Some methods should be launched to analysis differences of emotion and study demand of students. What things to make them pay more attention? Unless course discussion, what kinds of topic do they like at the forum? A survey must be done by administrators to analyze the data of survey and understand what's the demands of student, then IT technicians should design more rational edition construction to fit students demands.

3.2 Emotion Guide to Improve students' self-management ability

A psychologice research shows that the happy learning experience and emotional experience will produce positive emotional resonance. Through the actively guide, students' knowledge of the subject and the emotion would be trained. Because distance education is different from general education, most of students don't know how to learn on internet, they lack of learning plans and communicate confidence. Tutors should teach them the internet skill, encourage their cooperating study and communication online, and lead them to develop self-management abilities, which embody the goals of quality-oriented education and suits to distance learning.

3.3 Improve Emotional Communication by Online and Offline Activities

Dispersion and loneliness of students limits the enthusiasm of participation of student community. Online activities which encourage the collaboration can enhance the web-based self-learning and collaborative learning for students such as the web-based contest of debate in forum. Offline activity is also an important way to communicate. Students who is in the same area launch a theme activity on net, such as voluntary work, picnic, visit and exchange goods. The students who interested in this theme activity will take part in at the promissory time and place.

4 Conclusion

Online community forum is one of field of study in sociology, especially in internet sociology, that applying theory and method of sociology to study of internet as an information and communication resource. The main subject of study is social implications of usage of internet technology; such as new social network, virtual community, and the ways of interaction and communication virtually. From the result of research with UT and OUC online community forum, we found that all of students want to

communicate with others. They are interested in social culture, hot issue and study communication. Students who know communicating information can use network tools such as online community forum to connect with each other to enhance students' self-management, helping each other and making friends, and their communication is informative.

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On the Innovative Teaching Modes of Listening & Speaking Course in College English*

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Abstract: With the accelerating process of globalization, to have good skills of listening & speaking in English is becoming more and more important for college students. This paper expounds the background of listening & speaking teaching in college, then introduces the problems of listening & speaking teaching, then analyzes reasons of ineffective teaching, and proposes the effective teaching techniques of listening & speaking in college. This paper suggests teachers should strive to improve students' ability to listen & speak and further prompt the development of English teaching in China's Higher Education.

Key words: Listening & speaking teaching; College English; Teaching modes

1 Introduction

Since the policy of reform and opening up has been carried out for more than twenty years, we have been improving students' English skill by focusing on reading. It is not until "dumb English" appears that we begin to pay attention to develop the skills of listening & speaking. However, the ability of listening & speaking is actually a natural reflection when our language reaches a certain degree. We can find from the babbling babies, that actually our consciousness appears ahead of language and is expressed through language, movement and so on. Because consciousness is a gradual process, the process of language acquisition is gradual, too.

Nowadays, the biggest problem existing in listening & speaking teaching, is that students' consciousness is divorced from their language ability. When a good idea appears in their mind, they can not express it immediately in proper English because of the restriction of the language ability. In order to make our consciousness keep pace with the language level, we need to take effective methods to establish a direct link between them. We should be careful with choosing a proper method, which should establish on the basis of empirical study and practical investigation.

The main problem that students face in listening & speaking is that they can not express their consciousness with proper ways and good sentence patterns. Moreover, after students complete two years study in listening & speaking classes in university, the situation is still not a big change. It is worthy of our reflection. We have to begin to reflect on whether there exists some problems in listening & speaking teaching methods.

2 Basic Teaching Modes & Difficulties in Listening & Speaking Course

Currently, we take different topics as the main teaching content and interactive way in listening & speaking class in university. In each unit, teaching content is divided into "lead in", "basic listening practice", "further listening practice", "speaking", and "talking". From the entire arrangement of class, students have access to a great deal of information in class, and the practice is also very deep.

However, if we use the above methods to develop students' listening and speaking ability, we gradually realize some problems come out. At first, from the perspective of topics, although some topics are closely related to students' life or hot social issues, students' performance is still not satisfying. For most of the topics, they are able to express their ideas very well in Chinese, but can not do the same thing in English. The biggest difficulty for some students is that they do not know how to express, that is, they even can not speak out a complete sentence in English. Secondly, from the view of the relationship among the various textbooks, it is lack of necessary progressive transition. Although textbooks used in different grades differ from each other in the length of texts and the difficulty level of topics, it is still lack of clear and different ability cultivation goals in English. For the students, they can't feel the

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differences among various grades of textbooks. That is because the basic teaching mode of listening and speaking course has been set down in the first volume of textbooks, that is, preparing topic, lecture, and group discussion and so on. As for how to gradually improve students' listening and speaking ability, the writers of the textbooks have no ideas about it. They may believe that through a lot and repeated practice can improve students' ability naturally. But they don't realize that it is difficult to improve students' ability with only different topics.

In fact, the reason that students feel difficult to express ideas in English is nothing to do with the topic itself. But there is something to do with an ability that can make consciousness convert into language quickly. If we realize this, we should make the students focus on converting awareness into language ability. But the current teaching of listening & speaking is mainly based on students' poor speaking & listening skills. Just imagine, for infants with only drinking milk, how can we teach him how to eat meat? Most of teaching contents of listening and speaking course are just like audio-visual feast, which not only can not play a tonic effect, but also may ruin the appetite.

In China, due to the impact of exam-oriented education system, students put little emphasis on the ability of speaking & listening before they go to university. For basic life English, they can deal with it in exams, but they can't deal with it in real life. Form the content of the current textbooks used, in the first volume, it is positioned college students, white-collar businesses and intellectuals as main roles. What's more, the listening & speaking training also bases on business, economics, politics, culture, etc. But this kind of formal, professional language is separating from the language we use in our daily life. Textbook is not designed mainly on the life or emotion of ordinary persons, so it leads to a gap between consciousness and language.

3 Teaching Techniques Improving the Ability of Listening & Speaking

Nowadays, the listening & speaking textbooks are lack of scientific standards in the content. Most textbooks are only different in the length of topics or the degree of difficulty about words. This distinction is the lack of rationality. It was not based on students' life and learning experience at different stages, which is based on some social phenomena. Such methods combining language teaching and culture may shift the student's attention to culture or phenomenon behind language. Students put little attention to practical usage of language. Therefore, only scientific, rational textbooks can improve students' listening and speaking ability.

3.1 The Language Teaching with Local Characteristics

The design of college English textbooks should combine with the characteristic of Chinese. It should focus on the need of communication in English in different fields. For textbooks at the market, the students not only need to learn language, but culture. In fact, this is not necessary and also limits the realization of good teaching effectiveness to a large extent. So, it is easy for us to understand why some students not only change tone of voice, but change their communication content after they study abroad for a few years. Language can change the way of thinking. For a person who is studying in a foreign county, the best way to integrate into the lives of the local people is learning a foreign language. However, for those people who use English as a communication tool, they need to know cultural practice in some foreign countries to avoid the embarrassment when communicating with foreigners. But if we excessively use the other's language and culture, we will lose the characteristic of our language and culture. So Foreigners can not understand our true ideas.

3.2 The Language Teaching with Different Levels

"Requirements of College English Curriculum" proposes students' progress in their oral English should follow the process from simplicity to difficulty. In the current teaching of listening & speaking, this requirement is not completely followed. When students are preparing a variety of topics, they pay more attention to the content rather than accurate usage of language. When they are preparing a topic, they also pay attention to the usage of language. But these topics are rarely appeared in their daily lives, so even some well-prepared topics will not leave a deep impression in the minds of students.

To solve this problem, we need to set up scientifically the teaching content of listening & speaking course. And different requirements are put forward for students at different stages of the ability. In the first year of university, we should focus on students' language awareness training, that is, students can reflect their thought and idea instantly with the ability of 'copy' language. When we teach students how to express their ideas, we should follow a procedure from simplicity to difficulty. For students who can not speak out a complete English sentence at once, we can help them begin from the words and simple sentences. In some cases, we can even express our ideas with body language to help students to learn

English. In the arrangement of teaching content, we should try to select topics close to the students' daily life, and dig different ways of expressions for the same topic in different situations. In this way students not only can strengthen the usage of specific expressions, but also increase their language awareness and sense. And then in the second year, we should focus on students' way of thinking in English, that is, they have a kind of ability that can 'create' language. Teachers should encourage students to think independently and learn different ways of expressions in English. By mastering diversity of language, students can enhance their quality of language.

3.3 The Language Textbooks with Scientific System

The content of listening & speaking textbooks should be strictly distinguished from that of reading textbooks. The subject of reading material is usually very wide. It is very necessary to improve the students' reading ability by all kinds of themes and topics. However, if the audiovisual textbook is designed according to style of reading textbooks, it will be beyond the level of students' oral English. For Some English material in a certain professional field, it is difficult for students to master professional knowledge in Chinese. So it is almost impossible for students to express professional knowledge in English.

Audiovisual teaching should be focus on the training of "language awareness" and "Language thinking". The key is scientific textbook system. The agreement on the teaching goals of audio-visual textbooks has reached, but how to achieve these goals by arrangement of courses is still have no a clear conclusion.

Therefore, the writer proposes that it should pay more attention to the form and content of audiovisual textbooks when textbooks are revised. Before the textbook is revised, it should encourage the education sector to undertake wide research on popular English and make a good choice. We should teach the basic language skills to students, rather than a way of mechanically practicing oral English with example sentence and model essay. Compared with writing, speaking and listening is difficult to maintain through the approach to "copy". But the biggest problem existing in the listening and speaking teaching in our country is to use the "copy" approach to teach English.

4 Studying Techniques Improving the Ability of Listening & Speaking

For students, they should not only depend on English class to improve their listening & speaking skills. Some students feel good by participate in some training institutions. In these training schools, many students make great progress in English. Why? It is not because that training school adopts modern teaching concept and method, but it is because students themselves pay more attention to English learning. So the key to improve listening & speaking skill is to lie in students themselves.

Lack of language environment is an important factor of influencing Chinese people's listening & speaking ability. Students who don't major in English can only speak out a few English sentences in class. In their daily life, they can communicate with each other in very easy English. In view of this situation, we can only take other measures to make up shortage in the language environment in terms of listening & speaking practice. As for the basic sequence of language acquisition, the ability to speak & listen is earlier to be acquired than that of reading and writing. In the 19th century, the French scholar Marcel, in his book 'Language as a Means of Mental Culture and International Communication' proposed four links of language acquisition, that is listening, speaking, reading and speaking. He proposed speaking should be put in the first place. He then concludes that "you can't speak if you don't listen, you can't read if you don't speak, and you can not write if you do not read". Lack of a good language environment, students still can improve their ability of oral English by repeatedly reading aloud articles that are close to their life. It is undeniable that four skills connect with each others. If any of four skills is strengthened, the other three can be improved.

In order to improve oral English, many students try to look for a partner to communicate in English. This is an effective way that may bring positive effect to their oral English, if they can insist for a long time. However, most students will give up because they can't bear the complex eyesight of others or overcome themselves. Moreover, English Corner is a place where lots of college students are willing to go and practice their oral English. However, in many universities, the English corner is organized only one or two times every week. In English corner, students who can speak English well or have a strong desire to show themselves always occupy the dominant position, while others can only raise a few questions in "appropriate" time or just be listeners. But, either English corner or speaking partners are very good way to practice oral English. As long as students can persevere, their comprehensive language

skills will improve.

5 Conclusion

With the accelerating process of globalization, to have good skills of listening & speaking in English is becoming more and more important for college students. In view of Chinese college students' relatively poor listening and speaking abilities, it is rational that college English teaching aims to mainly develop students' ability to listen and speak. There is a long way to go in order to improve college students' skills of listening and speaking. Both teacher and students should undertake this challenging task. We should realize there will be setbacks and failures during advancing process. But if we can summarize the gains and losses in practice, we can explore the most effective method that improves students' listening and speaking abilities.

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Analysis on the Commercial Characteristics of Publications Fleet Sales

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Abstract: According to international standard, internal publications market can be divided into general publications, educational publications and academic publications. Aiming at these three kinds of publications market, our publications fleet sales has conspicuous commercial characteristics and market differences in the fields of pricing mechanisms, profitability and distribution channels.

Key words: Publications Market; Publications Fleet Sales; Distribution Channels; Pricing

1 Introduction

Publications, which are both reading materials and general goods, have the duality of the material and the spiritual. Serving as what are circulating in the form of wholesaling and retailing, publications are the same with general goods. As to reading materials, publications are in the same category and have no differences in regions and countries. According to the differences of product features and public readers, the classification for international publications market is also appropriate for internal markets. In the below sections, on the basis of international classification, I will analyse the commercial characteristic of Publications Fleet Sales in the fields of pricing mechanisms, profitability and distribution channels.

2 The Classification of Publications Market

Internationally, publications market is classified as “general publications”, “educational publications” and “academic publications”. According to this kind of international classification, the publications in our country land area can be corresponded to what in the following form:

Table 1 The Corresponding Instance of Internal Publications Market under the International Classification

International Classification	Internal Classification
General Publications	Philosophy, Social Sciences; Literature, Art; Culture, Education;
Educational Publications	The College and Technical Secondary School Teaching Materials; The Primary and Middle School Textbooks and Guides; Children’s Books; A Part of Literature and Education;
Academic Publications	Natural Sciences, Technology; A Part of Literature and Education; Financial and Legal Publications in Philosophy and Social Sciences.

Annotation: There isn’t Other Publications in the table above.

3 The Commercial Characteristic of Publications Fleet Sales

The variety of publications’ contents determines the pluralism of Publications Fleet Sales’ characteristic. In order to analyse its commercial characteristic, we must rely on the classification of Publications Market. In the following parts, I will analyse the characteristic in the aspects of pricing mechanisms, profitability and distribution channels.

3.1 Pricing Mechanisms and Profitability

With low market entry barriers and resource requirements, there are a large amount of General Publications merchants and substitutes. Single merchant can not be outstanding, forming its stable competitive advantages. All of these result in a big elasticity of General Publications’ price, which means that price changes lead to great changes in quantity demanded. Intense competition determines the meager profit and low market profitability of General Publications.

Compare to General Publications, Educational publications have high entry barriers, and to some extent exist administrative admittance restriction. Under the basic situation of present regional market division, educational publications’ substitutability is weak and have formed the situation that the regional market is managed by one single leader. Administrative barriers and monopoly in some measure make

educational publishers powerful in pricing, which determines that educational publications have high profits and strong profitability. Certainly, educational publications' market has its own characteristics. There is no publication like educational publications that will be weeded out and lose the whole regional market if it is not used. Therefore, there is a close relationship between the situation of educational publications market and the process of publishing.

Academic publications market is between general publications' and educational publications'. The production of academic publications also has high entry barriers. However, these barriers are not from administrative admittance restriction but from their own professional contents, which makes academic publishers powerful in pricing. It is publications market's division that brings academic publications market into being. Compare to general publications market and educational market, the scale of academic publications' is much smaller. Therefore, its high pricing and small scale determine that academic publications market has higher profitability and less risk. And its profitability is higher than general publications' market's, while it is hard to exceed the profitability of educational publications market whose scale is enormous.

The above analyses can be partly proved by the following picture 1, which shows the dynamic situations that how much our internal eight kinds of publications' sales amounts account for since 2002.

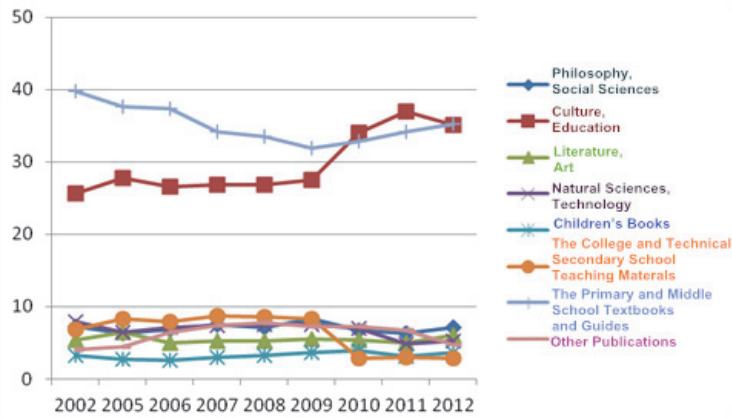


Figure 1 The Dynamic Situations That How Much our Internal Eight kinds of Publications' Sales Amounts Account for Since 2002

(Data Sources: The State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China)

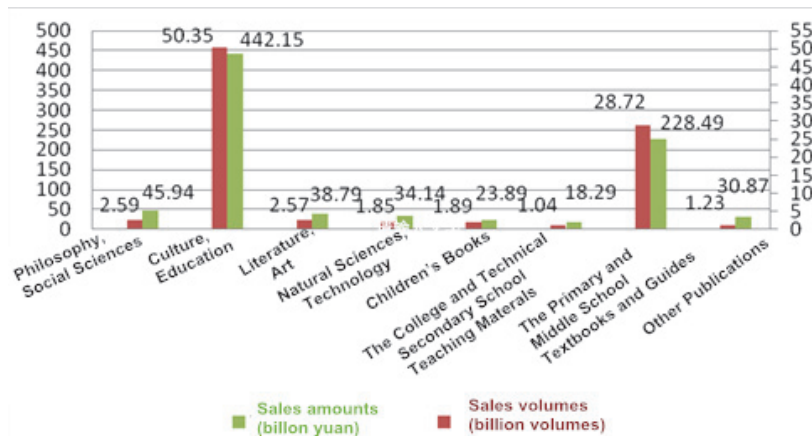


Figure 2 The Static Cross-Section Data That How Much Our Internal Eight kinds of Publications' Sales Amounts Account for in 2013

(Data Sources: The State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China.)

As what we can see in the picture 1, in the eight kinds of publications, primary and middle school textbooks and guides which belong to educational publications are always at the top two. Thanks to being included in cultural and educational publications, educational assistant publications are always

comfortably in second, and once over primary and middle school textbooks and guides, becoming the best-selling one in 2010 and 2011. Before 2009, the college and technical secondary school teaching materials were in the third place. However, due to the influence exerted by the use of high-class monographs in colleges and universities, its selling amounts have decreased obviously since 2009. In our country, academic publications are mainly distributed in philosophy, social sciences publications and natural sciences, technology publications, so these two kind of publications' selling amounts are always at the top 4 and 5.

Besides, picture 2, the static cross-section data that how much our internal eight kinds of publications' sales amounts account for in 2013, can also support my analyses above. In the picture 2, we can see that cultural and educational publications which include educational assistant publications are in the first place, which are followed by primary and middle school textbooks and guides.

3.2 Distribution Channels

Recreational contents, numerous categories, low professionalism and complicated consumer groups are the main characteristics of general publications, which makes it difficult to let consumers show great loyalty to the single channel. Different customers have different demands to experiencing consumption, so the competitions among general publications distributors have always been fierce. As to traditional significance, the main channel is retail business based on shopping places and sales promotion. Traditionally, therefore, hard on shopping places is essential for general publications market. Besides its own qualities, the qualities of shopping places, such as internal settings and displays, are also the key factors to determine the sales status of general publications. Once the consumers develop consumption habits in one specific store, this store can bargain with its publishers in some measure.

The bases of educational publications are educational assistant textbooks and guides that provide learning aids, and not involve professional technology reference books for exams. Breaking the nationwide standards to form a lot of regional standards in the educational field leads to the diversification of educational publications. And the integrate of publications market also makes traditional educational publications fleet sales face more pressure. At present, educational publications market gradually becomes diversified, professional and has single consumer group. Under the basic pattern of total access restrictions, the special channels have been formed in the regional market. So educational publications market doesn't rely on shopping places too much from the tradition view. Although the future is uncertain, present educational publishers still have strong bargaining power.

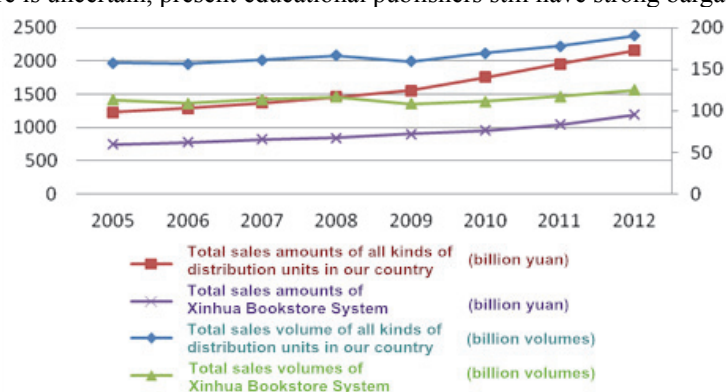


Figure 3 Total sales Volumes and Sales Amounts in Xinhua Bookstore System and All Kinds of Distribution Units in Our Country from 2005 to 2012

(Data Sources: The State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China.)

Academic publications mostly contain the books about majors and professions and have fewer categories, highest professionalism and most single consumer group. Because of the small market, academic publications are sold directly through target marketing generally. It means that academic publications market can easily form stable direct channels with high loyalty from the consumers if the publications have good qualities. Nowadays, of course, the identifications of professional technology and occupational requirements are both in the charge of the administrative responsible organization which contains professional publishers and magazine publishers. So the publication and distribution of many professional technology and occupational requirements reference books for exams may all be in

the charge of the subordinate publishers that are empowered by the administrative responsible organization, carrying a very strong administrative color. So we can predict that in the future our academic publications market doesn't rely much on shopping places and still has strong bargaining power. It is also important to note that finance and economics, laws and medical science publications also belong to academic publications. Compared to the books about majors and professions, they are more diversified and highly competitive, and rely on shopping places much highly, which is partly the same as general publications.

From the changes of total sales volumes and sales amounts in Xinhua Bookstore System and all kinds of distribution units in our country from 2005 to 2012, we can see that the increase of sales volumes and sales amounts in Xinhua Bookstore System are basically flat, while other distribution units' sales amounts rise much more than their sales volumes rise. These means that some publications with high price and additional value, such as academic publications, have formed their own independent and mature marketing channels.(Picture 3)

4 Conclusion

4.1 The Aspect of Pricing Mechanisms and Profitability

General publications' price changes much flexible and its profitability is poor. Educational publications exist some administrative admittance restrictions and have high pricing ability and profitability. Academic publications have very strong pricing power owing to its professionalism, but due to the small market scale, its profitability is between general publications' and educational publications.

4.2 The Aspect of Distribution Channels

To general publications market, internal settings and displays is essential, and the competitions of its channels are strongest. Due to the integrate of market and the diversification of editions, educational publications face the pressure from single consumer group but diversified distribution channels. Having stable direct channels with high loyalty from the consumers to conduct precision marketing and terminal marketing, academic publications don't rely on shopping places and channels too much.

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On the New Running Mode of Network English Writing Teaching and Learning Based on Constructivism*

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Abstract: Network English writing teaching and learning mode is a kind of automatic online composition correcting service software based on constructivism. It has powerful language database and can effectively assist English teachers to review English compositions of different grades and levels. Thus it can greatly improve the composition correction work efficiency and reduce teachers' burden. This paper probes into a new running mode of network English writing teaching and learning based on constructivism in order to realize the English writing teaching and learning reform and improve the self-construction of students' English writing knowledge and writing level.

Keywords: Running mode; Network English writing teaching and learning; Constructivism

1 Introduction

In recent years, writing has become one of the heaviest burdens for the English teachers. Writing correcting system based on computer and network is a kind of automatic online composition correcting service software based on corpus and cloud computing technology. It has powerful language database as the basis and can effectively assist English teachers to review English compositions of different grades and levels. Thus it can greatly improve the composition correction work efficiency and reduce teachers' burden. For students, it can help students achieve writing real-time correction. Based on the scoring, students can obtain the corresponding comments and guidance of languages and methods. This system can effectively improve the depth and accuracy of the writing correction. Therefore, building network English writing teaching and learning operation mode has the extremely widespread application and promotion value and significance.

2 Constructivism and Network English Writing Teaching

Constructivism, also translated as structuralism, is an important branch of cognitive psychology. The theory of constructivism is rich in contents, but its core can be summarized with one sentence: To be Student centered, emphasize on students' active exploration, discovery and Constructivism (constructivism) also translated as structuralism, is an important branch of cognitive psychology. The theory of constructivism is rich in content, but its core with a word can be summarized: Student centered, emphasizing to students' active exploration, discovery and the knowledge of active construction of meaning (unlike the traditional teaching, is to transfer knowledge from teacher to student's notebook in the mind).actively construct knowledge (not like the traditional teaching and learning, just transferring knowledge from the teacher to the student's notebook).

Constructivism learning theory advocates learners to actively participate in teaching activities. Teachers' role transforms from the traditional knowledge authority to students' learning tutor, the senior partner or cooperator. The teachers should become the students' active helper and guider of knowledge construction. They should arouse the students' learning interest, initiate and maintain students' learning motivation. By establishing links between the teaching context fulfilling the requirements of teaching contents and prompt clues of communication between the old and new knowledge, teachers should help the students construct the meaning of the current knowledge. Interaction is an important means to construct meaning. Constructivism emphasizes on a two-way interactive relationship between teachers and students. The most valuable activity in the classroom is that students form a group, make mutual exchanges, and build joint construction. Cooperation and communication between teachers and students, students and students is the key to accelerate knowledge significance construction.

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Constructivist learning theory is an important theoretical basis for network English writing. Through the Internet collaborative cooperation learning is one of the signs of the constructivism learning view, and it is also the development trend of the future. The Internet is an effective tool to encourage and promote student’s learning. The biggest advantage is that it provides an open and interactive and cooperative constructivism learning environment. Network breaks the communication constraints of time and space and opens up a broader social communication environment, providing spaces to display new knowledge and new ability. The multimedia network can create an active construction of knowledge and solve practical problems for the students. It can arouse the students’ learning interest and initiative, and thus cultivate the independent, cooperative and creative talents.

3 Design of the Network Writing Teaching and Learning Mode under Self-learning Environment

From the user’s point of view, the “English Writing Teaching Based on Network Intelligent System” includes “teacher”, “students” and “Administrator” three modules, as showed in Fig.1:

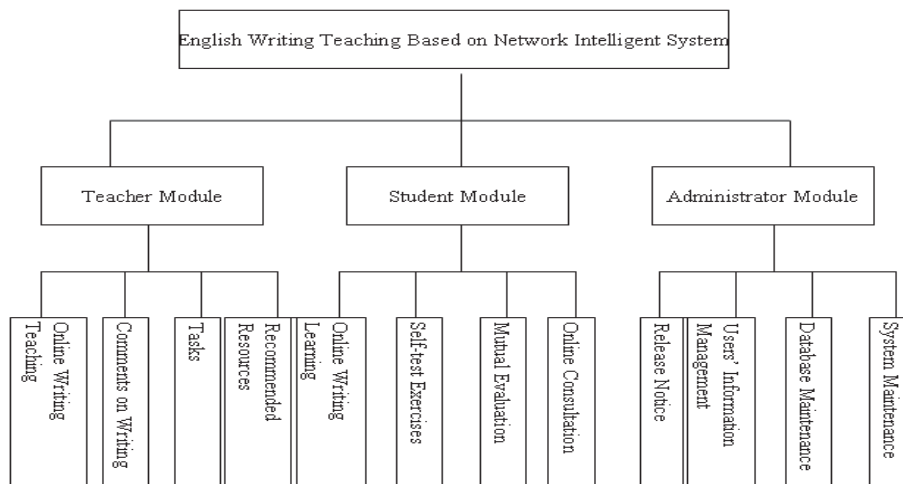


Figure 1 English Writing Teaching Based on Network Intelligent System

4 The Running Mode of Network Writing Teaching and Learning

The mode of network writing teaching and learning we have designed applies Process Teaching Approach, Genre Teaching Approach, Process Evaluating Approach and combines them together. It is a new mode of network-based college English writing teaching and learning which is open, sharing and interactive, as showed in Fig.2:

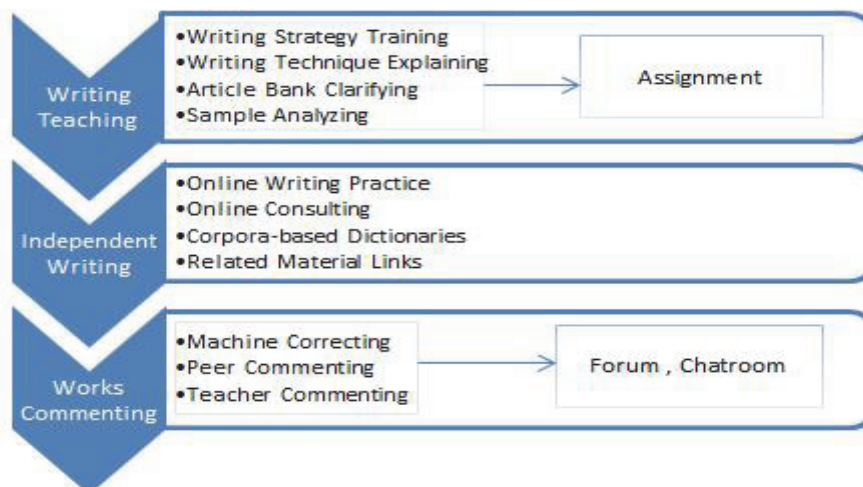


Figure 2 New Mode of Network-Based College English Writing Teaching and Learning

Thus, the whole mode of network writing teaching and learning runs in following steps:

Teachers make writing training strategies for students, explaining writing theory, writing techniques of different types of literature, and clarifying the way of understanding the essay requirements of the article bank and thinking in the form of online courses, to provide necessary knowledge construction.

Through creating circumstances which meet teaching content requirement and inferring clues of relations between the old and new knowledge, teachers can help students construct the meaning of what they are learning. Teachers can irregularly release writing-related materials (documents, audio/video materials, etc) and share network materials, to encourage independent learning, guide exploratory discovery in writing main points and simulate writing and creative writing. It can not only enhance students' understanding of characteristics and patterns of writing, but can also benefit the construction of their cognition of writing. And this is attached to great importance by Constructivism-- the interactive relationship between teachers and students. To make students' construction of meaning become more effective, teachers are supposed to make every effort to organize cooperative studying by assigning the discussion, and guide the process of it to mostly benefit the construction.

In the process of writing, except for expanding materials given by related links, students can also seek help from corpora-based dictionaries. The function of sharing corpora can help solve the problems in words and grammar, and can help students choose the most appropriate and authentic expressions of their thoughts. The process of learning does not consist simply of input, storage and drawing of information. It includes both transformation in concepts and reformation in structure owing to the conflicts between the old and new habits. It is a two-way process in which old and new habits affect each other. In forms of dialogue and discussion, by cooperating in the process of collecting and analyzing materials, making and checking assumptions, evaluating results, ultimate constructing meaning, etc. to enlighten each other, this mode allows the thoughts of every student shared by the whole class, and promotes the all-round construction of contents and meaning of new knowledge.

In the mode, we adopt a process assessment system which requires 3 drafts for 1 assignment, and we combine machine correcting, peer commenting and teacher's commenting together. First, a student completes his first draft and uploads it in peer commenting section. After that, the writer hands in a second draft with revision. In this whole process, the machine correcting always works to help correct, revise and promote their drafts. At last, teachers comment and correct the second drafts, and give them back to the writers. The writers make the final revision, and come with the final drafts.

As the drafts are handed to teachers after several revisions, the work load of teachers will be greatly reduced. It saves teachers' energy to give more targeted comments. Teachers instruct students to receive, understand, handle and process information, and apply them in writing and self-examination of writing skills. In addition, in the process of commenting on drafts of each other, students' writing skills and motivation can be greatly improved. The cooperation, sharing of materials and views on an open platform benefit their construction of writing cognition a lot. This active way of constructing students' knowledge structure has several advantages: The structure students build will be firm, and students are given chances of independent learning which can cultivate their creative thinking.

Students can post their qualified works on forum for other students to read. They can also post their experiences, feelings and problems in writing, and enhance their understanding of problems through communication and discussion. Teachers can appreciate and comment on the qualified works as samples in online courses. Through reading and comparison, students can find their own shortcomings and learn from others' works. Besides, sharing of thoughts in the whole class helps cultivate students who are independent, cooperative and creative.

5 Conclusion

Due to technical reasons, the network writing teaching and learning patterns still need many improvements. For example, the network grading principle is to test the gap between the composition and corpus. When the corresponding statements cannot be found in the corpus, the database server will automatically check the validity of their grammar rules. Therefore, the network writing system can only point out and correct students' English writing errors to a certain extent. Expect the complete network mode to replace the manual mode for giving an accurate evaluation is still not mature because of lacking in technology. The new operation mode of network English writing teaching and learning based on constructivism can improve the students' comprehensive abilities in using English to express ideas and views, but there are also some problems to be solved, such as students' abuse of cyber source prevention, cyber source optimization, operation and maintenance of the teaching and learning platform, teacher training and teacher idea transformation etc. In addition, because such kind mode of English writing

teaching and learning has higher demands on the human, material and financial resources, the promotion is still difficult. However, use the computer network corpus in college English writing teaching and learning will become the trend of future English writing teaching and learning.

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An Empirical Study on Discourse Organization: Textual Discourse Analysis of L2 Learners*

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Abstract: The research displays developmental features of discourse organization in Chinese English majors' L2 writings. Tendency was found from variety to oneness, and then to variety from freshmen to higher grades in terms of Discourse Pattern. The tendency for Thesis Statement developed more closely to the preferred English pattern. In addition, with the development of their English language proficiency, students preferred to write summary in their writings. Based on the comparisons among three proficiency levels—low, intermediate and high level group, significant differences were found. Good writers tended to apply less discourse patterns, and had the tendency to add summary to their writings. On location of Thesis Statement, they were more skillful and developing more and more toward stating thesis not simply initially. These findings can help promote the understanding of the development of L2 writing of Chinese EFL learners and provide insights into the role of discourse organization in L2 writing.

Keywords: Discourse Organization; Writing proficiency; Writing development

1 Introduction

Discourse organization, the construction of an article, one of the key discourse features that writing presents, assumes overall responsibility from beginning to ending in writing. It confirms selection of materials, connects each piece of language sections, and thus makes the association of every part in good order.

The interlanguage system is of variability, which is changing all the time in terms of inter-individual and intra-individual. From the 1970s, the variability has been paying attention to by researchers in linguistic, sociolinguistic and psycholinguistic fields. Developmental study aims to discover these dynamic features of learners' performance which has been neglected by most of linguistic researchers.

Since 1960s, Hunt (1965) had done the first developmental study on children's L1 learning, which had deep impact on the later similar researches. Crowhurst (1987; 1990) examined the developmental features of learner's language proficiency levels with writing collected from different grade levels. However, the early studies for developmental features are mainly case study or with limitedly small subjects. By the end of last century, more samples have been collected. Such as the research of Shaw & Liu (1998), Storch & Tapper (2009), and Üstünel (2014), they collected the samples of the L2 learners in colleges, universities and kindergarten. However, in China, the studies aiming to investigate the development of discourse organization in Chinese L2 learners' written production are relatively few due to the difficulties in data collection and analysis. For this reason, this cross-sectional study was undertaken attempting to examine the developmental features of discourse organization in L2 learner's argumentative writings among larger samples in the college of China, with the hope to reveal some developmental features of discourse organization in L2 learners' writings.

Based on the data collected from text analyses and Jacob's scoring, the study first investigated the development tendency of discourse organizational patterns in the argumentative writings written by undergraduate English majors at three different grade levels, and then examined the developmental features among different proficiency levels.

2 Classification of Discourse Organization

Meyer (1983) applied a proposition tree to analyze the organization of argumentations with three components: microproposition, macroproposition and top-level structure. Microproposition is the subordinate viewpoint of argumentation, which is the extension of macroproposition. Microproposition

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with macroproposition together forms the main idea of articles. Top-level structure is the principle discourse organization of argumentation, which incarnates the logical relation within an article.

Based on the classification of Meyer, Carrell (1984) set forth the logical relationship of top-level structure. She divided it into 4 categories: (a) Description (including chronological relationship); (b) Cause-effect; (c) Problem—Solution Pattern; (d) Matching Pattern.

Kubota (1998), in his research, made a more brief and practicable classification: (a) the location of main idea(s): Initial (stated in the introduction), Middle (in the middle section), Final (in the conclusion), or Obscure (not clearly stated). (b) The macro-level rhetorical pattern: Explanation (the writer's opinion precedes a supporting reason), Specification (the writer's opinion and a preview statement of a supporting reason are followed by the reason), or Induction (a supporting reason precedes the writer's opinion). (c) Presence or absence of a summary statement.

In Kubota's classification, the macro-level rhetorical pattern was just classified into two categories, which the researcher thinks too broad and too limited. In order to find out more specific features in Chinese English majors' argumentations, the present study adapted four categories of the macro-structure patterns as follow: (a) Location of Thesis Statement: Initial, Middle, Final and Obscure; (b) Discourse Pattern: Problem-Solution pattern, Hypothetical-Real pattern, General-Particular pattern, Matching pattern and Obscure; (c) Summary Statement: Presence or Absence.

3 Methodology

3.1 Participants

All participants were randomly selected undergraduate English majors at three different grade levels (freshmen, sophomores, and juniors) from a top university in China, with 43 freshmen, 46 sophomores and 40 juniors.

3.2 Instruments

Compositions were collected. All participants were required to write an argumentation on the same topic. The topic chosen were acquainted by all the participants, with the purpose to minimize differences in subjects' prior knowledge when writing the text.

3.3 Data collection

The students were required to write composition within a class period (45 minutes) independently when they were attending English courses, with no dictionaries or references being allowed in either writing session. The number of words should not be less than 200. In order to guarantee that they finish writing the essays carefully and seriously, they were told that the scores of the essays would be included in the final score of the course.

4 Results and Findings

4.1 Descriptive data of all participants

Most (41.9%) participants had the tendency to state thesis initially. Nevertheless, according to Rinner and Kobayashi (2001), the English essays "tend to contain a thesis statement toward or at the end". The placement of the thesis at the outset may not represent a preferred English pattern. The finding can be interpreted as follow. First, the participants used their learned knowledge of stating the thesis initially. They might have over-generalized the "rule" about placing the thesis in the initial position (Rinnert & Kobayashi, 2001). Or, even if they know the preferred English pattern, it must not have been easy to apply the pattern to the task, especially within the limited time. Within the constrained time, it must have been easier for them to place the thesis statement at the beginning, rather than near or at the end.

Table 1 Frequency, Percentage Of Measures For All Participants

		F	Percentage (%)	M	MD
Discourse Pattern	Problems-solution	27	20.9	2.51	1.04
	Hypothetical-real	27	20.9		
	General-particular	65	4350.7.2		
	Matching	2	4.71.5		
	Obscure	8	6.2		
Thesis Statement	Initial	54	41.9	1.94	.96
	Middle	38	29.5		
	Final	28	21.7		
	Obscure	9	7.0		
Summary	Present	101	78.3	1.22	.41
	Absent	28	21.7		

Furthermore, except 8 compositions with obscure discourse patterns, most of the participants (50.4%) preferred to use General-Particular discourse pattern in their writing. Dominant use of General-Particular discourse pattern would be one of the features in Chinese English majors' writings. The dominance can be explained as follow. First, because the participants have had some experiences in writing in both Chinese and English, they have presumably acquired the General-Particular discourse pattern through such experiences. Second, as some students mentioned, they consciously applied their learned patterns from English courses (thesis-stating in the introduction—supporting with reasons—restate summary in the conclusion) to their writing task. Third, all the participants in the present study wrote under timed conditions in class, the rest discourse patterns require more detailed planning before writing.

4.2 Descriptive data for each grade level

To find out the developmental features of discourse organization presented in learners' writing, data was drawn for different grade levels.

Referring to Discourse Pattern of three different group levels, the numbers of Problem-solution pattern and Obscure pattern applied in three groups' writings were linearly decreasing from freshmen to Juniors; while Hypothetical-real pattern applied dropped slightly from freshmen to sophomores, and then climbed up to some extent from sophomores to juniors; General-particular pattern had a dramatic rise from freshmen to sophomores, and dripped a little at junior; Matching pattern had been only used by freshmen.

For Thesis Statement, the results show that the number of thesis stated initially and in the middle had a climb up from freshmen to sophomores and then dropped at the highest-grade level; however, the number of thesis stated finally first slashed from freshmen to sophomore, then skyrocketed at juniors. And that of obscure thesis in the composition linearly tumbled from freshmen to the higher-grade levels.

As for Summary, the number of compositions with summary presented went up steadily from freshmen to the higher two grade levels. On the contrary, that of compositions without dropped constantly.

These findings suggest that with the accumulation of knowledge, the tendency for Thesis Statement develops more closely to the preferred English pattern, namely, from the focus on simply stating initially to diversity—initially and finally, although there are still problems existing for juniors' Thesis Statement. Furthermore, with the rise of grade levels, participants showed a trend to state thesis clearly during writing.

Table 2 Frequency, Percentage of Measures for 3 Grades

		Freshmen		Sophomores		Juniors	
		F	Percentage (%)	F	Percentage (%)	F	Percentage (%)
Discourse Pattern	Problems-solution	14	32.6	8	17.4	5	12.5
	Hypothetical-real	8	18.6	8	17.4	11	27.5
	General-particular	16	37.2	28	60.9	22	55.0
	Matching	2	4.7	0	0	0	0
	Obscure	3	7.0	2	4.3	1	2.0
Thesis Statement	Initial	14	32.6	26	56.5	14	35
	Middle	13	30.2	14	30.4	11	27.5
	Final	10	23.3	4	8.7	14	35.0
	Obscure	6	14.0	2	4.3	1	2.5
Summary	Present	32	74.4	36	78.3	33	82.5
	Absent	11	25.6	10	21.7	7	17.5

4.3 Data for different proficiency levels

The scores of the compositions were first sorted and grouped into three groups according to different proficiency levels, i.e. low, intermediate and high score groups.

For Discourse Pattern measure, all the three groups had a tendency to choose General-particular pattern. While for Hypothetical-Real pattern, there was a pick-up from low level to intermediate, then a tumble from intermediate to high level. In addition, those with obscure discourse pattern constantly decreased from low level to intermediate and to high level. The results first consist with the features of discourse pattern chosen, namely, more students no matter which level they are belonging to, prefer to adapt General-particular pattern in composition writing. Furthermore, it also shows that learners at higher levels of writing proficiency applied less discourse patterns.

Table 3 Frequency & Percentage Of The Measures for 3 levels

		Low		Intermediate		High	
		F	Percentage (%)	F	Percentage (%)	F	Percentage (%)
Discourse Pattern	Problems-solution	6	14	12	24.5	9	24.3
	Hypothetical-real	9	20.9	12	24.5	6	16.2
	General-particular	21	48.8	24	49.0	20	54.1
	Matching	1	2.3	0	0	1	2.7
	Obscure	6	14.0	1	2.0	1	2.7
Thesis Statement	Initial	16	37.2	22	44.9	16	43.2
	Middle	13	30.2	14	28.6	11	29.7
	Final	6	14.0	12	24.5	10	27.0
	Obscure	8	18.6	1	2.0	0	0
Summary	Present	25	58.1	44	89.8	34	91.9
	Absent	18	41.9	5	10.2	3	8.1

As to Thesis Statement measures, the number of thesis initially stated increased roughly from low level to intermediate level, then slightly slipped from intermediate to high level, while that of thesis finally stated increases linearly from low level to high level. The students in high level group were developing more and more toward preferred English Pattern. They stated thesis not simply initially. In addition, the amount of compositions without thesis statement plunged dramatically from low level to intermediate level, and to zero in high level, which shows that learners at higher levels of writing proficiency were more skillful in Thesis Statement.

For Summary measure, the number of compositions with summary presented shoot up from low level to intermediate level and stood highest at high level. On the contrary, the amount of compositions without summary slashed from low level to intermediate level and then dripped a little from intermediate to high level. With the development of students' writing proficiency, they tended to add summary to their writing.

5 Conclusion

This study presents the features and development tendency based on the textual analysis of Chinese English majors' L2 writings in terms of discourse organization. The findings propose that learners can develop their ability to manage a more or less increasing degree of structural complexity during the school years, which provide evidence for the theory of L2 learning that explicit knowledge can be converted into implicit knowledge by restructuring. Teachers can make use of the findings in relation to the developmental process of discourse organization construction to promote English writing teaching in China.

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Documentary Subtitle Translation from the Angle of Narratology*

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Abstract: With the development of globalization, people urgently need to get some idea about the whole world. As a kind of audiovisual product, the documentary film can directly reflect the economy, politics and culture of a country. Watching a documentary film is a simple and direct way for the audience to obtain the knowledge of other countries. In order to make the audience understand and appreciate the documentary film easily and exactly, it is urgent to do the researches on documentary film translation. In this thesis, the issue is talked from the different points of views by applying narratology. The author sums up the translation strategies according to the aim of the documentary film.

Key words: Documentary Film; Subtitle Translation; Narratology

1 Introduction

With the deepening of the reform and opening-up, the exchange between China and the world become more and more frequent. Many foreign cultural achievements such as documentary films have been introduced to China and have greatly influenced Chinese people's life.

Documentary film differs from the common film not only in content but also in style and shooting technique. It uses its special way to show people the world and the nature of human being. Documentary film breaks the constraint of the space and time and contains a lot of information. It refers to all kinds of fields such as geography, people, big or odd events, animals, astronomy etc. Through these aspects, people know better about human and our world.

In order to use these resources efficiently, these excellent documentary films are introduced to China and shown to our audience through various ways. Though these programs have the sound and the subtitle, they are usually in English. And few Chinese audiences have the ability to understand the English that appears in the documentary film. This situation hinders the cultural diffusion and the conveyance of information. Hence, the translation of documentary film is the problem we have to face. To solve the problem and make more people enjoy the programs and get the information exactly, the documentary film translation becomes necessary.

Contrast to the audience' enthusiasm to the foreign documentary film, academic experts pay little attention to this field, especially its translation. Most of the translators focus on the fiction translation and ignore the documentary film translation. Therefore, a study on the documentary film translation is a necessity and has the profound significance.

2 Documentary Subtitle

2.1 Documentary Film

Documentary Film covers various fields. It is different from the fictional film which is to tell a story. Documentary film shows audience the fact. In the documentary film something real is expressed, or the information is transferred objectively, or something is introduced to the people in scientific way. In a word, in the documentary film, the real world and real person are shown to the audience. Through documentary film, people can get more knowledge and cognize the world and the human beings. Human never gives up exploring the outside world and the inside world---the nature of the human beings and spreading the civilization.

There are four modes of documentary film, like 1) The Expository, 2) The Observational, 3) The Interactive and 4) The Reflective or Reflexive. According to the particular mode the editor would choose the different but the most suitable form to show the activity that he wants to state.

2.2 Definition of Subtitle

“Subtitling as a means of film translation dates back to 1929, when the new sound films reached an international audience. The method of adding scripts of translated dialogue to moving pictures was invented as inexpensive alternative to dubbing” (Gottlieb, 1997: 310). Subtitling translation is the unique translation. It only exists in audiovisual translation or screen translation.

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Subtitling can be defined as the process of providing synchronized captions for film and television dialogue (and more recently for love opera). (Coelh, 2006) Subtitling means translating the spoken source language into the target language in the form of synchronized captions. Gottlieb (2004) defines subtitling as “the rendering in a different language of verbal messages in filmic media, in the shape of one or more lines of written text, presented on the screen in synch with the original verbal message.”

2.3 Features of Subtitle

When talking about documentary, the most disputed word was "true". In fact, truth is the principle established gradually in the process of documentary's self-development. But the word “true” here has the philosophy meaning. What the documentary film shows us is the relative truth. The documentary works are made by man. As a special manner or form to understand truth, as a result living in the author's brain, the documentary film necessarily bases on the retraction of its worker's world view. The documentary worker puts their point of cognitive view in the works and their views influence the whole process of the documentary making. Obviously, the author's idea affects the works. In the process the author is the chooser. The author directs the works. There is no one fixed judging standard for documentary film's “truth”, the truth presented to the audience in film is only the truth apperceived by framer under the given condition.

Documentary film is different from the other literary written works and the other plot film. It is the combination of sound and picture. Documentary film is a kind of movie. The language appearing in the documentary film is visual and audible. The language is always accompanied by the speaker. Sometimes the speaker is the character in the film and sometimes the speaker is the narrator. The language in the documentary film is simpler and more life-like than the written forms, because the characters and the “stories” told in the documentary film are real ones. This situation decides that the language in documentary film is rich and varied in style.

Generally speaking, dialogues and lines in the screenplay are the basics for a picture and they had better be good or everything else will crumble around them. The language should match the picture when the speaker's voice is there. All directors want a good picture with a suitable script. The sound and the picture can be seen as the two types of descriptions. It is the charming of the documentary film. When enjoying the documentary film, the information can be got from two ways—from sense of hearing and sense of sight.

3 Applying Narratology to Documentary Subtitling Translation

3.1 About Narratology

Narratology is a newly developed theory. It is widely used in the literary translation. As the narratology enlarges its field, it regards the whole world as a huge text, and all the things in the world can be seen as the text, from novel to daily life, from literature to media art. As a part of world and a part of the literature, there is no doubt that the documentary is the text. Its translation can be seen as the text translation.

Many scholars have given different definitions of narratology. “Narratology is the study of narrative works concerning the form and function” (Prince, 1982:4); “Narratology is a science of narrative. Narrative is the representation of a system of interrelated signs based on time or cause and effect.”(Cheng Helin, 2001: 56) "Narratology is a scientific study that takes narrative works or narrative elements as objects and intends to explore the nature, structure, method and medium of narration."(Zhou Faxiang, 1997: 135)

3.2 Principles of Documentary Film Subtitling Translation

The subtitling in documentary can be considered as an assistant way to help the audience to understand the documentary picture more deeply and more exactly. The aim of documentary subtitling is to make the audience get the idea of the documentary works. In that case “simplification” is always the best choice.

3.2.1 Faithfulness

Faithfulness is a translational principle put forward by Yan Fu. It is the cornerstone of Chinese translation theory. “Faithfulness” means that the target text should be loyal to the original text. The faithfulness here is the relative loyalty because objectively the differences exist between the target language and original language. The differences mainly appear in the following three aspects. Firstly, the target language differs from the original language in pronunciation, writing, grammar and so on. Secondly, cultural difference includes the traditional cultural notion difference, historical cultural difference and reader cognition difference. Thirdly, different nations have the different psychological

features. When facing the same issue, people from the different nations will have the different reflections. Documentary film is about the fact. What the documentary film talk about is objective. In order to keep the objectivity and to show the truth of the issues, faithfulness is very important for the documentary film translation. It has the profound significance for the documentary translation. So in translation, faithfulness should be followed.

3.2.2 Acceptability

A translation may be acceptable in terms of language but not necessarily acceptable in terms of culture because of the differences between the source culture and the target culture. In the documentary film, a lot of subjects refer to the culture. Sometimes the cultural issue makes the documentary hard to understand because different people have different cultural backgrounds. So the cultural acceptability is very important. Much consideration should be taken into. In that case, the target reader can understand the documentary film more exactly.

Zeng Jianping proposed “the acceptability of a translation should be fudged in terms of the cultural context in which the translation takes place and the communicative purpose of the translating. And as long as the translation is accepted by the target readers or the communicative purpose is achieved by the translation, it can be called a successful piece of translation. Besides, any necessary deletion or adaptation is acceptable as long as they are contributive to the achievement of the communicative purpose or the aesthetic value of the source text.” (Zeng Jianping, 2005:142)

3.2.3 Economy

As a special expression, documentary film translation has to follow the principle of economy. Economy principle is a kind of practicing principle for transferring information. It means during the transferring process, less resource should be used but the quantity of the information cannot be changed. It is better to make the text brief. In that case, time and energy can be saved while encoding the information from one language to another language. It asks for using fewer words and favors for the quick-and-easy way of expression. The key point of economy principle is trying to use simple words and simple sentence style to show the complex information. It follows a human behavior: using less, getting more. The concept of economy may be referred to as “the principle of least effort”, which consists in tending towards the minimum amount of effort that is necessary to achieve the maximum result, so that nothing is wasted. (Vicentini, 2003: 37-38)

Application of economy principle to literary translation means the translated text should be economical and expressive. Economy principle can be made up of three factors: clear, concise, and expressive.

3.2.4 Respecting the Constraints

As mentioned in the previous part, subtitling of documentary film is within constraints. They are space constraint and time constraint. Subtitling must show on the screen. The screen's space is limited. So it is not practical to have too many words in subtitling. The maxim of word in subtitling must be under control. The space that one Chinese character takes is, very often, larger than an English word. In order to meet these constraints, the documentary subtitling translation must focus on economy principle.

Documentary film is a kind of audiovisual expression. It uses both picture and subtitling to express the matters or show the expression. The subtitling of documentary film has to match the picture. Time is the medium to make the word match the rhythm of voice and behavior of documentary film. According to human's reading ability in the finite time, the number of subtitling words that people can read is limited. In order to make the audience understand the documentary film and get the information better through the subtitling, the subtitling must be brief. During the documentary subtitling translation process, controlling the number of words in the target language is the major way to make the translation well.

3.2.5 Being Concise

In economy principle, being concise is the key method. If a text is not concise enough, it cannot be called economical. Achieving the maximal results with the least possible efforts is the aim of the principle. The primary requirement of subtitling translation is to provide, within the constraints of time and space, the most relevant information in the most effective way.

Being concise requires the translator to use the deduction method to do the translation issues. Due to the practical situation, the different method is used to solve the problem to make the information can be transferred accurately. No matter which method used in the documentary subtitling translation, the target is to make the subtitling effective and economical. In order to reach the aim, a lot of translation method as literal translation, domestication and simplification can be used. Which method is the best choice is due to the style of documentary film. Different translation methods suit to different styles of documentary film.

4 Conclusions

Documentary film is a kind of traditional film, which affects both the science and the society deeply. It contains the cream of the human civilization. Learning and sharing the wealth is significant. In order to get to the target, translating documentary film becomes inevitable. But its translation just hasn't been focused on until recent years. So its translation theory is not as formative as a definite classified method and is not adequate to guide all translation activities in documentary translation. Many studies on documentary film translation have been done by applying theories such as communicative theory and relevance. In this thesis, the author undertakes her studies on documentary film translation from the perspective of narratology.

Documentary is different from the fiction film. It has its own features which make its translation different. This thesis deals with the issue from a new approach, narratology. In the recent researches, narratology has become hot, not only in the fiction novel but in the other expressive arts. Subtitling of documentary film can be researched as the text. It has the features of text.

Documentary's translation can be conveyed from different points of view. The theory used in this thesis is just a trivial. More attention should be paid to it. There is no doubt that the thesis has some limitations. We have a long way to go to make the documentary translation better.

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Review and Introspection of the Rule of Chinese Labor Law

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Abstract: This paper summed up the accomplishments that the rule of Chinese labor law has achieved in building a harmonious labor relation, using the method of combining the theory and practices. At the same time, this paper also pointed out the social problems it's currently facing. On the basis of reflections on those problems, the paper proposed recommendations for future reform of the labor system and labor legislation. Facing the many problems that exist in current practice, we draw a conclusion that Chinese labor relations will be more harmonious if only we strengthen and improve the current legislation on employment, labor safety and protection of labor rights.

Key words: Labor law; Rule of law; Achievements; Problems

1 Introduction

Under the leadership of the Communist Party of China, the Divine Land, after thirty years' baptism of reformation, has made universally acknowledged and remarkable changes in the economic construction. Although China have ups and downs in the construction of the legal system, but also achieved good gratifying results. And, although China's labor law is slowly established from almost stagnant state, but after more than thirty years of joint efforts of the community, it has also been fruitful. The Third, Fourth Plenary Session of the 18th Central Committee of the Communist Party of China, "The decision of the Central Committee of the CPC on major issues concerning the comprehensive deepening of reform" and "Decision of the CPC Central Committee on major issues concerning comprehensively promoting the rule of law by law" proposed a new idea for the social economy and the development of the rule of law. The stability and harmony of labor relations as one of the most basic social relations directly related to the construction of harmonious society. The harmony of the labor relations needs law to regulate, so it brings higher standards for our labor law. In a new historic era, we need to do some summarize about China's labor law, recognize its achievements, and analyze its problems. In order to achieve better results, we also need to combine with the current new situation to make some reflections.

2 The Accomplishments the Rule of Chinese Labor Law Has Achieved

The achievements China's labor law construction has achieved since the reform and opening up can be summarized as three major changes. That is, the transition from the administrative assignment to a labor contract relationship, transition from the formal equality to the practical equality, transition from controversy to harmony and stability. The three changes will separately discuss below:

2.1 Transition from the administrative assignment to a labor contract relationship

For a very long period of history in China, the relationship between workers and employers is classified into the category of administrative organization relationship. Supply of human resources is not directly facing the employers, but directly to government departments at all levels, and then the government assigns the human resources all at once. This situation is not broken until a new labor contract system – "Optimizing Labor portfolio" pilot in Henan, Hebei, Heilongjiang and other provinces of China in 1984.

"People's Republic of China Labor Law" has come into force since January 1, 1995. The enacting of "Labor Law" marked the full recovery of the basic system of China's labor law. Compared with past labor laws, it emphasizes more about the autonomy between the two parts of labor relations, adds more private law factors, and lays the foundation for labor law under the market economy.

Another milestone law in China's labor legislation is the implementation of the "Labor Contract Law" in 2008. It makes "spirit of freedom of contract labor" more popular, and plays an important role in coordinating labor relations.

2.2 Transition from the formal equality to the practical equality

Labor law gives equal employment right to workers, however, due to the excess of labor resources, the employers have always grasped the initiative, they establish employment requirements arbitrarily, and because of that, after labor resource is allocated by markets, "employment equality" is equivalent to

formal equality, that is to say equality is limited only in employment opportunities. Whereas discrimination in employment is very common, for example, age discrimination, gender discrimination, urban and rural discrimination, health discrimination and height discrimination. The good news is that in August 30, 2007, "Employment Promotion Law" passed by the National People's Congress clearly states the equal employment rights of workers, it stipulates multiple provisions towards equal employment issues. Article 3 lays down the basic principle that "workers enjoy equal rights in employment legally. When people go to employment market, they won't be discriminated because of their different ethnic, racial, gender, religious belief". The enactment of this law plays a deterrent on employment discrimination existing in our society, and also fully reflects the transaction of employment from formal equality to substantive equality.

2.3 Transition from controversy to harmony and stability

Harmonious labor relation is one of the basic relations in building a harmonious society. To promote the construction of harmonious labor relations, China has provided some mechanism for resolving disputes:

1) Strengthen the influence of labor unions in the mediation of labor relationships. China passed "People's Republic of China Trade Union Law" in 1992 and modified it in 2001. Article 8 of "Labor Law" stipulates that workers can participate in democratic management or negotiate with employers through labor union. And it is also clear in the "Labor Contract Law" that labor unions should establish bargaining mechanism with the employers to protect the legal rights of workers.

2) Improve the influence of arbitration institutions in the labor disputes. Because of some defects in "Labor Law" such as: ambiguous stipulations, short timeline application, long operation time in labor arbitration, the National People's Congress passed the "Labor Dispute Mediation and Arbitration Law" on December 29, 2007. The promulgation of the law improved the labor dispute settlement system and provided a great convenience for both employers and employees to resolve labor disputes by legal means.

3 Problems Faced by the Rule of Chinese Labor Law

Since the reform and opening up, the rule of Chinese labor law has made great achievements, which is worth our pride. But in the face of the achievements we have to keep a clear mind, because the actual situation we faced is more severe. At present, we have a lot of focus problems to be solved:

3.1 Employment pressure increases year by year

In recent years, China's employment situation is increasingly serious. According to statistics, by the end of September 2003, the number of registered jobless urbanites was 795 million; the number of laid-off state-owned enterprises is 632 million; laid-off workers of all kinds of urban enterprises and institutions that have not registered are about 700 million. Altogether the urban has more than 20 million unemployed workers, equivalent to about 10% of the urban economically active population. In rural areas, the most conservative labor surplus stock data is currently still around 170 million, and there are a lot of farmers go out to work every year, whose unemployment is not to be counted in the registered urban unemployment rate. The yearly increasing college students' employment problems also grim up. For example, the employment in October 2008 has three new features: 1) Decreased number of new jobs in urban area. 2) The enterprises hired fewer employees. 3) The enterprises' existing jobs decreased. This will undoubtedly make China face even more severe employment situation in the next few years.

3.2 Labor safety issues are still need highly concern

The party and the government of China have always been concerned about the safety and health of workers. After the reform and opening up, the state promulgated a series of laws and regulations, especially the "production safety law" promulgated in 2002. These laws and regulations promulgated made China's initial formation of production safety legal system, emergency system and regulation system, and played an active role in reducing the labor safety accidents. But there is a gap between the reality and the ideal target, such as we can often see dozens of people reported casualties because workers engaged in hazardous work but didn't get related safety training, or enterprises didn't provide the necessary labor protection measures. The prevalence rate of silicosis also increased because coal mining enterprises produce coal dust in the mining process. Production accidents still continued to occur because the safety conditions are not up to standard, etc.

3.3 The rights the laws give workers are hard to implement

Many employers are not completely in accordance with the legal provisions for labor safety protection. Some employers are not in accordance with the law for workers in social insurance and in

paying social insurance premiums, some terminate labor contract arbitrarily. And violations of workers' rights and interests of rest and vacation are common. Another prominent problem is the employment rights of workers, although the number of employment in China has been increasing, but the unemployed base also has been increasing: the number of unemployment was 4.764 million in 1994, 5.95 million in 2000, 7.70 million in 2002, and 8 million in 2003. Especially the problem of youth unemployment, it accounted for 70% of the total unemployment. The implementation of the right to employment is directly related to the employee's survival problem; we must also pay close attention to it.

4 Reflections on the Rule of Chinese Labor Law

Without doubt, thirty years' labor law construction played an indispensable role in promoting human resources contract, constructing the harmonious labor relations and establishing the socialist market economic system in China. Facing the new target of building a harmonious society in the new century, the construction of the rule of labor law will continue to play its due role in the construction of harmonious labor relations. But facing the new national conditions and new targets, in order to set up a more adequate labor legal system and more harmonious labor relations, we have to make some reflections on the regime we have formulated and the measures we have taken in combination with social reality to reflect on the problem combining with social reality.

4.1 Reflection on the current severe employment pressure

At present, the rapid growth of the economic situation does not fundamentally solve the contradiction between labor supply and demand. Some scholars have pointed out that only a non-household registration system, non-identity system, non-hierarchical and non-unit systems which make a free contract type of modern employment system can fundamentally solve the unemployment problem in China. Specifically speaking we have to reform the multiple household employment system in which urban and rural areas are traditionally divided and regions are closed, reform the identity employment system in which personnel is only-in-no-out and the nation takes unlimited responsibilities, reform the traditional hierarchy employment system which use system of ownership and industry as a sign, reform the traditional unit employment system. We can carry out deeper researches into these problems, it may be helpful to solve our employment problems.

4.2 Reflection on China's implementation of "cheap labor" policy

So far, it seems that the long-term maintenance of cheap labor policy which is at the expense of overdrawn labor protection and environmental protection has brought many problems: Domestically, labor rights protection lacks seriously, and fundamental rights of workers income, safety conditions, working hours cannot be fully guaranteed and respected, which made the welfare of workers suffered great sacrifices. Internationally, foreign trade associations, labor unions and governments show consistent fear and hostility toward products "Made in China", official trade protection and civil trade barriers increased dramatically. Moreover, Chinese products got constantly anti-dumping investigations, seriously affected China's foreign trade development. Faced with these problems, we should strive to improve the wages of workers, improve their welfare conditions, and furthermore improve the "Social Insurance Law" and relevant legislation.

4.3 Reflection on the difficult implementation of the legal rights of workers in China

Under China's current situation of excess labor resources, implementation of the rights of workers depends not only upon the workers' enhanced awareness of labor rights and employers conscious law-abiding, but also on the positive actions of law enforcements officers. They have to initiatively correct labor law violations in the society. To ensure effective law enforcement, we need to strengthen our labor inspection team building, improve the quality of labor inspection of law enforcement officers gradually and increase staff and budget. We have to take effective measures to prevent abuse of power by law enforcement officers of the labor inspectorate, at the same time, we also have to ensure that they can fulfill their obligations under the law.

5 Conclusion

The construction of the rule of Chinese labor law is gradually improving in the process of regulating the marketization of Chinese labor market. It has the important and far-reaching influence on the establishment of socialist market economic system and the construction of harmonious labor relations in China. In summary, faced with the problems in current practice, in the new century China

should strengthen and improve legislation on employment, labor safety and labor rights protection. Only in this way can China's labor relationship be more harmonious.

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Research on Formation of Ideological and Political Education System for Graduate Students under Current

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Abstract: When the international situation comes into alteration and reform and opening delve deeper, ideological and political education of graduate students is too in face of serious challenge. In terms of this, work on ideological and political education of graduate students is not well adapted and has weakness also. In order to strengthen and improve their education and sound development in multiple fields, universities and colleges have to put more efforts on building certain system of knowledge, genre, organization, innovation, service and environment. Research on reform and development of ideological and political education system for graduate students is in par with the demand of society so that the education itself could be fully utilized. This paper fully studies the successful experience of foreign graduate students ideological and political education, to learn from the ideological and political education work patterns and good results, to build our graduate student thought political education system providing rationalization actionable advice.

Key words: New situation; Graduate students; Ideological and political education system; Formation

1 Introduction

In the current new situation, the system of post graduate's ideological and political education needs to strengthen and improve, it is vital to ensure graduate students comprehensive healthy development, how to do a good job in graduate students' ideological and political education is an important subject of the ideological and political education are facing.

At present in our country, the party and state pay special attention to the graduate student's ideological and political education in colleges and universities, on the one hand, they relate policies, on the other hand they gradually strengthen macro management. The file Issued clearly indicate the purpose、significance、ways and the guiding ideology and task of the graduate students' education work in colleges and universities. In addition, through the interpretation of these files, we also know how to carry on the ideological and political education system reformation correctly and comprehensively in the future. Under the unified leadership of the party committee in colleges and universities, we try to realize the construction of teachers' team of professionals and part-time working closely and graduate students self education system. Under the new situation, in order to guarantee a comprehensive post graduate's political and ideological work and let them grow up healthy which makes how to construct graduate students ideological and political education system an important problem to solve.

Most western countries, however, don't use political education this noun. Instead, they use the citizen education or political socialization and so on, such as the United States. The main reason is that western countries education and administrative's separation, these departments are not willing to be tied to the political disputes. Some experts and scholars(Qiu Weiguang , Zhang Yaocan,2002), moreover, think the concept of the political education is a contradictory. They think that education should be a kind of neutrality, with no political tendentiousness. In North American , some experts and scholars think, however, political education and political socialization are in a correlation. They are linked and interchangeable.

2 The Importance and Urgency of Strengthening the Graduate Students' Ideological and Political Education

2.1 The importance of strengthening the graduate students' ideological and political education

Under the new situation, the task of graduate student ideological and political education work is very important, the graduate student's education is our country socialist modernization important way of top creative talents training, also the highest level of higher education personnel training and important part. The development of social economy makes people's value orientation show diversity, colleges must adhere the ideological and political education in the right direction.

The nature task and characteristics of the institutions of higher learning in our country, determines its important position and responsibility. Colleges and universities shoulder the important task of

training builders and successors for the socialist cause, in the implementation of the strategy of developing the country play an important role. Talent quality is good or bad depends on the school for a good education and spiritual civilization. The colleges and universities to promoting socialist spiritual civilization construction has important strategic significance. It also determines the institutions of higher learning is an important base for the construction of socialist spiritual civilization. University graduates is an important part in the development of our country, their study life in university is closely related to social life. Thus it can be seen that the achievements of ideological and political education has extremely broad social significance. Meanwhile it is an important part as the demonstration and leading role of the socialist ideological and ethical construction.

2.2 The urgency of strengthening the graduate students' ideological and political education

To strengthen and improve ideological and political education, we not only need to stick to our previous good methods and good tradition, but also can adapt to the new situation actively to explore new ways and methods. From the macroscopic view, most of the graduate student's ideological and political education situation is positive and optimistic upward, but in a few individual graduates may be more or less there are some problems, such as academic moral anomie, fuzzy ideal, unfaithful and poor teamwork. During the process of the development of the society, the change of social norms, values and the way of behavior influence graduate students' healthy growth, and make some graduate students faced with academic and employment problems, interpersonal relationships and emotional aspects of psychological pressure. Especially in recent years, some of the irrational behavior in colleges and universities caused social attention and strong reaction from all walks of life. In the process of growth and development in colleges and universities, we need to conduct propaganda and ideological and political education for graduate students and guide them correctly. Strengthening and improving ideological and political education of graduate students is the in current situation to comprehensive the construction of graduate students ideological and political education system.

3 Broaden the Ideological and Political Education Environment System of Graduate Students under the New Situation

The surrounding environment by universities (Li Hui,2005) can side affect graduate students' thinking activity, this is what Marx said: "in the process of ideological and political education, the sum of all the external influence factors of ideological and political education".

3.1 Learn from the abroad experience

For ideological and political education, though western countries do not have this concept, they do have "moral education", "political education", "civil education", "political modernization", which actually is equal to our ideological and political education. The ideological and political education exists all the time from a global perspective, and plays an extremely important role today. Scholars abroad have many famous books and thesis, like Education in the Moral Domain by Larry P. Nucci; The Philosophy of Moral Development by Lawrence Kohlberg; Democracy and Education by John Dewey; Moral development and moral education by Peters; A New Introduction to Moral Education by John Wilson and so on. All these works are based on organized and mature theory, and studied carefully in the field of education experience which provide scholars with profound reference materials.

The graduates' ideological and political education abroad is organized under the instruction of education principle, and pays great attention to native culture and spirit and the foster of talented people needed for the development. For graduates, though the concept "creative talents" has not bring out abroad, they only have the concept of critical mind and creative mind which with no extra extension. However, for a very long time, the major developed countries in the world lay great emphasis on the fostering the creative mind of talented people, and pay attention to the free development of personality. For instance, the aim of Harvard is to foster people with comprehensive ability and cultivation, and people who are fully developed both in emotion and wisdom, and people who are comprehensively and profoundly educated, and people with ability of independently thinking, analyzing, criticizing, and resolving problems. In MIT, they make efforts to give students a solid foundation of scientific, technical and humanistic knowledge, cultivate ability of creative development and solve problem.

3.2 Optimize the environment of the society, schools and families to create a harmonious atmosphere

3.2.1 Establish a good social media environment

Positive and healthy social environment plays a huge role in promoting the formation of the graduate student's ideological and moral quality in colleges and universities. On one hand, we should

keep enhancing the influence of national leaders to the college students. On the other hand, we can fully demonstrate the significant meaning of building the Marxism to graduates with the help of public opinion tendency. As comrade Jiang Zemin and Hu Jintao had mentioned many times in new era: "in the great process of building a well-off society, the ideological and political work is of great importance. We need to make the promotion work more creative with the illustrate of time and regularity.

Mass media (Zhan Wansheng, 2005) has a more comprehensive impact on graduates due to its direct, vivid, rich and varied expression pattern. According to the related research, "the structure of factors that influence the teenage moral development has changed from 'family, school, peers, mass media' into 'mass media, peers, school, family'. Mass media has become the crucial information resource and the foremost effect source for teenage". In this way, we can expand the graduates' knowledge field and deepen their social horizon. What's more, under the influence of the media's correct information, graduates can analyze their daily trivial with a right, reasonable, and scientific attitude and gradually build a right outlook of world, life and value.

3.2.2 Create a better campus cultural atmosphere

Campus cultural atmosphere has a far-reaching function meaning and profound impact on the form of graduates' view on world, life and value. On one hand, it has strong appeal and convincing force to people's mental health, moral and political quality for its unique method, literature, and art works. On the other hand, the literature and art works consist the writers' distinguish direction of policy while students are usually looking for their life ideal and belief.

How to make it proper? The system reform of foreign graduates' ideological and political education inspires us: facing to social practice, and combining the ideological and political education system with the country's developing condition and economy, culture and policy. Moreover, we need to develop every ideological and political education system based on the features of our ideological and political education, to achieve the goal of building an education system that fits our country's real condition. We formulate all these rules to make students understand what and how the school wants them to do, the punishment of breaking the code as well. At that time, the administrative staff in college and university have to manage student stuff in conformity with the code, make graduates self-conscious and follow the rules and supervision. Hence, the media market is a huge carrier for effective ideological and political education. We should crack down all these bad and wrong phenomenon resolutely, and try our best to build an intensive campus culture. Promote the spirit of socialism with the infusion of advanced culture into every part of the society.

3.2.3 Build a harmonious family atmosphere

The prerequisite for harmonious family members is to have a stable family. People under this background are inclined to shape a right outlook on world, life and value, foster a healthy, positive attitude towards life and help others coordinate the interpersonal relationship. We are trying to combine the family atmosphere with the recipients' subjective consciousness for the creation of family education environment is aiming at enhancing the recipients' quality. However, the recipients' initiative is indispensable for the development of harmonious environment. Thus, we should work hard on the transition of family education perception. In this aspect, the education environment is unified with the recipient. The building of the education environment and the subjective consciousness of recipients include two parts. Firstly, we need to boost the recipient's ability of identify when it comes to the family environment and the ability of self-control. Second, we must improve the recipients' awareness of taking part in the construction of campus human environment which cultivates and improves the quality of the graduates from harmonious family.

3.3 Strengthen online education

The online ideological and political education is an inevitable requirement of graduates' ideological and political education work. Universities should have access to reliable online ideological and political education. Moreover, we need to work harder to make sure that online education enjoy a proper position which benefits education. Also, we have to pay more attention to campus network and create a better education network with ideology, knowledge and service. We should boost the management of campus network, prevent graduates from all bad and wrong information from Internet. We need to build a new carrier system to promote advanced ideological and political education and offer a comprehensive platform for graduates' healthy growth. We should develop a healthy and interesting ideological and political education work to make it more attractive and convincing to educate and lead the graduates. Internet is an open system with high energy and vitality which can be expanded with no limit. As long as we can communicate, share the common transition signs, we can integrate new joint.

4 Strengthen Postgraduates' Ideological and Political Education Organization

4.1 Boost the building of guidance system

We need to strengthen the guidance of graduates' ideological and political education. Firstly, we should combine the education with Party member's personality. During the work, we should demand all graduate communists to behave as models and pioneers in school which will lead and help all students to learn from each other and improve themselves altogether. Secondly, we should combine the education with hot issues that young communists care about. We can establish "Graduates theory learning group" and "Youth forum" to encourage students to learn political theory learning and discussion by themselves. In addition to that, we can effectively combine the general mission of the Party in new era, domestic and international situation and the goal of graduates, help graduate Party members improve awareness and fulfill their value. Thirdly, we should integrate the education with patriotic education. With the help of vital cases, we can make graduates Party members fully understand the significant achievement our country has made since reform and opening-up and inspire their enthusiasm to our Party and country. Fourth, we should combine the education with the expanding of graduate's ideological quality. We should give a full play of the Party's organization and integrate the education into the cultural activities in universities and colleges. For example, we can organize activities like report meeting, lecture, debate competition, speech contest, theatrical performance and youth volunteer work, which can be meaningful and improve the graduates' ideological quality.

4.2 Enhance the construction of faculty

The scale of graduate is increasing by days which urges universities to adjust and optimize their education faculty to make sure the effectiveness of the education work. First of all, we need to keep working on education. We can improve the quality of ideological and political education faculty with various training based on the new situation and mission. Secondly, we should strengthen the foundation research. There are flaws and deficiencies in graduates' ideological and political education that should be introspected and corrected. Do remember that ideological education is not just words, we should put it into practice. Meanwhile, we should never let the recipients down. With the help of foundation research, we can achieve a more scientific decision-making on ideological and political education. Moreover, we need to establish a whole pack of assessment system of faculty in universities and colleges which can encourages teachers to be more creative.

4.3 Improve the Party construction of graduates

4.3.1 Promote the Party construction of graduates

We have to formulate the details of the Party construction in order to fully develop the graduates' ideological construction. We should stick to the Party construction, and unify graduates Party members through our organization. We should persist in innovation and unify more graduates through graduates Party members. We need to focus on both party branch and classes, pay attention to party construction scientific research, and promote the overall teaching work and fully development of graduates. First of all, we should put an emphasis on recruiting graduates party member, and strengthen training work of activist who want to join the Party. We should lay emphasis on recruiting party members among the elites who are good at learning, technology and creation, and set strict principle for the recruiting procedure and make sure we have both quantity and quality. Secondly, we should establish and refine the basic party organization of graduates, set graduates party ranch according to the principle and code and broaden the function of party branch. We should uphold that party branch should stick to class and improve the professional and standardized management of the party branch. Last but not least, we should actively launch competition among graduates party organization and party members in order to encourage all community and party members and give a full play of their leading role.

4.3.2 Promote the Party and class construction of graduates

First of all, we should have many campus cultural activities according to the management of school and community. Secondly, graduates should put the key work of party organization into the institute's political and party work. Third, we should take full advantages of graduates union, graduates association and class. We can have various meaningful and educational programs aiming at graduates' features, create academic atmosphere, and enrich the campus culture.

We should promote culture construction in universities and colleges, and increase the class cohesion. Here are some specific measures for the promotion of graduates' inner ideological quality. Firstly, we should launch various activities for graduates. We should encourage the participation of graduates and honor merit students. We also should inspire their competitive spirit, and promote their cohesion and sense of honor. Secondly, we should work on the unique cultural style of graduates. The specific

measures is to make use of forum and website alumni record, and boost the understanding of each other and classes based on this kind of information platform and communication bridge. We should arouse their enthusiasm and offer them a stage to show themselves, elaborate their ability and promote the communication and understanding among students. Thirdly, we can establish interest group in order to develop and foster students' comprehensive quality regularly. Fourth, we can set up an information website for graduates, like wechat and QQ group, which can facilitate the communication between mentors and graduates and make their relationship closer.

4.3.3 Give a full play to the enthusiasmandinitiative of graduates' self-education

First of all, we should set a platform for graduates' self-education and offer them advantages to help and guide them to finish their study and improve their ideological and political quality. Secondly, we should focus on the foster of graduate elites. We can improve their quality and ability through quality training, and make use of their leading role in ideological and political education. In addition, we should encourage outstanding graduates to take participate in education work as counselor or head teacher and lead them to enhance their self-education during the teaching. Finally, we should foster and discover the study role model, and use publicity to build up their classic and typical achievement, try our best to create a better environment and atmosphere for graduate's self-education.

5 Conclusion

With the rapid development of knowledge economy, talent cultivation is of great importance. The highest level of higher education is graduates' ideological and political education, whose core is to cultivate talents of high quality of morality, healthy style of study and honesty. Domestic work of graduates in universities has many short comings, such as, relevant laws and regulations are in urgent need of perfecting and construction, to solve the constantly changing problems and contradiction on account of without relevant laws and regulations to follow in the course of education and management. In addition, graduate management and standardization construction of daily management service are still not enough. Therefore, we need to construct graduate work rules and regulations of science, integrity and strong operability as soon as possible. In overseas, the work of the graduates' ideological and political education, has formed a professional trend, leading a road of professional development. At present, graduates' learning content is more complex in most of domestic universities, and the professionalization and specialization division of work of graduates' ideological and political education, and labor in the future have been increasingly sophisticated, which needs effective solution of the ideological and political education. In combination with the current international situation, to strengthen graduates' ideological and political education work in universities is not only an important task of higher education, and also an important task of china education.

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Exploration of College Students' Innovative Ability Training Mode

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Abstract: The cultivation of the college students' scientific and technical innovation capability is an important approach to cultivate talents. This paper elaborates on the importance of cultivating innovative capability of college students, analyzes the problems which exist in the college students' scientific and technical innovative capability, and discusses the cultivation mode of college students' scientific and technical innovative capability.

Key words: College student; Innovative capability; Cultivation; Mode

1 Introduction

Comrade Xi said: "We need to vigorously carry forward the spirit of innovation in the whole society, enhance the ability to innovate, to adhere to the road of independent innovation with Chinese characteristics, and lay a solid mass foundation to build an innovation-oriented country." To improve the innovative ability of university students is an urgent task which higher education are facing. In recent years, universities have carried on the positive exploration in college students' scientific and technical innovative ability training, combined with the actual universities operational stronger measures are put forward, and have achieved good results. This article is trying to base on the analysis of practice of cultivating college students' innovative ability, and further points out the time significance to develop the innovative ability of college students, the realistic problems in the process of on college students' science and technology innovative ability training, explore the kind of college students' science and technology innovation ability training mode which can meet the requirements of the age, so as to provide theoretical reference and guide for action in order to better promote college students' innovative spirit and cultivate college students' innovative ability

2 The Significance of College Students' Innovative Ability Training

The 21st century is the era of knowledge-driven economy, innovation is an important internal demand of talent cultivation, and the college students' innovative education conforms to the trend of the times in higher education. The stronger the consciousness of innovation and innovation ability are, the higher the quality of talent is, obviously, whereas the weaker the consciousness of innovation and innovation ability are, the lower the talent quality is, the cultivation of innovative consciousness and innovative ability in higher education in China is yet to be strengthened. Colleges and universities must conform to the requirements of the times' and society's progress and development, to increase China's international competitiveness, and to fully understand the important meaning of developing the innovative ability of college students.

This issue is not a pure educational problem but closely related to social structure and system. The implementation of innovative education calls for a favorable social environment as well as the interaction between the educational system and the whole social system. Fundamentally, innovative education won't do without an overall innovation of social structure and system. Without the atmosphere and environment encouraging innovative talents, there are few teachers with innovative spirits, not to mention cultivating students' innovative abilities. However, the environment for innovation is coming into existence. In August 2002, a seminar on creation and creative education was authorized by Higher Education Department of the Ministry of Education to be held by Southeast University, which attracted over 50 representatives from more than 30 universities. In the first innovative staff training course held in Shanghai in September 2003, over 100 representatives all over the nation were present. In spite of the importance of environment, it is more important to make joint efforts to create favorable environment. Innovation roots from practice, including both practical explorations into theories and practical actions based on them.^[8]

First, cultivate college students' innovation ability is the inevitable choice for enhancing the independent innovation of China's capacity and building powerful socialist modernization. Powerful socialist modernization, first of all, is an innovative country; an innovative country must have a strong capacity for independent innovation. It is generally believed that national index should be high in the main characteristics such as comprehensive innovation, science and technology progress contribution in

national economic development, research and development investment, and very low in the aspect of foreign technology dependence. However, our country is still far away from an innovative country. Insisting on the innovation path of socialism with Chinese characteristics, and constructing an innovative country are the important strategic decision established by the CPC central committee and the state council. The element of talents is on the predominant part of science and technology innovation, and improve the level of science and technology is the core of building an innovative country, thus cultivating innovative talents is the key to build an innovation-oriented country, and higher education needs to regard cultivating innovative ability of college students as an essential task.

Second, to foster college students' innovative ability and promote the comprehensive development of internal requirement, the level of higher education is raising. In the stage of popularization of higher education, not only is the expansion of the scale of higher education, but to improve the quality of teaching should be considered as the key to cultivate students' innovative ability. Cultivating college students' innovation ability can promote the scientific development of higher education, effectively solves the problem faced on the popularization of higher education such as talent mediocre, and low learning enthusiasm. Around the world, as long as the world economic integration, science and technology also present the development trend of globalization, it is the demand to promote college students' innovative ability and comprehensive quality. Talent is the core in the competition of comprehensive national power through the worldwide and the key to the innovative talent competition. At present, compared with the developed countries, our talent reserves and the innovation ability of science and technology level are still in disadvantage, the amount of innovative scientific and technological achievements which can reach the level of the world is less. In order to take a good position in the increasingly fierce world economic integration and globalization of science and technology competition, our country must build an innovation-oriented country; unswervingly implement the strategy of developing the country by relying on science and education. Institutions of higher learning as an important field of the talent training, must vigorously construct innovative talent training system, for transferring our country from the most populous country into reinvigorating it through human resource development and cultivating creative talents.

Third, to foster college students' innovation ability is to promote study style construction of colleges and universities and the effective ways to improve student's entrepreneurial ability. Fostering college students' innovative ability can stimulate the power of university students, mobilize students' learning initiative and enthusiasm, guide students to develop a serious study and in-depth study, good habit of seeking truth from facts, and form a good upward academic discipline. The cultivation of innovative ability will also be able to transform how the college students view the world, broaden their horizon on applying for jobs, and help students seize the opportunities and achieve successes in the entrepreneurial process.

3 The Problems of College Students' Innovative Ability Training

Chinese traditional education emphasizes rotting memorization, inhibiting innovation, and neglecting the cultivation of innovation ability, the result is that students are obsessed with authority and depend on the book knowledge. Although in recent years the university began to pay attention to the training of the students' ability to innovate, to gradually change the educational idea, the integrated innovation ability of college students is still not enough yet; there exist some problems in the education content, practice, guidance, and the research hardware, etc.

(1) Old backward education content and single rigid teaching methods ignore the cultivation of students' innovative ability. Current college teaching still gives great priority for teaching book knowledge, however less practice. The teaching forms are single, students can't think actively, but only passively accept the same book knowledge. This force-feeding education model has greatly hindered the students' development of the ability of independent thinking and innovation, so students can't effectively analyze and solve problems, and the innovative ability is greatly suppressed.

(2) The innovation practice activity is insufficient, which limit the cultivation of students' innovative ability. Over the years, widespread attention was given to the cultivation of students' cognitive ability in university, not to the practical teaching part. Students spend more time on the abstract theoretical knowledge learning, but less in the scientific research project and task, which lead to the result that the students' practical ability is insufficient, and are lack of rigorous scientific attitude and innovative spirit.

(3) The lack of guidance of innovation has affected the achievement of student carrying on the innovation. At present, the guidance on college students' innovative activities has many deficiencies, which make the college students' innovative activities blind, and unable to effectively achieve the goal. Because of the limitation of students' capacity, still there are needs for positive guidance in the professional knowledge, professional skills and other aspects given by the teachers. However, the current students' extracurricular technological innovation activity under the guidance of teachers system is still in the groping state, has not really established, which just stays in spontaneous stage.

(4) Scientific research hardware support is insufficient; restrain students' enthusiasm to participate in scientific and technological innovation. The development of students' science and technology innovation activities can hardly realize without enough money, open Spaces, and support of advanced laboratory equipment, and other important material conditions. However, the current universities are generally in scientific research fund shortage, science and technology activities, backward experiment equipment, the enthusiasm of the students to participate in the activities of science and technology innovation, therefore generally not high. The number of college students who are willing to participate in the activities of science and technology innovation are less and unstable, and scale of the development of science and technology innovation activities and the comprehensive effects is at low levels.

4 The Exploration of College Students' Innovative Ability Training Mode

In order to cultivate students' innovation ability, universities have made lot of attempt and effort in various aspects positively. The author in the Wuhan University of Technology has made unremitting efforts in the aspect of cultivating innovative talents. Now according to their own work practice, school personnel training goal, professional characteristics, with the advantages in the discipline, adhere to the students themselves, they are committed to the cultivation of students' innovative spirit and innovative ability, putting forward certain system of science and technology innovation training mode – “stick to a fundamental, strengthen two functions, pay attention to three combinations, set up four platforms”.

4.1 Firmly grasp a fundamental: education

Innovation is the source of national greatness and national prosperity, conducting scientific research is an important task of colleges and universities. Therefore, colleges and universities must focus on increasing the strength of the top research talent cultivation. To develop students' science and technology innovation activity has importance and far-reaching significance for cultivating innovative talents, colleges and universities need to form consensus in innovation talents training target, to “cultivate people and cultivating what kind of person” as a starting point and the key points of students of science and technology innovation work, and make students work as the center with innovative talent training.

4.2 To strengthen the two functions: cultivating talents and culture

The goal for talent training in Wuhan University of science and technology is to develop excellence talents, so that they have excellent ability, and innovation ability is the important part of the outstanding ability. School's twelfth five-year development planning focus on the cultivation of innovative ability, puts forward the eight major construction projects, two outstanding talent training and university culture construction project closely related to college students' innovation of science and technology work. School has been working to make the college students' science and technology innovation as propellant of cultivating excellent talents, treat cultivate excellent talents as the lifeline of the development of the school science.

4.3 The three links will be implemented: the propaganda launch, organization, implementation and process management

All kinds of science and technology culture festival with subject characteristics is held every year, and use it as platform for the students to work on science and technology innovation; through the act of holding a special activity to discuss the significance of college students' science and technology innovation activity purpose; College student association tend to spread off the technology and innovation information to the students by setting up Science and Technology and Today's Scientific History; through the “discovery channel” form, students who have been awarded in science and technology competition are invited to interact with the other students, sharing suffering and joy on the road of scientific and technological innovation.

The seminar for students' science and technology innovation work was held each year for the overall deployment in the work of scientific and technological innovation to the student, and it will be implemented through the “one festival, one fair and two competitions”. (“one festival” means

technology and culture festival which is “journey of discovery”, “one fair” refers to the fair for the college students’ scientific and technological innovation projects”, and “two “refers to new concept design competition” and “contest of golden idea”). Through holding various forms of science and technology innovation activities, such as the doctoral academic BBS, Wuhan graduate academic BBS, BBS of Ph. D. supervisor and salon of the graduate students, scientific and technological innovation ability are enhanced.

Try to full play the role which the Undergraduates take in guiding the graduate students in science and technology innovation; establish the “team of graduates’ guidance for the undergraduates’ science and technology innovation” by the professional direction; make the preliminary review on undergraduates’ applied project by the graduates; and evaluate and set up the project by the experts’ guidance for the college students’ innovation of science and technology committee. During the process of project implementation, the planned process inspection, quality tracking management are required; subject head are often called to know the progress of the project; and in order to ensure that the research can proceed smoothly, timely resolution and coordination for some practical difficulties and problems from the experimental process are in require.

4.4 Carefully construction of four platforms: system, team, capital and services

Attaches great importance to work of college students of science and technology, and implement a series of rules and regulations and incentives. Participates in college students of science and technology competition who get awarded, school will offer different level of prizes according to different grade.

The professional teachers are widely propagandized to focus on students’ extracurricular science and technology activities and join into the specific guidance, which offers firm technical support to the level of the college students’ innovation of science and technology. At the same time, strengthening the political work cadres of the relevant professional and business training, make everybody is familiar with all kinds of disciplines and elements of science and technology innovation and competition, and to better facilitate management and service work, to provide a powerful guarantee for proceeding smoothly.

Increase investment in scientific research, set up the college students’ science and technology innovation fund and invests some funding to support the college students’ innovation of science and technology work. Professional teachers who guide students scientific and technological innovation will also transfer their own research funding into the students’ science and technology innovation activities, in order to make students have more opportunities to exercise in practice, master a variety of research methods, research methods and advanced technical main point, etc.

To create favorable conditions for the students of science and technology innovation activities, ensure the timely communication, and lesson counseling’s, etc for classmates and teachers absent from class because of the competition. Efforts are made to relieve students from all sorts of difficulties, so that the students can be more freely into college students’ science and technology innovation activities.

5 Results of Cultivating College Students’ Innovation Ability

Guiding by the science and technology innovation training mode: “stick to a fundamental, strengthen two big functions, pay attention to three combination, set up four platforms”, Wuhan university of science and technology has organized and set up a lot of college students’ science and technology innovation activity, and has obtained certain achievement:

(1) The college students’ science and technology innovation activities are extensively developed and created a good atmosphere of advocating science and innovation among college students, which played a positive role to the growth of young students, and cultivate a batch of outstanding college students who are devoted, bold to innovation, and aspire to become distinguished. School has positively set platform of science and technology innovation education for students, and cultivated campus culture of science and technology. School established the student association of science and technology, set up 20 college students’ science and technology innovation base, set up independent innovation research fund for student project, national college students’ innovative experiment and laboratory projects, and investment of 5,000,000 Yuan a year to support students in science and technology innovation.

(2) College students’ science and technology innovation activities tend to lead students to closely connect with the professional and in-depth professional, enhance the professional identity, affinity and self-confidence, and effectively mobilized the enthusiasm and motivation of the students to learn professional, then the learning atmosphere is strong. There are 24 “excellence initiative” pilots in the university, which covers 14 college, and then it has most “excellence initiative” pilots among all the universities. It relies on building construction, transportation, machinery, automobile industry, set up

special funds, increase the financial input in laboratory and base construction, for the pilot professional students to have higher quality teaching resources; all kinds of engineering practice training platform, academic exchange platform and the foreign language training environment are provided, offering special credits for students' innovative activities; Support pilot professional faculty construction and teaching reform; Support students in autonomous learning, research learning, focus on cultivating students' engineering consciousness, engineering quality and engineering practice ability.

(3) The campus cultural activities of science and technology enrich the spare life of students, enrich their spiritual space, broadens the students' mind, develop the talent, edify sentiment, guide the student to the right thoughts, words and deeds, thus shaping the healthy psychology and personality, improving their comprehensive quality. Students in the "challenge cup" competition, mathematical modeling contest, mechanical innovation design competition, such as energy saving and emission reduction technology innovation, has obtained 2000 provincial-level-over award, and 109 provincial-level and 41 state-level awards in "challenge cup" college students' extracurricular academic science and technology works competition and business plan competition; besides, in the sequent three years of 2010, 2011, 2012, we've got first place in team total score, and win the "challenge cup" in Hubei province. Two entrepreneurial teams in 2010 won the national gold award in "challenge cup", a business plan competition.

(4) The activities further enhanced the interaction and communication between teachers and students; the teacher's precept makes students personally felt the teacher profound knowledge, rigorous scholarly research attitude and the spirit of diligence, which exert a subtle influence on education. The righteous teaching attitude can shape the student's studying ways, further stabilize the students' professional thought, and strengthen students' professional autonomous conscience and interest of learning. School each year chooses a batch of outstanding students in the superiority and the characteristic discipline dynamically, equipped with first-class teachers, and provides first-class learning conditions, in order to create first-class academic environment and atmosphere, innovative talent training mode, and cultivating top students. Schools strive to cultivate a batch of excellent graduates with acute, high professional quality, strong practical ability, pioneering spirit and innovation ability; to lay a good foundation for fostering future leaders in the field of related disciplines and top creative talents. Students in pilot class will be selected from the undergraduate students in school, with chief professor (teacher) responsibility system, push forward characteristic cultivation, strengthen international cooperation and exchanges.

6 Conclusion

Science and technology innovation of college students is a systematic project, need to form a good external environment that everyone pay great attention onto it; with support from the college, by the teachers and students work together, to make the scientific and technological innovation work be promoted; and to further push the work of excellence talents cultivation by the college students' innovation of science and technology project, then to build the innovative campus culture.

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The Idea of Confucian Chun-Tzu Education and Its Inspiration for Quality Education Reformation in China Today

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Abstract: This paper mainly uses the method of documentary and analytical induction to collect a number of relevant documents and study the subject systematically. From the materials that have been collected, we can say that the idea of Confucian Chun-tzu education contains rich connotation with many levels. What's more, it also has huge enlightenment on the quality education in China today. The aim of this paper is to inspire more and more Chinese scholars to apply the idea of Confucian Chun-tzu education to raise the level of quality education.

Key words: Chun-tzu; Confucius; Chun-tzu education; Quality education

1 Introduction

At present, the research on Confucian Chun-tzu education is not abundant. As a matter of fact, studies on the issue of Chun-tzu mostly focus on Chun-tzu's personality.

In China, many scholars have done systematic arguments on the personality of Chun-tzu. For example, Liao Jianping makes a detailed explanation to Chun-tzu's connotation in his book *The Theory of Chun-tzu Personality*. Wang Hongliang carries out a systematic analysis of Chun-tzu's personality, according to its theoretical sources, connotation, building method and historical influence. There are also many other vocational scholars who devote themselves to the studies of Chun-tzu's personality. What's more, more and more young researchers begin to study this issue in their dissertations. For example, Sun Juanni explains relevant concepts in her dissertation *The Idea of Gentlemen personality in The Analects of Confucius and its Inspiration for Developing University Students' moral Personality*. Ding Xiaolu make a study of Chun-tzu's personality in her dissertation *A Research on Confucian Gentleman Personality of Pre-Qin Period*. Besides, some scholars focus on analyzing the modern significance of Chun-tzu's personality. Through the studies of Chun-tzu's personality, it's not hard to find that it has many significance for the modern society, therefore it's necessary to study the modern significance of Chun-tzu's personality. According to the numerous studies on the connotation of Confucian Chun-tzu's personality, we can tell that Chinese scholars agree on the saying Chun-tzu is someone who values justice higher than material gains and advocates righteousness. And the modern significance of Chun-tzu's personality embodies in the development of the socialist market economy and harmonious socialist society.

There are also many foreign scholars who study Confucian traditional culture. Chun-tzu, as an ideal model that Confucian recommends, surely becomes a research object of the western scholars. For example, American scholar Roger T. Ames and Henry Rosemont are inclined to study Chun-tzu who is opposite with villain, instead of studying benevolent. William Theodore De Bary makes a comparison between Chun-tzu and sage-king, he points out the strength source of Chun-tzu and makes a detailed definition of Chun-tzu. In his opinion, Chun-tzu is a kind of people who receive good education and have strong sense of mission and sense of responsibility to serve the public, even if they don't have real power. Canadian academic Daniel A. Bell holds the view that to become a Confucian, one must be a Chun-tzu first. And he also demonstrates how a Chun-tzu should behave in daily life. At least, he should be a good family man, obeying his parents and disciplining children. Furthermore, he should extend caring in the family to the whole society.

Although there are not many scholars study the issue of Confucian Chun-tzu education, abundant written material about Chun-tzu's personality from all over the world provides a wealth of resources for scholars who devote themselves in studying the problem of Confucian Chun-tzu education, such as the connotation of Chun-tzu, the building method of Chun-tzu's personality and so on. By exploring the theory of Confucian Chun-tzu education, we'll try to figure out the connotations and characters of Confucian Chun-tzu education, and finally find a new way to improve the efficiency of quality education in China today.

2 Main Connotations of Confucian Chun-tzu education

2.1 Centering on moral education

Chun-tzu educational school put moral education into the first place. There is no doubt that the ideal character for Confucius is the Chun tzu. The moral standards of “Chun-tzu” consist of moral rules whose content is about “Etiquette” and moral sentiments which go around “Benevolence”. In The Analects of Confucius, it mentioned that Confucius’ school-running concepts are around 4 courses, that’s letters, ethics, devotion of soul, and truthfulness. Letters course refers to knowledge education (or called cultural education) . In addition, courses of ethics, devotion of soul and truthfulness focus on moral education. Moral education which aims at cultivating Chun-tzu has close relationship with “benevolence”, or we can say it takes benevolence as the core. Benevolence is the basic moral principle of Chun-tzu, therefore, benevolence education is a major part of the Chun-tzu education. Benevolence contains affection, filial piety, do one's duty as a younger brother, loyalty and so on. But all of these characters only reflect one side face of benevolence. In fact, benevolence must be a collection of many kinds of virtues, that benevolence is the general term for a variety of virtues. Meanwhile, Confucius values etiquette education as well. He is strict with his students in their dress looks, the way they get along with people and many other aspects. Confucius requires their behaviors conform to etiquette and show Chun-tzu’s demeanor. In brief, benevolence is colloquially known a kind of inner beauty, while etiquette is a kind of outer beauty. Only when the contents of benevolence manifested through etiquette behavior can we cultivate Chun-tzu who have considerate manners and noble moral.

2.2 Aiming at cultivating talents with excellent morals and academic skills

Advocators of Chun-tzu education not only value noble moral, but also pay attention to man’s all-round development. One of their educational goals is cultivating talents with excellent morals and academic skills.

“Six Arts” in the Confucian school include music, archery, mathematics, ritual, chariot-riding and calligraphy. These reflect various demands and training for man. In order to teach “Six Arts” better, Confucius compiled the corresponding textbooks: Odes, History, Changes, Spring and Autumn, Rituals, and Music. Among them, Odes is just like Literature course, History might be equivalent to Political lesson, Changes is similar to philosophy, Spring and Autumn is parallel to History lesson, Rituals mainly shows the same things as ethics classes, and Music is Music art. It is not hard to see that the ranges of Chun-tzu education are extensive, and the teaching content is comprehensive. Confucius deepens and develops predecessors’ idea of Chun-tzu, creating the unique Confucian Chun-tzu education. He emphasizes “Chun-tzu are not vessels”, therefore, Chun-tzu must not only be superior in terms of moral, intellectual and physical, but also be loyal to the state and make contributions for people, and finally being the pillar of society.

3 Chief Characteristics of Confucian Chun-tzu Education

3.1 Attaching importance to collective environment

Confucius values the collective environment for man’s development. First, Confucius breaks the education mode called “study in the government authorities”, and originates the pay school. He insists “Education without Discrimination”, and recruits students widely. The students are from different states and different classes. This not only breaks the borders, but also breaks the political status, which gives more educational opportunities to people. Second, Confucius gives lessons in the collective. His teaching method “teach students in accordance with their aptitude” is commendable, for it admits students’ individual difference. However, this way cannot change Confucius’ purpose which is turning students with individual character into people with the same values. At the same time, Confucius stresses the significance of group order for individuals, and he insists that people should be an absolutely free man, namely, Chun-tzu should be assimilated into the masses. It requires individuals to submit to the the collective will and serve for the collective instead of forming a clique to pursue selfish interest. All of these reflect the collectivism tendency that Chun-tzu educational school has. They insist that group quality and humanity quality should be concerned more than mere individual quality because of concerns for social benefit.

3.2 Following the principle of entering political stratum

Confucian Chun-tzu educational school claims “he who excels in study can follow an official career”, namely, if a man learns well and have leisure time and energy, he’d better entering the official career. In ancient Chinese intellectuals’ life, School is inseparable from politics, learning goes hand in hand with official career. Confucius hopes Chun-tzu who get well education should serve for group,

society and state better, and advertise the idea of benevolence to the public, then complete themselves during this process. In the mean time, Chun-tzu education is influenced by the concept of “study in the government authorities”. “Study in the government authorities” means it is government that sets up schools, educational institutions and government agencies unit as one, and teachers of official school are appointed by the court, what’s more, the rulers’ political personalities are regarded as social role models. In fact, no matter in official schools or private schools, students all see entering political stratum as the highest goal of study. Thus it can be seen, Confucian Chun-tzu education places emphasis on official career education, and it is committed to developing elite Chun-tzu who are closely linked with national rise and fall.

3.3 Emphasizing the importance of introspection

In the concept of Confucian Chun-tzu education, etiquette is gained through self-constraint and introspection. Self-constraint means in interpersonal relationships, Chun-tzu should bind themselves to strict requirements and restrain their words and deeds to make it ethically. Introspection means Chun-tzu should play active ideological activities and supervise their own thoughts consciously instead of being influenced by others, when coping with relationships between the objective standards of behaviors and the subjective emotions. At the time of cultivating Chun-tzu, the self-constraint method should be carried out in all aspects of daily life, and introspection is also a necessary way to improve oneself. That’s also what “self-restraint and restoration of rites are benevolence” means. What Confucian Chun-tzu education cares is the fulfillment of the inner and the consciousness of strengthen- -ing moral cultivation. Only if a man examines himself on three counts every day, can knowledge, virtue and etiquette be internalized.

4 Conclusion

From what has been discussed above, we can make the conclusion that the idea of Confucian Chun-tzu Education has significant inspiration for quality education reformation in China today. Detailed outcomes are as below:

4.1 Strengthening moral education and developing unwavering character

That Confucius Chun-tzu education school values moral education is worth using for reference in China today. Since the reform and opening-up policy, China's economy has crackled with the dynamics of change; social culture has also undergone tremendous changes. Under the influence of multiple values, some people’s morality concept is getting more and more light, and they chase after money unduly. This cruel phenomenon can be found everywhere. For example, some businessmen sell things that past their expiration date just for profit; some people make friends online intentionally, and then use friendship and trust to cheat out of money. And this kind of things happens occasionally. However, as we all know, building a harmonious society needs to put morality stay on the lofty status, therefore, the development of morality must be one of the most important part of quality education.

Strong will and great ambition are essential characters of Chun-tzu. To develop these characters, Confucian school requires people understand the following sentence: if by destiny one was to be burdened with such monumental responsibilities, he must be subjected to intense trials lest he emerges worthy of such. Nowadays, because of the one-child policy, most families only have one child, and parents are used to spoiling the children, so, many children are unable to endure and overcome hardship. However, with the rapid development of the economy in China, people have to face fierce competitions in many aspects of their daily life. Without strong will, they could not survive in the society. As a consequence, it’s necessary for educators to temper the new generation’s willpower so that they can have strong-willed character.

4.2 Boosting all-round education and cultivating talents with comprehensive abilities

Cultivating talents with comprehensive qualification is the core of education in the 21st century, and all-round developed high quality talents are also demanded in the new period of constructing socialism. To achieve this goal, many education methods are being implemented, among all the methods, harmonious education is one of most admired ways. As a new education mode, harmonious education tries to reform the teaching content, according to students’ cognitive characteristics, cognition level of development and demand. In this way, the educational power which various teaching activities make can be adapted to students’ physical and mental development regulation, and finally benefit the cultivation of students’ comprehensive abilities. Therefore, the government should make some policies to push the development of harmonious education. What’s more, schools should also recognize the importance of harmonious education and provide good environment to make it grow well. With the help of harmonious

education, educators can carry out all-round education policy better, and then improve students' physical quality, psychological quality, external quality, cultural quality and professional quality.

In short, Confucian Chun-tzu education is the energetic treasure of Chinese nation and it has been showing the shiny wisdom and the moral ray for thousands of years. Even in this day and age, it is still worthy of studying. Nowadays, the innovation of quality education is becoming a hot issue in China, and through the study of Confucian Chun-tzu education, it is not hard to know that there are many ideas we can use for reference. As for the problem of how to apply these ideas which are learned from Confucian Chun-tzu education to the reformation quality education, it needs further exploration.

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Analysis of Factors of Incubating Social Organizations of the Disabled Person

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Abstract: The need to accelerate the construction of Chinese social organizations is pointed out in 18th National Congress of the Communist Party of China. Since the development of social organizations of the disabled is a part of the career of disabled people, the issue of incubator has become more and more important. The incubation system of Chinese organizations of the disabled person needs to be improved. Based on the pattern of operation of public welfare organizations, the article pays attention to exploration on the pattern of organizations of the disabled. Besides, during the incubating process of organizations of the disabled, factors are followed: the disabled individual leaders, the relationship among government, the disabled persons' federation and social organization, channels into recruiting service objects, social atmosphere and public awareness, regional difference.

Key words: Disabled person; Social organization; Incubator; Influence factors

1 Introduction

Chinese organization of the disabled represents the common interests of the disabled person. It endeavors to protect the legal rights of this group of people. At the same time, as a social organization, it would probably hold various activities to offer different kinds of services for the disabled. The members include disabled people, the relatives of them and professional staffs for disabled people. Regarded as a crucial civilian force, it plays a role which is becoming more and more indispensable. It attempts to meet the diverse requirements of the disabled by experiencing lots of explorations. It also contributes to the career of safeguarding the legitimate rights and interests of them, enhancing the system of the public services for the disabled and promoting the construction of the social organizations. However, from a comprehensive perspective, in view of the limitation of awareness, the imperfection of the macro mechanism, deficiency of supporting and propaganda by the government and lack of administrative skills within the organizations, the social organization of the disabled has many problems. For instance, the number and the scale of social organizations of the disabled may be limited. Meanwhile, they might be facing insufficiency of finance and service offered by the staffs which are dying to be enhanced. As a result, the pressing needs of disabled people contradict the insufficient services provided by the social organizations of the disabled.

Non-profit incubator of social organizations is a new concept in China. It would probably influence its organizations' generating, development and maturity. "Incubator" derives from the processing of incubating of American small business in 1950s. It provided some small business with necessary assistants, including relevant materials and inquiries which were beneficial to their growths.

In China, "incubator" was firstly mentioned by the Institute for Civil Society (ICS) of Sun Yat-sen University in 2005. With the development, Chinese scholars define the concept in different ways. In terms of the function, NPO (Non-profit organizations) refers to the supporting system which is able to supply organizations with places or space, finance, service training, etc. It aims to foster these new-born organizations (Wang Shiqiang, 2012). The pattern of Non-profit organizations' incubator is closely related to theories about supportive organizations. In the guide of this kind of theories, incubator would take the condition and features of the development of Chinese organization into consideration and learn from the mode of incubator of small business. It also cooperates with the government and other civilian forces to help the organizations which are in an initial stage (Wu Jing, Mao Lixiong, 2012). The targets of the incubator are initial public organizations that need to improve the ability to transform. The services consist of financial supporting, facilities, training, guidance, evaluation of development and social propaganda. Incubator acts to promote the growths of the organizations and help them cooperate with others on the purpose to boost the construction of the harmonious society (Pang Yang, 2013).

To sum up, from my own perspective, incubator of the social organizations of the disabled is one of the Non-profit organizations' incubators and the public field's supportive organizations. It attempts to provide new and immature social organizations of the disabled with relevant and various support to make them mature and independent enough to be viable. To some extent, it can reduce the cost of

communication among government, the disabled persons' federation (DPF) and social organizations. As the provider of capital, Chinese government has quite limited experts in this field, so does some organizations of the disabled. Moreover, the staffs in these organizations know little about the politics or relevant policy, which leads to difficult conversation between them and the government. Incubator can fix this issue, acting like a bridge to smooth the communication and reduce the cost. Meanwhile, it promotes the government to be service-oriented and make it contact the social organizations of the disabled indirectly and professionally. As for "incubating", it refers to a process of making an organization becoming mature enough to offer practical services. The phases include applying for entering the incubator, receiving much assistance like space, financial aids and training and getting out of the incubator to run the organization by its own.

2 Chinese Incubator of Social Organizations of the Disabled

2.1 Incubator of NPO

According to the executor of the incubator, the incubator can roughly be divided into two types: government-oriented incubator and nongovernmental incubator. Each of them has both advantages and disadvantages. Besides, social business organizations of the disabled can be a reference for the incubator of social organizations of the disabled. With the ever-increasing pace of development of economy and internet, virtualization of the incubator has been pointed out by some scholars.

2.1.1 Government-oriented incubator

Government-oriented incubator can furnish its targets with policy support, information of correlative items or programs and convenient process of registering as a legal social organization. It ensures the organizations legitimate status to let them enjoy preferential policies and welfare within the system. What's more, it boosts the activities in public field which are beneficial to governmental decision-making and the development of social charity. Nevertheless it simultaneously makes some social organizations reveal fickleness and ignore some aspect, such as practical efficiency. What's worse, the flexibility of the organizations is circumscribed by the government in some way. The organizations have to rely on the government or the disabled persons' federation and lack the freedom to hold activities or dominate its finance in its own way.

To make what's mentioned above more specific, Nanjing Amity NGO Development Center is a typical example of this kind of incubator. It was established by the municipal government and the Amity Foundation in October 2009. It is expected to foster social organizations. Its main source of finance is from the government and Amity Foundation. On the one hand, the government offers financial support by pursuing services, which are the most common method the Chinese government use to provide the disabled with correlative services. On the other hand, Amity Foundation makes full use of its resources which include international assistants to finance the incubator. The center suggests that the government is trying to turn over part of rights and function to social organizations which are produced by the incubator. Because of the political background, the organizations from the incubator have a priority to get legally registered and get programs from the government. They could not only directly contact the community to supply services with the help of the government, but also get necessary resources generated by the foundation. However, because the center is overseen by the government, the autonomy and the independence to hold activities of programs would be inadequate.

2.1.2 Nongovernmental incubator

The prime advantage of nongovernmental incubator is that its flexibility and independence are guaranteed so that the government can't excessively intervene its own affairs. Therefore it provides its unique service to the market. If the foundation takes up the dominant position, the incubator would obtain stabler fund, because the foundation can receive steady member fees from its members. It could also get public attention via communal donation solicitation.

NPI of Shanghai has a mature process of incubating. Before the incubating, it recruits members publicly by receiving application and selecting matched ones. It has specific evaluation teams and committee to evaluate the prospective social organizations. The main consideration contains the organizations' potential social influence, model of operation, the ability of management and suitability to the incubator. After this stage, it signs agreements of incubating with the qualified organizations to give them space, finance, facilities and staff training. When the organizations get hatched, they would continually be tracked and assisted by the incubator until they become viable. In other words, when the process is completed, the organizations must be much mature to own professional ability to provide services, administrate the internal stuffs and rely on itself.

2.1.3 Canyou three-in-one model

The incubator of Canyou is in the guidance of a social business organizations incubating model. It has an obvious feature: its finance is composed completely without the subsidy of the government and loan of banks. Three-in-one model means that it's supported by three forces, Zhengning Charity Foundation, Canyou social organizations and Canyou business organizations. Within the model, foundation controls shareholders to hold fund-raising and integrate resources as a supervisor. It endeavors to maintain nonprofit features of the organizations in the business market. In addition, Canyou social organizations and business organizations complement needed materials to the incubated organizations. The incubator concentrates on employment of the disabled from the whole country. It is looking forward to spreading this model to the whole nation, helping different provinces to establish similar incubator in order to produce more organizations whose aim is to be beneficial to disabled people. The incubator is a body that combines commerce and public good.

2.1.4 Virtual incubator

Virtual incubator represents incubators that are based on internet to use modern information technology to connect diverse resources necessary to the growth of small business organizations. It's a comprehensive system operated by expert group to provide services according to needs of each specific organization. However, this kind of incubator currently is only used in commercial market. There exist two virtual internet environments. One is formal cooperation network, which is established among incubated organizations to set up online conferences, share experiences and promote communication of commerce. Another one is informal network, which focuses on informal communication or daily life experiences to create a comfortable atmosphere for staffs and inspire employees (Wang Xiaodang, 2012).

2.2 Incubator of the disabled

The operation of Chinese social organizations of the disabled is not only related to the government, but also closely to the disabled persons' federation (DPF). Therefore dealing with the relationship among government, incubator and DPF should be an inevitable issue especially for government-oriented incubator. Interpretation of this is critical to promoting various organizational relationships which are oriented by DPF. DPF plays a dominant role by having the rights of distributing resources instead of mastering its subordination members from a political perspective. On the contrary, nongovernmental incubator may act as an agency to organize human resources and projects in order to get freedom to obtain fund and cooperate with other organizations including DPF to maximize its benefit. As for the independence of the incubator, it may be a good method to combine commerce with social good to create positive social impact. Also virtual incubator would be a new channel for incubating disabled people's social organizations. As many factors needed to be taken into consideration, points would be discussed followed.

Firstly, currently many incubators of NGO have been successful in China, which could bring lots of experiences to disabled organizations' incubators, such as NPI mentioned above. For this, incubators of social organizations of the disabled can avoid many mistakes which those incubators have made.

Secondly, the government endeavors to deliver services geared to people's pressing needs, which might give impetus to reset the relationships among incubators, government and DPF. That is how to make the independence of the incubators be guaranteed without losing the support from the DPF and the government. Maybe with the supervision of PDF, incubators play as a platform to constitute an association of disabled persons' social organizations in order to enhance the interaction among organizations. As for funds, it might come from the civilian forces like enterprises or foundations. Consequently the incubator is capable of handling its own rights of choosing, which guarantee the flexibility.

Thirdly, a virtual incubator is meant to provide the organizations which are widespread over all the country with a communication platform. It could rely on DPF to share information with various foundations and social organizations. In addition, the space limitation in physical level could be mitigated to make more resources available to more objects. It could also save money as fewer employees are recruited to operate the incubator than a real one.

Finally, an incubator needs to get more power from the media and internet to promote propaganda, making more people aware of the existence of the incubators and their organizations. Thus corresponding services can be more easily delivered. This broadens the channels of recruiting service objects and makes more attention paid to social organizations of the disabled to reduce the discrimination and enhance the awareness of charity.

3 Influencing Factors for Chinese Social Organizations of the Disabled

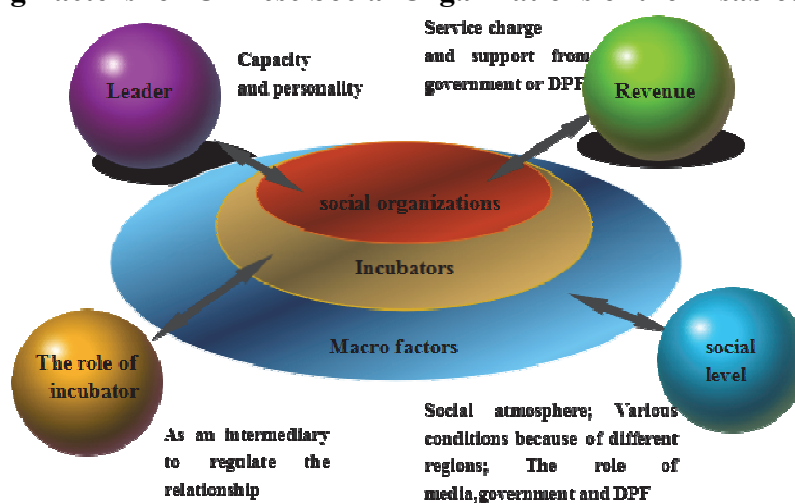


Figure 1 The Relationship Among Social Organizations, Incubators and Macro Factors

The figure obviously illustrates the relationship among incubators, their organizations and macro factors. Incubators can't be operated without the influence of macro factors. For instance, social atmosphere and policies for supporting incubators is directly related to growth of incubators. Because social organizations of the disabled are produced by these incubators, whose aim is to regulate the relationship among social organizations, PDF and government, these organizations could probably be effected by the factors, too. At the same time, social organizations' own development within the incubators should never be ignored, such as the skills cultivation of the employees. After they're incubated, the viability is the most essential capacity for them. Their service charge is crucial to revenue. So in order to increase revenue, they must consider how to broaden their channels into getting more clients.

3.1 Capacity and personality of organizations' leaders

For an organization, leaders are quite indispensable. A leader should not only display enough ability to administrate the organization internally, but communicate with the external organizations and forces. When the organization gets into the process of incubating, the leader needs to organize members to receive professional training. When the process is completed, the leader also keeps in touch with the government, DPF, social enterprises and social organizations. Whether the leader's belief about the incubator is constant will, to some extent, influence the incubator's direction. It affects the property of the organization. Whether the leader owns a comprehensive perspective to consolidate what the organization has obtained, such as the improved service delivery ability, is crucial to its viability. Thus capacity and personality of leaders should never be neglected.

3.2 Relationship among government, DPF and social organizations

The government is the predominant object because it owns the rights of policy making. While DPF and its subordinate organizations would carry the policy out together. DPF which has political hinge is subject to every aspect of public disabled persons' affairs. However, it actually can handle only parts of these affairs. Thus the emergence of social organizations of the disabled mitigates this phenomenon. Incubators of the organizations of the disabled act as agencies to smooth the relationship among the three objects. That is beneficial to incubating social organizations of the disabled, democratic policy making, convenient register for organizations and various sources of fund.

So far Chinese policies about the disabled pay main attention to social relief and aid, including assistance with employment and social welfare. These measures belong to traditional modes of welfare and suggest that maintaining the legitimate rights of the disabled is neglected in some way. While the government clearly would support social organizations that can take over the public services previously pertained to the government. Again, these public services contain few legal rights of the disabled. The flaw of the policies suggests that the extent of expression of the social organizations permitted by the government is also an important factor.

3.3 Channels into recruiting service objects

The financial source of a social organization consists of not only policy support and assistance

from DPF but its service charge. In China, the number of the disabled is quite huge and the needs of them are exigent. The channel of recruiting service object nonetheless is relatively narrow, leading to insufficient service objects within the organization and many needs of the disabled being not met. This also contributes to viability of an organization because it threatens the source of revenue. Another thing is that visibility of an organization may be hindered by this in view of few disabled people knowing the services. To solve this problem, social organizations of the disabled might as well make full use of the incubator with the help of government, DPF and media to broaden the channel. The government could introduce more disabled people who need services to organizations by its authority. At the same time, the organizations should actively promote outreach to get more service objects. Public service advertising and media could probably earn a reputation for these organizations to make them known by more people.

3.4 Social atmosphere and public awareness

There are a lot of factors limiting the development of the social organizations of the disabled, such as social bias and discrimination. In China, especially in the past, many activities of these social organizations have been resisted or discriminated by community members or other groups of people. Some even hold the view that works for the disabled are ominous and inferior. All of these can directly negatively influence the growth of career of services for the disabled in the long run. Besides, many people believe that charity only belongs to wealthy people's matters which impede the available fund for the organizations. What's worse, recently years many social issues also contribute to the impediment of career. For instance, in China, if an old man tumbles, a young person would probably hesitate to offer help since maybe he needs to shoulder excessive responsibilities, such as paying for medical charge. Thus, people might not dare to do something good. In summary, social atmosphere and social awareness are closely relevant to organizations' developments. Only through widely being accepted by the public can the organizations get completed integration into the whole social environment and the process of incubating.

3.5 Regional difference

In rural areas, the kinds of the service content of the organizations are not as various as urban areas. The organizations are quite smaller, lacking their own working offices and communication with other social organizations, to say nothing of international communication. Compared with the urban social organizations of the disabled, rural organizations are limited by the location, so the resources are not easily available to them. On the contrary, the urban ones show the superiority in number, scales, systematic communication and shared information and resources.

The difference between urban and rural areas is one aspect. Another important aspect is that there are differences among different provinces. Developed regions like Beijing, Shanghai and Guangzhou own comparatively more mature social organizations of the disabled.

4 Conclusion

First of all, social organizations of the disabled are different from other public commonweal social organizations in many ways. They have to deal with the relationship with DPF, which makes their works more complicated. Relationship among incubators, government and DPF directly influences the incubating organizations. Besides, these organizations would have their own problems distinguished from others' during the process of incubating. Only by analyzing and effectively solving these issues in specific situations can they get promoted. So far Chinese incubators of organizations still have a long way to go, which means that they need to be examined by the practice. In addition, how to guarantee various kinds of social organizations of the disabled being incubated is an inevitable issue. It also accounts for diverse services delivery for the disabled. Another important point which needs to be elaborated upon is that the Internet has become an irreversible trend. In this way, virtual incubators are auspicious. However, insecure factors may threaten the virtual incubators, thus it's necessary to deal with these factors. At the same time, they have to pay more attention to pragmatic works and sharing resources and information rather than shallow propaganda. Finally, how to maintain the incubators' server and how to address the relationships between virtual incubators and real ones are needed to be discussed further.

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Important Roles of Young Teachers in Imparting Knowledge and Educating People in Higher Education

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Abstract: Every teacher has the duty to impart knowledge and educate people. He should not only impart scientific and cultural knowledge to students, but also foster their ideological and political quality. Young teachers are the fresh troop in teachers' group and the backbone of teaching research. Due to their unique advantages, they can play an important role in both the impartment of knowledge and the education of people.

Key words: Young teachers; Impart knowledge and educate people; Advantages

1 Introduction

With the social development and constant surge of talents, the group of young teachers in higher learning is getting bigger and bigger. According to the statistics of National Committee of Educational, Scientific, Cultural, Health and Sports Workers' Union, China now have 11.51 million full-time teachers in total, of which the number of young teachers under 40 reaches 6 million, accounting for over 50%. Young teachers act as the core strength to launch activities in higher learning, and should also play an important role in imparting knowledge and educating people.

2 Correct Understanding of the Significance and Unity of "Imparting Knowledge" and "Educating People"

The Book of Rites mentioned that "A teacher should not only impart knowledge to his students, but also cultivate their moral integrity." In modern times, the distinguished educator Tao Xingzhi also raised that "Whatever a teacher teaches, he should teach his students to seek truth; whatever a student learns, he should learn to be a man of upright integrity." The two views in ancient and modern times both enlighten us with the significance of imparting knowledge and educating people. At present, our socialist development is in urgent need of those high-caliber personnel who have both a wide range of knowledge and a firm stance to socialism. To cultivate such personnel, young teachers should foster students' ideological and political quality while imparting scientific and cultural knowledge to them.

"Imparting knowledge" and "educating people" are a unified integration. Young teachers cannot narrowly treat themselves teaching staff while ignoring the duty to educate students. Of course, they cannot simplify the education either, believing imparting knowledge equals educating people or finishing their class means finishing the instruction. Indeed, they should attach more importance to guiding students in and out of the class to build correct values and outlook on life. As Han Yu, the ancient Chinese literati, said, the task of a teacher was to deliver a sermon, introduce methods, and clear up confusion. This demonstrates that teachers should not only complete their task of introducing methods and clearing up confusion, but also bear the responsibility of delivering a sermon, with the latter preceding the former. Therefore, each young teacher should be aware of the importance of imparting knowledge and educating people, guide students in the class to set up correct and positive concepts, encourage them to foster great vision, and promote their sound development.

3 Psychological and Behavioral Characteristics of Young Teachers

1) Young teachers owe professional expertise in certain fields and comparatively high personal qualities. At present, most young teachers have already got doctor's degree through systematical and professional education, thus they have master certain amount of professional knowledge and skills. Therefore, they have comparatively higher comprehensive personality like learning capability, wide horizon, strong thirst for knowledge and relatively broad knowledge.

2) Young teachers have a strong sense of self-realization. According to hierarchy of needs theory raised by Maslow, the fundamental requirements of human can be divided into five hierarchies, which are physiology, safety, love, respect and self-realization. Young teachers generally have a comparatively higher hierarchy of needs, which lies in their desire to realize their self-competence, to be a better one according to their expectations and to complete everything that matches their capabilities. In this case,

they are ambitious and ready to face the challenges. Also, they have a strong sense to show their Intelligence and realize their self-worth.

3) Young teachers attach importance to achievement motivation and spiritual incentives. Their works are not just simple duplications but the creative works that will continuously promote new innovations and add new contents. Young teachers are very eager and need to see their achievements. Moreover, they pay great attention to the evaluation from others, institutions and the society, and they have a strong desire to be accepted and respected by the society.

4) University teachers have a relatively high autonomy of their own works. University provides a relatively loose environment for teachers. The creativeness of teachers work requires that the working environment to be relative loose. With comparatively high autonomy and freedom, they have little restriction of time and space in their teaching and research work. High-autonomy calls for self-guidance and self-management, thus teachers' work can hardly be monitored or controlled by others. With their professional knowledge and skills, young teachers can stick to their researches. Young teachers always have their own personalities, so they are not willing to go with the tide or fawn upon power.

5) The working achievements of university teachers can hardly be measured or evaluated directly. The achievements of teachers' teaching and research work often reflected in students' improvement or some kind of thoughts, creativities, inventions and innovations, which can't get the immediate results that can be measured or evaluated directly. Talent cultivation and science research program can't be fully completed by individual person. However, teamwork increases the difficulty to give standardized evaluation to individual work.

4 Unique Advantages of Young Teachers in “Imparting Knowledge and Educating People”

A survey conducted by Beijing Education Trade Union on young teachers in some institutions of higher learning shows that most young teachers are qualified in political caliber. They have a fine grasp of Marxism Theory, a firm conviction in socialism, patriotism and the ability to foster students' ideological and political quality. Meanwhile, they constitute the main force of teaching research in every higher learning institution. Therefore, they have the prerequisite to imparting knowledge and educating people. Due to their uniqueness, they have some particular advantages.

4.1 Larger in amount and younger at age

At present, the percentage of young teachers in colleges stands at near or over 50%, even tending to get bigger. These young teachers mostly hold full-time posts or serve as instructors for students, working in the forefront of teaching and education. A large number of young teachers can instruct a lot of students, which is conducive to comprehensively carrying out activities of imparting knowledge and educating people. In the prime of their time, young teachers are energetic, enthusiastic, and aggressive. Due to the small age gap, they have so much in common with their students, almost no generation gap existent between them. This is convenient for young teachers to go deep into the study of students and gradually finish their work to impart knowledge and educate people.

4.2 Grasp of new and wide range of knowledge

Information age leads us to a rapid expansion period in which knowledge is upgraded at such an astonishing speed. Under such background, young teachers, compared with old ones, enjoy more knowledge advantages. Young teachers have just graduated from school, owning the most advanced research literature, and holding the latest core theories. They can impart such worthy knowledge to students, thus broadening their horizon. Eager for new things, young teachers are usually armed with strong proficiency of foreign language and computer application and wide range of knowledge. Therefore, they can easily win admiration and worship from students. With such advantages, they can get better results in performing ideological and political education.

4.3 Stronger logical thinking

Young teachers have received good training of logical thinking for a long time. It is not only the teachers from science, but also those young teachers from liberal arts that receive training of logical thinking during their school time. Therefore, young teachers perform well in pondering and analyzing problems, looking at issues in dialectical ways and considering problems in more detail ways. However, students in higher learning institutions have not had their thinking modes fixed, so they are flexible. A young teacher can, during his class, influence students with his thinking mode, and train students' logical and dialectical thinking, making them more competent to think over and analyze problems.

4.4 Similar thoughts to those of students

Thought confliction is one of the barriers that block teacher-student communication. Middle-aged and old teachers often show loving care for students by seeking advice of their seniority. But students often mistake it for verbose instruction. Patient education of teachers is totally ignored by students, which is fundamentally caused by big differences in thought. Young teachers are of closer age to students. The information they receive and the hobbies and interests they have are very similar to those of students. The generation gap between them is narrow. Therefore, young teachers can communicate with students in a better way, which is convenient for the ideological and political education to students.

4.5 Psychological advantages

In the modernized society, study and work usually make people feel more stressed out. Young teachers in institutions of higher learning are the outstanding ones. They have experienced the test of study pressure and joined the rank of teachers in higher learning institutions. They have a heartfelt understanding of the pressure students face in the study, then, giving more targeted guidance to them, and helping them relieve psychological pressure. Thus, students can foster optimistic mentality, and build good outlook on life and world.

5 Efforts by Young Teachers to “Impart Knowledge and Educate People”

In order to conform to the requirement of imparting knowledge and educating people in the new era, young teachers should shoulder more responsibility and play more important roles.

5.1 Further improvement of self-quality

Although young teachers enjoy many advantages in imparting knowledge and educating people, they still need to improve themselves. Young teachers are lacking in practical teaching experience and do not fully understand conditions about colleges or universities. Therefore, they need to further their understanding and accumulate experience in teaching practice. To improve self-quality is not a short-term task. It cannot be completed merely by teachers' effort. Universities or colleges should also formulate related schemes and objectives of training. Young teachers' study of pedagogy, psychology, and other subjects should be strengthened, and the development law of undergraduate psychology and physiology should be fully grasped. In this way, young teachers' theoretical foundation can be solidier and more targeted in the course of imparting knowledge and educating people, especially educating people.

5.2 Positive participation in student work

Young teachers are in the prime of their time, full of energy and time. They should be encouraged to serve as head teacher or class mentor more positively. Tsinghua University initiated “Double Shoulder Task”, allowing full-time instructors to act as teachers of ideological and political theory course. Young teachers can act in an opposite way. They can act as head teachers of some classes and grades while being full-time teachers. In this way, they can participate in the student work in addition to class teaching. Such a mode is of great significance to leverage advantages of young teachers in imparting knowledge and educate people.

5.3 Enhancement of moral education in class teaching

Not all young teachers will serve as head teachers or get engaged in student work. For them, it is their supreme duty to give class teaching. It is an important link of moral education in higher learning institutions to place “educating people” in “teaching”. In this course, young teachers should bring their advantages into full play, make innovation in education form and take more diversified measures to ensure that students imperceptibly receive moral education and their ideological and political quality is improved.

5.4 Self-discipline and role model for others

As is known to everyone, example is always more efficacious than percept. Due to their unique advantages, young teachers can easily become idols of students, and they can give a lot of instruction to students. A young teacher who is willing and brave to make innovation can more easily cultivate students who have spirit and ability of creation. Therefore, young teachers need to become students' role models in knowledge, moral sentiments, conduct and other respects, so that students can worship and copy them. As Tao Xingzhi said, only those teachers insatiable in learning can teach out students insatiable in learning. Young teachers should set strict demands on themselves, act as role models for students, and lead them to make progress with exemplary force.

6 Conclusion

Young teachers should give full play to their advantages and shoulder more responsibilities and

obligations to ensure they play important roles in imparting knowledge and educating people.

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Reflections on the Reform and Development of China's Competitive Sports

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Abstract: Through the methods of literature consultation, specialist interview, mathematical statistics and logic analysis, this paper carried out an overall analysis on China's achievements in eight summer Olympic Games both qualitatively and quantitatively on the basis of the current development of China's competitive sports and relevant data of the eight summer Olympic Games. Meanwhile, From the analysis of the current level of China's competitive sports and development trend after 2012, this paper drew the conclusions of the development of Chinese competitive sports in the 21st century: (1) Strengthen the institutional foundation and ensure the sustainable development of China's competitive sports. (2) Consolidate the team of teachers and coaches. (3) Continue to maintain the absolute advantage in Asia; Expand the chances of winning gold medals and medals; Narrow the gap with the United States in terms of 28 sports and 324 events of the Olympic Games. (4) Give full play to the Bayi army athletes' team in training, competition, logistics and management. (6) Make full use of the Beijing Olympic Games, which has gradually influenced China's competitive sports and gained more social support for its sustainable development. (7) Reflections on the London Olympics and the guiding role of domestic public opinions in order to lay a solid foundation for China's transformation from competitive sports into a world sports power.

Key words: China; Competitive sports; Reform; Reflections; Olympic Games

1 Introduction

Reviewing the past 60 years of development history of China's competitive sports, we can see constant achievements from international competitions such as Olympic Games, World Championship and World Cup Tournament. In the past 60 years, China has formed the development strategy with Olympic Games as the highest level and a nationwide system of competitive sports with Chinese Characteristics.

In 1984, China broke the zero record of the Olympic gold medals in Los Angeles. In Beijing Olympic Games, China won 51 gold medals and 100 medals and topped the gold medal winners list, which was a double winning of sports achievements and cultural progress and therefore created a new glory in the history of China's competitive sports.

During the 20 years from 1959 to 1979, China produced 42 world champions. Since the introduction of Reform and Opening up, China's competitive sports have gained rapid development and made remarkable achievements. During the 20 years from 1980 to 2000, China produced 1284 world champions. And at a new time of 2012, it is necessary to analyze the internal reasons for the achievements of China's competitive sports and come up with solutions for the development in the post-Olympic era.

China's first participation in summer Olympic Games started at the 23rd one in Los Angeles in 1984 and, up to London Olympic Games in 2012, China was in for 8 times. Therefore, China's participation in Olympic Games can be divided into three phases: the first phase includes the 23rd and 24th Olympic Games, the second phase includes the 25th, 26th and 27th Olympic Games and the third phase includes the 28th, 29th and 30th Olympic Games.

In the 23rd Olympic Games of the first phase, China won 15 gold medals, 32 medals and ranked the fourth on the gold medal tally, which was a breakthrough from zero on gold medal record. However, such achievements was made under the background that 16 countries including former Soviet union and the eastern European countries refused or were unable to participate, they cannot be regarded as the full display of China's real capabilities in sports. On one hand, most of the gold medals China had were some of the most competitive events of the former Soviet union and the eastern European countries, such as gymnastics, weightlifting, shooting and swimming. On the other hand, Due to political changes and internal reasons of competitive sports and, in addition, the former Soviet union and eastern European countries'back into the Olympic Games, in 1988, China only received five gold medals in Seoul Olympic games. Very unexpectedly, out of the advantageous events like weightlifting, shooting and swimming in the Los Angeles, China only won one gold medal and fell to the 11th on the ranking list. Therefore, Seoul Olympic games explained the

reality of China's falling from a high starting point in the field of competitive sports.

In the 25th, 26th and 27th Olympic games of the second stage, United States and the Commonwealth of Independent States (Russia) ranked the top two on gold medal tally. Table 1 shows that United States, Russia, Germany were in the absolute advantageous position in the world competition of sports and occupied a significant proportion in terms of all previous total medals, total gold medals and the main events of winning gold medals. The three countries were regarded as the "First Winner Group" in the world competitive sports. Although China were among the top three in the 27th Olympic games, its overall strength still lagged behind compared to the three countries. In some big events like track and field, swimming and ball games, there was a gap between China and the three countries. However, China had indeed made some significant progress in competitive sports and, in addition, these three Olympic games were included into the first ten-year program of striving for Olympic glory. Many experts from sports training field believed that it was not appropriate to say that China belonged to the "First Winner Group" by ranking the third for one time, which can be seen from table 1 and table 2.

Table 1 Top Six Countries in terms of Gold Medals and Total Medals from the 25th to the 27th Olympic Games

Session	Time	Place	Rank	Country	Gold Medals	Total Medals
The 25 th	1992	Barcelona, Spain	1	CIS	45	112
			2	USA	37	108
			3	Germany	33	82
			4	China	16	54
			5	Cuba	14	31
			6	Spain	13	22
The 26 th	1996	Atlanta, USA	1	USA	44	101
			2	Russia	26	63
			3	Germany	20	65
			4	China	16	50
			5	France	15	37
			6	Italy	13	35
The 27 th	2000	Sydney, Australia	1	USA	39	97
			2	Russia	32	88
			3	China	28	59
			4	Australia	16	58
			5	Germany	14	57
			6	France	13	38
Sum					434	1157

Table 2 China's Medals from the 23rd to the 30th Olympic Games

Events	Time								Sum
	The 23 rd	The 24 th	The 25 th	The 26 th	The 27 th	The 28 th	The 29 th	The 30 th	
Shooting	3		2	2	3	2	5	2	19
Weightlifting	4			2	5	5	8	5	29
Fencing	1						1	2	4
Gymnastics	5	1	2	1	3	1	11	5	29
Volleyball	1					1			2
Diving	1	2	3	3	5	6	7	6	33
Table Tennis		2	3	4	4	3	4	4	24
Badminton				1	4	3	3	5	16
Swimming			4	1		1	1	5	12
Judo			1	1	2	1	3		8
Track and Field			1	1	1	2		1	6
Taekwondo					1	2	1	1	5
Sailing							1	1	2
Wrestling						1	1		2

Tennis						1			1
Canoeing						1	1		2
Rowing							1		1
Boxing							2	1	3
Archery							1		1
SUM	15	5	16	16	28	32	51	38	201

In the 28th, 29th and 30th Olympic games of the third stage, which were included into the second ten-year program of striving for Olympic glory, China had witnessed a healthy, rapid and sustainable development in competitive sports. In the 29th Olympic Games, which was held by China, China made the full advantage of timing, place and excellent athletes and, as a result, ranked the first in terms of both total gold medals and medals. It was a sign showed that we have established ourselves as a major sports country, yet we still have a long way to go before becoming a world sports power for the total 51 medals we have achieved were merely from 19 events.

Therefore, this paper, through analyzing the above mentioned three stages, carried out a comprehensive research on China's reform and development of competitive sports.

2 Research Methods

The research methods mainly include: literature consultation, specialist interview, mathematical statistics and logic analysis.

3 Results and Analysis

3.1 The successful experiences of China's competitive sports.

(1) The basis is to uphold the guidance of the Communist Party of China and Socialism. China's competitive sports gained its development under the leadership of the Communist Party of China, which enjoys an institutional advantage and provides full support that are absent in other developing countries.

(2) "State-run sports system" is the key for China's competitive sports to make remarkable achievements, which demonstrates the superiority of socialism on competitive sports

(3) Scientific training and innovation is the guarantee for the development of competitive sports. During the 30 years of China's participation in Olympic games, China was able to make major progress and breakthrough in such short time. All these achievements was made under the polices of adhering to the scientific guidance in training, carrying out technological and management innovation and launching anti-doping campaigns throughout the whole process of development.

3.2 Problems in China's competitive sports

Institutional problems of China's competitive sports in the new situation; "State-run sports system" has been the basis for the development of China's competitive sports. Under this system, China has made remarkable achievements and created glory in this aspect. It is safe to say that the development is made thanks to the system.

(1) How to make sure the investment in China's sports; At present, in terms of economic system of sports, there are mainly two types, one is to run sports by society sectors like clubs and sports team from institutions of higher education represented by United States and western countries, the other is to run sports by society sectors represented by eastern Europe and the former Soviet union.

(2) How to adjust the structure of sports; At present, Some problems, such as unbalanced development in the events of sports, weakness in infrastructure, unreasonable setting of structure, the non-Olympic events compete against with the Olympic events for resources and leads to inadequate support for advantageous and potentially advantageous events, restrict the implementation of the Olympic strategy on different levels.

(3) How to coordinate the relationship between the local areas and the army; It is particularly important to coordinate the relationship between Bayi army athletes' team and sports bureaus at all levels in the post-Olympic era.

(4) How to make use of the full influence of Beijing Olympic Games on competitive sports; The significance of the Beijing Olympic Games is not only merely limited to the Olympic movement itself, but also on our country's politics, economy, culture, society. At the same time, the political, economic, cultural and social changes will also lead to the development of competitive sports.

(5) How to define the future development through London Olympic Games. The data from London Olympics once again shows that China is already well on its way of becoming a major sports country

yet still not a major sports power, although in London Olympic Games, China ranked the second in terms of gold medals.

3.3 Strategies in the post-Olympic era

(1) Continue to improve state-run sports system and impart new connotation and denotation and strengthen its fundamental role in developing China's competitive sports.

(2) Strengthen the cultural and capability training of coaches and form the rudimentary, intermediate and high level of coach training system. Institute of Coaches of General Administration of Sport thus can play an integral role in the development.

(3) Explore the rules of scientific training and make use of multidiscipline teamwork and form a system that combined training, education and medical service. In this way, the inter-disciplinary training team can be founded and thus improve the innovative awareness as well as the quality and efficiency.

(4) Make full use of Bayi army athletes' team and promote the coordinated development between local sports and army sports.

(5) Promote innovative development in the post-Olympic era and popularize competitive sports in schools

(6) Analyze and forecast the changes in the setting of Olympic Games and adjust the structure of sports. Take corresponding strategies in expanding the chances of winning medals and transform into a world sports power.

4 Conclusion

1) Adhere to the socialist road with Chinese characteristics, which is the basis for the state-run sports system. Combine the trend of the development of the world competitive sports so as to deepen the reform in sports and ensure the sustainable development of China's competitive sports.

2) Strengthen the foundation of competitive sports. It is necessary to strengthen the construction of teachers and coaches' team. Improve the management of training team and promote the scale and quality of the training teams. Attach great importance to the advantageous programs, latent advantageous programs and basic programs.

3) The aims of competitive sports in China: Maintain the absolute advantage in Asia; Expand the chances of winning gold medals and medals; Narrow the gap with the United States in 28 sports and 324 events of the Olympic Games; In 2016 Brazil Olympic Games, strive to maintain China's overall level of competitive sports and compete with the United States in over two thirds of sports and over one-third of the events, thus lay a foundation for our country to a world sports power.

4) Give full play to the Bayi army athletes' team in training, competition, logistics and management. Promote the coordinated development of the army and local sports.

5) The development of competitive sports should be based on constantly improved three levels training system, i.e. the system from elementary school to middle school to university and then to national team. Explore more development methods and open more doors of schools for competitive sports.

6) Make full use of the Beijing Olympic Games, which has gradually influenced competitive sports and gained more social support for the sustainable development of athletics sports.

7) Reflections on the London Olympics and the guiding role of domestic public opinions. Lay a solid foundation for China's competitive sports transforming into a world sports power.

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The Consistency of Dance Cheerleading and Performing Aerobics in the Development of Universities

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Abstract: Through the methods of literature consultation, specialist interview, mathematical statistics, this paper carried out an overall analysis on the consistency of dance cheerleading and performing aerobics in China's universities and colleges, which will help to understand the relationship between dance cheerleading and performing aerobics, to highlight the characteristics of each event and to provide certain reference and contribution for relevant personnel involved in sports field. The study has come to the conclusions that dance cheerleading and Performing Aerobics have similarities in seven aspects including physical requirements for students, requirement for music, training contents and methods, physical fitness, basic dancing skills, comprehensive capabilities and aesthetic, fitness and social values.

Keywords: Dance cheerleading; Performing aerobics; Colleges and universities; Consistency

1 Introduction

With the progress of the society, College students in China have shown more tendency for the new, interest, knowledge and activities, which has led to the fact that traditional sports events no longer meet their needs. As a result, dance cheerleading and performing aerobics were introduced into Chinese universities under this particular background. They consist of different sets of movements that are full of youthful vigor and vitality and can help enhancing physical fitness, improving artistic tastes and cultivating mentality. In addition, they also enjoy the advantages of having no special requirements for space, place and physical fitness and, as a result, favored by college students and thus gained rapid development in colleges and universities and soon be included in the teaching program of college sports in China. By the study of comparison between dance cheerleading and performing aerobics, it is made possible that the two events learn from each other and promote common development while maintaining the characteristics of each event, which have important significance on promoting a rapid and balanced development of dance cheerleading and performing aerobics in universities of China as well as enriching cultural life in campus.

2 Similarities Between Dance Cheerleading and Performing Aerobics in Requirements For Students' Physical Fitness

Table 1 Common Physical Requirements for Dance Cheerleading and Performing Aerobics

Physical Fitness	Requirements and effects
Basic Postures	Express the beauty of posture, movement and spirit to make the movements more stretching and powerful.
Performance	Represent beautiful post and powerful movements combined with music for the audience and judges and enable the audience to appreciate the beauty of sports.
flexibility	Make the joints more flexible and prevent any damages as well as improve the performer's movements and flexibility.
strength	Fast in movements and strong in control ability, easy to master difficult action and maintain good physical shape.
Muscle Control	Strengthen the control of body and ability to keep balance, improve physical coordination and expression of the movements, enhance muscle elasticity and flexibility, promote the formation of correct posture and physical shape.
coordination	Keep a good coordination between different parts of the body and smooth movements to maintain the movements to be tight but not stiff and relaxing but not loose so as to demonstrate the artistic beauty of the movements.

In the shows of dance cheerleading and performances aerobics, the performers need to express their most dynamic and passionate movements by graceful dancing and personal capabilities to attract the audiences. In order to achieve this, students are required to not only have a good command of body

movements, power, flexibility, strength and performance, but also a strong artistic appeal and physical coordination. Basic postures are guarantee for the basic movements and performance is a manifestation of confidence of the performer; good flexibility is the basis for high standard and high level movements; strength is the physical basis to complete the whole sets of actions; coordination is the premise to show the artistic beauty and command highly difficult and graceful movements. Qualities required and effects are shown in Table 1.

3 Similarities Between Dance Cheerleading and Performing Aerobics in Requirements for Music

Healthy music provides a pleasant feeling and is not only beneficial to people’s mental health, but also affect the physical health. Dance Cheerleading and Performing Aerobics choose music with stronger sense of rhythm and cheerful melody, which can inspire people’s emotions. Performers are required to have strong ability to appreciate music and show in-depth understanding of music and can perform passionate and enthusiastic movements to vividly reproduce the theme of music.

Table 2 Musical Comparison between Dance Cheerleading and Performing Aerobics

events	Time	Music Pace	Score	Music requirements
Dance Cheerleading	2'20"±10"	24 beats per 10 seconds	10 points (out of 50)	Specific theme; complete sets of movements designed in accordance to the music style, beats and style; stable and clear sound.
Performing Aerobics	2'10"±10"	22 to 26 beats per 10 seconds	2 points (out of 10)	Music must be in accordance to the sets of movements; smooth and complete music editing; clear audio

The music duration for dance cheerleading and performing aerobics is generally between 2 minutes to 2 minutes and 30 seconds, Dance cheerleading and performances aerobics have basically the same requirements for music, which is to highlight the theme; music should be edit into a more smooth, natural and complete version; the quality of music should reach a professional level to ensure its clear and stable rhythm; selected music should be coordinated with the sets of movements and the beat style and the theme to demonstrate the capacities and personalities of students. (See Table 2)

4 Similarities Between Dance Cheerleading and Performing Aerobics in Training Contents And Training Methods

Although, in dance cheerleading and performing aerobics, the requirements of slogans, arm movements and pace requirements, bouncing technique and other special movements may vary, most common training contents and training methods are similar. (Table 3)

Table 3 Similarities between Dance Cheerleading and Performing Aerobics in Training Contents

Classification	Training contents	Training purpose
Physical Fitness	Flexibility, strength, explosiveness and coordination	Improve the coordination ability of body parts
Basic Dancing Skills	Physical ballet, Latin dance, modern dance and folk dance	Improve physical expression skills
Comprehensive Capabilities	Performance, psychological quality and music sensibility	Improve professional skills and level

4.1 Similarities in physical fitness and training methods

Good physical fitness is the basis and guarantee for outstanding performance of the entire sets of movements. Drastic jumps and kicks can fully display the students’ flexibility and good flexibility is the basis for high standard and high level movements. In the process of training, stress should be put on the development of flexibility training in shoulder, waist, legs and hip joint. Good coordination can ensure students to express standards, coordinated, bright and graceful performance in the complex and elaborate movements.

All too often, dance cheerleading and performing aerobics require passionate performances with their movements releasing infinite strength and enthusiasm, in which the explosiveness is a very important quality. Different exercises like jumping, deep leap, hopping, pushing down are adopted in the high, medium and low intensity mixed training combined with strong music.

4.2 Similarities in training methods commonly used in basic skills of dance

The performances of dance cheerleading and performing aerobics often involved of Latin, jazz, folk and other styles of dancing to increase the effect of novelty and performances on the stage. Students

are required to practice these basic dancing skills of different style and forms to improve their abilities of physical expression.

Different kinds of dance training should be carried out through different training methods, which can enhance students' abilities of explosiveness, jumping, controlling, endurance and stability, flexibility, coordination and, in addition, effectively improve the students' perception of time, rhythm and beat and judgment, imagination and observation towards space, image, and movements. Different training methods help to improve students to perform different movements in different body parts at the same time while maintaining their body coordination and balance.

4.3 Similarities in training for comprehensive capability

Comprehensive capabilities of dance cheerleading and performing aerobics mainly refer to the capacity of expression and good psychological quality. Personal capability of the athlete not only plays a decisive role in competitions and performances for "artistic quality", but also is a very important factor for the athletes to achieve outstanding results. Therefore, it occupies a leading position in the cheerleading and performing aerobics.

Dance cheerleading and performing aerobics are mainly performed through the body's beauty. In training, athletes are trained through different dances like Latin dance, ballet, modern dance, jazz and folk dance, which can fully exercise the chest, waist and hips.

4.4 Similarities in aesthetic, fitness and social values

Dance cheerleading and performing aerobics are easy to learn with a comparatively low cost. They are favored by people all age and have strong feature of modern times. They can be performed both on stage and as entertainment for gatherings. Therefore, they are suitable for both men and women of different classes from all walks of life to exercise and get improve their health, thus becoming a very popular sport in recent years.

The similarities of dance cheerleading and performing aerobics in values are mainly reflected on aesthetic, fitness and social values. Generally, they are both combined with art, by practicing and watching, improve people's perception towards beauty, ability of appreciation and creativity. What's more, they not only help to form graceful physical appearance, good interpersonal relationship, but also meet people's diversified tastes for arts.

5 Conclusions

1) Similarities between dance cheerleading and performing aerobics in requirements for students' physical fitness, which is the comprehensive capacity.

2) Similarities between dance cheerleading and performing aerobics in requirements for music, which is specially targeted for the performances.

3) Similarities between dance cheerleading and performing aerobics in training contents and methods, which are specially designed for the performances.

4) Similarities between dance cheerleading and performing aerobics in physical fitness and training methods.

5) Similarities between dance cheerleading and performing aerobics in training methods commonly used in basic skills of dance, which are the fundamental basis for the training.

6) Similarities between dance cheerleading and performing aerobics in training for comprehensive capabilities.

7) Similarities between dance cheerleading and performing aerobics in aesthetic, fitness and social values.

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Study on the Efficacy of College English Reform

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Abstract: Computer and internet have caused great innovation in the way of English teaching and learning in the information age, resulting in a brand-new teaching mode. This study investigates the efficacy of college English reform. It is based on a questionnaire survey made among our students about the computer-based and web-based teaching mode. The findings show that the incorporation of computer and web into college English teaching can promote language learning which can be proved by the increasing numbers of prizes won by our students in the National English Contest for College Students and the high pass rate of College English Test Band 4. The limitation is also explored to perfect our teaching mode.

Key words: Teaching mode; Innovation; Efficacy; Computer-based; Web-based

1 Introduction

English teaching and learning have come to a digital era. The multimedia technique prevails in the education of all levels, especially in higher education. The State Education Ministry issued the College English Curriculum Requirements (CECR) in 2004. In CECR, a new English teaching mode with the help of multimedia and network technology is introduced. It says the extensive use of advanced information technology should be encouraged, computer-based and web-based English teaching should be promoted, and students should be provided with favorable environments and facilities for language learning^[1]. Nowadays, in most universities, the computer in the classroom is equipped with an overhead projector but not hooked up to internet. So web-based English teaching is mainly conducted in the web room under teachers' online guidance after class. New technology has indeed been applied in our education while some people doubt its efficacy. To figure out whether the students accept the new computer-based and web-based teaching mode and its efficacy, a small-scale questionnaire survey is conducted among my students. Wang Shouren (2011) and Shu Dingfang (2006) et al discussed and made clear the mission and task in college English teaching; Feng Hui (2007) and Li Xin (2008) et al analyzed the importance of college English teaching reform and the coping strategies. Thus, with ongoing of education reform, the study on the efficacy of the current implementation of reform in college English teaching that is led by listening and speaking is a necessary requirement of at a new period.

2 Advantages of the Innovations of Computer-Based and Web-Based English Teaching

2.1 More accesses to authentic language resources

Students and teachers can have access to lots of authentic language resources which are more attractive and interesting with vivid pictures and pleasant sounds. Teachers can reproduce those downloaded language materials easily in class. English movies and songs can be appreciated which can also contribute to students' language sense. Such sufficient comprehensible language input will definitely lead to language output^[2].

2.2 Less anxiety and more freedom

The interesting and authentic language environment can lessen students' anxiety. Moreover, they will feel less anxiety when they study online in the web room with the absence of their teacher. In such environment, the communication is easy mainly between the students and the computer accompanied by the online communication between students and between them and their teacher which is not face to face. Anxiety will exert a negative effect on language learners^[2]. Students also enjoy more freedom when they study online for they can decide the study pace and schedule largely by themselves.

2.3 A new supplementary way of communication between students and teachers

Compared with the face-to-face communication with teachers, most students are willing to communicate on line with their teachers including asking questions and consulting learning strategy and

even questions irrelevant to language learning which promotes the relationship between teachers and students.

3 Efficacy Study of the Innovation in Our English Teaching

The introduction of computer results in a brand-new teaching mode. In this teaching mode, we have two periods of Integrated Course and one period of Listening& Speaking Course and one period of online study of New Era Interactive English guided by the teacher in the web room. The new computer-based and web-based teaching mode features advanced information technology and is also student-centered, which emphasizes the training of students' language skills and independent learning.

3.1 Students' synthetical assessment of the course of college English

Most of my colleagues agree with me that students are increasingly fond of this compulsory course owing to the innovation of our college English teaching. The synthetical assessment scores of this course given by our students from year 2006 to 2009 are 85, 92, 97 and 98^[3] respectively which mean students are more and more satisfied with the reformed English teaching.

The above assessment is done by all the students in our university online at the end of each semester. To know students' feeling about the innovated teaching, I made a class survey about the three aspects of our teaching among my 104 students with 100 valid questionnaires collected.

3.1.1 In English reading class

These two periods are conducted in multimedia classroom. Owing to the mentioned advantages, students' language output is largely promoted. I am pleased and proud to appreciate students' fabulous presentation with the help of beautiful PPT. During the process of preparing the oral presentation with PPT, students have to search for the useful information via cooperation among the group members. So students' integrative or diverse abilities can be trained.

Table 1 Questionnaire Results of Students' Opinions on Multimedia Teaching

Items	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
I like the multimedia English teaching very much.	40%	40%	7%	10%	3%
Multimedia teaching can promote my interest in English.	35%	47%	6%	8%	4%
Multimedia teaching can improve my integrative abilities like cooperation, research, etc.	30%	39%	16%	7%	8%

Our survey shows 80% students like multimedia teaching very much and 82% students think it can promote their interest in English. So it is easy to see this kind of teaching is welcomed by the majority of the students.

3.1.2 In the listening and speaking class

In our university, Listening and Speaking Course is taken in language lab or the ordinary classroom or in the multimedia classrooms when they are available. The instruction of this lesson combines listening with oral practice whose topics are usually closely related to the listening material.

Table 2 Questionnaire Results of Students' Opinions on Listening& Speaking Course

Items	Strongly agree	Agree	uncertain	Disagree	Strongly disagree
I like Listening& Speaking Course very much.	40%	44%	6%	8%	2%
This course promotes my interest in English.	37%	46%	7%	7%	3%
This course makes me practice listening and speaking more frequently in and out of class.	31%	50%	2%	11%	6%

Results of our survey reveal that 84% students like this course and 83% students agree it can promote their interest in English. We also find students like this course than Integrated Course because there is less pressure and more activities in class and more students can participate in the class activities. In their words, there is more fun.

3.1.3 In the webroom

CECR says the extensive use of advanced information technology should be encouraged in college English teaching and computer-based and web-based English teaching should be promoted^[1]. Then our one period's online study of New Era Interactive English is the realization of this idea.

Students are free to study online New Era Interactive English in the web room and they can make personal study schedule according to their different abilities and diverse study habits. This is totally individualized and autonomous. It seems the teacher is absent from students' online study. But actually teachers are supervising their learning simultaneously and preparing to answer any question from the students by logging in to Learning Management System.

Table 3 Questionnaire Results of Students' Opinions on Online English Learning

Items	Strongly agree	Agree	uncertain	Disagree	Strongly disagree
I like online English study very much.	45%	46%	6%	2%	1%
This course promotes my interest in English.	39%	46%	9%	5%	1%
This course contributes to my language proficiency.	25%	26%	20%	21%	8%

The results indicate that 91% students like it and 85% students think the online English study promotes their interest in English. But only 51% students think it can improve their proficiency in English, which is out of our expectation and surprises us.

3.2 Achievements of the computer-based and web-based teaching reform

3.2.1 Prizes won in NECCS

As one English teacher, I feel that these years our students' English levels keep being improved as one delightful result of our reform. My feeling may be proven by the increasing number of students who won prize in the National English Contest for College Students (NECCS). The numbers^[3] are shown in the following table.

Table 4 Prizes Won in NECCS

prize year	special	first	second	third
2005	4	4	18	38
2006	4	6	25	49
2007	5	9	38	105
2008	4	20	63	123
2009	20	26	107	199

The above table shows we had 46 special and first prizes in 2009 while we only got 8 in 2005 and 10 in 2006. So we make tremendous achievement in the contest. The second and third prizes we won in the above years can also show the progress our students and teachers made.

We have taken special investigation recent years on the students from School of Automotive Engineering, who also shows the remarkable trends as the above survey. The numbers^[7] are shown in the following table.

Table 5 Prizes won in the NECCS (School of Automotive Engineering)

prize year	Special	First	Second	Third
2012	0	1	7	7
2013	1	2	1	7
2014	1	2	6	12

The above table shows School of Automotive Engineering had 15 students won prizes in the NECCS in 2012 while 21 students have won prizes in 2014. Besides the total increasing number of prizes winners, the number of the special and first prizes won in the recent year can prove our progress made in the teaching reform.

3.2.2 The increasing pass rate of CET4

The satisfactory efficacy of the reformed teaching can also be proven by the increasing single-time pass rates of College English Test Band 4(CET4). The single-time pass rates of CET4 for students of 2002 to those of 2006 are 49%, 63.73%, 62.9%, 73.98%, and 84.42%^[3] respectively which are shown in

the following figure. The statistics show the pass rate of students of 2006 is unbelievably 35% higher than that of students of 2002.

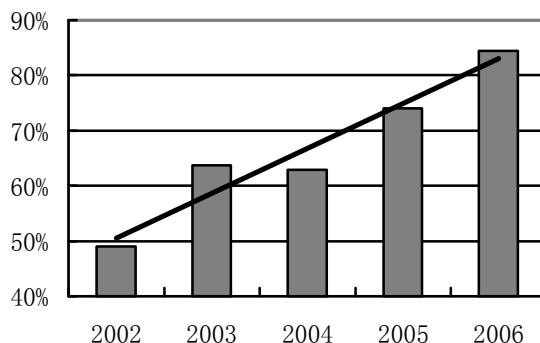


Figure 1 Single-time Pass Rate of CET-4

We have also taken special investigation recent years on the students from School of Automotive Engineering, who also shows the remarkable trends as the above survey. The single-time pass rates of CET4 for students of School of Automotive Engineering in 2011 to those of 2014 are 90.66%, 94.43%, 93.36% and 94.91%^[6] respectively which are shown in the following figure. The average single-time pass rates of CET4 for students of the Wuhan university of Technology in these years are 90.55%, 94.28%, 93.25% and 94.28%^[6] respectively. The statistics show the pass rate of our students is making tremendous progress. What is more satisfactory is that the rate of students from School of Automotive Engineering is incredibly 0.63% higher than that of average students of 2014.

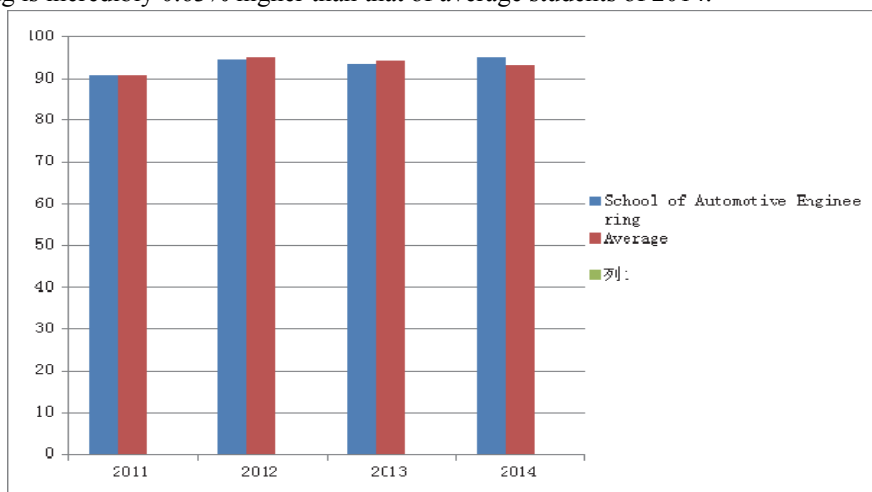


Figure 2 Single-time Pass Rate of CET-4 (School of Automotive Engineering)

4 Conclusion

This paper draws on the data collected from the classroom survey to test students' preference about the reformed new teaching mode which is computer-based and web-based and the efficacy of this reformation. With the questionnaire results and the data about students' achievement, we can proudly say our teaching reform is quite successful. Students become more active and absorbed in class which results in their more proficiency in English. Students' language communicative ability has been largely improved.

Although some researchers say we should also hold this in mind that computers will never substitute teachers for the moment, but they do offer new opportunities for better language practice^[4]. However, we should not exaggerate the merits of computer-based teaching for a few teachers and students in our survey complain that they sometimes suffer a lot from inefficiency owing to the unfamiliarity with the operation of computer. One elderly teacher complains that she spends too much time learning how to design and make PPT. And one teacher complains that her activity is confined by the computer. On the other hand some students complain that it seems the teacher spends more time on computer rather than them. Hence I suggest the future reform should combine the computer technology

with the more and better interaction between students and teachers. Anyway they are the implementers and participants in any kind of foreign language teaching mode and the interaction between them is the key of classroom teaching^[5]. So no matter what the teaching mode is, we should pay much attention to the interaction between the teacher and student.

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Research on the Evaluation of the Party Building in Colleges and Universities Based on the Theory of Lawler-Potter*

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Abstract: Assessment of Party building in colleges and universities is a major study issue in the present and future. It plays a significant role in the party’s construction in colleges and universities to promote the building of basic party organizations. To establish a systematic, scientific and operable evaluation system and mechanism is an effective way to make full use of the function of the basic Party organization in the construction of high level university. This paper tries to use the synthesizing incentive theory of Lawler-Potter’s model to put forward the building ways and implementation methods of the assessment system of the building of basic Party organization.

Key words: Colleges and universities; Basic party organizations; Party building assessment system; Synthesizing incentive theory

1 Introduction

The report of 18th CPC National Congress stresses that: “to improve the quality of new Party members, pay attention to recruit new party members from among youth workers, farmers, intellectuals to optimize the structure of Party membership”. In the work of Party building, the basic Party organization in colleges and universities is the most closely linked with the majority of teachers and students. It is also the foundation to implement and carry out the Party central policy. Thus, the consensus has been already reached that to focus on construction of the basic party organization is to promote the development of university. The establishment and operation of the evaluation system of the party construction work will be the booster of the Party construction work.

Our country university party building assessment work experience three stages “breeding rise, initial development and accelerate development”. The incentive and promote of the party's construction is the final goal of Party building assessment. This paper tries to construct the “Lawler-Potter’s synthesizing incentive model” to study the construction method of the party building assessment system in colleges and universities.

2 The Realistic Significance of the Incentive Mechanism Used in the Party Building Assessment in Colleges and Universities

The famous American organization behavior experts, the world’s incentive master, Robbins thinks that motivation is able to satisfy the need and achieve organizational goals of certain individuals within organizations. In China, the psychology-management scholars generally consider incentive to be the process to stimulate continuously the motivation. As a kind of self-management and community-management function, the theory of motivation in management must be based on the premise of the internal dynamics of the organization. It is the process of cultivating and motivating people to achieve the goal of enhancing the behavior. Incentive mechanism is applied to the basic party building assessment. It is conducive to enhancing the cohesion and combat effectiveness of basic party organizations, to stimulating creativity of basic Party workers and members, to innovating work methods of basic party building, and to improving the basic party building performance.

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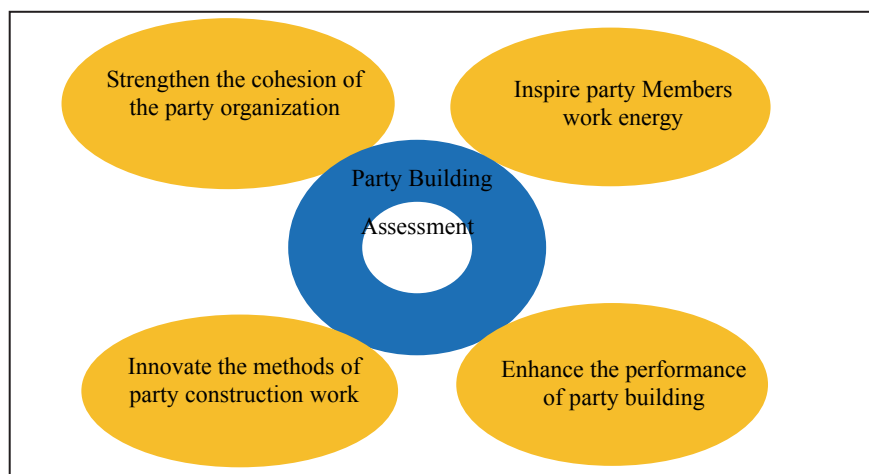


Figure 1 The Significance of the Party Building Incentive Mechanism's Application

2.1 Enhance the cohesion and combat effectiveness

In the new historical period, the Party members have a pursuit to be personalized during the fulfillment of their rights and obligations. Party members in the college are no exception. Each party member not only has its own development vision, but also requires organizations to help them achieve the needs of individual value. Applying the incentive mechanism to the party building assessment in colleges and universities is advantageous for the basic Party organization to pay attention to the individual needs of the party members in the practical work.

2.2 Stimulate work vitality of the basic party members and workers

The psychological factors that affect a person's work efficiency include two aspects: ability and aspiration. The former is the foundation, the latter is the key. Under the condition of certain capacity, the work efficiency is determined by the individual's work aspiration. From the perspective of organization, the work aspiration of individuals is the work motivation stimulated by the policy system, which is derived from the construction and implementation of the incentive mechanism.

University is a place where intellectuals gather. The personal ability of the basic party members, especially the knowledge, experience and intelligence level are generally higher. Thus, the core elements affecting the work efficiency is in fact the work willingness and enthusiasm. From this sense, construction and implementation of incentive effect of the basic Party building assessment system is the key to stimulate the party personnel work willingness and enthusiasm.

2.3 Innovative work methods in basic party building

Lacking of innovation is a common problem in the construction of basic party construction in colleges and universities. The political study and democratic life meeting of many basic organizations almost become formalistic. The reasons for the deficiency and weakening of the party construction work are as follows: firstly, it is not noticed the importance on the ideological level. Secondly, the innovation of the work method is not enough on the operation level. The lack of innovation is not because of the special nature of the party construction work in colleges and universities, but because of the lack of incentives mechanism to encourage innovation. Therefore, the construction and implementation of the evaluation system of party building can really promote the methods reform and innovation to build the basic Party organization.

2.4 Promote the performance of Party Building

The level of the basic party construction work in the performance is not only affected by individual performance level, is also subject to the consistency of personal goals and basic organization goals. An important feature of the evaluation work is to form a harmonious and unified relationship between the individual goals of the grass-roots party building work and the party's basic organization. The construction of the consistency between individual goal and organization goal is the key to improve the performance of the party construction in colleges and universities. Therefore, considering the use of incentive mechanism will be helpful to improve the work performance of the grass-roots party construction in colleges and universities.

3 Construction of the Evaluation System of the Party Building in Colleges and

Universities Based on the Lawler-Potter Theory

3.1 Motivation and motivation theory

Motivation in management is to use the scientific means to stimulate people's inner potential, so that it can make full play to the enthusiasm, initiative and creativity. In the activities of the organization, managers use the elements of various internal and external environment, so that the managers can produce a kind of inner enthusiasm for achieving the organization's goal. The motivation theory is a summary of how to meet the needs of people, and to mobilize the enthusiasm of the people. In order to give full play to the human intelligence effect, and make the greatest achievements. The purpose of the incentive is inspiring people's correct behavior motivation, and mobilizing people's enthusiasm and creativity.

The theory of motivation includes four categories: content based incentive theory, process incentive theory, behavior modification incentive theory and comprehensive incentive theory. Lawler-Potter's theory of comprehensive motivation is an incentive theory, which is proposed by the American behavioral scientist, Lyman Porter and Edward Lawler. They put forward Comprehensive incentive model in 1968. This model is: (1)the incentive makes a person work hard and the extent of their efforts. (2)the actual performance of the work depends on the size of the capacity, the effort level, and the depth of the understanding of the tasks. (3)the award shall be based on the performance of the premise. (4)the rewards and punishments are satisfied depends on whether the reward is fair or not.

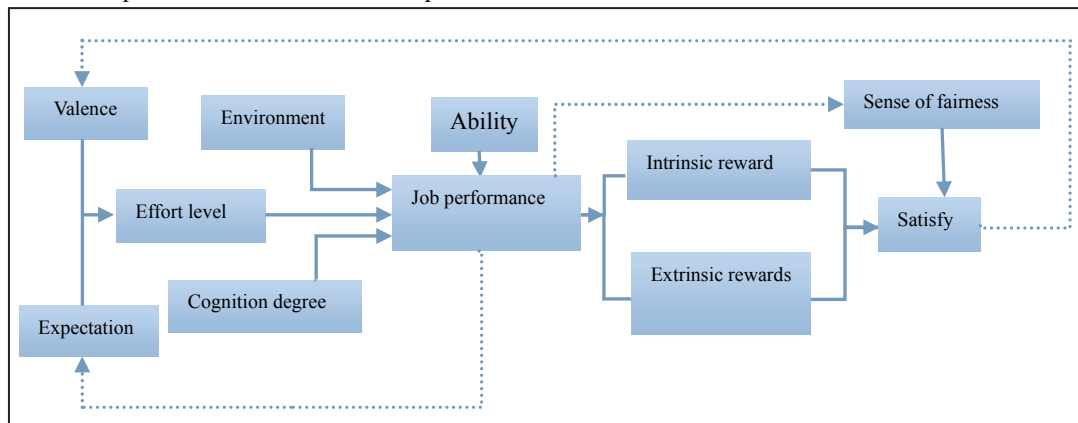


Figure 2 Lawler-Potter Comprehensive Incentive Model

3.2 The application of the comprehensive theory of Lawler-Potter to the party building in colleges and universities

Firstly, the Lawler-Porter theory believes that excitation leads to a person whether the degree of efforts and the efforts. In addition, work and actual performance are determined in ability, effort level and the depth of understanding the task. Therefore, the construction and evaluation of the system should be not only paid attention to, but also finding the problems in the process of evaluation. Party organizations can use the core political position to improve staff capacity of basic party through seminars, training, etc., improving the employee's actual performance through a clear job responsibilities and direction.

Secondly, the Lawler-Porter theory believes that the reward should be on the premise of performance. It is wrong that award after the performance. Therefore, the basic party building assessment focus on the evaluation results that combined with incentives. It can take the evaluation stage for assessment of advanced grassroots organizations and party members to give appropriate spiritual and material rewards.

Thirdly, Lawler-Potter comprehensive incentive theory thinks that the rewards and punishments are satisfied depends on whether the reward is fair or not. The basic idea is that when a man has made his achievements and has been paid, he is not only concerned with the absolute amount of his reward, but also the relative amount of his income. Therefore, the evaluation of the basic party organizations in colleges and universities should pay attention to the evaluation of the results of the publicity. Create a fair, just and open environment to ensure that the assessment of standardized and transparent.

3.3 The construction of the evaluation system of the party building in colleges and universities

Firstly, use the Lawler-Potter comprehensive incentive model as a guide to determine assessment principles scientifically and reasonably. One is guiding principle. It must be conformed to the essential

characteristics and the goals of party building and ideological and political education work. Two is testability principle. Each index in the evaluation system should reflect the individual independence and the concrete. Three is comparable principle. The evaluation index is determined to have a horizontal comparability. It is not only to consider the special nature of party organizations, but also to consider the reflection of the common things between them. Four is overall principle. The weight distribution of the evaluation index should reflect the comprehensiveness, the nature and function of the different options should be given different weights.

Secondly, take “key performance index method” as the theoretical reference and scientific criterion to establish evaluation index. As the theoretical reference, “key performance index method” is consistent with “rewards based on performance” in Lawler-Potter comprehensive incentive. The design of evaluation index system is divided into three steps: one is decomposition of the target of party building. Take the development of the college, the role of the party committee, the construction of the college team and the construction of cadres, the construction of grass-roots party branch and the role play, ideological and political work as the main project. Two is defining the work target of each subject. Then list key performance evaluation two indicators as the basis for quantitative analysis of party building work assessment. Three is identifying the role of each indicator or the role of the basis points, then list the key performance evaluation elements of the performance evaluation.

Thirdly, use “the analytic hierarchy process” as the theoretical reference to determine the weight of the indicators scientifically and reasonably. We can make a quantitative analysis and optimization of the evaluation index system of the grass-roots party building work by using the core idea and method of the analytic hierarchy process. Taking the party building assessment index system of the two grade school as an example, the structure model of the index management hierarchy analysis is established by dividing the mutual relation. Then, calculate the weight of the key performance indicators and the indicators of the index score according to the level of analysis combined with the overall score of two college party building evaluation index system. Take the form of the index system to be presented after the core elements of the evaluation index system are determined.

4 Conclusion

In summary, it is an effective way to establish the system and mechanism of scientific evaluation system to make full use of party organizations in the construction of high level university. And the incentive mechanism which is applied to the grass-roots party building assessment work has enhanced the cohesion and combat effectiveness of grassroots party organizations, stimulate grass-roots party workers and members of the creative, innovative grass-roots party building work methods, improve the grass-roots party construction work performance and other practical significance. This paper use Lawler-Porter model as a guide, determine the evaluation principle scientifically and reasonably from the perspective of incentive theory proposed. Take “key performance index method” as theoretical reference to establish evaluation index. Use “analytic hierarchy process” as the theoretical reference to determine the construction method of the index.

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Dynamic Pattern of Figure/Ground in Chinese Classic Poems and Style Translation

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Abstract: In Cognitive Poetics, background and figure are not static concept, but a transformable equilibrium process. The thesis employs it as theoretical framework to study the dynamic pattern of background/figure in Chinese Classic Poems and proposes that montage, overplay and advance are three typical patterns to guide readers’ aesthetic attention to move in different paths so that resonance can be triggered. Along the transformable process, the thesis finds that study on dynamic patterns can also help the translators to maintain the style of Chinese classic poems and transfer it to readers effectively.

Key words: Figure/Ground; Style translation; Collage; Overplay; Progression

1 Introduction

Figure/ground, originated from Gestalt Psychology, is an important concept in cognitive linguistics. Figure refers to the prominent part in the perception, namely focus of the attention while ground is set by contrast to highlight the figure. Peter Stockwell is rising in the end of the 20th century as the leader of Cognitive Poetics, who tried to apply the cognitive linguistic theory, including figure/ground theory, into literature criticism, so that a new kind of linguistic tool was provided for the poetic study. Cognitive Poetics is promising but in its infancy, and Chinese academicians like to expound it from linguistic perspective instead of aesthetics. In 2009, Stockwell published his second book ‘Texture—A cognitive Aesthetics of Reading’, which typically objected to the traditional dichotomy that views figure/ground as a polar category by proposing figure/ground is a cline of prominence, ranging through degrees of foregrounding into vague, undifferentiated but rich background. Reader’s attention will experience the focus, engagement, fading and extinction with the figure/ground scale, which also represents a cline of resonance, with striking intensity at one end, and decay or echo tailing off into a rich sense of textual resonance towards the other. (seen Figure 1) Scholars in literature have been using impressionistic description for style and resonance for lack of objective method, and now this figure/ground cline mode can provide an workable framework for literary perception.

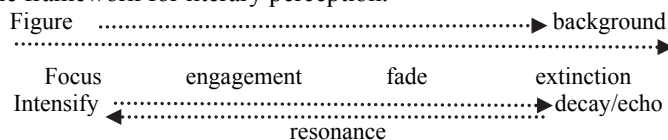


Figure 1 Cline of Resonance

Two insufficient points in Stockwell’s study are that he only provided a cline mode without specifically demonstrating how figure/ground changes in the texture, and that he just proclaimed the figure/ground cline can affect aesthetic attention without clearly explaining how it happens. Chinese classical poems, being short, rich in context and aesthetic implication, are the typical corpus for cognitive poetics. The style of Chinese poems, like combining emotion with scenery and integrating picture and poem, are said to be only sensed by insight instead of being explained or translated. Since the figure/ground cline mode makes it possible, this thesis will employ the mode as the basic theoretical framework to study different patterns of figure/ground transfer in Chinese poems, the way this transfer affects aesthetic perception and how it can be used for style translation.

2 Figure/Ground Dynamic Patterns

This part will use classical Chinese poetry as examples to explore difference dynamic patterns of figure/ground transfer and further explain reader’s aesthetic perception to the stylish integration of poem and picture.

2.1 Pattern of Collage

Chinese poems often change the scene at every step in the context. The view will be focused and amplified one by one, then gradually fading, reduced to be part of the ground, collaged with other patches to compose a whole picture. Reader’s aesthetic emotion will be intensified in every focus, then

echos with low frequency in the perception domain, and finally resonance happens when all the emotional vector vibrates in the same direction. The process can be formulated as: $f(a)+f(b)>f(a+b)$.

'Autumn Thoughts' (Ma Zhiyuan) is praised in China as the best short lyric of Yuan Dynasty. 'Dry vine, old tree, crows at dusk./Low bridge, stream running, cottages./Ancient road, west wind, lean nag./The sun westering. /And one with breaking heart at the skys' edge.' (Translated by Schleppe) In the perspective of figure/ground, this short lyric has four patches of scene, ten objects and one person, pieced with each other to be a desolate and primitive landscape. The figure of 'crow' with the ground of 'dry vine, old tree and dust' will be moved out of focus, by the shift of attention, to be part of the background with emotional vibration of low frequency. Now the figure of 'cottage' and the ground of 'low bridge, stream' occupy the focus and then fade into background to patch with the first piece, making the emotional echos louder. The third scene comes to the focus with 'lean nag' as figure and 'ancient road, west wind' as the ground and then blocks into the background, to strength the echo once more, and leave the focus to the forth scene. When the man with broken heart at the skys' edge moves into the cognitive domain, the whole picture is completed. As the boundaries between different patches are blurred, the top-down cognitive process is opened so that the pain of homesickness and loneliness can be sensed and aesthetic pleasure comes to the top.

Besides the short lyric analyzed above, there are lots of other poems employing the pattern of collage to sketch the mental picture, such as 'Made in dream'(Ouyang Xiu), 'Four seasons'(Tao Yuanming), 'Joy in countryside'(Wang Wei) and so on. From the Gestalt psychology, the gestalt effect is the capability of our brain to generate whole forms, particularly with respect to the visual recognition of global figures instead of just collections of simpler and unrelated elements. This common cognitive ability makes it possible for people to regenerate the global view by jointing different images in Chinese poems.

2.2 Pattern of Overlay

The second pattern often found in classical Chinese poems is the overlay. The aesthetic attention is firstly dragged to sketch the ground, on which the figure is overlaid then by shifting the focus. Finally, the boundary disappears and the global view is finished. The holistic vision is greater than just adding different parts together, that is $f(a+b)>f(a)+f(b)$. The surplus is actually the wonderful artistic state of the Chinese poem.

Take 'Fishing in Snow', a poem of Liu Zongyuan as an example. The first two lines, 'From hill to hill no bird in flight, from path to path no man in sight' (translated by Xu Yuanchong), depict the mountain ridges with thousands of paths but no bird and man. Different images are matched to compose an expansive mountainous landscape, which is muted by heavy snow. Concerning the last two lines, 'A straw-cloak'd man in a boat, lo! Fishing on river clad in snow', the ground is the snow-covered river and the figure is the old and lonely fisherman. From Gestalt theory, the general cognitive ability can make human beings employ unified method to perceive things as an entirety instead of separate units. So, the ground described before will be pieced with each other as the first pattern of collage described, then the figure 'the old and lonely fisherman' is overlaid on the grand ground. This is actually the 'bottom-up' process, in which images are blurred into the ground, then pieces of ground are collaged to form a grand ground, last the figure is overlaid on the ground, so that a perceptual field of snow-covered mountainous landscape comes into being and readers can feel cold, calm and lonely. When the old fisherman moves into the ground and is highlighted as a figure, readers will automatically open the 'top-down' process by inference, such as 'why does the old fisherman fish in such a freezing day? What does the writer imply by describing the scene?'. After being shaped and collaged, the snow landscape is extended to imply solitude, purity and loneliness in the aesthetic category. The old fisherman fishing in the freezing day indicates a kind of noble and unsullied spirit with pride, principles, and firmness. It is the artistic connotation hidden in the painting drawn by words. Overlay pattern of Figure/ground can help the readers operate the top-down cognition and comprehend the style and aesthetic connotation.

Other typical examples with the pattern of overlay are 'Night Mooring by Maple Bridge'(Zhang Ji), 'On the Stork Tower'(Wang Zhihuan), 'At an Old Palace' (Yuan Zhen) and so on. The pattern of overlay conforming to the cognitive principles can help readers to compose the prospect in the consciousness and taste the tension between picture and text in the classic poems.

2.3 Pattern of Progression

Another pattern of figure/ground is progression, namely a new figure/ground zooms in to push the old figure/ground away from the focus and stay zoomed out in background, echoing the progression. Finally the polyphony will produce the resonance, so the aesthetic feeling rise to the best. The pattern can be formulated as 'replace $f(b)$ with $f(a) > f(b)$ '.

‘Coming Across Li Guinian in Jiangnan’ (Du Fu) is called the best of Du’s poems for its implicative and deep meaning. ‘At the palatial residence we often met, In Courtier’s Hall for many times I heard you sing. The south with flowers is no longer sweet. We chance to meet again in parting spring.’ The first line begins the picture in Qi’s Palace while the figure is a scene that the writer came across Li Guinian. The second line replaces the first picture with the same structure of composition that is a meeting of two friends in Courtier’s Hall. Sorting out the progression pattern, that a new prospect progresses to replace an old prospect, can help the foreign readers understand the intextuality and parallelism. Singing and dancing in the magnificent palace indicate the splendor and prosperity of Tang Dynasty. Du Fu, the writer, who was young and ambitious at that time met Li Guinian who was a young and talented musician, too. The composition of figure/ground is assigned the emotional parameters which means affluence, proud and prosperity. Afterwards, the last two lines advance and push the former picture out of the focus by shifting the time and space to the southern China fourteen years later. A ground that all flowers wither in autumn is depicted in the third line is overlaid with a figure of another meeting fourteen years later in the last line. The falling leaves and withering flowers, plus the homeless and aged friends, convey a kind of sentiment, helplessness and sadness. The poem uses the pattern of progression to push forward three prospects and drive the readers’ attention to finish the bottom-up processing and open the top-down operation. Readers’ attention being suddenly shifted to fourteen years later makes them wonder what happened in these years. The answer is ‘the rebellion of An and Shi’ which shook the prosperous Tang Dynasty into a destitute state. Although no words about turmoil are used, the progression of figure/ground and shift of time and space can enlighten the readers to feel the voiceless weep and deep sorrow.

‘Thinking of My Brothers on Mountain; Climbing Day’(Wang Wei), ‘Seeing Xin Jian Off at Hibiscus Pavilion’(Wang Changlin) and ‘Leaving the White Emperor Town for Jiangling’ (Li Bai) are typical examples using the pattern of progression. The pattern can motivate readers to seek logical correlation automatically, adjust the emotional vector to the same direction and trigger the aesthetic resonance.

3 Dynamic Pattern and Style Translation

The ‘integration of painting and poem’ is the accepted style of classic Chinese poems. But style translation seems to be unworkable or even untranslatable because style is usually regarded as the implication not expressed in words. Otherwise, in cognitive linguistics, the stylish implication is a kind of construal, which refers to man’s ability to understand and describe the same situation from different aspects. Specificity, focus, salience and perspective are four factors of cognition, leading to different construal of the language. Figure/ground can embrace the four factors to describe the prospect in the poem, to find the cognitive relevance between the language and its user and to depict how the style could be recognized and translated in the effective way. The three dynamic patterns of figure/ground, which illustrate the aesthetic mechanism how the style could be recognized in the discourse, can provide a feasible theoretical framework for style translation.

‘Fishing in Snow’ (Liu Zongyuan) is the famous classic poem, handed down hundreds of years ago. More than ten translations can be found according to the literary research. If the dynamic patterns of figure/ground were used to analyze, the way how to effectively translate the style of ‘integration of painting and poem’ could be expected. By comparing different translations of the first two lines, three kinds of methods can be found. The first kind of translation sets ‘not a bird’ and ‘not a man’ as the theme, such as ‘Not a bird o’er the hundreds of peaks, Not a man on the thousands of trails.’ The theme ‘bird’ and ‘man’, as the starting point of the information in the sentence, will be misunderstood as the figure because attention would be firstly focused on the theme. ‘mountains’ and ‘paths’ not highlighted to be the figure are not conducive to the collage of snow-covered landscape, so that it does no help to the construal of stylish implication which means a spacious and perpetual wild land. The second kind of translation uses different structures. For example: ‘O’er mountains and mountains no bird is on the wing; On thousand lines of the path ways there’s no footprint.’ The interpretation will make the readers very hard to recognize the whole ground and form the integrated prospect because human’s cognitive ability is much easier to combine separate objects of similar shapes as a whole according to Gestalt theory. This kind of translation blocks the construal and fails to trigger the aesthetic resonance. The third translation has the reasonable arrangement of figure/ground and uses parallel structure. For example: ‘From hill to hill no bird in flight, From path to path no man in sight.’ The translation uses the static nouns to firstly focus on the ‘Hills and paths’ as the figure, then drags the attention to ‘no bird and no man’ in the end of

sentence. In this way a prospect of soundless mountains covered with heavy snow is completed. Parallel structure used by Xu Yuanchong to translate the first two sentences makes readers easier to identify the patches of ground and piece them together to make out the entire picture so that the emotional vector can vibrate in the same direction to motivate the resonance. Besides Xu Yuanchong, Bynner and Wu Jingxiong employed the similar structure to translate the first two lines. The same cognitive strategy can also be used to compare the last two sentences translated by Mr. Xu and Bynner. (see Table 1).

Table 1 Comparison of Translations

Title	Fishing in Snow	River - Snow
Translator	Xu Yuanchong	Bynner
1 st line	From hill to hill no bird in flight,	A hundred mountains and no bird,
2 nd line	From path to path no man in sight.	A thousand paths without a footprint.
3 rd line	A straw-cloak'd man in a boat, lo!	A little boat, a bamboo cloak,
4 th line	Fishing on river clad in snow.	An old man fishing in the cold river-snow.

Although Bynner's translation is succinct, the images 'little boat' and 'bamboo cloak' which are juxtaposed directly can be mistakenly understood that the bamboo cloak is just put on the boat instead of the old fisherman with the bamboo cloak. The strategy of juxtaposition negatively affects the reader because it is against human's cognitive ability. On the contrary, Xu's work accords to the reader's cognition with 'in' to indicate the spatial relation. Furthermore, the phrase 'in the boat' correlated the former part with the familiar structure helps the reader to overlay the old fisherman as the figure on the grand ground to complete the prospect. When 'fishing on river clad in snow' is finally interpreted, the boundary between figure and ground is blurred to finish a whole picture in reader's mind while the top-down process is operated and the stylish connotation was sensed. The construal of the style; 'integration of poem and painting'; can be effectively transplanted to the reader by reference to the dynamic patterns of figure and ground.

'Integration of poem and painting', one typical style of Chinese classic poems can be effectively presented by the dynamic pattern of figure/ground. If translation employed the right dynamic pattern of figure/ground (such as collage, overlay and progression) to construct the prospect, it would be beneficial to transplant the implicative and transcendental sense of tableau and to make the readers experience the tension of texture. The construal conforming to cognitive principles can facilitate the vibration of emotion in the cognitive field, trigger the top-down processing and ascend the image perception to the aesthetic resonance.

4 Conclusion

The traditional dichotomy of figure and ground puts the emphasis on how to distinguish them, which limits the study within the category of sentence. The dynamic pattern proposed by Peter Stockwell illustrates how the texture is perceived and expands it to the discourse study, and he also put forwards a workable framework to analyze the literary resonance. In view of Stockwell's study, this study specifies three dynamic patterns of figure/ground and utilizes it to explain the stylish integration of poem and painting in Chinese classic poems. Collage, overlay and progression are the typical patterns, each of which can exist in the poem by itself or coexist with others. With reference to the dynamic patterns, translators can help the readers to compose a mental prospect by jointing the ground, overlaying the images, shifting the perspective, highlighting the focus and other cognitive strategies. Changing the prospect with different patterns can drag the aesthetic attention from focus to engagement, from fade to extinction. The emotional vector of the reader is adjusted constantly to gather the momentum and perceive the style until the aesthetic resonance occurs

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Task-Based Strategy in Advanced English Teaching

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Abstract: Task-based teaching is more often studied theoretically and its adoption is more confined to Basic English teaching. This paper studies the application of task-based strategy in Advanced English teaching with examples based on real pedagogical practices of this course. The teaching practices reveal that compared with traditional teaching method, task-based teaching strategy can stimulate students' interest and motivation, improve their comprehensive abilities and is a more effective teaching method.

Key words: Task-based strategy; Advanced English; English teaching; Constructivism

1 Introduction

Task-based teaching is one of the most widely-used teaching methods both abroad and in China. However, the present situation is that much more attention is paid to its theoretical study and application in primary and middle school teaching, college English classroom, and Basic English teaching. Its adoption in the teaching for English majors, especially in Advanced English is quite inadequate. Therefore, the article attempts to study its application in Advanced English teaching.

2 Present Situation of Advanced English Teaching

Advanced English is a compulsory course set for junior and senior English majors. According to the latest "Syllabus of English majors" revised by the ministry of education in 2000, "Advanced English is a course designed to cultivate students' comprehensive abilities. By learning this course, students are expected to broaden their horizons, deepen their understanding of life and society, and develop their analytical, logic and independent-thinking abilities."

However, the problem in the present Advanced English teaching is that the dominant teaching method is still the traditional grammar-translation teaching method, in which teachers explain the texts and students receive large amount of input and conduct repeated practices. Its disadvantages include that more time is spent in "analysis" instead of "reading", and the cultivation of students' comprehensive abilities has been ignored. Besides, due to limited time and large amount of language phenomena, the problems that are really solved are far from being enough. Therefore, this article aims to apply task-based teaching strategy in Advanced English course so as to improve its teaching effects.

3 Task-based Teaching and Its Rationale

Task-based teaching was first put forward by N.S.Prabhu in the 1980s. It is characterized by the application of a series of specific tasks to stimulate students' motivation and activity in learning. As a "student-based" teaching model, it originates from constructivism.

According to constructivism, learning, as a social cooperative activity, cannot be taught; knowledge, instead of imparted by others, is constructed through interaction with others. It is thus important to take into consideration the background and culture of the learner throughout the learning process, as this background also helps shape the knowledge and truth that the learner creates, discovers and attains in the learning process. During this learning process, teachers are instructors and facilitators, providing guidelines and creating the environment for the learner to arrive at his or her conclusions.

Task-based teaching comes from the teaching and learning theory of constructivism. Through task-based teaching, students can activate their past experience, understand the present problem better, and generate their own appreciation and ideas through analysis and inference. Through solving tasks, students can acquire knowledge, learn to solve practical problems and develop their self-study abilities.

4 Application of Task-based Teaching in Advanced English

As a compulsory course for English majors, Advanced English aims to widen students' horizon through reading and analyzing articles about different contents and with different styles. Students are expected to cultivate their comprehensive abilities by learning this course. In order to achieve the

above-mentioned objectives, teachers should first select typical passages and design their lessons according to the stylistic features, themes and writing techniques of each passage. Then they should assign inspirational tasks. Students are required to analyze and solve the tasks through searching relevant information and conducting group discussion. Finally they are expected to analyze and understand the passage from different perspectives.

During this process, teachers remain task designers, instructors and facilitators. They will not dominate the class by lecturing and explaining the text for most of the time. Instead, students have become the core of the class and they can achieve the objective of “learning by doing”.

Next, I would like to take Unit Four of *A New English Course* (third edition) to illustrate how task-based teaching method is carried out.

The text in this unit is entitled “A Red Light for Scofflaws” written by Frank Trippet, an American journalist and freelance writer. The article appeared in the *Time* magazine in 1983 and is about the social phenomenon of scofflaws. The author first enumerates different scofflaws in America, their dangers and one specific scofflaw, red-light running, and then he goes into depth by stating the influence of scofflaws on American morals and claiming that scofflawry spirit has become the cause of Americans’ social demoralization.

If the text is approached with the traditional grammar-translation teaching method, then most time will be spent in the explanation of words and phrases, analysis of text structures, development of the theme and so on. Teachers are the center of the whole process; students are the passive receiver of large amount of input. Too much attention has been paid to teachers’ lecturing, little attention is paid to students’ summary of the past experience, integration and application of the old and new knowledge. The cultivation of students’ abilities to analyze problems and put out what they have learnt is largely ignored.

The adoption of task-based strategy can solve the above problems, because it can not only improve students’ ability to put out what they have learnt, but also cultivate their abilities to self-study, analyze and solve practical problems.

As far as the text is concerned, the following procedures can be taken.

The first step is that the teacher designs some tasks concerning the passage to learn in advance. Each task deals with one aspect of the passage, thus the learning process will be purpose-oriented.

According to the teaching objectives and overall planning, three major tasks can be designed concerning the passage. They are as follows.

Task One concerns with features in language, structure and writing techniques etc. What are the features of words (e.g. compound words and features)? How is the text organized? What are the writing techniques in the text? In order to answer these questions, students need to review relevant knowledge and apply it to the analysis of this passage.

Task Two pertains to the main contents and its social meaning. It requires students to analyze the theme conveyed in the passage according to the social context, and know how the author achieves his conclusion with different materials. In order to fulfill this task, students need to research and study large amount of relevant information. For example, they should know quite well the American social background at that time, the common scofflawry behaviors and their influence on society. They should search some background information, such as American law system, traffic regulations in different states of America, Prohibition in American history and so on. They need to use the information they have searched to understand why the author says that scofflawry spirit has become the cause of Americans’ social demoralization.

Task Three is an expanding task deriving from the text contents. It is based on the previous two tasks. Only when students realize that what they have learnt is related to the reality and beneficial to the future development, can they generate strong motivation. Due to students’ different backgrounds and levels, the solutions to this task are quite individual.

After the three tasks are specified, the teacher should design more specific questions related to each task. The questions should be in the order of easiness to difficulty, so that students explore them step by step. As far as the passage is concerned, the first two tasks are basic ones, and students can solve them through searching relevant information and analyzing the text, while the third task is a more challenging one, and they need to relate what they have learnt to the reality, reflect on a realistic problem, and form their own ideas.

The second step is that the teacher divides the whole class into several groups, with three to four students in each group, assign each group a task and provide guidance to each group.

The third step is that the teacher organizes students to have oral reports. All the group members

should answer questions from the teacher and other students. After that, the teacher makes some comments on their performance, and requires each group to hand in an improved plan.

According to the passage “A Red Light for Scofflaws”, some reference questions are listed in the following table concerning the above three tasks. All these questions are for the service of specific teaching aims, and suggestions and assessment methods are also provided. It should be stated that more challenging tasks can be designed according to the students’ real performance.

Table 1 Tasks Concerning Features on Language, Text Structure and Writing Techniques

Questions	1. What are the types and features of English compound words? Use examples to illustrate them.
	2. How is the passage organized? How is it related to its style?
	3. How does the author’s diction serve the theme of the text?
	4. What are the writing techniques of the text?
Approaches	1. Students need to review the formation of English words, compound words in particular. They should use the principles of word formation to analyze compound words in the text and provide more examples.
	2. Students should know the structure features of the text with the same style.
	3. Students should select all the words that can well serve the theme of the text to illustrate how the diction serves the theme.
	4. Students should know the writing techniques adopted in the text.
Suggestions	Each group review what they have learnt and search relevant information and apply them into the analysis of the passage.
Assessment	Each group gives an oral report. The teacher and other students ask questions and give advice for further improvement.

Table 2 Tasks Concerning the Content of the Passage and Its Social Meaning

Questions	1. What are the different forms of scofflaws in America? Which is the most flagrant one?
	2. In most Americans’ opinion, what threatens law-and-order? What is the author’s opinion and why?
	3. Why scofflawry spirit leads to Americans’ social demoralization?
Approaches	1. Students should know all the forms of scofflaws and their influence on society.
	2. Students should know the American law system, social phenomenon of scofflaws, the detriment of scofflaws to the social order and law system.
	3. Students should analyze the relation between scofflawry spirit and Americans’ social demoralization.
Suggestions	Each group review what they have learnt and search relevant information and apply them into the analysis of the passage.
Assessment	Each group gives an oral report. The teacher and other students ask questions and give advice for further improvement.

Table 3 Expanding Tasks

Questions	1. How about scofflawry in China (forms, dangers and reasons)?
	2. Talk about the traditional Chinese merits, the changes of scofflaws and solutions to solve this social problem.
Approaches	1. Students need to use examples to illustrate scofflaws in China.
	2. Students need to review traditional Chinese merits, changes of scofflaws from historical perspective and give some feasible solutions according to the present situation.
Suggestions	Each group review what they have learnt, search relevant information, have group discussion and make summaries.
Assessment	Each student hand in a composition entitled “Scofflawry in China”

The whole teaching arrangement can be finished within six to eight periods of class, and it can be adjusted according to the students’ different conditions.

In the first time, the teacher divides the whole class, specifies tasks for each group, provides some suggestions for them and makes clear the assessment method.

In the second time, each group gives oral report concerning language and structure of the text. The teacher and other students point out some problems and raise some questions according to their report and evaluate whether the objectives are achieved.

In the third time, each group gives oral report on the content of the passage. The teacher and other

students point out the problems and raise some questions and evaluate whether the objectives are achieved.

In the fourth time, the teacher makes a summary of the previous two reports, explains further the points that are not covered and specifies requirements of the expanding tasks.

It has been proved that students' participation in class activities is obviously enhanced under this teaching model. And they also realize that they need to pay attention to all kinds of social problems while learning this course.

The above teaching arrangement is student-centered and the teacher is only an organizer, instructor and facilitator, which conforms with constructivism teaching and learning theory. Students review what they have learnt, acquire new knowledge, and solve practical problems through cooperation with their members and under the instruction of the teacher. Their activity is largely stimulated and their critical thinking is developed and enhanced.

5 Conclusion

Based on real pedagogical practices, the article studies the application of task-based strategy in Advanced English teaching and concludes that it is an effective method to improve teaching effects. However, since the application of task-based strategy in Advanced English teaching is still in the exploratory stage, there exist some problems and challenges. First of all, it brings great challenges to teachers. They should improve their professional abilities and levels so as to better manage and design each class. They should also be creative and adaptive to different situations when they adopt task-based teaching strategy. Secondly, more specific measures are to be taken so as to make sure each student is involved in the tasks after class. And appropriate teaching materials are to be carefully chosen so as to achieve the objectives better. In future, more studies and researches are to be done to explore better ways to implement this novel teaching strategy.

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Conceptual Analysis of Autonomy from SDT Perspective

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Abstract: Autonomy, as a multidisciplinary concept, has been widely investigated. Based on positive psychology, self-determination theory (SDT) asserts and has proved that autonomy is one of the fundamental psychological needs of human beings and considered to represent the ultimate form of self-regulation-- self-determination. However, could the word autonomy equal the Chinese word Zizhu (Chinese Pinyin, similarly hereinafter)? This study aimed to test the equality between autonomy and Zizhu by open-ended questionnaires conducted on 118 high school students and on-line expert rating. The results showed that, in the sample investigated, adolescences' understanding of autonomy were very similar to what self-determination theory asserts. The most representative words for autonomy in Chinese were Self-independence (Zili,), Self-choice (Zijixuanze), Self-determination (Ziwojueding) and so on. Therefore, the assumptions and findings proposed by SDT could also be applied to explore the relation of Chinese adolescents' autonomy and its function.

Key words: Autonomy; Conceptual analysis; Adolescents

1 Introduction

The word autonomy first appeared in Greece in early 17th century. There are similar definitions such as self-determination, independence, self-independence and self-control. The English word—autonomy came from a Greek word – *autonomia*, the noun form of *autonomos*. *Auto* means self while *nomos* refers to law. The literal meaning of *auto-nomos* is independent, living by one's own laws or one who gives oneself his own law¹. In Chinese, autonomy means *ZiZhu* (Chinese Pinyin, similarly hereinafter). *Zizhu* represents to be self-master, self-independent or to choose and decide one's own behavior or action, not affected by parents' or guardian's discipline and making decision from inner needs instead of outer stimuli (Wang, 1990), free from other's intervention, not rely on others and self-control (Zhu, 1982). According to the Contemporary Chinese Dictionary, *ZiZhu* means making one's own decision. Other dictionary definitions about *ZiZhu* include self-independence and making one's own mind, self-management and having the ability to be independent. Autonomy is often mentioned in classical and modern literatures meaning more similar to self-decision, self-governed and self-control². *Zizhu* is explained in text books referring to a moral concept meaning individual free will and a spiritual state with which one independently behaves according to one's own will and belief³.

It seems that the Chinese word *ZiZhu* is to some extent similar to the word Autonomy. However, comparing the words *ZiZhu* (autonomy), *DuLi* (independent) and *ZiLi* (self-independent), some researchers argued that the conception of *ZiLi* (self-independent) is much more adaptive to traditional Chinese culture. *Zili* appears earlier in Chinese books than *ZiZhu* (Xia, Huang, 2007). However, despite of those similarities and differences, supporters of self-determination theory claim that autonomy exists among the present cultures but only by degrees. The opponent opinions are that autonomy is a typical reflection of individualism which cannot be retested in collective cultures. In addition, autonomy is male-specific while the female have no need for it (Iyengar, DeVoe, 2003). Studies conducted by Xia and Huang (2008) showed that *Zili* (independence) instead of *ZiZhu* (autonomy) of Chinese students included interpersonal independence and individual independence showed as activity, responsibility, flexibility and openness, which is consistent with the characteristics of autonomy assumed by self-determination theory (SDT) such as independence (Deci, Ryan, 2000; Douvan, Adelson, 1966; Koestner, Gingras, Abutaa, Losier, 1999; Ryan, Deci, 2006) and responsibility (Anderson, Worthington, Anderson, Jennings, 1994).

The reason for those debates may be that autonomy can result in many positive outcomes of life in SDT research (Grolnick, Ryan, 1989; Vallerand, 1997). For example, contrasted with controlled atmosphere, autonomous learning condition predicted children's better conceptual learning (Grolnick,

¹ <http://www.etymonline.com/index.php?search=autonomy&searchmode=none>

² <http://www.zdic.net/cd/ci/6/ZdicE8Zdic87ZdicAA195150.htm>

³ <http://gongjushu.cnki.net/refbook/BasicSearch.aspx>

Ryan, 1989; Roth, et al., 2007). Supporting for children's autonomy could promote their psychological well-being (Ryan, 1995), positive feelings and interests for exploration (Roth et al., 2007). Therefore, to clarify the similarities and differences between Chinese and English perspective on autonomy would be very necessary concerning investigations and findings about it. Do ZiZhu and autonomy in SDT have the same connotation? If not, can findings about autonomy conducted based on SDT be applied among Chinese adolescents? How do they see autonomy or ZiZhu? What role does ZiZhu play in adolescents' lives?

2 Data and Methodology

2.1 Participants

118 students of Grade 2 from two high schools in Wuhan participated in this study among who were 43 male students, 71 female students and 4 didn't report gender. Open-ended questionnaires of nomination about autonomy were applied among those students.

2.2 Procedure

Data were collected in 2010 in one session at class. Students were asked to list synonyms of Zizhu (autonomy) on the questionnaire. They were required to discuss with nobody or look at others' answers. A trained psychological major and an assistant were at class for questions and help. Then based on the keywords about autonomy nominated by those students, 17 words such as self-determination, self-control, initiative, self-regulation, self-governance, self-independence, separation and subjectivity were selected to form a list. A week later, the same participants were asked to rate the similarities between those synonyms and autonomy. Those 17 nominated words were randomly arranged on the list to balance the order effect. Synonym list was made as on-line questionnaire to ask psychology-majored graduate students to evaluate those which could represent autonomy most with 1-2 words, in order to see if Zizhu and SDT's autonomy are the same in connotation. Frequency percentages were calculated between autonomy and its synonyms (see Tab. 3).

3 Results

According to the results from open-ended questionnaire, 57 words were screened out with 301 nominations (see Tab. 1). 9 words were nominated more than 9 times. Word like Youzhujian is similar to Zhujian so the two were combined one but nominated twice. Other words include self-control (3 nominated), self-decision (2), self-esteem (1), self-discipline (1), freedom (1) and so on. And for automatic behaviors, participants reported three main behaviors, the self-decided, the self-chosen (such as choose liberal arts or natural science), and those like being committed.

Table 1 Words Nominated in Open-ended Questionnaire

words	Frequency
1. Self-confidence(Zixin)	9
2. Strong-mindedness (Zhujian)	10 (+3)
3. Initiative (Zhudong)	10
4. Self-discipline(Zilv)	10
5. Freedom(Ziyou)	16
6. Self-improvement(Ziqiang)	24 (+2)
7. Self-consciousness(Zijue)	26
8. Independence (Duli)	60
9. Self-independence(Zili)	77

Considering participants' vocabulary limited by age, and perspective from SDT, the above-mentioned words were added two words (self-determination, in Chinese ziwojueding and autonomy, Zizhu) to be a list of 11 words. Online questionnaire was formed. 106 psychology-majored graduate students were asked to select 2 representative words from the 11 words. The results showed that autonomy (Zizhu) was nominated 35 times, self-confidence 34 times, independence 27, self-consciousness 26, self-determination 20, self-improvement 18, freedom 18 and self-reliance 18 times (see Tab. 2). It's a proof that autonomy (Zizhu) is a generalized conception, as SDT asserted, demonstrating the essence of individual's self-determination. Nevertheless, it's found that besides self-determination as essence, autonomy could also be partially characterized by self-confidence and self-consciousness. Self-consciousness in Modern Chinese dictionary means one knows something and

is positively to do something, which indicates that self-consciousness may represent being positively and actively self-reflective.

In the next week, according to the nominated vocabulary of autonomy and literature review, 8 psychology-majored graduates were invited to form a list of 17 words and were required to rate those 17 words by percentile ranking (see Tab. 3).

Table 2 Nominated Words and Frequency of Experts

Words	Frequency
1. Autonomy (Zizhu)	35
2. Self-confidence (Zixin)	34
3. Independence (Duli)	27
4. Self-determination (Ziwojueding)	20
5. Self-improvement (Ziqiang)	18
6. Freedom (Ziyou)	18
7. Self-independence (Zili)	18
8. Strong-mindedness (Zhujian)	17
9. Self-discipline (Zilv)	14
10. Initiative (Zhudong)	8
11. Self-consciousness (Zijue)	3

Table 3 Similarities Between Autonomy and Its Synonyms

	Mean	SD
1. Isolation (Tuoli)	0.202	0.243
2. Separation (Fenli)	0.271	0.237
3. Solitude (Duzi)	0.459	0.304
4. Freedom (Ziyou)	0.531	0.282
5. Self-acknowledgement (Ziworenke)	0.540	0.262
6. Individuality (Getixing)	0.575	0.265
7. Subjectivity (Zhutixing)	0.606	0.263
8. Self-reliance (Ziwoyilai)	0.641	0.252
9. Independence (Duli)	0.670	0.272
10. Self-regulation (Ziwotiaojie)	0.683	0.240
11. Initiative (Zhudongxing)	0.689	0.251
12. Self-reflection (Ziwofansi)	0.692	0.247
13. Self-governance (Ziwozhili)	0.712	0.226
14. Self-control (Ziwokongzhi)	0.726	0.213
15. Self-determination (Ziwojueding)	0.729	0.227
16. Self-choice (Zijixuanze)	0.741	0.204
17. Self-independence(Zili)	0.805	0.181

4 Conclusion

As shown in Tab. 1, compared with other words, dependence, self-regulation, initiative, self-reflection, self-governance, self-control, self-determination, self-decision and self-reliance were more representative for autonomy. Most researchers pointed out that autonomy means, to be one's own, self-dependent, self-chosen on one's action, apart from parents' or guardian's control (Wang, 1990). Autonomous one will be seniorly self-reflective (Dworkin, 1988; Taylor, 2005). In psychology, autonomy indicates self-governance, subjectivity (Deci & Ryan, 2002), self-regulation (Deci & Ryan, 1985) and self-independence (Xia & Huang, 2007). As shown in open-ended questionnaires, Zizhu (autonomy), self-confidence, independence and self-determination could largely overlap. In Tab. 3, self-determination/ self-decision, self-governance and self-control were correlated with Zizhu at 70 percent, which proves that the Chinese word Zizhu is the most similar word to autonomy or self-determination. The above-mentioned results of autonomy found in non-Chinese background were

also reliable in China.

SDT asserts and has proved that autonomy is one of the fundamental psychological needs of human beings and considered to represent the ultimate form of self-regulation-- self-determination which is assumed to predict optimal functioning in life. Autonomy also is considered one of the characteristics in the social progress of adolescences (Beyers et al., 2003). Future study may focus on adolescents' autonomy to help them more positively face challenges in socialization.

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A Research on Big Data Prototype System for Monitoring College Students' Mental Health*

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Abstract: With the rapid development of information and data technology, how to obtain and to processing data efficiently has attracted a lot of attention of the society. In the paper, we monitor college students' mental health by big data technology. To obtain the original data completely, web spider technology is adopted. Hadoop and Hbase are used to store data. To using text data mining techniques mining and analyze information efficiently, the repository and model base including massive data is built. The effective system could prevent college students' mental problem at the origin by monitoring and counseling college students' psychological health in a smart and personalized way. This paper has a significant value in realizing the theory of personalized counsel, emergency treatment and information processing technique.

Key words: Big data; Web spider; Hadoop; Text data mining; Mental health monitor

1 Introduction

In recent years, more college students tend to escape, self-harm, and even suicide or murder when they face to the problem of employment, schoolwork and relationships if they are suffering from sub health. Incidents like this would bring the students and their family unrecoverable harm and cause a serious chaos and unrest in the college so that other students can't live and learn as usual. It will also take a negative impact on the society. So it is urgent to concern and solve the college students' mental health problem.

At present, Mental Health Departments of school get the information about special student through their archives. Students' data information such as daily performance, communicate capacity and personalities is obtained from their classmates and parents. Students' individual information was recorded by Student Affair, Academic Management, Campus Cards Centre, such as complete basic information, scores, records or punishments in school, consumption through campus cards, book lending from school library. In addition, massive dynamic information about students' ideological trend, emotional volatility, friendship, employment can be found in microblog, WeChat, or post bar on the Internet. The original data from different area is a large scale of data stream which needs arrangement and analysis through big data analysis technique. The information filtered could reflect college students' mental health accurately which is beneficial to the work of mental health monitoring.

The popularity of big data has driven academia, industry and government to the passion of it. The journal "Nature" and "Science" posted the discussion on the chance and challenge of big data on after another(Meng Xiaofeng and Ci Xiang, 2013). China Computer Federation and China Institute of Communications has set their own big data committee which research on the science and engineering in big data area. Big data technique has been a focal point both in "the special programme of Chinese cloud technology development during the 12th Five-Year Plan" proposed by Ministry of Science and Technology and "the programme of Internet of Things during the Plan" proposed by the Ministry of Industry and Information Technology. Information processing technique was proposed as one of the four key technological innovation project in "the programme of Internet of Things during the Plan". The technique includes large amount of data storage, data mining, intelligent picture and video analysis technology which are all the important components of big data. The other three projects are information cognitive technology, information transportation technology and information society technology. Those are all closely related to big data.

College students are competing fiercely in this serious challenge with the development of economic and technology. Pressure results from employment, interpersonal relationship, emotion

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out of control leads college students' mental health become a hot project. Other countries have a comparatively perfect system about college students' mental health as they concerned on the problem in advance. There still remains defect at some aspects though domestic academic circles have gotten some results in research of college students' mental health monitoring, for instance, suicide prevention. In fact, before monitoring students' mental health condition, scholars should have a quick respond on the massive information they gathered using information processing technique, then, interact with the students. But scholars focus on psychological health education as well as ideological and political education basic on traditional models so that neglect either society or individual is changing. What is also important but easy to ignore is individual subjectivity.

2 Design and Research on Mental Health System

2.1 System Design Objective

The main objective of the project is to implement the collection, storage, mining, analysis and verify those functions.

Collect public data on the Internet and analysis its integrity base on web spider technique. Then use text data mining to extract feature. We will also set up a knowledge analysis system which based on develop function authentication modules for strategy analysis, for instance, analysis about competitor, environment, users, etc.

Web spider could find ten thousands or even hundred thousand related links from one of them through recursive invocation within a few time. The text data from these links will be extracted and stored in local which offers a data basis for big data analysis.

The dramatic increase made it difficult to support traditional relational database. The distributed storage framework using Hadoop and Hbase in the system could solve the problem and improve system computing power to handle 1 or even 10 billion bytes data.

The text data collected is unstructured data which can be understood by human but not machine. So the text data mining technique will be used in the project to realize "machine reading" and "machine understanding" base on the knowledge pattern algorithm and programs. The structured knowledge base will lay the foundation for behavior analysis.

2.2 System Design Scheme

The system consists of collecting layer, storage layer, analysis layer and man-machine interface. The design scheme is shown as figure 1.

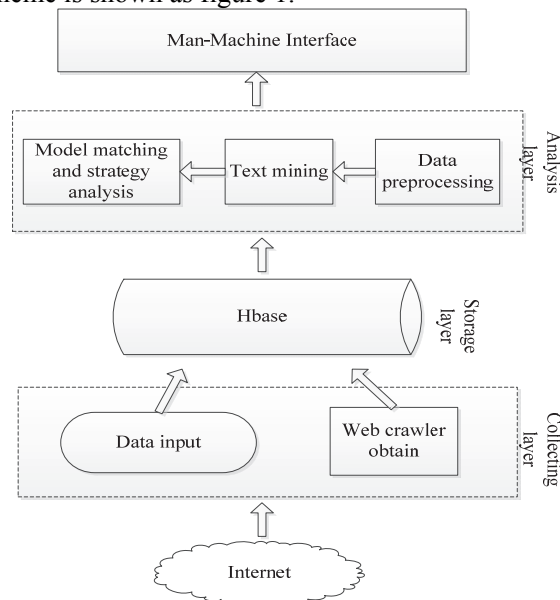


Figure 1 Total Framework Mental Health Monitor System

The collecting layer includes data input and web spider obtain. Web spider use search engine and data spider collect all the text information on the related website into database which could obtain text data about different kinds of keywords, then, store those text data in distributed database

according to the types of monitoring objects. Compared to traditional structured tabular data, big data analysis needs to handle a huge amount of data contains hundreds of thousands of unstructured text. In addition, the data acquired is all public data on the Internet.

The acquired data will be delivered to text mining module after being preprocessed like word segmentation, feature representation and extraction. Unlike structured tabular data, text information is natural language out of unified structure which is hardly understood without the necessary preprocessing before “machine reading”. In order to find the proper model, text mining extracts effective information about different monitored objects. Then the analysis result of the matched model chosen from database will be presented to users through Man-Machine Interface.

2.3 System Data Acquisition Scheme

2.3.1 Data Sources

The required data of the system mainly comes from two approaches, as figure 2 shows. One is the public data about social message got from microblog, circle of friends, post bar by web spider. The employment pressure will also be figured out through industry information. Web spider should penetrate into all fields as comprehensive as possible owing to the value public data has a variety sources and forms. The other one is the students’ external condition in school including scores, rewards, expense through campus card, attendance data. Students’ mental health could be evaluated considering their personality, mood, hobbies analyzed by the above data.

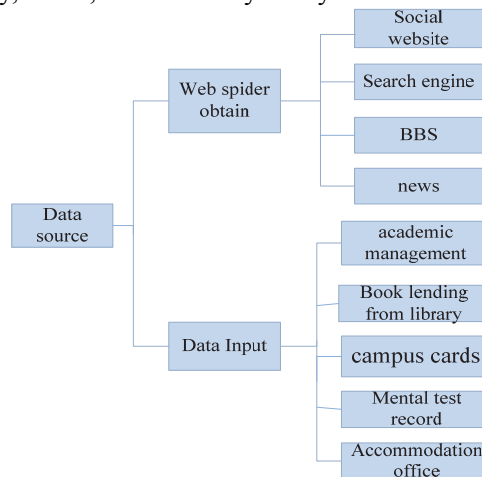


Figure 2 Data Source

2.3.2 Data Acquisition Methods

The system collect information like words, tables, pictures from webs by web spider. The operating principle is as figure 3 shows. The collected information is stored for data processing or analysis.

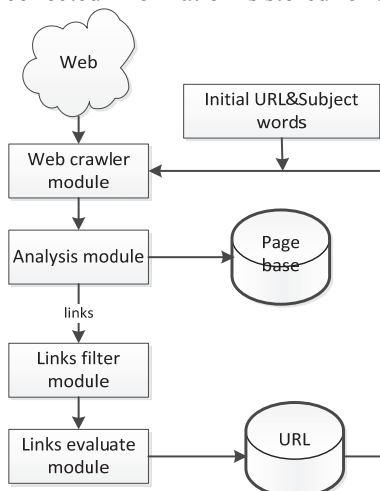


Figure 3 Operating Principle of Web Spider

Web spider(also called web robot) is the program or script which capture information from World Wide Web according to certain regulation. The spider is divided into two kinds, traditional spider and focused spider(Xiao Yi, Zhang Lin and Nie Xiaoyi, 2013). Compared to traditional spider, focused spider need to filter out links irrelevant to the theme as the rest will be put in the URL which is waiting for being captured. Then, it will choose next URL of page to capture following the certain search strategy and repeat the above process until the system fulfill the set condition. At the end, the data captured will be stored in system. The main spider tools are Lucene, Nutch, Heritrix, WebLech, Jspider.

To improve the efficiency of information obtained from social platforms, the system chooses the open source Nutch, based on Lucene. Nutch is a search engine open to JAVA which provides API for text indexing and search. Developer can obtain efficient data source and store them to local database conveniently by using API.

2.3.3 Data storage

The system is distributed storage model based on Hbase. As an important NoSQL storage in Hadoop, Hbase could be combined with distributed computing frame Map/Reduce of Hadoop perfectly to enhance efficiency of the data processing(Qin Xiongpai, Wang Huiju, Du Xiaoyong and Wang Shan, 2012). At the same time of having a large storage capacity, Hbase is also good at reading and write data within a small range of variation of both I/O and retardance. In addition, its column-oriented overcomes the extension difficulty of traditional database.

As the figure 4 shows, Hbase consists of Hbase Master host and several Hbase Region Servers(Feng Xiaopu, 2014). Every Region Server contains thousands of HRegions which having ten to hundreds of thousands HFiles in column. Master is responsible for ensure Region Server could offer an excellent service on data storage, compression, indexing by controlling the load of all Region Servers to a balance and handling faults. HRegions make up a database with billions of bytes in a head-to-tail chain.

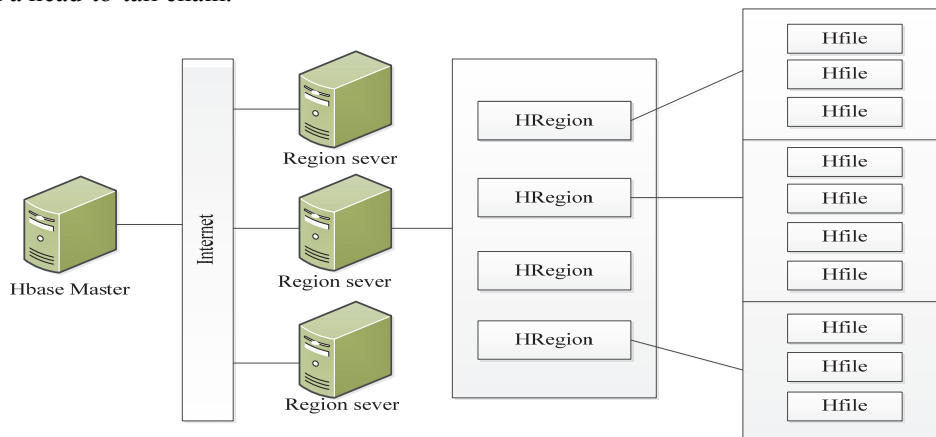


Figure 4 Hbase data Storage

2.4 Data Processing and Analysis Scheme

Text Mining technique is used to process and analyze data in the mental health monitor system. Text Mining is also called Text Data Mining, Knowledge Discovery in Texts. Potential text information is extracted from text library by Text Mining to establish model base and knowledge base(Yen-ChingChang, RichardTzong-HanTsai and Wen-LianHsu, 2010). The text data comes from documents or digital information on the Internet, including social web log, newspaper, e-mail and so on.

The model of text mining is shown as figure 5. Data should be cleansed before being analyzed. The cleansing progress includes checking consistency of the data, removing duplicate values, disposing invalid values and missing values, eliminating noisy data, and at last, expressing the text data in a structured form similar to relational data through feature representation and extraction. After preprocessing, the mental health monitoring knowledge and pattern will be extracted by data mining and pattern recognition. In the end, the result of the assessment according to target system

will be shown to users visible.

Text Mining technique is still in its initial stage because of its complicated techniques. It's important not only to focus on basic theory and system framework, but also to pay attention to Chinese itself when researching on Chinese text mining. Chinese text analysis technique is the premise of knowledge mining. Considering to the particularity of students' mental health analysis, the target of text mining should be formulated referring to index system of strategy analysis.

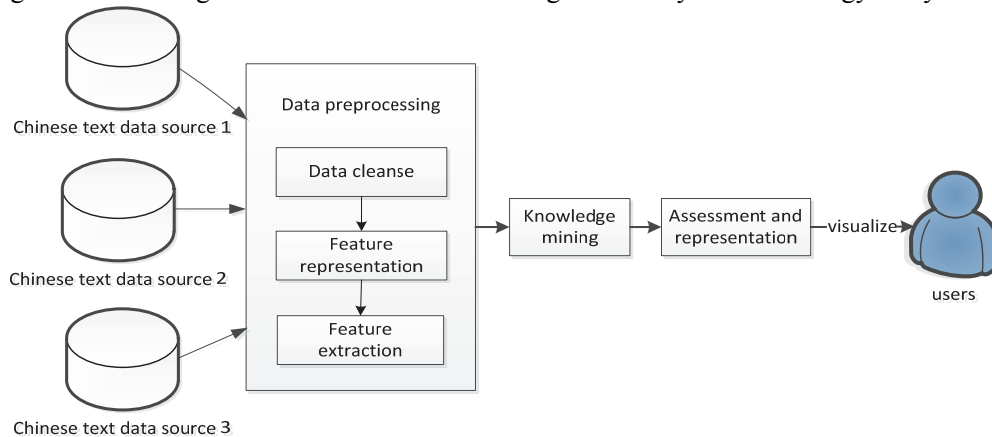


Figure 5 Chinese Text Mining Process

3 Function Module Design for Mental Health Monitor System

The strategy analysis module is designed to verify the function of big data analysis system serving students in this chapter. The system is made up by data acquisition, data processing, model matching and analysis which is implemented by requirements analysis, modeling, programming. Typical character is analyzed as an example to verify system function, feasibility and reliability of big data analysis. The example is used to describe how the public data transformed to knowledge for strategy analysis.

3.1 Data Acquisition

The data acquisition module of mental health monitor system use web spider to collect related data and text information on the Internet as comprehensive as possible. Students' external condition in school recorded by relevant departments is also be quoted, including scores, rewards, daily performance. Students' personality, hobbies reflected in those data will be a strong foundation for following analysis.

The data processing module analyses original data base on efficient arithmetic after feature extraction and representation by text mining. The typical model base and knowledge base is also established in this module which is useful for pattern matching. To ensure the accuracy of model analysis, the integrity and completeness must be paid more attention to when creating the model base.

College students' mental condition is monitored dynamically and the special case will be warned immediately in the model matching and analysis module. The advanced analysis of students' personality is helpful to emergency measures. Students of electronic information major are chosen to be examples in this system. Their information got from relevant departments or web spider is analyzed to get their real mental condition. The corresponding counseling plan is also provided by this system.

3.2 Breakthroughs of the Project

1) Establish a big data analysis system based on students' information. The system presents students' dynamic mental condition to counselors and provides advice for them by monitoring and analyzing students' various information

2) In the background of big data, we try to establish a mental health care system for students. The system provides corresponding plans about relieving, consulting, counseling for certain students who are under heavy pressure of learning or employment. The specific advice improves practicability which serves students in a better way.

4 Conclusion and Outlook

The system mainly adopts big data analysis technique and web spider to collect the public data on the website. The distributed Hbase storage structure and computing framework is established. Text mining technique is also applied to transform data into knowledge needed by upper analysis system. The designed system establishes model base and knowledge base of college students' mental health through collecting data, processing and analysis. Monitoring students' mental health is implemented by pattern recognition and analysis. In the end, the analysis of typical characters is taken as examples to prove feasibility of the system.

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The Significance of Professionalism and Probity for the Teaching Professionals in Higher Education*

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Abstract: This paper insists on the position, viewpoint and method of the integrity culture, in order to study the moral construction of our country in an honest way. This paper firstly puts forward the clean from the connotation and the main content of teaching, expounds the connotation of the view of teachers' morality construction of colleges and universities in the construction of a harmonious society, puts forward that teachers clean from teaching is the new era anti-corruption construction in universities is a important task, to promote good social habits, create a delicate gas positive campus culture environment is crucial for.

Key words: Ideological and Political Education; Honest and Clean Culture, Probity Education; Inculpability; College Culture; Higher Education

1 Introduction

All the countries in the world, especially in some developed countries, attaches particular importance to the construction of professional ethics of teachers, has formed the distinctive and reflect the teachers general occupation of teachers' professional ethics, moral norms, the progressive development of systematic theory of teacher's professional ethics, and has achieved fruitful experience. America, Europe and other western countries attach great importance to teachers' professional ethics education, the content of teachers' morality into education, educational psychology, teaching method, school law and other disciplines and teaching practice Permeate in the school and the society of the daily moral education, pay attention to the development of the professional morals habit.

From the beginning of twentieth Century 80, the development of higher education has become a key link in the development of science and technology in China. The teachers' morality of university teachers plays an important role in the development of higher education in our country. Therefore, China began to carry out a new era of scientific and systematic research on Teachers' morality.

2 Connotation and Characteristics of Honest and Clean Teaching

Being honest and clean includes such connotations as probity, integrity, sense of public serving, sense of honor and shame, etc. It requires a man to be ingenuous and openhearted, to be frank and forthright, and to be honest and clear. Such values are actually the intrinsic code of ethics in the Chinese tradition regarding being a man. It was recorded in Chapter The Emperor's Lecture of the Book of the North Qi Dynasty that Yang Xi was highly regarded as the paragon of virtue and learning for others because he considered his moral integrity as his foremost important trait. Similar values could be frequently found in traditional Chinese literatures. For example, according to The Book of Rites, average people esteem the knowledge from scholars of dignity while scholars gain dignity, authority and respects from people by demonstrating gracious moral integrity. Therefore, the foremost premise in constructing an efficient teaching staff is to promote both moral integrity and professional competence, of which morality undoubtedly comes first. It is well known from Chinese sages that capacity is the source of virtues while virtues guide capacity. From this perspective, a man with both moral integrity and professional competence can be regarded as a Saint, a man with neither as a moron, and a man whose moral integrity surpasses his professional competence as a gentleman while the opposite as an immoral person.^[1]

3 The Practical Significance of Honest and Clean Teaching in Colleges and Universities

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Dwight W. Allen, an eminent American scholar of educational reform, pointed out that we are actually jeopardizing our society if we only teach our students to be smart but fail to teach them moral integrity.^[2]

3.1 Honest and clean teaching is an essential part of the professional ethics of teachers and such a notion is widely accepted and followed by the entire society

It was pointed out in the Report of the 18th National People's Congress of CPC (hereinafter referred to as the 18th NPC Report) that it is necessary to improve the ranks of teaching staff, to reinforce their professional ethics and competence, and to strengthen their sense of honor and responsibility in teaching and cultivation. This defined the guideline for the construction and development of the teaching staff in college and universities. Teaching in an honest and clean way is not only the essential demonstration of socialism ideology, but also the base on which the harmonious culture could possibly be constructed. Furthermore, it is the key guarantee that safeguards the carrying out of the national development strategy through science and education and ensures the implementation of the socialist core values.

The CCP Central Committee and the State Council of China jointly published The Outline of the National Plan for Medium and Long-Term Education Reform and Development (2010-2020) (hereinafter referred to as the "Medium and Long-Term Education Plan Outline") on July 29, 2010.^[3] It was explicitly pointed out in the Medium and Long-Term Education Plan Outline that we must strengthen the construction of professional ideals and ethics education and we must reinforce the sense of responsibility and mission among the teaching community. Education is on the basis of an honest and clean environment. We must be good at guiding people to develop excellent quality and to respect and advocate the honest and clean characters through the life philosophy contained in the culture of honesty and incorruptibility. Besides, we must continue to push for the awareness of self-discipline on the basis of all-round development. It is an urgent need to consciously resist unhealthy environment.

3.2 Honest and clean teaching is an important embodiment of cultivating excellent virtues and habits as well as promoting the honest value orientation among teaching professionals

In late 2009, six central government departments, including the Central Commission for Discipline Inspection, the Central Publicity Department, the Ministry of Supervision, the Ministry of Culture, the State Administration of Radio, Film and Television, and the State Administration of Press and Publication jointly issued the Suggestions on Strengthening the Cultural Construction of an Honest and Clean Government (hereinafter referred to as the "Cultural Construction Suggestions"), in which it was pointed out that it is and will still be particularly important and urgent to vigorously strengthen the cultural construction of an honest and clean government^[4], and to establish healthy ideas and cultural atmosphere conducive to the construction of anti-corruption in the range of the entire party and society. It also proposed to combine the ideological and moral construction for teenagers with the ideological and political education for college students. It was reiterated that the probity education for the youth must be regarded as a pivotal part of quality education and must be integrated into the national education system. Teachers must play an exemplary and leading role to the largest capacity in carrying out the honesty education. The professional ethics, attitude to life, communication philosophy and learning styles of teachers will directly affect the moral emotion and spirit world of students. Therefore, teachers should positively influence students with their noble personality and gracious charisma by starting with themselves and starting with trivial matters. It is worth to note that it is important for teachers to constantly remind themselves not to do any evil no matter how insignificant it is and not to miss doing any good no matter how insignificant it is.

3.3 Honest and clean teaching is a practical platform for promoting the socialism core values and for creating the concept of probity

Teachers are the successors of the essence of advanced culture and the pioneers in developing science, technology, and civilization. They are national treasures that play a crucial role in advancement of science and technology, in inheriting the essence of traditions, and in innovation. Through the accumulation of the honest and clean cultural connotation in the traditional culture, honest and clean teaching ought to become the cultural achievements and values accepted and followed by the majority of teachers and students. Teachers should enrich the existing cultural achievements with new ideas and new spirit. Furthermore, the culture of probity is profoundly thoughtful and educational to the general public, and hence should be combined with the traditional campus culture. Teaching professionals play a major role on these efforts, which are of far-reaching significance in improving the quality of college education, enhancing ideological and moral quality of students, and boosting up consciousness of culture and introspection in behavior among the society.

4 Practical Approaches to an Honest and Clean Teaching Staff in Colleges and Universities

As mentioned above, it was proposed in the Medium and Long-Term Education Plan Outline that the teaching community is urged to improve their professional ideals, their professional ethics, and the sense of responsibility and mission in educating future generations. For the rejuvenation and continued development of the Chinese nation, it is crucial to continuously promote honest and clean people as the driving force, including qualified teachers of high moral standards.

4.1 Teachers as role models for promoting the construction of spiritual civilization on campus

Former Russian educator, the teacher of Russian teachers, Konstantin Dmitrievich Ushinsky believed that the quality of education is largely based on teachers' characters because only from the lively steam of teachers' characters and charisma could the power of education originate, take off, and last. The role of personality in education is irreplaceable, regardless of any rules or institutions, however ingeniously conceived and dexterously built they are.

In order to foster a clean environment, to resist degenerate ideologies, and to promote a harmonious culture in schools, it is paramount to strengthen the probity education on college faculties, and to reinforce their responsibility in teaching and their consciousness of being a paragon of virtue and learning. Teaching professionals are meant to be role models and should affect others with noble characters, guide others with civilized words and deeds, educate others with the spirit of dedication, earn respect of others with remarkable erudition, and influence students with concrete actions.

4.2 Construction of a clean and righteous atmosphere in schools based on the psychological mechanism of reverence towards the legal system

The great American professional motivator and inspirator James Robins stated that an employee gains professionalism once he/she takes his/her career respectfully and committed, or even with an attitude of reverence. To move the cause of education onwards healthily, the foremost important factor is to promote the construction of the legal cul

ture on campuses. Probity education on college faculties is not just needed by the advancement of higher education, but also to an even wider extent, needed by the entire society for combating corruption, encouraging honesty, and constructing a harmonious society.

5 Conclusion

The life philosophy behind the incorruptible culture could guide people to foster sterling qualities of admiring honesty and respecting incorruptibility. Adhering to such an attitude serves as an anti-corruption education that will impact the entire society fundamentally and profoundly; and such a practice could even be the permanent cure for rooting out corruption and for building an honest and clean government.

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Cultivate Musical Arts Management Talents by Industry-University-Institute Cooperative Education

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Abstract: With the development of China's cultural industry, the demand for musical arts management talents increasing rapidly, furthermore industry-university-institute cooperative education as a new way of cultivating musical arts management talents becomes more and more important. This paper based on literature research method, pointed out the significance of cultivating musical arts management talents by industry-university-institute cooperative education; and hold that it have advantage to cultivate professionals; further established patterns of industry-university-institute cooperative education. It is concluded that musical arts management major use patterns of industry-university-institute cooperative education has more benefits. It aims to promote the cooperative education and provide useful reference to the build of musical arts management major, further lead to the vigorous development of national musical arts management professional education.

Keywords: Industry-university-institute cooperative education; Musical arts management; Cultivate; Pattern

1 Introduction

Industry-university-institute cooperative education is an education pattern that ordinary university interactive with enterprises, academic institutes, which take advantage their different teaching resources, exploit the talents cultivation advantages, joint training of talents. This pattern combines classroom education and social practice, which consider both knowledge teaching and comprehensive ability exercise, forming complementary knowledge system. It can enhance the comprehensive ability of the students and lay a good foundation for their future to the society.

Art management refers to “thorough planning, organizing, controlling and leading to coordinate and integrated use of manpower, material and financial resources of artistic activities, and to achieve organizational goals”¹, namely, it is manager for certain purpose to organize and coordinate the art creation process and the whole development of art business. Music is an art thorough notes to express feeling of people which reflect the real life². Musical arts management is the management related to musical arts activities. Musical arts management has various names in different university in China, such as art management, cultural industry management, and public administration. This paper use “musical arts management” refer to musicology, art management and public administration major established by school of music, humanities, art in ordinary university.

Herman. Schneider, an professor from university of Cincinnati, is the first to put forward cooperative education. Foreign research emphasizes the connotation and advantage of cooperative education; explore the cooperative mechanism and puts forward variety of education pattern. For instance, < Cooperative education in a New Era > is written by Kenneth. Ryder, this book discussed the influence of cooperative education and provides a lot of practical suggestions for university; Dale Williams's < Learning from working > described that cooperative education enhanced students' confidence by skill training; James R. Davis's < Cooperative Education: Prospects and Pitfalls > explored the concepts, benefits, problems and education pattern of cooperative education; Bill Ferris's < Cooperative Education: Neglected Winner > illustrated the history of cooperative education.

Domestic researches focus on the significance, history, problem and solution, case study and pattern of industry-university-institute cooperative education. For instance, Liu Ping's < Introduction of Industry-University-Institute cooperative education >, which illustrated the history, basic pattern and operation mechanism of industry-university-institute cooperative education; Wang Pei Gen as the chief editor of book < Industry-University-Institute Cooperative Education >, explore the connotation and function, development, basic theory and operation mechanism of industry-university-institute cooperative education; Wang Jianji's < The Exploration and Practice of Industry-University-Institute Cooperative Education >, combined with the cooperative education experience of Henan University of science and technology, showing the content of school teaching and research, the results of the system and so on.

As illustrated above, there are many papers related to industry-university-institute cooperative

education . What's more, there is one paper similar to our topic written by Zhang Xu< The Advantage and Pattern of Innovative Arts Management Talents Cultivation by Industry-University-Institute cooperative Education >, which combine the two concepts of cooperative education and art management and explore the advantage and pattern of cooperative education for innovative arts management talents. Further, Liu Yutong's<The Exploration of Cooperative Pattern of Industry-University-Institute in Musical Department of Ordinary University > and Tang Ruijuan's <The Practice and Exploration of Music Graduate Education Pattern Based on the Integration of Industry-University-Institute in Capital Normal University >, the research object is graduate students of music performance major or music education major. Until now, there is no paper to discuss the cultivation of musical arts management talent based on industry-university-institute cooperative education . Therefore, we put forward this topic which tries to fill the gap in this field.

2 The Significance of Cultivating Musical Arts Management Talents by Industry -University- Institute Cooperative Education

The cultivation of people is the essential feature of education, and talents education cannot separate from social requirements which need to contribute to certain social services. The industry-university-institute cooperative education reflects the essence of education, because it can better educated social talents and educate musical arts management major talents to serve the society, and make them become society needs arts manager. The significance of industry-university-institute cooperative education have the following four points:

2.1 Achieve the goal of talents cultivation

The objective of musical arts management major is to cultivate high quality talent has both musical art ability and management ability. Its purpose is to train some art managers who have certain musical art management theory, basic business knowledge and relatively skilled social practice. It try to maximize realize the market value and social value of musical arts products. Therefore, musical arts management talents requires not only theoretical knowledge, more importantly it need have the ability of social practice, industry-university-institute cooperative education can achieve the musical arts management talents cultivation goal, which combine both theory knowledge and social experience.

2.2 Cultivate innovative talents

Industry-university-institute cooperative education is beneficial to cultivation of innovative talents , which provides favorable conditions for the training of students' creative ability. Innovation is the core element of arts management. Musical arts management talents need to handle a series of innovative practices that including resource use, regulations, organization structure, and organize all kinds of resource to produce benefits and achieve the purpose of arts management. Besides, music companies, music and cultural institute more face to the reality of arts management compare to university. Therefore, integrated these advantages into university which will lead to a qualitative leap for cultivation of innovative talents.

2.3 Improve student's comprehensive ability

There is a disadvantage in ordinary university which cannot good transfer knowledge into real ability. However, musical arts management education is to cultivate students' comprehensive ability. Therefore, it is very hard to achieve the education goal if just rely on classroom teaching. Only if through industry-university-institute cooperative education , which will ensure musical arts management talents gain various comprehensive ability, such as social skills, language express, decision making and planning, organization coordination and management skills. Students of musical arts management major usually lack of practical ability, since their knowledge not verified by actual practice and just have a slight impression. Industry-university-institute cooperative education push the students go out of the campus, change their teaching environment, setting students in the real production environment which enable them to experience various musical activities and increase their knowledge. Besides, it provide the chance to contact and cooperate with musical arts manager at all levels, which will improve students comprehensive ability and lay a solid foundation for their future management work.

2.4 Broaden employment channels

When musical arts management graduates in the job interview, they usually be asked if they have work experience or not? So many graduates are refused since have no work experience. The recruiters are generally prefer to hire people has certain work experience, however students graduate under the traditional education pattern usually lack of practical experience. Industry-university-institute cooperative education narrowed the gap between personal training and social needs and enhance

students' competitiveness. When students of musical arts management major are cultivated by of industry-university-institute cooperative education, then they will gain certain social practical ability which can handle the position in musical arts management fields, such as broker, music editor, music agency manager, etc. In this case, they can go directly to the job market and avoid the unsuited to the management position.

3 The Patterns of Cultivating Musical Arts Management Talents by Industry-University-Institute Cooperative Education

The cultivation of musical arts management talents by industry-university-institute cooperative education need to enhance the cooperation between university, cultural enterprises and scientific research institutes, implement the teaching policy that theory guide the practice , to cultivate students' comprehensive ability. Specifically, it needs to strengthen the link between curriculum and practice, development project teaching method, realize the combination of theory and practice.

3.1 Project teaching

The cultivation of Musical art management talent by industry-university-institute cooperative education needs to change teaching pattern from knowledge cramming education to ability cultivation; push students take part in actual project work extensively. Besides, it can combine the research projects of teachers, under their guidance, student take part in or independent make business copywriter, draw contract, gradually complete information collection and project executive, experience art management process. What's more, student can set up a non-profit music company; develop business projects, strategies and plans. Teachers guide students put forward their own views and understanding of the project, exercise comprehensive ability of knowledge use, learning solve problem from different levels and different point of view. At the same time, they should study the case from the real life, understanding the significance of art management from reality.

3.2 Practice base

Ordinary university is better to set up one or several art management practice base, such as record company, musical culture company, opera troupe. University sign cooperation agreement with these institutes, every year sending some students to these practice bases to take practical experience. The learning content of musical arts management major including two part, one is learning professional course and optional course, the other is take practice in practice base. The university arranges the practice each time no more than one semester, and realizes many times circulation from study to practice which enhance the arts management level of students. Students through planning, coordinating and organizing various art activities, take part in the process of art management, understand the whole picture of art activities. Besides, student has the change to acknowledge the operation process of the company or opera troupe, and gain the knowledge how to do marketing, advertisement and promoting activities. These practices let students to take class teaching knowledge into practice, to design, to implement , and when they return to classroom, their practice result should be discussed ,analyzed and make it into speech. Besides ,encourage students take part in or independently planning concerts or evening part and other activities, after that , it should discussed together , to communicate the experience and the shortage part; then writing practice reports.

3.3 Joint cultivation

Ordinary university should take full advantage of inner or outside resources, improve professional knowledge structure and improve the level of teaching. For instance, university sends musical arts management teachers to related culture firms to take training, or employ outside manager of art institute and also magazine editor, composer, theater managers as practice teacher who responsible for practical course and seminars. Let more and more teachers who have enterprise work background to teach, which facilitate students to master social musical arts management trends and expand student's knowledge source. Teachers from outside integrate the new research result from domestic and abroad, management knowledge from music institute into speech and lecture which create a broad learning environment, develop the perspective of learning. In this case, students under the vast practice space can fully build a knowledge system and fully dig their own potential.

3.4 Combine folk custom

Cultivating musical arts management talents by industry-university- institute cooperative education can also combined with local resource and folk custom culture. For example, musical art management student at comprehensive university in Hubei province can go to Qintai concert hall , chime music hall to give practice, simultaneously understand the character and performance status, Besides, organize

student to listen concerts, performance which can broaden their view and enhance their musical appreciate ability. Otherwise students can go to carry out research at provincial or city song and dancing troupe, understand the different local opera, dancing performance and the arrangement, or visit the artists.

4 Conclusion

In conclusion, cultivating musical arts management talents by industry -university- institute cooperative education is to adapt the demand of social and culture development, to achieve the objective of art management talents cultivation, to broaden the channel of students' employment, and to improve student's comprehensive abilities. Cooperative education of industry -university- institute has great significance to cultivate musical arts managements, which is feasible to promote in ordinary universities. Furthermore, it need take advantage of university, culture firms and institute's teaching resource and set up teaching pattern which combine both theory and practice. We hope to have more ordinary university use cooperative education pattern of industry -university- institute to cultivate musical arts management talents in the future, enable our art management education has vigorous development and has more talented people.

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The Research on Internal Quality Guarantee System of Education of Postgraduates in Physical Education in Comprehensive Universities: Taking Wuhan University of Technology as an Example

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Abstract: Taking the education of physical education postgraduates in Wuhan University of Technology as an example, the paper conducts a systematic theoretical exploration and practical research on internal quality guarantee system in comprehensive universities, using literature, interviews, and empirical study. The study shows that internal quality guarantee system of the education of postgraduates in physical education in comprehensive universities mainly involves three aspects including quality management, quality supervision and quality feedback. Internal quality guarantee system of education of postgraduates in physical education in comprehensive universities can be constructed in source quality of students, quality of lessons, quality of teachers, quality of practice and quality of thesis.

Key words: Comprehensive university; Postgraduates in physical education; Internal quality guarantee system

1 Introduction

Since 2006, Peking University, Tsinghua University, HUST, Wuhan University of Technology and other comprehensive universities has recruited postgraduates in the direction of physical education which provides an opportunity for the reform of physical education and the development branches of physical education. In recent years, the quality of education of postgraduates in physical education in comprehensive universities has more and more obvious deficits compared with sports colleges and normal colleges, such as weak innovative consciousness and innovation ability, lack of high-level research achievements and lack of academic atmosphere^[1-2]. Those problems bring serious influences on the education of postgraduates in physical education in comprehensive universities the mismanagement of which will make the quality of postgraduate education face a decline. After searching the Chinese Journal Net, I find the related research mainly include the following aspects: 1. Research on the current situation of the education of P.E. postgraduates, for example: analysis on the education of full-time P.E. postgraduates in China (Zhang Jianhua, Li Na). 2. Research on the cultivation of P.E. postgraduates, for example: analysis on the cultivation program of P.E. postgraduates in current times in China (Fang Qianhua, Huang Hansheng). 3. Research on the curriculum plan of P.E. postgraduates, for example: Research on the major of P.E. postgraduates and curriculum plan (Jiang Li). 4. Research on the qualities and innovation ability of P.E. postgraduates, for example: On the Improvement of P.E. postgraduates' qualities (Fu Xiyang). 5. Research on the management of P.E. postgraduates' education, for example: Reflection on the construction of P.E. postgraduates' education quality guarantee system (Gong Mingjun). The research of domestic scholars involves a wide range of topics, but researches about education guarantee system of P.E. postgraduates in comprehensive universities are seldom conducted. Therefore, exploring the elements of internal quality guarantee system of education of master in physical education in comprehensive universities, building internal quality guarantee system of postgraduates education conforming to their own features and adopting measures to ensure the quality of postgraduates education soon is one of the urgent problems higher education theory needs to solve.

2 Elements Analysis of Internal Quality Guarantee System of Education of Postgraduates in Physical Education in Comprehensive Universities

The subject of internal quality guarantee system of education of postgraduates in physical education in comprehensive universities is school, and its main content mainly involves quality management, quality supervision and quality feedback.

2.1 Quality management

In the current stage, quality management of postgraduates in physical education in comprehensive universities adopts university-academy-subject management system. University has relatively concentrated powers which carry out administrative guidance in academic aspect and management aspect through graduate school as education authority. It masters education management resources,

makes education quality management documents and supervises quality management process. Academy which has relatively few independent powers is mainly responsible for implementing the teaching management tasks assigned by university, affording partial teaching management affairs and guiding specific teaching quality management work in subject. Currently, with the expansion of students recruitment scope, four-level management system emerges in colleges and universities, namely response management of tutor and tutor as the first person responsible.

2.2 Quality supervision

Quality supervision system is one of the important elements for education quality guarantee system as well as the important foundation and powerful guarantee for the scientization and standardization of education quality of postgraduates in physical education in comprehensive universities. It has encouragement, diagnosis and urging functions in the whole quality management work. Its main tasks are to supervise, check and assess the whole process of postgraduates education according to quality assessment standards in education management rules and regulations made by university, timely feed information back, constantly adjust and optimize teaching process and provide teaching management decision-making for university, academy and teaching management department. Its work is implemented by teaching affairs and teaching management department of university, academy and department, experts supervising group and other departments^[3].

2.3 Quality feedback

Quality feedback plays an important function in education quality guarantee system of postgraduates in physical education in comprehensive universities. On one hand, it finds the problems in teaching, adjusts teaching process, intensifies teaching management and enhances the stable improvement of teaching level. On the other hand, it improves the approval degree of society for university and students, feeds quality back and constantly improves the quality of talents cultivation. Currently, information is mainly fed back from the following three aspects: (1) quality of source of students; (2) symposium; (3) employment track survey of graduates.

3 Case Analysis: Take Wuhan University of Technology as an Example

Wuhan University of Technology, as a comprehensive university of “211 project”, is one of the first batches of units which recruit postgraduates in physical education, which values and actively explores the improvement methods and channels of education quality of postgraduates in physical education and achieves substantial development in postgraduates cultivation. After long-term research and summary, it gradually builds and carries out internal quality guarantee system with the main aim of improving students’ abilities and quality. It mainly includes the following aspects.

3.1 Quality guarantee of source of students

Strict admission system ensures source quality of students. Source quality of students is the starting point of education quality guarantee of postgraduates in physical education, namely the basic guarantee of education quality. Owing to the particularity of cultivation of postgraduates in physical education, the source quality of students of postgraduates in physical education is especially important. Our school ensures the source quality of students of postgraduates in physical education from the following aspects:

1) Highlighting quality consciousness in recruitment philosophy: Mainly assess the science quality, comprehensive abilities, innovation consciousness and innovation ability. The first measure: respect the two-way choice of tutors and students and independent powers of recruitment of universities. The second measure: adhere to scientific selection standards, highlight the assessment of science quality, comprehensive abilities and innovation potentials of examinees and build special selection mechanism for the examinees with athletics specialties or potentials. The third measure: make strict recruitment standards, procedures and disciplines and firmly resist bad working styles to ensure students recruitment work conforms to policies and is fair and just.

2) Highlight confidentiality awareness in propositions. Hire experts outside academy to set questions with major teachers inside academy, expand questions setting channels and build test paper bank of postgraduates in physical education. Adopt random extraction and questions combination to ensure the confidentiality of selected questions.

3) Take academic research level and business quality as the important reference standards for selection in reexamination. Reinforce the assessment of comprehensive qualities in reexamination, assess mainly the depth and width of knowledge examinees master and their abilities of applying professional knowledge to analyze and solve problems, learn about examinees’ research interests in and attitudes to physical education major and the skill level of physical education major and social practical

abilities and learn about examinees' potentials in science research and comprehensive qualities.

3.2 Curriculum quality guarantee

The content of curriculum for postgraduates in physical education is the carrier of achieving objectives of cultivation and the key for guaranteeing and improving cultivation quality of postgraduates^[4]. The research compares and analyzes curriculum setting for postgraduates in physical education of HUST. Our university offers 17 degree courses and optional courses and HUST offers 26 degree courses including 3 practice and skill courses. Such as the running and management of sports event, the development trend of theory of sports pedagogy and training, overview of recreational sports and sport communication. And HUST also offers sports skills courses (such as tract and field, basketball playing skills and sports training and practice). Therefore, according to the experience of HUST, curriculum setting of our university should embody the principle of "science and expansion", be scientific and reasonable and conform to the principles of postgraduates education in physical education. And content of curriculum should be wide and curriculum and research direction should be combined effectively. Consider setting specialized courses and specialized core courses from the directions of research on sports training theories and practice, development and management of human resources of sports and economic development and management of sports, reduce 1-2 class hours of optional courses, increase optional courses, further perfect curriculum setting and refer to table 1 for revised curriculum.

Table 1 Curriculum Setting for Postgraduates in Physical Education of Wuhan University of Technology (Revised Edition)

Course type		Name of course	Remarks
Degree course		First foreign language (English, Japanese and so on); Marxism and social science methodology; social theory with Chinese characteristics and practice; sport economics; athletic training; human resources development and management of sports; sport psychology; sport sociology; sports recovery	Choose 6-7 courses at random
Optional course	Compulsory course	Sport law, database system theory and technology; sport pedagogy; overview of sports design. Sport management; research theory and methods of sports science, sport nutrition; applied sport statistics	
	Independent optional course	Ball sports (basketball, football, table tennis) Gymnastics courses (sports dancing, aerobics) Development trend of theory of sports pedagogy and training	1. Research on training theories and practice of physical education
		Human resources management, technical innovation management; information management	2. Development and management of human resources of sports
		Stadium facilities and management Operation and management of leisure sports club	3. Economic development and management of sports industry
Compulsory link		Practice link; topic selection report; academic activities	

Reasonable curriculum setting can enhance the improvement of cultivation quality of postgraduates. It can be seen from Table 1: optimize curriculum setting. Set independent optional courses according to three different research directions (choose 1-2 courses at random), take full use of the advantage of complete types of comprehensive course to study interdisciplinary courses according to their research directions, subject research and job needs and personal interests and improve the pertinence and effectiveness of courses learning which can help expand the knowledge scope of students. In the newly revised curriculum, professional skills course of sports is also offered for the students in research direction of training theory and practice of physical education. Mastering a certain of sports skills is essential for postgraduates in sports direction to get a job in the society.

3.3 Teacher quality guarantee

The academic morality, science research ability, academic level and work attitude of postgraduate tutors in physical education in comprehensive universities have important influences on the personal development of postgraduates. So building high-level tutor team is very important for improving the quality of postgraduate education. Our university reinforces the construction of tutor team from the following aspects:

1) Highlight the selection and recruitment of tutors. Start selection and employment system of tutors and choose a batch of tutor teams with certain of science and research achievements, high comprehensive qualities and strong business abilities. Weaken status, strengthen post awareness, makes the responsibilities of tutors clear, strengthen responsible system of tutors, further improve tutors'

responsibility sense and prevent the situation where tutor is responsible for overmany postgraduates leads to the decreases of education quality of postgraduates.

2) Strengthen the guidance of tutors. Tutor's rich knowledge and experience not only provide help for students in thesis writing and prevent students from making meaningless efforts but make postgraduates make breakthroughs within their abilities and achieve innovation. Tutor should guide postgraduates rather than instilling in them improving the abilities of independent thinking and problems solution of postgraduates, cultivating postgraduates' deep science research awareness and further improving the initiatives of postgraduates in science research.

3) Try the guidance method of "tutor group". The cultivation of postgraduates in physical education of comprehensive universities adopts single response system of tutors the limits of which are more and more obvious. Therefore, we should select and hire some young teachers with a certain of science research achievements, rich knowledge and Doctor degree to form tutor group and avoid the situation where tutors neglect their guidance for students because of massive administrative affairs and heavy teaching tasks.

3.4 Quality guarantee of social practice

Social practice base is important for improving the cultivation quality of postgraduates in physical education. In practice, students not only can reinforce their theoretical knowledge of sports and improve skill level of sports but improve their organization and management abilities and problems analysis and solution abilities.

The postgraduates of research on physical education training theory and practice major have four channels in practice. First, participate in tutors' teaching. Master teaching skills and methods in teaching assistant work and apply the theoretical knowledge and skills of sports in undergraduate teaching to improve students' sports teaching level. Second, take advantage of the course advantages of theory of sports pedagogy and training of Wuhan University of Technology to build physical training base for national defense students, let students master the training work in high-level sports training base and improve their training management ability. Third, participate with the training work in high-level sports training base (basketball, track and field and martial arts), follow diary training, make training plan and participate with skills and tactics teaching to improve students' comprehensive qualities. Fourth, build practice base in provincial private enterprises, reinforce sports culture construction of enterprises and organize national fitness activities such as basketball, badminton, table tennis and fun games, to animate sports culture atmosphere of enterprises.

3.5 Quality guarantee of academic dissertation

Academic dissertation is the comprehensive reflection of postgraduates' academic abilities and can also check the quality of postgraduate education. Academic dissertation writing of postgraduates in physical education is the important sector in the whole postgraduate education period which is important for postgraduates to improve their theoretical knowledge level, science research qualities and words organization and language expression abilities. Therefore, in order to improve the thesis quality of postgraduates in physical education, our university mainly adopts the following measures:

1) Make evaluation standards for academic dissertation. Obey systematicness and operability principles when assessing thesis quality. Require postgraduates to value subject selection quality and answering process, highlight independent thinking and problems solution abilities, require students to contain independent science research ability and make innovations in the research field of the course and guide postgraduates to write high-quality thesis.

2) Monitor academic dissertation quality. Build good academic atmosphere, guarantee the quality of academic dissertation and build academic dissertation check mechanism. Make a stipulation that all postgraduates applying for thesis answering must first pass through academic dissertation check mechanism before the deadline and the checked repetition rate can't exceed 20% so that plagiarization can be avoided effectively. Besides, only the students whose academic dissertation passes experts' review can attend answering. The above stipulation aims to prevent academic misbehavior and ensure postgraduates receive strict science research training.

3) Strictly control academic dissertation quality. First, control subject choice. On one hand, academic dissertation should be closely associated with reality and based on practice. On the other hand, academic dissertation should be closely associated with tutor's science research tasks or students' research direction if possible and tutor group should exert their guidance function. Second, control thesis proposal. Standardize the content and methods of thesis proposal according to the stipulation of graduate school. Third, control mid-term assessment of thesis. The problems found in mid-term assessment

should be rectified and solved timely to ensure the cultivation quality of postgraduates. Fourth, strictly control thesis evaluation and answering. Hire experts relating to courses to evaluate the scientificity, feasibility and forwardness of thesis and judge whether thesis reaches postgraduate level.

4 Conclusion

1) The subject of internal quality guarantee system of postgraduate education in comprehensive universities is school the content of which involves quality management, quality supervision and quality feedback.

2) Internal quality guarantee system of postgraduate education in comprehensive universities can be constructed in source quality of students, quality of curriculum, quality of teachers, quality of practice and quality of thesis.

3) Increase postgraduate education quality of Wuhan University of Technology and improve students' comprehensive abilities and qualities and enhance the development postgraduate cultivation work through building internal quality guarantee system of postgraduate education in comprehensive universities.

4) Reasonably setting curriculum. Comprehensively integrate curriculum settings, flexibly adjust curriculum content and add optional courses with strong practicability and wide purposes according to the existing teachers conditions, teaching conditions and software and hardware environment. On one hand, offer the courses relating to cultivating science research abilities of postgraduates. On the other hand, offer inter-disciplinary courses according to different research directions. Besides, tutor group can offer 4-8 class hours of special lecture to expand students' vision.

5) Further improve tutors' guidance level. School should strengthen science research style education, set annual science research goal for every tutor and improve tutors' science research consciousness. Tutor should always get familiar with the cutting-edge dynamics of the field and teach the latest knowledge to students. School should encourage tutors to pursue advanced study or receive further education and provide corresponding opportunities for them.

46) Deepen the reform of postgraduate education according to social demands. School needs to further the system and mechanism construction of quality management of postgraduate education, reform modes, types, educational system and management mechanism of postgraduate cultivation and explore the system and mechanism suitable for education management of postgraduates in physical education in comprehensive universities. Further research should be conducted in external quality guarantee system. And build complete and three-dimension quality guarantee system with reasonable structure and effective mechanism.

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An Investigation on Fine Arts Majors' English Learning Motivation

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Abstract: The number of investigations and researches on college English teaching with fine arts majors as the subject has been rather limited. Based on Gardner's theories of second language learning motivation classification, the present study adopts questionnaires to investigate into the English learning motivation of eighty fine arts majors and finds out that, their integrative motivation is insignificant, while instrumental motivation is significant. Thus it is suggested that English teaching reform could be facilitated by making traditional evaluating objectives, evaluating content, teaching approaches, etc. more motivation-oriented.

Key words: Fine arts major; Learning motivation; College English teaching; Teaching reform

1 Introduction

Motivation is a factor of great importance that affects language learning. The nature of learning motivation influences the general objective and the progress one makes, and it also contributes to the learning effect. According to psychology studies, learning effect is generally consistent with learning motivation. Therefore, as a vital factor that affects learning behavior and improves leaning effect, learning motivation is prerequisite for learning process. (Shen Deli, 2006). And in the process of teaching, teachers should attach great importance to factors that can stimulate students' learning motivation.

The definition of learning motivation varies, and the classification criteria are various, too. Gardner (1985) divides learning motivation into integrative motivation and instrumental motivation in his theories of second language learning motivation classification. He Zhaoxiong and Mei Deming (1999) defines the two types of motivation. Learning motivation can be defined as the general leaning objective or tendency of the learner. Instrumental motivation refers to the practical need to communicate (such as for work or to pass exams). Integrative motivation refers to the need for social interaction (such as to become part of community speaking the target language). The importance of second language acquisition motivation has been wide acknowledged. In this process, if the learner is interested in the life and culture of the target language, he or she is more active in language output, then it is more likely for the learner to successfully acquire the language; on the contrary, if the learner tends to take the language for a useful tool, he or she more willing to spend extra time on achieving progress, but by the time the learner finds that the language proficiency is enough to meet the practical needs, then he or she will stop learning.

The author's personal experience of teaching in fine arts institution of higher education, the English writing tests on freshmen at the beginning of their first year in college, students' self-evaluation of their English learning made at the end of each semester and the verbal communication between teacher and students indicate that, in the process of fine arts students learning English, many problems exist. And one of the problems is about motivation: some students have the motivation, but due to weak foundation laid in previous stage, that is, in middle school, as well as the lack of the right strategy and method, they may get daunted, and then they are unwilling to learn, get wearied, or even begin to quit college English classes. Meanwhile, a number of students hold the opinion that art-related careers requires no English proficiency, thus it is useless. Once they have passed the English test which is required as the condition for receiving the diploma in their freshman year, a large number of students' enthusiasm will significantly decline.

From the perspective of teaching, college English teaching practice and theory research have been multi-dimensional and fruitful in recent years. But the progress is seldom made in the field of the English teaching with fine arts majors as the subject. The teaching and teaching reform practices and theories in fine arts colleges are mainly based on those conducted in comprehensive universities or universities of science and engineering, resulting in problems. Thus the investigation is aimed to have a better understanding of the English learning motivation of fine arts majors, to explore ways to conduct and deepen college English teaching reform on the basis of the characteristics of the teaching subject.

2 Investigation

2.1 Subject and method

A total of 80 undergraduates from Hubei Institute of Fine Arts participate in the study. They all have been learning English for at least six years. Of the students, 12 are sophomores majoring in Printing and Graphic Design, 13 are sophomores majoring in Sculpture, 15 are sophomores majoring in Environmental Art and Design and 27 are freshmen majoring in Study of Art Design. Among students, 26 are male, accounting for 38.8% and 41 are female, accounting for 61.2%; 36% of the students are from rural areas, and 64% are from cities.

Questionnaire on the English learning motivation of Hubei Institute of Fine Arts undergraduates is adopted. It consists of two sections. Section One is about background information including age, gender, grade, major, family background, the time when the subject begins to learn English and current English level. Section Two is about thirty English learning objectives. Students respond using a five-degree quantitative method. The questions are from the questionnaire by Gao Yihong (2004) and selected according to the characteristics of fine arts majors.

2.2 Statistical analysis

80 questionnaires are given out and 67 are effective, accounting for 82.5% of the total. Then statistical analysis is conducted. As the questions are mainly concerned about integrative motivation and instrumental motivation, the analysis is made focused on these two aspects.

Table 1 Integrative Motivation Statistics

No.	Statements	Negative number, percentage		Positive number, percentage	
1	I just love English and there is no specific reason.	31	46.3	12	17.9
5	Before college, my passion for English learning was largely determined by whether I like the teacher or not.	35	52.2	18	26.9
7	In college, my passion for English learning is largely determined by whether I like the teacher or not.	39	58.2	14	20.9
8	In college, my passion for English learning is largely determined by the quality of English class.	14	20.9	35	52.2
9	In college, my passion for English learning is largely determined by the textbook.	28	41.8	16	23.9
10	In college, my passion for English learning is largely determined by whether I like my English class or not.	38	56.7	11	16.4
17	I learn English to keep abreast of the development of economy, science and technology worldwide.	20	29.9	22	32.8
18	I learn English because I am interested in English-speaking countries, the people there and their culture.	28	41.8	21	31.3
19	I am particularly fond of language learning.	26	38.8	19	28.4
20	My love for English songs/ movies stimulates my interest in the English language.	16	23.9	29	43.3
21	I learn English because I love this language as it is.	26	38.8	17	25.4
22	I learn English to introduce China to the world.	25	37.3	13	19.4
23	My love for English literature stimulates my interest in the English language.	26	38.8	12	17.9
27	I learn English to go abroad so that I can personally experience the culture of English-speaking countries.	23	34.3	13	19.4
28	I learn English to get prepared for immigration.	41	61.2	7	10.4
30	Being able to speak English well means good education and cultivation.	24	35.8	31	46.3

For more convenient statistical analysis, uncertain factors are eliminated, and only the positive options (agree, disagree) and negative options (strongly disagree, disagree) are kept. Table 1 clearly shows that, over 75% of the students hold negative opinion towards statements related to integrative motivation, and only Statements 8, 17, 20, 30 are responded positively. That's to say, integrative motivation plays a less important role in the English learning process of fine arts students. According to Gardner's theory, integrative motivation is vital in second language acquisition, and to some extent, it determines whether the language is successfully acquired or not. The reason for the difficulty fine arts majors face in English learning results basically from their lack of integrative motivation. However,

Statements 8, 17, 20 and 30 show that they are greatly interested in the English course, the economy and science and technology worldwide, English songs and movies, and they regard English as an indicator of one's cultivation. From this it can be inferred that there is possibility to stimulate their integrative motivation to a new level. This needs the teachers to give proper guidance by cultivating students' interest in the culture of the target language, pay more efforts in cultural introduction and then stir their potential in second language acquisition.

Table 2 Instrumental Motivation Analysis

No.	Statements	Negative number, percentage		Positive number, percentage	
2	I began to learn English because my parents/ the school wanted me to.	20	29.9	40	59.7
3	Before college, I learned English to pass the college Entrance Examination.	6	9.0	52	77.6
4	Before college, my passion for English learning was largely determined by my score.	21	31.3	32	47.8
6	In college, my passion for English learning is largely determined by score.	34	50.7	18	26.9
11	The most important goal of me in English learning is to get graduation diploma.	29	43.3	32	47.8
12	The most direct goal of me in English learning is to get good scores in exams for going abroad, to get higher education or to land a job.	17	25.4	34	50.7
13	To learn English well is very important for me, because it will be a useful communication tool in the present society.	7	10.4	59	88.1
14	A good command of English gives me a sense of achievement.	9	13.4	51	76.1
15	I learn English because it can help me learn other courses better.	4	6.0	37	55.2
16	A good command of English will help me find a good job.	15	22.4	33	49.3
24	By learning English well I can do my bit in the country's development.	20	29.9	26	38.8
25	By learning English well I can live up to my parents' expectations.	12	17.9	41	61.2
26	I learn English so as to go abroad for better education and career development.	19	28.4	20	29.9
29	English is an important stepping stone to success.	15	22.4	41	61.2

Table 2 shows that, more than 93% of the students give positive answers to statements related to instrumental motivation, and negative answers are only made to statement 6. The motivation fine arts students have towards English learning is more about the practical benefits brought about by the course, such as to pass examinations, to land a good job, to have a sense of achievement, to use English as a communication tool, to get a diploma, etc. once such need cannot be met, or they cannot see such benefits in the short run, students are likely to give up English learning. Driven by such instrumental motivation to learn English, once they have realized the goal set by the curriculum and the goal they set for themselves, they may get absent-minded or drowsy in college English class.

3 Suggestions

How to carry out and deepen college English teaching reform? According to the study results, the author suggests that attention be given to the following two aspects:

I. Take the fact that fine arts students show strong instrumental motivation and emphasize English exams in an objective way, revolutionize performance assessment objective and content, give full play to the commanding and positive role the two have been playing, and enable students to set clear and proper English learning goals.

Based on the fact that the English foundation of newly enrolled fine arts students is generally weak, it is advised that students' listening and speaking be strengthened, and the two aspects be given more weight in students' performance assessment system, so that students could attach more importance to improving their ability of solving problems in real situations. The requirement on the reading ability of fine arts students should be differentiated from that on students from comprehensive universities or

universities of science and engineering, and the difficulty coefficient can be lowered to a proper extent, in order to setting goals that are beyond students' ability which may frustrate them and even lead to quitting. The study process should be included in performance assessment system and be given more weight. Teachers should let students practice play the main role and lecturing play the leading role, allot more time for teaching interactions and highlight the participation and practice on the students' part. The passive learning mode which is mainly composed of teachers teaching, breaking the language into words, sentences, texts and students taking notes without real experience of using the language, training, or practice. In terms of teaching procedure, the teaching methods should be enriched, such as having students make speeches or dialogues, read the text, have role play, discuss on certain topics, have interviews, simulate certain activities, practice practical writing and so on, so that students will be encouraged to take part in class activities and language practices. All these activities should be recorded by the teacher and reflected on the final score.

II. Adopt multiple methods to cultivate and stimulate the integrative motivation of fine arts students in English learning.

Right and proper guidance should be given to fine arts students for a good understanding of the ideology and culture of the target-language-speaking countries, cultural input should be strengthened, and students' potential second language acquisition should be fully explored. Specifically speaking, the teacher may allot a certain amount of time for teaching the differences between Chinese and English thinking modes, expressing habits, culture and so on. In teaching methods, modern teaching techniques should be fully explored, such as recording, English movies, TV programs and series, radio broadcasts, computer network and multimedia courseware, so as to offer students the chance to practice and get trained, and to improve teaching quality. In the meanwhile, for fine arts colleges where the English learning climate needs to be enhanced, steps should be taken to create the atmosphere inside and outside the classroom for language learning. In recent years, the English Audio-Visual optional class, English club, English calligraphy competition, campus English broadcasting, Learn English from Movies activity, lectures by foreign artists, morning reading, English corner, spoken English training have gradually helped create a good English leaning atmosphere. In addition, an English Zone has been established at the corner outside English classrooms, showcasing various topics, such as introducing tests at different levels, reporting HIFA English teaching activities, sharing news on original English newspaper, recommending experts' opinion on English learning and presenting English for fines arts. English learning models are also introduced to stimulate students' interest and create a good learning atmosphere by setting special columns showing the notes, assignments, excellent calligraphy works for competition by students.

In conclusion, the English teaching reform is a complicated system covering a wide range of aspects, including the management, teaching, learning, testing and assessing, etc. But as long as we keep updated to the latest development, study the characteristics of fine arts majors and carry out teaching activities with the learner as the center, the teaching quality will keep improving.

4 Conclusion

The survey primarily shows that, during the process of English learning, integrative motivation is not strongly revealed in fine arts students, which means that they lack initiative to actively explore and they learn in a passive way. By contrast, instrumental motivation is dominant, as it is strongly revealed in the process of English learning, which means that they are utilitarian-minded in English learning, with a lack of impetus in fine arts students

Nonetheless, in second language acquisition, integrative motivation plays the leading role and instrumental motivation exerts insignificant influence. "Impetus is a factor of great influence in language acquisition. Not only does impetus affect how fast one learns, but also influences the eventual result of learning" (Mei Deming, 2004). Being highly utilitarian-minded, fine arts students may only pursue short-term benefits and get deprived of the sense of achievement they ought to gain in the process of learning. While learners who pursue the sense of achievement tend to undertake tasks that bring them such fulfillment, keep being high-spirited, and stay unswayable in the face of frustrations. High score itself is a sort of reward, and making the task more demanding and independence-requiring can stir even higher scores in the learner(Steers, 1975). Fine arts students lack such motivation that can improve their score and improve their language proficiency.

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The Possibility to Integration of Education Justice and Individual Development and Relevant Implementing Approaches

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Abstract: Education justice is not only an important branch and extension in social fair system, but also an important foundation to create social justice atmosphere and realize more comprehensive and more extensive social justice. In the process of pursuing education justice, individuals' personal development needs have correlation with it. Trying to solve existing problems between them contributes to the realization of dual goals of education justice and individual development. Adjusting public policies, promoting policy fairness and equality of opportunities and adhering to educational idea of differential development are important safeguard measures to realize the integration of education justice and individual development.

Key words: Education justice; Individual development; Educational balance

1 Introduction

American famous educationist Horace once said education was a great instrument to realize human equality^[1]. Functions of education are much greater than any other human inventions. Education is one of the important activities of people's production, life and social practice. In the process of educational development, the problem of education justice is gradually arousing people's attention. If education itself cannot be fair and just, it is unable to play its role to promote social justice. However, individualized talents are much needed in present social development. One of the important embodiments of social civilization is paying attention to personality development. Well, whether paying attention to individualized talents' education affects educational fairness will be a problem to be faced. And the correlation of education justice and individual development makes them coexist in progress. Dealing with existing problems between educational justice and individual development properly contributes to educational development and social progress.

2 Review of Research Status:

In the west, educational justice thought originated from Ancient Greek Platon's principle of justice. In 18th century, western bourgeoisie made a stand against feudal despotism. In order to protect individual interest and realize freedom and equality in real sense, justice idea came into being in modern education field for the first time in struggle. In modern times, about the aspect of researches on educational justice, especially after the appearance of Rawles's Theory of Justice, western developed countries' researches on educational justice turn to the aspect of distribution of education system rapidly, which contains justice of educational right and obligation. Generally speaking, it is justice of education system. Through referring to related document literature, from the overall perspective, we see that researches on justice of education system are mainly researches about western contemporary theory of education justice standard.

Compared with the west, educational justice researches are all comparatively late no matter from content, time or depth. The main reasons still lie in that the rise and development of China's educational ethical are relatively late. After 1980s, status of educational ethics was affirmed in our country and began to appear with researches on educational justice. In the late 1980s, articles about educational ethical began to appear. In researches on educational ethical, it appeared with the vocabulary--educational justice. Summarizing the research process of China's problems of education equality, it could be divided into three phases approximately:

Firstly, in 1980s, educational justice was understood as teachers' justice. Then, in 1990s, based on western justice theory, our country established the concept of educational value which took the idea of educational equity and justice as the core. In China, experts in ethical community were carrying out researches on western justice theory and perfecting justice theory system including social justice and individual justice. At the moment, researchers began to research problems of educational justice. At present, there are few related researches on the integration of individual development from the perspective of equity theory.

3 The Correlation of Education Justice and Individual Development

Education justice is an important embodiment of social justice^[2]. Education fairness is not only a kind of recombination of internal and external fairness of education system, but also the recombination of two implications of belief and system. In essence, the education fair ruler is the justice of individual development^[3]. Thus, education justice and individual development are not two competing topics. In the three aspects of value targets, research objects and realistic standards, education justice and individual development have correlation.

3.1 The correlation of value targets

On account of individual education and educational justice, their value orientations are the same. In order to let education justice be better reflected, we must carry out personalized education against individuals in a larger scope and fully guarantee individual's personality development. In this way, we can realize education justice at the most extent.

Only when individual development value and education justice value achieve coherence, the ultimate significance of education can be fully reflected. Under the premise of social justice, Individuals' potential can be guaranteed and developed; the existence of education has greater probability. Individuals can find a tiny space by virtue of their own competence in society. Personal innovation capability can be exerted furthest in society. This is the most comprehensive embodiment which reaches personalized education for individual differences.

3.2 The correlation of research objects

In the perspective of education justice, the main research object of individual development aims at those groups who don't get fully recognition and respect in the aspect of education rights sharing. In order to let the individuals whose education rights can't get recognition can get respect again in the process of education, it becomes a problem which needs to be concerned by education justice and individual development research. Education justice provides a novel idea for us to study individual development. If we want to make ourselves' rights of being educated be concerned, only the display of personality is the best choice. Personalized education against individual development is to let individual's personality be fully interpreted, which is the question that education justice and individual development must think together.

3.3 The correlation of realistic standards

The realistic standards of education justice mainly contain three aspects: whether education implementation can guarantee reasonable differences among individuals; whether education implementation can generate positive effect to the development of the main body of education; whether education implementation can acknowledge the subjectivity of education groups. The research norm of individual development is to follow the principle that individuals have reasonable differences, exert individuals' subjectivity to the utmost extent and realize harmony and unity of educated individuals' social value and personal value. We can see education justice and individual development have correlation on the realistic standards.

The correlation of education justice and individual development contributes to the integration between them to carry out more scientific and reasonable educational techniques and reach educational aims. The real fair education must be able to deal with the relation between individuals' individuality and commonness in allusion to education implementation ways of individual development. It must be that educated groups can get very good education implementation. Individuals' differences can also be well respected and concerned. It must let all individuals grow and develop according to their own personality in the end.

4 The Existential Problems of Individual Development under the Vision of Education Justice

Seem from our country's current education situation, on the basis of many uncertain factors existing in the process of individual development, we ignore individuals' differences. It shows concretely in three aspects: narrowness of education purpose view, oneness of education mode and literalness of education environment.

4.1 The narrowness of education purpose view

The influence of Chinese traditional culture to education takes advocating goodness as the highest category on educational purpose. Education recognition and teaching methodology pay attention to introspection not searching outside. In individual development aspect, traditional education relatively places particular emphasis on group development and ignores personality development to some extent.

Because people are affected by traditional education concept, it leads that education aims ignore individual value, also ignore the innovative spirit against individuals and cultivation of independent ability, and are partial to social value overmuch. The influence generated from this kind of concept is that in practice, education ignores individuals' interests and hobbies in the progress of development. It fosters individuals to cater for social demand for talents much more, hinders individuals' comprehensive development, doesn't pay attention to individuals' spirit world and results in blocking individuals' personality exertion ultimately. In a sense, this concept denies individuals' existence value fundamentally and generates bad effect to individuals' personality and cultivation of personality. In the process of education implementation, we usually take training individuals' rational capability as the first target and ignore other perceptual factors, including individuals' emotion, intuition and hobbies, etc. This is unilateral.

The development of human individual affects group development. If individual development can't get very good development, well, it will postpone group development and pare down its total development level. And the main body in traditional culture education concept always excludes individuals. What it values is only country and society. Modern social theme is to pay high attention to individuals. The subject of education contains individuals and doesn't only direct at the state and society. Seen from philosophy angle, it reflects the society's fully respect to the subject of being educated. Seen from sociology angle, it reflects people's pursue for education justice. Seen from psychology angle, it reflects individuals' desire for new knowledge learning. In order to push forward different cultural prosperity in today's society and strength the construction of various groups, we must realize that individual body and mind can develop healthily and upwardly and try to safeguard and promote individuals' life quality, which is the ultimate goal of education.

4.2 The oneness of education mode

Education mode is a brief introduction to education process organization way under the guidance of certain education theory. What education needs to do is to foster talents, which is a simple social activity. However, education also has multifarious qualities, which depends on social and individual complexity. If we want to foster an individual with penalization, we must realize that the individual himself is a complex individual. Thus, it determines that the cultivation of individuals is diverse. If the cultivation of individuals adopts single mode, it is unfair to individual development and social development.

However, most of the time, education not only doesn't arouse individuals' wisdom, instead, it encourages individuals to follow some kind of pattern. Thus, it hinders individuals, making him not be able to take himself as a whole process to understand^[4]. In the process of education implementation, most of the time, we follow this kind of mode to foster individuals. The negative consequences are that all individuals become consistent in spirit and thought and are lack of innovative spirit; individuals do not think independently any longer but follow like sheep stubbornly; individuals are used to accepting but not choosing to create independently; education doesn't pay attention to the cultivation of individuals' unique personality. These greatly hinder individuals' development and are disrespect to individual freedom as well.

4.3 The literalness of education environment

We mainly talk about psychological environment in education environment. It contains teaching atmosphere, interpersonal relationship and group norms, etc. It mainly refers to soft environment in education implementation process. The cultivation of individuals' independent innovation ability in education activities can get the best exertion only in good mental environment. The literalness of education environment mainly refers to creating environment for individual development with certain purposiveness, which is quite unfavorable for individual development. Relaxed and free educational environment can create better condition for individuals' development and further encourage individuals develop better and positively.

American psychologist Benny thinks: If the atmosphere of a group is friendly, mutual understanding and support, well, the influence of the group to motive, working performance and achievement will be positive^[5]. It shows that in education implementation process, once it has shaped good and positive teaching atmosphere, we can encourage individuals to learn actively to a greater degree. And the benefits brought by the result will exist all the time and play an impellent effect for individuals' development imperceptibly. But at the same time, we must also notice that learning initiative of the individuals of being educated can be affected by all sorts of environmental factors in teaching process. The consequences brought by these factors have dual character. They may bring positive effect and may bring bad influence as well. They can not only let individuals devote themselves

to learning still more, but also reduce individuals' interest to learning. Therefore, for individuals' better development, we must guarantee good teaching atmosphere, human relationship and group norms in education process.

5 Integration of Education Justice and Individual Development Measures

The just education is tending to be individualized^[6]. Therefore, it is necessary to guarantee the mutual integration between education justice and individual development, which can make both coexist and get development.

5.1 Adjust the public policy; promote the justice of policy and equality of opportunity

The education system and policy of a country decide its backwardness of education justice. Education system stipulate the educator's rights and obligations strictly, if there is a problem existed in the system, the rights and obligations in it will not be implemented smoothly; the correctness and rationality of the education policy with a mandatory feature, will have great influence to learning attitude of educated people, thus influence the implementation of education justice indirectly. Because of this, to realize the education justice, it should pay attention to the three points following.

First is implementing the national education policy resolutely, and promoting the full development of the students. The relevant departments should adjust the curriculum, change the content of course, and improve the learning initiative of students according to the age characteristic of the students. The second is to achieve fair and reasonable when allocating indicators of enrollment as far as possible, people in different regions should enjoy the same right. Third is to realize the "lifelong education" gradually, make the national education resources open to the outside world, people can participants in various forms of education depend on the supplied forms by the country. The country should make the education form diverse and education stage hierarchical, by taken many kinds of measures that can meet the education needs of different people, and build the impeccable education system. Only by ensuring the equality of policy and opportunity, the education justice and the individual development differences can coexist and develop in contradiction, and get integrated.

5.2 Respect individual education rights

It is the inherent requirements and the core meaning of education justice that let individual value of every educator get embodied fully. The education process is to integrate the established objective reality into the systematic knowledge system, let their potency get explore and continuous development, including the personal ability, the cognition attitude, and others. On this, the process of education can also be said to be the progress that internalize objective of the cultural elements into the subject of the subject of the knowledge. In the education union, most educates join this group as the identity of cherishing a good expectation to the future life or based on the role of ignorant job seekers who want to realize a certain goal in life.

Under the receive education progress of educated people who is represented by children, relying on the basic life experience which they accumulated in daily life, they become to establish self-awareness gradually, and began to cognize, identify and judge the practicality of variety of educational content which implanted to them, and try to use the acquired useful educational value realize their own development and constantly improvement. Since there are vary degrees of difference of values and cultural background among every educated people, that makes they get a clear cognition on the problem mentioned on the above really when the results from the material meaning function which brought from education impose the every one of them. It is also on this time, the concept of education justice has the universal and practical influence. Try to achieve and realize educational justice can make assure the subject-position of every educated people when they are in the process of education, it is need to combine the institutionalized, systematic education with reality needs of every individual of educated closely, and let their individual value get fully realization.

5.3 Uphold the concept of differential development Education

5.3.1 Increase education investment, balanced resource allocation

Increasing the input of education mainly refers to the investment of educational resources. Good situation of national education can effectively promote the society development direction into forward, education plays a very important role in social development, so the state should ensure to put the education in first, and this procedure is also the social responsibility which the country should burden it. Because of various reasons, the education resources in various places are under seriously unbalanced, and that cause the imbalance existed in different places among educated people. Specifically to say, the balanced education including student education funding, school buildings, teaching laboratory apparatus

and equipment and others which need to be allocated balanced, the software of education includes teachers, school internal management and other balanced allocation^[7].

From the current situation of our country's education development, the external factors that lead to the education injustice include the serious development difference in different regions, the education resource can't be divided equally, and etc.. For this kind of situation, we must promote social economy develop rapidly and implement the compulsory education to the individual of each region, optimize the allocation of educational resources, finally, let the education justice completely implemented. So "it is needed to increase transfer payment intensity of compulsory education from the center government to provincial finance", and also "it is need to urge to complete the special compulsory education transfer payment system, establish the special supervision and inspection system for the use condition^[8]". In view of this, we need to allocate the educational resources fairly. Education system must guarantee weak schools to achieve leapfrog development^[9]. Taking into account the current national conditions of our country, we should insist to combine the market and plan under the idea of fair to make the allocation of education resources more impeccable. The state should not only pay attention on education investment, but also should to the allocation of educational resources. The central government should formulate effective measures to adjust the imbalance on education resources between different regions, so that can make education resources between different regions tend to be more balanced. It is needed to make the following three points: first is to shrink the economic distance between regions; second is to shrink the school difference between the regions; third is to shrink the gap of knowledge between regions. Only solve the economic distance first, it can help solve the gap in knowledge, and narrowing the regional gap between schools mainly refers to the schools in eastern and western regions of China, it need try to make the equilibrium in the teaching facilities, teaching quality and teaching level among them.

5.3.2 Perfect the compensation system, safeguard the weak group

To realize the education justice, it not only means pay attention to the fair on the allocation of educational resources, but also should implement the national relief system, and formulate some preferential policies, use these to guarantee the development of the society. We usually pay attention to the justice of the form when we get the meaning of the justice of civil rights, but we do not realize justice in real life. The mainly reason of these injustices, is due to the injustice policies which government promulgated. It is also caused injustice of education in vary degrees due to a large number of poor people. And because of the existence of many inequalities in the nowadays society, it is caused the groups of vulnerability.

National departments should pay attention to the education problems on vulnerable groups, mainly including the countryside school located in remote areas, education on poverty family and disabled children, children of floating population. The government should establish a sound financial aid system to formulate the appropriate compensation measures, and focus on the compensation for education. At the same time it needs to develop effective measures to aid needy students, implement the loan system for students from poor areas or family; on the stage of non compulsory education, the state should formulate flexible charging system and guarantee the vulnerable groups get education. In order to encourage enterprises to donate money to schools, it needs to advertise the character of education to the enterprise which has economic strength in society, and improve the funding criteria for vulnerable groups constantly. To guarantee the students in poor families or poor areas accept compulsory education on time and enjoy the same education rights with others, it need implement various forms of financing policies to them.

5.3.3 Improve the quality of the educators, ensure the education behavior justice

Most of the research in education justice is mainly refers to which, whether education resource allocation is equal and individual educational opportunities are fair, both of them ignored the treat situation of implementation process of the education on individuals basically, and if educator fulfill the obligations. Actually, In order to achieve educational justice we must under the premise of guarantee given by society, but also to observe and assess their teaching moral character and behavior, because the injustice in their teaching process of will affect the individual's education rights deeply. Education justice need to rely on the occupation morality of educators to implement that contains four aspects as following.

6 Conclusion

First, it should respect the individual sufficiently, without exception. Because each individual has its own unique personality. Second, it should carry on the fair appraisal the individual. How to judge the

individual level and quality in learning ability is effective or not, is depend on the fair evaluation on learners. Third is getting sufficient understanding to the individual. A lot of injustice in the education process is caused by the reason that teachers do not understand the individual. Fourth, it is necessary to proceed from reality, proceed different education to different individuals in teaching according to the principle of individual differences, so that it can develop a full range of individual's ability let it get development from varies aspects. The understanding of the fair from Aristotle is the equality treats equal, inequality treat unequal. It is not means that the educator should treat individual in discrimination and hold unequal attitude in teaching process, but should be more to follow the principle of individual differences in teaching.

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Exploration of the “Output-Driven, Input- Enabled Hypothesis” in College English Listening and Speaking Course*

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Abstract: Based on the new “Output- Driven, Input-Enabled Hypothesis” put forward by professor Wen Qiufang in language learning, this article explores how a teacher creates a multidimensional input and output system in organizing the class periods to enhance the efficiency of a college English listening and speaking course. In the analysis, it clarifies further that output is not only the motivation, but also the objective of language acquisition; and input is the means for facilitating the output tasks, more than merely fostering comprehension ability or accumulating receptive knowledge.

Key Words: Output-driven; Input-enabled hypothesis; Output; Input; Listening and speaking course

1 Introduction

In the Second Language Acquisition, language input is an implacable basis of language learning, yet it is not the only premise for it. According to De Bot, the output based on full comprehension can realize the transformation from the declarative knowledge into the productive knowledge, thus directly enhancing language fluency. The construction of a massive specialized input knowledge system can significantly improve the effect of output. An comprehensive output enables language learners to create more effective declarative knowledge. Consequently, input can be tested by output and output can promote the realization of effective input. Both input and output are indispensable factors for language competence.

In 2007, professor Wen Qiufang put forward the “Output-Driven Hypothesis” for the English language course reform. This Hypothesis mainly aims at English learners at middle and advanced level. The chief contents include: 1) Output has a more powerful driving force than input for language learning; 2) Output competence as a learning aim responses to the employment demands for the students and allows students to foster one or two expression skills among speaking, writing and translating selectively according to their own demands (Wen Qiufang 2013). The “Output-Driven Hypothesis” put emphasis on the importance of output. However, this hypothesis does not clarify the function of input, which results in the teachers’ failure in dealing with the relation between output and input in their practical teaching process.

Professor Wen Qiufang then adapted the “Output-Driven Hypothesis” into “Output-Driven, Input-Enabled Hypothesis”. The old and the new hypotheses share the same details in terms of target, the impact of output on language learning, and the importance of expression, and differ in the function of input (see Table 1) (Wen Qiufang 2013, 2014).

Table 1 Differences Between the Old Hypothesis and New Hypothesis

Name	Targets	Impact of Output on Language Learning	Importance of Expression	Function of Input
Output-Driven Hypothesis	middle and advanced level	Output has a more powerful driving force than input for language learning.	Output competence responses to the employment demands for the students and allows students to foster one or two expression skills selectively according to their own demands.	-----
Output-Driven, Input-Enabled Hypothesis	the same as above	the same as above	the same as above	Input facilitates the accomplishment of output tasks and provides directly language materials and relevant knowledge for output tasks.

The “Output-Driven Hypothesis” does not illustrate the effect of input, while the “Output-Driven,

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Input-Enabled Hypothesis” clearly indicates that, the desired language forms and encyclopedic knowledge in output tasks result from the input materials provided by teachers or collected by students. In this new hypothesis, output is reckoned not only as the motivation, but also the objective of language acquisition; and input is the means for facilitating the output tasks, more than merely fostering comprehension ability or accumulating receptive knowledge. In other words, students clearly understand that in order to accomplish the output tasks assigned by the teacher, the input materials have to be carefully worked on to obtain necessary assistance (Wen Qiufang 2013). Consequently, teachers and students can tackle the input materials selectively in accordance with the demand of the output tasks. The input that has little or no relevance to the output tasks can be skipped, and then the teacher and students can put their concentration on learning and comprehending the desired language forms and relevant encyclopedic knowledge in output tasks.

2 Application of “Output-Driven, Input- Enabled Hypothesis” in College English Listening and Speaking Course

“Output-Driven, Input- Enabled Hypothesis” mainly challenges the “text-centered” teaching concept, emphasizing that training the students to “act” in English should take the place of merely teaching the textbook materials. In other words, teaching will no longer merely put the focus on texts. A principal criterion for evaluating the students’ study is whether the students can accomplish the output tasks with the aid of textbook input. In order to motivate the students’ initiative in learning and boost the students’ efficiency in mastering the input materials, the input activities should be a multidimensional system with alternate listening, reading and watching. Meanwhile, the output activities can be a combination of speaking, writing and translating. For example:

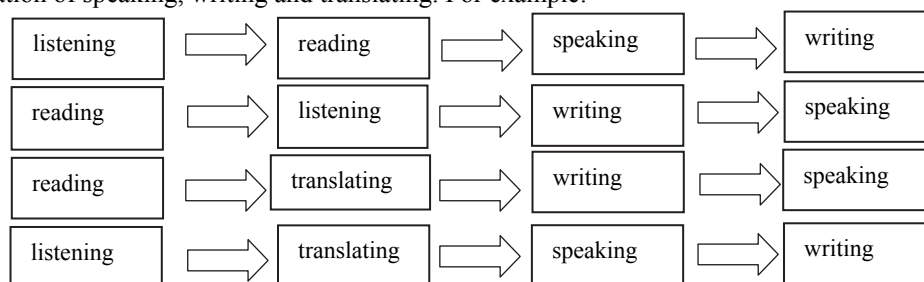


Figure 1 Multidimensional Input and Output System

A highly efficient listening and speaking class needs a teacher’s elaborate design for the class period. There are four requirements for teaching organization based on the “Output-Driven, Input-Enabled Hypothesis”. 1) The teaching process should be in proper sequence; 2) The time for each procedure in the class should be properly allotted; 3) The testing for students’ results in class activities should be implemented; 4) Homework should be assigned properly. In a listening and speaking class, the teacher should not act as an “announcer” or even “language repeater”. The listening and speaking class would otherwise make less sense and hardly arouse the students’ interest if not elaborately organized. On account of this, teachers can adopt the “Output-Driven, Input- Enabled Hypothesis” in their listening and speaking classes, motivating the students to accomplish listening or reading t actively through oral input tasks.

2.1 A teaching process in proper sequence

An orderly teaching process requires that a teacher fully know the principal and difficult points of the output tasks, and hence he analyzes and identifies the input materials, language forms and relevant knowledge that serve for the output. The current listening and speaking classrooms present a deficiency in well-organized teaching process. The mere “listening”, “telling”, and “testing” hardly reflect the leading role of a teacher in the class. Let’s take Unit 4 in “Listening and Speaking Course 2, New College English”, as an example. The listening task for this unit is to listen to a passage: *Background Music* and train the students’ ability to understand the material contextually. When the students feel difficult in doing the exercise, the teacher may play the recording again or even guide the students in checking the script of the recording, which would decrease the students’ interest in learning and frustrate them when the material gets dull and difficult. It is suggested that the passage be divided in several parts and played to the students separately: 1) the first use of background music; 2) the original and present

purposes of background music; 3) the effect of music in shops; 4) the effect of music in restaurants. When listening to one part, the following teaching methods can be adopted: listening while taking notes (noting down the key words); listening while speaking (repeating the sentences); listening while translating (translating some difficult sentences); listening while writing (finishing certain blank filling tasks designed); and listening while summarizing (summing up the main idea for each part). Having fully comprehended the main messages of the passage and grasped sufficient useful expressions, the students can be grouped in pairs and create a dialogue for an oral output exercise. This detailed teaching process decreases the difficulty in output tasks and thus contributes to students' sense of achievements in language learning. Based on the "Output-Driven, Input- Enabled Hypothesis", in the listening and speaking course, "speaking" is the motivation and aim, while "listening" is the driving force for it. They supplement and benefit each other.

2.2 Proper time allotment

How to arrange the time of the class properly? The chief principle is the teachers' consciousness for cherishing the class time, struggling to exert the largest effect for every minute. As a matter of fact, class is the main occasion for the face-to-face interaction between teachers and students, as well as the home field for the teachers to execute their obligations. Apart from a right time value, teachers should master some principles in controlling time: 1) Time allotment should be in accordance with the teaching object. For a listening and speaking class, the listening strategy, pre-listening oral practice, listening task and the relevant oral output task are the focus of a class. Therefore, a 15-20 minutes' "lead-in" should be replaced by a 3-5 minutes' "warm-up" remarks or discussion, which lead the students into the topic effectively and directly and proceed to the specific class activities. 2) The specific time for a single task should be scheduled in advance. As a rule, the listening strategy, pre-listening oral practice, listening task and the relevant oral output task for each unit are supposed to be finished in 90 minutes. A teacher should prearrange the specific time for a single task in an efficient way. For example, if the listening task "background music" takes 30 minutes, each single part, as is clarified above, should be calculated accordingly with certain activities (see Table 2).

Table 2 Time Allotment for a 30 Minutes' Class Period

	Part One	Part Two	Part Three	Part Four
Contents	The first use of background music	The original and present purposes of background music	The effect of music in shops	The effect of music in restaurants
Time	5 minutes	7 minutes	8 minutes	10 minutes
Task	Listen and repeat the sentences	Listen and sum up the key points	Listen and do the blank-filling task	Listen, do the blank-filling task, and translate difficult expressions
Reason	A shorter part	A transitional part with key information	A longer part with useful expressions	A longer part with new expressions

2.3 Implementation of testing for students' class activities

Any task assigned for the students should be tested by the teacher. In so doing, the students can treat the activities more seriously and fulfill them conscientiously. The teacher should design a way to check the students' achievement for a single task. When the students find the teacher is always trying to supervise them in the assignments, they would boost their efficiency of the input actively and then the quality of the output can be improved. Let's take Unit 6 in "Listening and Speaking Course 2, New College English" as an example. The topic of this unit is "business". In the pre-listening activity, some theme-related questions are designed for the students 1) What qualities would an employer like to see in an employee? List at least three points and give your analysis. 2) What are the important qualities of a good supervisor? List at least three points and give your analysis. 3) What are your job prospects? How about your group members? Do you think their ideal jobs suit them well? Why or why not? 4) Describe a small business that you would like to own. You should say: what this business would be; how you would start/ open this business; how you would run this business; why you would like to run this kind of business. These questions are assigned to them in advance of the class with several requirements: 1) There are 8 groups organized. Each group consists of 4-5 students. Every two groups are given the same question. 2) All the students have to write down their own answers to the questions in detail. 3) In the class, they are given 10 minutes to exchange their ideas. 4) For question one and question two, a representative for each group is asked to give an oral presentation by collecting the best answers from the group members. 5) For question 3, a representative for each group should talk about all his group

members. 6) For question 4, 2 representatives are asked to talk about all the group members' business prospects, with one representative describing 2 of them. 7) Each speaker should finish the presentation in no more than 3 minutes.

In the process, through searching the information via electronic media, learning the useful expressions and sentence patterns in the text books and exchanging with the other group members, students gain practical input for the desired oral output. Furthermore, these questions are closely relevant to the passage they are required to listen to and grasp in the "listening task". Designed, assigned, and tested in a specific way, these pre-listening tasks enable the students to know exactly what they are asked to do and fulfill them voluntarily. The input and output tasks supplement each other effectively.

2.4 Proper homework assignment

"Proper homework" include two meanings: advisable amount of homework and appropriate difficulty of it. Since the class time for learning English is extremely limited in college, students are obliged to spend much time beyond the class. However, English is not the only course they learn. In case they have to finish an excess of English homework, the quality can not be guaranteed. Besides, the degree of difficulty should vary from the advanced ones to the week ones. Take the above pre-listening task as an example: questions one and two are assigned to the advanced groups; questions four and five, with more specific outline for the oral presentation, are allocated to the week ones. In addition, the teachers are expected to offer appropriate websites or an explicit requirements for searching the materials to enhance the efficiency of their application in new materials.

3 Strategies for the Implementation of the Course

As is discussed above, an effective listening and speaking course requires a well-organized teaching process. Then how to make sure that the implementation of the course is realized in a theoretical and systematical way? According to Tyler's principles of curriculum and instructions, the four crucial elements in any course, namely, teaching objective, teaching contents, teaching process, and evaluation interact with each other. A well-organized teaching process should coincide with the teaching objective, which determines the direction of teaching. And the evaluation system is a tool in examining the effects of teaching objectives and process. To facilitate study and spot the problems in the process timely, the teaching process relies on a proper evaluation system. Consequently, the implementation of a well-organized listening and speaking course based on the new hypothesis requires the adaptation of teaching objectives and evaluation system.

3.1 Realistic, distinct, and specific teaching objectives

The teaching objectives in each course should be restricted by the general objectives for the college listening and speaking teaching. Furthermore, the "Output-Driven, Input- Enabled Hypothesis" requires a more realistic, distinct, and specific teaching objects. It means that students are able to achieve the objectives through their efforts. Moreover, the objectives can be measured and identified by both teachers and students in detail. Let's take Unit 2 "Food and Drink" in "Listening and Speaking Course 2, New College English" as an example.

Table 3 General Objectives and Specific Objectives

	General Objectives	Specific Objectives
1	Be able to talk about food with the aid of useful expressions.	Be able to 1) introduce to friends how to order food in a Chinese restaurant 2) Choose any Chinese dish you like most and introduce the way of cooking to your international friends
2	Be able to explain the major differences between Chinese and Western food culture.	Be able to explain some differences between Chinese and Western food culture in 1) cooking methods, 2) Attitudes towards eating, 3) Dining etiquette, 4) Table manners

As is mentioned above, the new hypothesis puts emphasis on students' capability in "acting" in English. Accordingly, the teaching objectives should require the students to accomplish some communicative activities through speaking, writing or translating. As is conveyed in Table 3, the specific objectives are derived from the general objectives yet divided into several detailed items. After each unit, every student can test his study in the light of specific objectives and the teacher can figure out promptly whether his teaching has achieved the desired success.

3.2 A specific and diversified evaluation system

Three principles for the listening and speaking course evaluation system should be followed: 1)

The criteria must be specific; 2) The methods must be diversified; 3) If the output task is oral presentation, the audience should be taken into consideration in the evaluation. Understanding the criteria is the premise for the implementation for it. Hence the teachers need to study the cases of criteria for the course. In terms of the time, there are unit evaluation and class evaluation. A semester plan for a unit evaluation must be arranged in advance of each term and informed to the students. Besides, as is discussed in part 2, the evaluation ways must be diversified, especially for the oral presentations.

3 Conclusion

The college English listening and speaking course based on the “Output-Driven, Input- Enabled Hypothesis” adopts an integrative teaching approach and tactfully combines the input and output. In this integrative teaching, with the output as an aim, the input is optimized accordingly. Listening and speaking tasks guided by the “Output-Driven, Input- Enabled Hypothesis” incorporate broadening view into learning English skills and cultivating thinking ability into improving language competence. Students can generate a strong motivation in learning and explore actively the language form needed by the output tasks, which has a certain guiding significance for taking full advantage of limited class time. Facts proved that this hypothesis is highly feasible and practicable. Establishing a sound curriculum system guided by “Output-Driven, Input- Enabled Hypothesis” requires the endless experimentation and energetic innovation of our teachers and educators.

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On Implicit Ideological and Political Education Function of Artistic Culture in College*

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Abstract: This paper discusses the connotation of art and artistic culture, trying to analyze the implicit ideological and political education function of art culture in college based on communication studies. This paper proposes to push forward the educational function of artistic culture environment by taking distinctive artistic works as the carrier; strengthen the educational function of artistic culture communication by taking important artistic culture activities as an opportunity; and develop the ways bringing implicit ideological and political education function of art culture in college into play by taking artistic culture practice of students as priorities, such as educational function of artistic culture process.

Key words: Artistic culture; Communication; Ideological and political education

1 Introduction

The National Mid-long Term Education Reform and Development Planning Outline (2010-2020) takes university culture construction as one of the main duties of higher education, pointing out to “play the educational role of culture actively and push forward to combine the university culture construction and talent cultivation”. The 18th CPC National Congress Report points out that “culture is the blood of Chinese nation and the spiritual home of the people. In order to build the moderately prosperous society and realize Chinese nation’s great rejuvenation, it’s necessary to vigorously develop and enrich of the socialist culture..., and play the role of culture to lead fashion, educate people, serve society and promote development.” It’s necessary to give a full play of aesthetic education and morality cultivation function of culture, which will help students to fulfill the socialist core values consciously and help students to possess both political integrity and ability, develop comprehensively, and achieve to the goal of ideological and political education.

Many scholars have done researches on management mechanism, development trend and significance of art education in colleges, only covering the aspects of management science, empirical research, and etc. This paper tries to analyze implicit ideological and political education function of artistic culture in college and puts forward the ways bringing implicit ideological and political education function of art culture in college into play.

2 Connotation of Art and Artistic Culture

“Art” and “artistic culture” are two different concepts. “Art” means “skills” and “artistic techniques” originally and evolves as “Fine Arts” which generally refers to visual arts, plastic arts and even includes non-plastic arts such as poetry, music, etc. The western modern art system refers to the “Fine Arts” system that includes architecture, painting, sculpture, music and poetry. The meaning of art has been updated due to the new artistic phenomena that emerge in an endless stream since the 20th century. Charles Perrault (1628-1703), a poet and fairy tale writer in France in the 17th century, thinks the Fine Arts shall include eight categories, i.e. rhetoric, poetry, music, architecture, painting, sculpture, optics and mechanics; however, rhetoric, optics and mechanics are excluded in the modern arts. With the development of science and technology today, art system has been developed into 14 categories, i.e. 1) plastic arts, including painting, sculpture, architecture, calligraphy and decoration craft; 2) performance art, including music, dance, drama, quyi (Chinese folk art forms) and acrobatics; 3) video art, including photography, film, TV, etc.; 4) language arts, i.e. literature.

“Artistic culture” mainly studies the artistic activities of human from the perspective of culturology, that is to say, “art” not simply shows all connotation and characteristics of “art”, it’s also one of the cultural achievements created by human, which means it’s “art” and “culture” at the same time. “Art” not only refers to form, technique, color or representation, it also covers the sense, sensibility, technology invention achievements, imagination and creation of human. However, “artistic culture”

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shows the culture idea (e.g., ideology, spiritual world, life-style, etc.) through its artistic form, symbol and image. For example, literature expresses the emotional world and value orientation through novel, poetry, drama and essay; music shows the understanding and perception of human on universal order, the secret of emotion and the movement and change law of the nature.

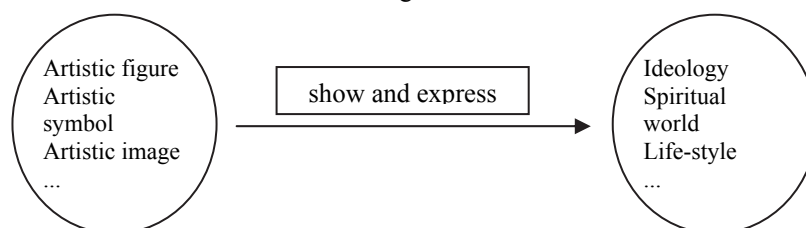


Figure 1 Connotation of Art and Artistic Culture

3 The Implicit Ideological and Political Education Function of Art Culture in College Based on Communication Studies

Artistic culture in college is a vital part of campus culture. It's an effective way to promote implicit ideology and political education through artistic culture by giving full play of its implied and hidden features, which will influence the value orientation, personality shaping and way of thinking of college students imperceptibly.

3.1 The implicit ideological and political education function of art culture in college based on communication contents

In the Shannon-Weaver Model, the information can be transmitted effectively only when P1 (communication subject) and P2 (communication object) share the same code and decode knowledge. Then the standpoint, point of view, interest, experience of P1 can be regarded as the knowledge software set of P1, written as S1; and the standpoint, point of view, interest, experience of P2 can be regarded as the knowledge software set of P2, written as S2. Therefore, composite knowledge software of P1 and that of P2 constitute the set neighborhood of each other. It can be decoded only when two persons share the same knowledge software. It means the necessary condition of successful communication is the intersection of two persons shall be nonempty, i.e. $S1 \cap S2 \neq \emptyset$, which is defined as the effective condition of communication.

Furthermore, the more the knowledge software overlaps, the higher degree of accuracy the information can be transmitted. It's not easy to change the overlapping degree of knowledge software, however, if we adjust the communication contents according to the knowledge software set of the target communication objects during communication and adopt an easy way for the objects to receive, it will enlarge the knowledge software set. Artistic works in college belong to such kind. This kind of work usually shows scenes in social activities via vivid and lively poetry, music, painting, etc. works, which makes college students understand things with appreciation through ways that can be easily accepted by them.

3.2 The implicit ideological and political education function of art culture in college based on communication medium

The American sociologist Paul Lazarsfeld put forward the Two-step Flow of Communication Model for the first time in his book *The People's Choice* in 1944. He thinks ideas always flow to opinion leaders from the radio broadcast and newspapers, and then the majorities who are not so active receive much of their information secondhand from the opinion leaders. Rogers, an American sociologist, develops and improves the Two-step Flow of Communication Model by analyzing the communication flow theory systematically. Rogers thinks information can be transmitted by "one step", which means the media information can get to the receivers directly just by one step without the medium, i.e. opinion leaders; however, the influence of information can be two-step or N-steps (multiple flow). When it comes to the influence flow of information, the influence of information finally gets to the receivers through leaders at all levels, thus, two-step flow is developed as "N-steps flow".

The information receiving group often shows the following psychological activity track during cultural communication: "information provided -- acceptable information -- accepted information -- noteworthy information -- digested information". Artistic culture activities can increase the receiving groups' attention and discussion, as well as the communication steps on the information, so as to enhance the communication effect.

3.3 The implicit ideological and political education function of art culture in college based on communication effect

The complete communication process in the mass communication system shall be the receiving groups gradually change their opinions toward the world under the mass communication imperceptibly. Meanwhile, their changed opinion will in turn influence practice in reality. The feedback mechanism in mass communication system can be defined as follows: various information in mass communication is delivered to receiving groups' brain in different ways, then the receiving groups will have a series of new concepts and consciousnesses after the information being processed and transformed by the brain, which will be externalized and show impact on the outside world under the feedback mechanism, thus, an interactive communication feedback mechanism is formed.

In the process of work creation, activity organization and practice of artistic culture, the process of the young students (the subject) thinking about how to express the contents and create artistic works -- further understanding the finished works -- as well as the process of the young students (the object) appreciating and comprehending the artistic works -- further thinking about the theme of the work will help to arouse students' resonance and lead students to think actively, thus the passive learning mode can be changed to active learning and conscious activities will be formed, which will lead them to realize their value of life.

4 Ways Developing Implicit Ideological and Political Education Function of Art Culture in College

4.1 Push forward the educational function of artistic culture communication by taking distinctive artistic works as the carrier

Artistic works are being done subtly and imperceptibly through various living environments and conditions. Thus people are influenced and edified unconsciously by culture. Cultural education not only means it will influence the external behavior of people in a secret way, but also means to shape one's mentality, which will benefit people for their whole life. The American scholar John Berger, et.al. mentioned in the book *Way of Looking at Things* that "things observed are different from what are known to people. It also will arouse a new interest and even a stronger interest if new ways are applied to perceive things that are already known". The ideological and political education theory can have new ways through artistic works, which can stimulate students' cognitive interest as well as new interests to learn things.

Colleges can carry out regular show, publish serialization and exhibit online by combining poetry, photography, music, painting and many other artistic works with the theme of "Love Country", "Love School", etc., which aims to increase the cultural influence of artistic works among teachers and students, especially the young students who shall be the priority target objects. The vivid, true, novel and direct cultural works are more in line with the law of somatopsychic development of young students and are prone to be approved and accepted by them due to the appetency and appropinquity showed in the works, thus it will be easier to strengthen the ideological and political education function among students.

4.2 Strengthen the educational function of artistic culture environment by taking important artistic culture activities as an opportunity

Various artistic activities with different themes can help the youth to set up correct overlooks on the world, life and values, to combine self-management, self-service and self-education, and to convert their spontaneous activities into autopsychic practice. Colleges shall take opportunities of freshman education, National Day and other memorial days to hold artistic culture activities. Fully respect the subjectivity of the youth and strengthen the educational function of artistic culture environment by innovating forms, enriching contents and increasing participation, attraction and fashion of the theme.

Wuhan University of Technology holds Art Theater periodically based on Mafangshan Art Gallery and University Art Group, covering performances of vocal music, dances, variety show, etc. Excellent artistic works that reflect the campus life and dream catching experience of students in Wuhan University of Technology inspire and moved many students; meanwhile, fixed and moving exhibitions are combined together and held in square, teaching building, dormitory, classroom, etc. by taking chances of important events in university. Therefore, elegant art and culture are popularized among students and teachers in this way.

4.3 Develop the educational function of artistic culture process by taking artistic culture practice of students as priorities

There are two states of growth and development of human, i.e. “spontaneous development and conscious development”, which is also a key contradiction that ideology and political education has to solve. The aim to develop educational function of artistic culture process in college is to convert their spontaneous consciousness into self-consciousness, spontaneous activities into conscious activities and spontaneous appeal into conscious appeal. The process that students experience and express the beauty of art is exactly the process that their spontaneous consciousness changes into self-consciousness and then converts into the outward practical actions. The processes that colleges encourage students to carry out artistic practices and young students think about how to create artistic works and how to hold artistic activities during practice are the processes stimulating their spontaneous consciousness changes into self-consciousness and then convert into the external practical actions.

Outline of Modern Chinese History, a pilot course, has been opened in Academy of Arts & Design, Tsinghua University since 2011. Students in this class have to present what they have learned from history by “professional languages”. This course divides the teaching contents of Modern Chinese History into about 20 special topics and invites the students to conduct art creation by choosing a historic event or figure that they are interested in. The students can create poetry, write the brief history of development of their own major or introduce the leading figures in their field by combining what they’ve learned in the class. Young students further understand and think about history during creation, which actually shows the educational function of artistic culture process.

5 Conclusions

Artistic culture in college is a vital part of campus culture. It’s an effective way to promote implicit ideology and political education through artistic culture by giving full play of its implied and hidden features, which will impact the value orientation, personality shaping and way of thinking of college students imperceptibly. This paper discusses the connotation of art and artistic culture, trying to analyze the implicit ideological and political education function of art culture in college based on communication studies. This paper proposes to push forward the educational function of artistic culture environment by taking distinctive artistic works as the carrier; strengthen the educational function of artistic culture communication by taking important artistic culture activities as an opportunity; and develop the ways bringing implicit ideological and political education function of art culture in college into play by taking artistic culture practice of students as priorities, such as educational function of artistic culture process.

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Research on Entrepreneurship Education in College Work-Study Program

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Abstract: Currently college students have more and more spare time, and work-study activities becomes a hot topic in their lives. But with the development of college work-study, the current situation is not as optimistic as we have expected. During the process of work-study, the key factor is, on the one hand, how to get the deserved rewards, and on the other hand, how to guarantee their good grades and help their employments and entrepreneurship. On analyzing the current situation of work-study activities, this paper combines the thought of the author and discusses the study of entrepreneurship education in college work-study in details.

Key words: College; Work-study; Entrepreneurship education; Enterprise

1 Introduction

Up to now, college work-study development has gone through 20 years, changes have been made in the form of the idea of "economic aid" to "overall development of students of education". Current college conventional work-study jobs have been difficult to meet the needs of the students. Along with social progress, work-study diversification has become increasingly important. Also, the number of college graduates today in the growing period, the employment pressure increases. Therefore, to implement entrepreneurship education by offering college work-study jobs to students, which is targeted to improve entrepreneurial capacity of college students, can effectively ease the employment pressure.

2 The Classification of Work-Study Programs at Present

Along with the development of the work-study, at present, work-study program can be divided into the following categories in accordance with the general standard in the table:

Table 1 The Classification of Work-Study in Colleges and Universities

Work-study	Proportion	Basic Situation
Tutor	35%	The mainstream project of them is to tutor some middle and primary school students, through their own knowledge to earn some money.
Campus jobs	15%	It provides students with relatively stable jobs inside the school, which is called "Iron rice bowl". This kind of work is not much, basically only meeting the needs of a small fraction of people.
Market research and promotion	25%	This kind of position has a very large demand for talents, and is basically a perennial demand. By participating these activities, students can exercise personal sales ability, communication and coordination ability better. It's very helpful to improve the students' comprehensive ability.
Etiquette anchorperson	5%	Such positions, are not suitable for the average college students to participate. Because student's physical condition requirement to an etiquette host is very high, and it is only suitable for a small number of students.
Catering services	20%	More students are engaged in this kind of student work. Most of them work in some school canteens, restaurants or hotels, but the salary is generally low.

3 The Field Survey and the Results of Work-Study in Colleges and Universities

3.1 The field questionnaire survey;

The way is to make a questionnaire in 8 colleges (Information institute, Automation academy, faculty of science, school of management, school of economics, the institute of electrical and mechanical, civil engineering institute, material and environmental college) in Wuhan University of Technology.

Table 2 Questionnaire Distribution and Recovery Situation

college	Distribution number	Recycling number	Effective number
Information institute	50	41	38
Automation academy	50	38	37
faculty of science	50	43	43
school of management	50	37	36
school of economics	50	42	40
the institute of electrical and mechanical	50	42	42
civil engineering institute	50	45	44
material and environmental college	50	48	48

3.2 Relevant data and conclusions of the questionnaire survey

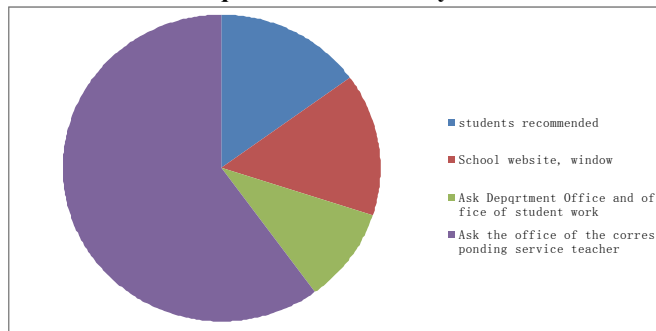


Figure 1 The Way to Get the Work and Study

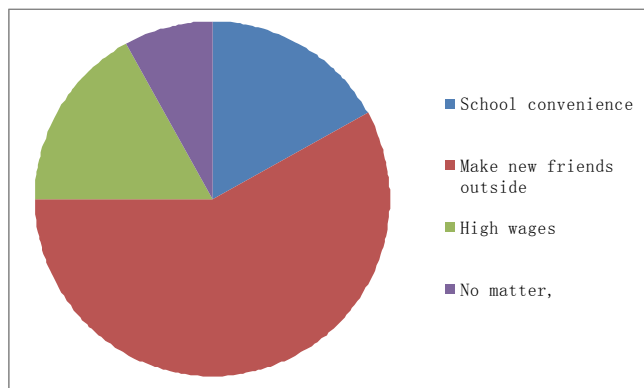


Figure 2 The Location and Reason of the Students Choosing the Work Study

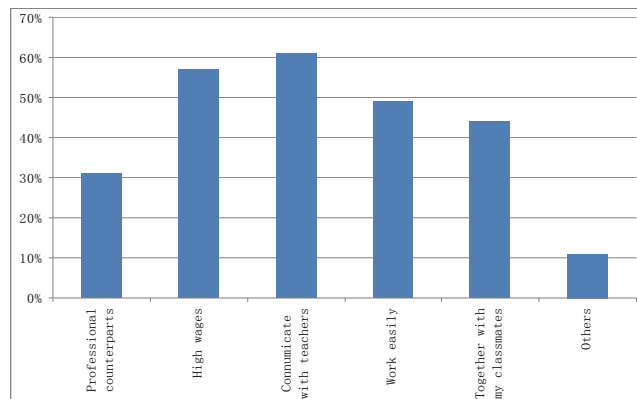


Figure 3 The Tendency of Students to Choose the Work Study

From the above analytic data we can see that the teachers provide some poor students with part-time work. And another part of students are mainly willing to accumulate practical experience and ask the teacher for job. At present, the students have a good information exchange between the supply and demand.

For most students, they are willing to work outside the school, because they can know new friends, and get a higher reward. Most of the students taking a part-time job can rely on their ability to find a regular part-time platform, and sign the agreement for temporary work. At the same time, some marketing positions also need job training. For General campus professional counterpart's jobs, the students will get started quickly, in no need of training. In view of this, campus jobs do not play a better fundamental role in student's future occupation.

Students choosing work, most of them focus on high reward, simple work and close to teachers closely. And the requirements of professional counterparts are less, which is related to the school's professional settings. Generally, a professional counterpart is very difficult for students. There is a big gap between the Universities and the enterprises, which needs the cooperation of school and enterprise to shorten the gap.

4 Analysis on the Problem Appears on the Implement of Current College Work-Study

4.1 Students have some biased cognition on work-study

Many students have one-sided thinking that students participate in work-study just because of economic difficulties, which caused a negative impact on some students. Someone who participates in work-study generally wants to keep it a secret to his classmates and teachers. In addition, the main task of college students is to learn knowledge. As a student, he or she should thoroughly study professional knowledge to get a skill so that he can play to their strengths and make innovation and entrepreneurship after graduation.

4.2 College work-study jobs are in short supply

According to the situation of students work-study job supply in some colleges, the supply is relatively small, but there are many students in need of part-time job, which leads to conflicts. In some classes, if the supply is open positions within the school, there will be a problem because of the uneven distribution among students. According to the organization's work-study jobs on campus open recruitment announcement, the number of jobs and the proportion of students to apply up to 1: 6, and the positions such as librarian are more attractive to students.

4.3 Low levels of work-study jobs

Since students participating in work-study are in the period of learning expertise, their knowledge structure is not sound, and they are lack of practical expertise. Hence, their jobs are in the relatively low level, unchallenged. From a practical point of view, such jobs have limited help on training students' professional skills. Based on this situation, it is better for school to develop work-study jobs by combining profession of students, allowing students to participate in social practices, and giving full play to their own professional advantage.

5 Some Suggestions for Work-Study Promoting College Students Entrepreneurship and Employment

The Work - study needs gradually return to nature, which means training college students' spirit of hard Work and thrift. The qualities are very important for students in the start - up phases of the entrepreneurship. In the process of work – study, the effective exercise of social skills of students can be a certain amount of resources in students' future business.

5.1 Providing attention to the ideological education of the Work-study program

At the time of students' participation in the work-study, the school needs to gradually improve the management mechanism, Also needs to keep the designed work - study regularly checked and analyzed. The students' ideological education should enable the students to understand the real purpose of part - time work. Cause the personal qualities of student plays an important role in their future growth and development.

5.2 Improve the professional of work-study activities

It requires some professional foundations for students to start their own business. And students participating in the work - study activities can not only gain the economic benefits but also test learned knowledge and learn more important professional skills. Therefore, the arrangement on the The Work -

study in school should improve the professional level of the jobs. By certain social practice, students develop a deeper understanding of professional development for the future business direction.

5.3 Provides forceful support for college entrepreneurship

Firstly, to create an entrepreneurial environment. Which is means business environment including atmosphere of entrepreneurship policy, entrepreneurship venture capital etc. In recent years, the country has introduced a number of policies to encourage entrepreneurship. Secondly, to create a business atmosphere. Thirdly, to emphasis on entrepreneurship education and training. At present, the school has offered entrepreneurship courses, and formed a scientific and perfect system of entrepreneurship education and research. But a lot of other University entrepreneurship education has not paid enough attention to it. Which make it impossible for them to provide students with rich and effective nutrients of entrepreneurship. Finally, establishing the whole course pioneering instructions. Entrepreneurial process is full of hardships, students need more help to improve their business success rate.

6 Conclusion

In short, college students' entrepreneurship education requires further exploration. Through the work-study program service, students participate in labor and social practice can improve their self-consciousness and professional skills, train their active enterprising of value orientation and social sense of returning the society. It also provides students enough time to exercise their integrated capacity, which lay a great of based for the future social work, and provide more possibility to employment and entrepreneurship. Its function is bound to get better play.

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The Effects of Career Decision-Making Difficulties on the Career Choice Status in College Students *

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Abstracts: There are significantly differences between career decided college students and career undecided college students both on the total level of career decision-making difficulty and 8 types of career decision-making difficulties, and which are studied by controlling the democratic and naturally mature factors. But the further analysis found only lack of motivation for career decision-making and the information about self and information about the career decision-making process have significant effects on the career goal-setting status. Enhancing the motivation for career decision, the knowledge about self and information about career decision-making process can significantly increase the possibility for career decidedness. In the end, the article discussed the result and implication for career education.

Key words: College Students; Career Decidedness; Career Indecision; Career Decision-Making Difficulties

1 Introduction

The goal not only has the function of guidance and motivation, but also the function of behavior optimization (Xiujun Yang,2004).Higher education, which follows the secondary education, is based on social specialized division of labor to launch professional education. The goal is to cultivate advanced specialized talents what the society needs. Therefore, the goal which based on the students' self characteristics and needs of the society can not only help college students to find their new personal goals and eliminate their blindness and the feeling of lost, but also stimulate their original power to study consciously. It will help college students to make learning plans based on college life and to prepare for the future career. However, nowadays lots of students are ignorant and hesitating, and they can't set career development goals for themselves. The lack of career goals influences the enthusiasm and consciousness of our college students badly(Yanqin Chi,2009;Guanjiao Hou, Shumeng Shi,Jianbo Zhang ,2010).Although some scholars think that career indecision is a normal phenomenon through personal career development from the point of personal career development theory, the majority regard it as a career problem needing to be intervened and researched on theoretical interpretation and special causes (Zhiyi Wu,2000;Lifen Wang,2003).At the same time, for the career development, college students' career development is between career exploration period and establishment period. During this period, college students' main development missions are to clear the career development direction gradually and make special career plans through activities of self cognition and work exploration, which is in order to explore their knowledge and skills in work field (Baoguo Xie,Dongmei Li,2011).Consequently, no matter from the point of being beneficial to career development or the point of promoting students' original power to study consciously, choosing and determining a career development goal is a realistic problem for young college students.

There are career indecision and career decidedness according to status of career goals. If one doesn't determine the future career, we call this career indecision. If one has determined the future career, we call this career decidedness. An individual may make decisions based on impulsion, fatalism, obedience, intuition and tendency when talking about the way to make career goals. American scholar Marcia pointed out that the decision makers who accepted the arrangement from their parents or others would not be anxious when faced to decisions, but it would be unavoidable for them to resign themselves to the fate and lack of studying interest and autonomy when they prepared for career decision or schoolwork. The ideal career decidedness is autonomous orientated. The autonomous orientated decision maker can take the ideal decision by integrating all kinds of knowledge, and this

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decision model is called the 'ideal model'. However, various difficulties (such as lack of decision motivation, irrational beliefs, self unknown and so on) which occur in the decision process will obstruct personal career goals decision. Although some researchers have studied the relationship between the total level of career decision-making difficulties and the career decision status (Xueping Shen, 2005), but they didn't discuss about how the specific types of career decision-making difficulties influenced the career decision. The fact is that different types of career decision-making difficulties have different effects on college students' career goals.

2 Research Methods

2.1 Research sample

Research was taken on two key universities of the Ministry of Education (one is a liberal arts college, the other is a science and engineering college) with stratified sampling method. Considering the freshmen students have entered the college just for a short time, the research did not involve them into this research samples. The research issued 800 questionnaires and received 721 questionnaires altogether. The rate of recovery was 90.13%. The effective questionnaires were 646, and the rate of effective recovery was 80.75%. The proportion of male was 55.73%, the proportion of female was 43.03% and unknown gender was 1.24%. The average age of the samples was 20.79 ± 1.19 and among which the proportion of sophomore was 36.84%, junior was 37.30%, senior was 25.08%, and unknown grade was 0.77%. Based on the question "the degree of certainty on your career goals" (the answer options are certain and uncertain), the research divided the total samples into career decided college students and career undecided college students. There were 268 career decided students, which accounted for 41.49%, and there are 372 career undecided college students, which accounted for 57.59%. There were 6 students who didn't give the answers, which accounted for 0.93%. The detail information of research sample is as follows the table 1 under below:

Table 1 Detail Information of Sample

Group	Age	Sex		Origin			Grade			Major	
		Male	Female	Cities	Town	Rural	Sophomore	Junior	Senior	Natural Science	Humanities and Social Sciences
Decided	21.10± 1.27	141	124	47	91	116	75	90	103	153	114
Undecided	20.52± 1.07	218	153	66	132	167	163	151	58	265	106
Total	20.76± 1.19	359	278	113	223	283	238	241	161	418	220

2.2 Measuring instrument

Gati(1996) pointed out the measuring instrument mainly based on ideal career decision maker model. According to the model, the ideal career decision makers should be: 1) They realize it is necessary to make career decisions and have the willing to do this. 2) They are able to make decisions consistent with their personal goals based on scientific and systemic steps. Anybody who can not achieve the ideal career choice state is the one who has difficulties to make career decisions. Gate(1996) proposed the widely accepted classification model of career decision-making difficulties with the method combined with experience and theory. And at the same time Gate developed the career decision-making difficulties questionnaire (CDDQ) (Gati et al., 1996). Questionnaire measures the following 10 categories of professional decision-making difficulties: 1) Lack of motivation. High score illustrates the lack of willingness to make career decisions. 2) Hesitation. High score illustrates the difficulties when making any decisions. 3) Irrational beliefs. High score illustrates the distorted understanding of career decision-making. 4) Lack of knowledge about the process of career decision-making. High score illustrates that not knowing how to make wise career decisions. 5) Lack of information about self. High score illustrates the decision makers' not fully understanding themselves. 6) Lack of information about career. High score illustrates the lack of information about existing occupations. 7) Lack of knowledge about how to acquire information. High score illustrates that they not knowing how to acquire the information about themselves and occupations. 8) Unreliable information. High score illustrates that there are contradictions between themselves and the information of occupations which they are considering about. 9) External conflict. High score illustrates that there are conflicts and contradictions between personal preferences of decision makers and preferences of important person.

In 2005, Xueping Shen made a localization amendment about the CDDQ. The research of Xueping

Shen(2005) showed that the Chinese version of CDDQ had good internal consistency, retest reliability, construct validity and criterion validity(Xueping Shen,2005). The Chinese version of CDDQ involves 10 categories of career decision-making difficulties mentioned above, and there are a total of 35 items (3 are identification items). Taking into account the current development of the tool specifically designed to measure the irrational beliefs of life (Mian Xia, Baoguo Xie, 2010), therefore, this study only extracts 31 items from the CDDQ Chinese version to measure 9 kinds of professional decision-making difficulties.

2.3 Data processing

We use Visual FoxPro 6.0 to input and manage the data and analyze the data with SPSS17.0 for windows.

3 Research Results

3.1 Descriptive statistics, relationship and reliability analysis

In order to facilitate the comparison, each type of career decision-making difficulty item is added to the total, and then divided by the number of projects, and the project is divided into the following statistical analysis. We will carry out statistical analysis with the average score of the items.

There is not only a significant positive relationship between different types of career decision-making difficulties, but also with the students' career orientation. That's to say, the higher level of individual career decision-making difficulties, the more difficult to determine the career development goals. "Lack of motivation", "Lack of knowledge about the process of career decision-making", "Lack of information about self" and "Lack of information about career" have the closest relationship with career orientation. At the same time, Table 1 also shows that the internal consistency coefficient of the 9 components of the questionnaire is between 0.617 and 0.876. We can do further analysis with good reliability.

3.2 The analysis of differences between career decided college students and career undecided college students on various career decision-making difficulties

Table 2 Correlation Coefficient Tests

Variables	M	SD	1	2	3	4	5	6	7	8	9
Lack of motivation	4.57	1.814	.627								
Indecision	4.99	1.713	.083 [*]	.624							
Lack of information about decision	4.53	1.919	.141 ^{**}	.382 ^{**}	.876						
Lack of information about self	3.89	1.727	.177 ^{**}	.365 ^{**}	.582 ^{**}	.849					
Lack of information about career	5.09	1.873	.150 ^{**}	.333 ^{**}	.529 ^{**}	.547 ^{**}	.828				
Lack of information about measures	4.65	1.854	.105 ^{**}	.375 ^{**}	.517 ^{**}	.554 ^{**}	.648 ^{**}	.617			
Unreliable information	4.10	1.658	.152 ^{**}	.334 ^{**}	.390 ^{**}	.535 ^{**}	.423 ^{**}	.526 ^{**}	.704		
Internal conflict	4.70	1.506	.188 ^{**}	.359 ^{**}	.367 ^{**}	.423 ^{**}	.452 ^{**}	.459 ^{**}	.563 ^{**}	.769	
External conflict	3.98	1.845	.153 ^{**}	.178 ^{**}	.218 ^{**}	.308 ^{**}	.289 ^{**}	.276 ^{**}	.343 ^{**}	.399 ^{**}	.734
Vocational direction	1.58	.494	.274 ^{**}	.129 ^{**}	.302 ^{**}	.321 ^{**}	.239 ^{**}	.227 ^{**}	.247 ^{**}	.148 ^{**}	.128 ^{**}

Table 2 shows that the scores of career undecided college students are higher than that of decided college students on various career decision-making difficulties. Because there is a notable relationship between each career decision-making difficulties, we can use MANOVA to test the significant differences. At the same time, in order to control the influence of demographic variables and natural maturity factors on career orientation, the factors like gender, origin, discipline, age and grade were used as covariates, and then multivariate analysis was conducted.

From Table 2 we can see that the total level of the career undecided college students is much higher than that of the career decided college students on career decision-making difficulties. The test of between-subjects effects show that, besides the external conflicts, the career undecided college students have more difficulties on other 8 kinds of career decision-making than the career decided ones.

3.3 Logistic regression analysis of occupational orientation on various types of career decision-making difficulties

In order to investigate the influence of various types of career decision-making difficulties on

college students' career orientation and find out the key factors that affect the career orientation of college students, logistic regression analysis was carried out in this study. The results are shown under below in Table 3.

Table 3 Multivariate Tests

Multivariate Tests			
Measures	Value	F	
Wilks' Lambda	.859	8.82**	
Hotelling's Trace	.164	8.82**	
Tests of Between-Subjects Effects			
Dimension	Decided (M±SD)	Undecided (M±SD)	F
Lack of motivation	4.05±1.84	4.96±1.70	22.96**
Indecision	4.75±1.78	5.19±1.62	12.78**
Lack of information about decision	3.87±1.85	5.04±1.82	44.28**
Lack of information about self	3.25±1.51	4.37±1.72	51.01**
Lack of information about career	4.57±1.99	5.48±1.69	22.92**
Lack of information about measures	4.05±1.76	5.09±1.80	23.86**
Unreliable information	3.63±1.52	4.46±1.67	20.48**
Internal conflict	4.45±1.58	4.90±1.42	8.95**
External conflict	3.70±2.01	4.21±1.87	3.46

** P<.01

By MANOVA, although the specific career decision-making difficulties have certain impacts on college students' career orientation, but multivariate logistic regression analysis shows that the size of their influence on College Students' career orientation is not the same. Specifically, after controlling the relationship between each other, only "lack of motivation", "lack of information about self" and "lack of knowledge about the process of career decision-making" three kinds of difficulties have notable influence on college students' career orientation. From the Exp (B) of these three kinds of career decision-making difficulties, we can see that:(1)In the case of other conditions unchanged, if to increase the motivation of a unit, then the career orientation of college students will be increased by 0.232 times.(2)In the case of other conditions remain unchanged, if you increase the knowledge of the professional decision-making process a unit, then the university student career orientation will be increased by 0.228 times.(3)In other conditions of the same situation, if you increase the information about self information a unit, then the university students career orientation will be increased by 0.316 times.

4 Conclusions

This research is under the view of "ideal career decision model" and study on the career decision-making difficulties of college students' career orientation, and we finally get some meaningful findings.

First of all, various kinds of career decision-making difficulties have different impacts on college students' career goals, and the research idea is verified. Multivariate Logistic regression analysis shows that "lack of motivation", "lack of information about self" and "lack of knowledge about the process of career decision-making" are the main factors that affect college students' career orientation. This reminds us that we should grasp the above three factors in the career education of college students, and to improve the ability of college students' career choice. Specifically, first of all is to increase the career awareness of college students, and to stimulate their career decisions. Motivation is the basis of behavior. If there is no strong motivation for career decision, students naturally can not determine the goals of career development. The specific ways include campus culture, subject infiltration, and career course and so on. In addition, students can know about themselves well and master relevant knowledge about the career decision-making process through self-help activities, career courses, career groups, individual counseling and other ways. Only after the students have formed the comprehensive understanding of themselves, will they not be lost in the face of choice, and they will know what they want, what is suitable for. After mastering the knowledge of decision-making process, they can make informed career decisions, and strengthen their own choice.

Although according to the "ideal career decision maker" model, it has a significant influence on the career orientation of college students, but the influence is not very big. From Table 3 we can see that the rate of the contribution of "lack of motivation", "lack of information about self" and "lack of knowledge about the process of career decision-making" to the increasing of career orientation is 16.00%. If we take the other six types of career decision-making difficulties along with the above three kinds of career decision-making difficulties together, we can conclude the overall contribution rate is 23.5%. Thus it can be inferred that, at present, many college students are not fully aware of their own characteristics. So they can't determine the career goals according to the scientific and systematic career decision-making process. The results of this study are consistent with the results of the related studies. In the study of youth groups, the proportion of autonomous orientation is relatively low (Bo Zhao, Jing Ding, 2007). What factors hinder college students to become an ideal decision-maker and how to guide the students to take the scientific and systematic career decision-making process in the face of the career choice are worth further research and discussion in the future.

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Research on Long-Term Memory Processing Strategies in English Financial Terms: A Case Study

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Abstract: Research on long-term memory processing strategies of English financial terms is pretty necessary upon the highly development of economy in China. The study intends to explore how do the several long-term memory processing strategies as word formation, categorical clustering and recycling strategies relating to memory theories as encoding, storage and retrieval facilitate memorizing English financial terms. Since repetition strategy is still the most popular one among students even it has been criticized by scholars, 20 students from finance major 1102 in Wuhan University of Technology were selected and divided into two groups, utilizing the above mentioned strategies and repetition strategy together memorize English financial terms. Through the data comparison and analysis, the result proves that the combination of the word-formation, categorical clustering and recycling processing strategies is more effective than repetition strategy in the long-term memory.

Key words: Long -term Memory; Processing strategies; Experiment; English Financial Term

1 Introduction

Vocabulary learning is of paramount importance in foreign language learning. Abroad and home, a lot of attentions have been drawn to the studies on the vocabulary learning strategies. Based on the acoustic similarities, Atkinson insisted that two stages were involved in the strategy (Atkinson, 1975). Politzer and McGroarty (1995) found social interaction strategies are closely related to the outcomes of the test on communicative ability and the other strategies are related to the outcomes of different test. O'Malley and Chamo (2010) declared that it is an important key to increasing motivation, because students are used to attribute their level of achievement to their own efforts rather than to unchangeable innate ability. Domestically, A series of empirical studies have been carried out by Chinese scholars in high schools and universities. Ding Yi (2010) has researched into the comparison of vocabulary learning strategies used by good learners and poor learners. Mao Haoran (2013) aims to study the effect of pleasant mood on memorizing English words. Generally speaking, both Chinese and foreign researchers utilize a large amount of empirical research methods concerning the study of English vocabulary memory strategies. But there are also some problems such as, seldom, the researches are concerned with the discussion of how the short-term memory can be converted into long-term memory in words learning, let alone the long-term memory processing strategies for the English terms used in financial field.

Based on the periodicals and articles from the Internet and empirical researches, sources of difficulties in memorizing English financial terms are as follows. First, scarce of target language input causes the difficulty in their learning, many new English financial terms together with phrases, compounds, abbreviations are rarely repeated in the finance related articles prevent students from acquiring all of them in a short period. Second, English teachers' traditional duck-dumping vocabulary teaching methods deprived their interest of memorizing financial terms. And above all, a large use of repetition strategy among most students only lead to short-term memory, while, few chances to utilize the memory processing strategies in English financial terms contribute to the memorizing difficulties. To solve this problem, we'd better first learn some memory theories and memory strategies relate to them.

2 Memory-Theory- Related Processing Strategies in English Financial Terms

Memory is generally regarded as consisting of three stages: they are encoding, storage, and retrieval. That is, to take in the necessary information, to store it, and to retrieve it at the appropriate time. However, human memory is potentially inclined to lose information at each of these points and forgetting occurs continuously on a massive scale. In this part, some practical long-term memory processing strategies in English financial terms based on memory theories will be presented. With them, learners can learn English financial terms in a scientific and systematic way.

2.1 Encoding and word formation processing strategy

According to the memory theories, the capacity of short-term store is rather limited. Long

information can be available only when the information is encoded into meaningful parts and meaningful parts are beneficial to long-term memory. (Nation, 1990). In fact, English financial terms can be lexically classified as compounding, derivation and acronym. Compounding such as “Floating rate”, derivation such as “dollarization” = dollar + suffix –ize + suffix –tion , Acronyms such as “APR” means “annual percentage rate” while “ARP” means “adjustable rate preferred stock”.

Many **English financial terms** are made up of two or more parts: a basic part or root, and one or more suffixes or prefixes. These meaningful parts can help learners to memorize words efficiently and figure out the meaning of some unfamiliar words. Supposing the learners can grasp affixes and roots well and they can encode the words efficiently into meaningful parts every time consciously, they will undoubtedly speed up their vocabulary learning. For example, a learner wants to memorize a financial term “interchangeable”, If he memorizes the letters separately, that is fifteen parts for him; but if he encodes in this way inter/change/able, the word is only three meaningful parts. In this way, the learners can relieve the burden of memory and learn more new words efficiently with sub-meaningful information.

2.2 Storage and categorical clustering processing strategy

The organization of semantic entities in memory has a powerful influence on memory. Nation stated that the clustering attached to a word affect the way that it is stored in the brain, and this will affect the availability of the word when it is needed (Nation, 1990). Nation suggests that similarities in sound, morphology or etymology can assist word memorization. The function of working memory is to record the association of events. Short-term store does not randomly associate concepts, while in long-term store, associations appear to be made in a logical and organized way.

Therefore, when we memorize the English financial words, we can use different ways to divide them into different groups. For example, we can divide the words into synonyms and antonyms. Synonymy: refers to the clustering of the words with the same or similar meanings. For example, terms, conditions, secret, confidential, rent, charter hire, charter money. Antonym: refers to the clustering of the words with opposite meanings. For example: long position —short position, visibles—invisibles, movables— immovables. In this way, students may not only remember the target words but also the words relating to them. Thus, their words can be stored in a long-term way.

2.3 Retrieval and recycling processing strategy

With regard to forgetting theory, forgetting is due to simple decay that refers to the weakening of the trace with time. Thorne, B., Henley, T. (2005) says Ebbinghaus' forgetting function reveals that rapid forgetting occurs at the first few hours, and then slows down. One effective way that prevents forgetting is review in time. The review can be done continuously within a certain period of time that is called mass review. It is also done in several shorter but regular periods of time within the overall review, which is called space review. In fact, space review is more advantageous than mass review.

As far as English financial terms learning are concerned, the learners should do what they can to shorten the interval between learning and review and spend more time on it. Then learners can increase the interval a longer and may spend less time on it. If learners review much in a certain time, they will feel tired and interfered with. However, the time interval in space review is not long and therefore, the planning of review time will work and long-term memory can be achieved.

3 Case Study: Long-Term Memory Processing Strategies in English Financial Terms

3.1 Research hypotheses

Usually, repetition is regarded as the most popular and efficient way to avoid forgetting, but unfortunately, it won't work unless the short-term memory be efficiently and timely transferred to long-term memory, which is always beyond the monitoring of the students. This study attempts to testify the following hypotheses:

1) Repetition can be considered as low-level of processing and efficiency in memorizing English financial terms..

2) How well people remember English financial terms depends on how deeply they process it with proper long- term memory processing strategies;

The author chooses the word-formation strategy, categorical clustering strategy and recycling strategy which are related to memory theory of encoding, storage and retrieval to test whether they work better for Chinese students who are used to memorizing English financial terms with single repetition strategy. This part provides the detailed analysis of the experiment, which involves the students'

retention of the target words over a month.

3.2 Methodology

Participants :

The 20 subjects were randomly chosen from the finance 1102 in Wuhan University of Technology. Experimental Group (EG) and the other was Control Group (CG). Before this research, they had similar learning experience under the same teaching curriculum. The EG (n=10) learned new words utilizing the above three long-term memory processing strategies and the CG (n=10) in repetition strategy. The 20 students were asked to choose the unknown words from a finance article. The following tables show the scores accessed by the statistical software SPSS.

Instruments:

Pre- and post-experiments were taken to find if there was any changes made by subjects after the experiment. The purpose of this study is to testify the hypothesis mentioned above. The data were collected and analyzed by statistical formula with the help of Excel and Statistical Package for the Social Science (SPSS).

Process of the experiment:

Fifteen target words were chosen from the articles with time limited within 30 minutes. Data collection was carried out between the EG and CG in the following five steps.

Step 1:

A pre-test was made to choose potential unknown target words from a financial article. Finally, 15 target words were chosen by the students. And the 15 words are as follows: “accommodation bill”, “actuarial investigation”, “benchmark yield curve”, “disclaimer of lease”, “inflationary spiral”, “monetary squeeze”, “pecuniary legacy”, “syndicated loan”, “accommodation party”, “synthetic stock”, “accrued expenses”, “pecuniary liability”, “benchmark database”, “disclaimer of property”, “monetized value”.

Step 2:

Both of the two groups of the students were given the 15 target words in a 30-minute period. The students in the Control Group were asked to read and write the words repeatedly. The students in the Experimental Group were asked to analyze and process the words with the above strategies and classify the target words according to their meaning or form basing on the categorical clustering. Such as the prefix as “ac-to act, mone-money-related, dis-against, syn-together”, 15 noun phrases concerning the fields of “rent, charter hire, charter money”. In both situations, the instructional materials were collected at the end of the 30-minute period.

Step 3:

Test 1 was carried out after a 20-minute break following the period of instruction. The test required the students to write down the English words according to the Chinese meaning. And then, both groups were asked to review those words every day, and the Experimental Group was told that they should process the words according to the strategies taught the first time every time in their daily review.

Step 4:

Test 2 was administered one week after test 1. The content and the requirement were the same as those of test 1. The subsequent requirement for both groups this time is the same with the last. Besides, the Experimental Group is told that their reviewing time can be adjusted with the Ebbinghaus' curve theory, mentioning that regular reviewing (such as 10 minutes within first 5 days, then 10 minutes every other day within 10 days and then every two days within another 15 days) can transfer the short-term memory to long-term memory efficiently while the Control Group is required to repeat their words every day.

Step 5:

Test 3 was carried out one month later after test 1. The content and the requirement were the same as those of test 1 and test 2. The subsequent requirements for both groups this time is the same with the last. And the same requirements are given to them respectively.

3.3 Data collection and analysis of the experiment

In scoring, each correct answer was awarded one point. Where partially correct, or a somewhat close but vague, answer was provided, a half point was given. There was no score deduction for an incorrect answer.

Table 1 Result of Test 1

	Time	Percent of retention	Means	Standard Derivation
Experimental Group	3minutes	72%	11.29	1.90
Control Group	3 minutes	69%	9.83	1.74

The result clearly manifests itself that in the immediate test, there are differences between the Experimental Group and the Control Group, but the difference is not very clear. The reason is that the number of the target words is not very large, and the period from memorizing the word to test time is much short. And in the short period, the Control Group can remember the words easily by repetition.

Table 2 Result of Test 2

	Time	Percent of retention	Means	Standard Derivation
Experimental Group	3minutes	67%	10.10	2.07
Control Group	3 minutes	53%	7.63	1.5

The result showed that in the post-test of one week later, there are significant differences between the two groups. By learning words in the above strategies, the Experimental Group experienced a deep level of processing, and can thus achieve a longer memory than the Control Group.

Table 3 Result of Test 3

	Time	Percent of retention	Means	Standard Derivation
Experimental Group	3minutes	58%	9.13	2.16
Control Group	3 minutes	43%	6.689	1.71

The result of the post-test of one month later proved more strongly that there are significant differences between the two groups. The Experimental Group which utilizes those above strategies well can efficiently maintain the long-term memory than the Control Group.

It is evident from the three tables that throughout the three tests, the Experimental Group consistently outperformed the Control Group. Both types of the statistical analysis, the percentage and the means that the scores of the experimental group and of the control group on the three recalls are different, especially in the post-tests, indicating support that the combination of the word-formation, categorical clustering and strategy is more effective than repetition strategy, in terms of both immediate retention and longer-term retention. The result proved the theory that: How well people remember information depends on how deeply they process it. Repeating words as strings of sounds can be considered as low-level of processing and badly remembered; working out the deep relation such as the meaning and form leads to longer memory. Therefore, taking into account both word retention and the facilitation of students' later production, it appears advisable to process and integrate strategies while memorizing English financial terms.

4 Conclusion

No matter how well the student learns grammar, no matter how successfully the sounds of second language are mastered, without words to express a wider range of meanings, communication in a second language just cannot happen in any meaningful way. It is also true when it comes to English financial terms.

The researcher made investigations on the use of long-term memory processing strategies, the result showed that repetition method is popular although it is a mechanical method criticized by most of the scholars and psychologists, and in China rote-learning still plays an important role. At the same time, some long-term memory processing strategies are proposed such as word formation strategy, categorical clustering strategy, recycling strategy to help learners learn vocabulary in a more scientific way and solve vocabulary memorizing problems.

The experiment done by the researcher between the two groups adopting repetition and the above mentioned strategies respectively shows that processing memory strategies facilitate long-term memory. Of course, due to the limitation of samples and time, there is still something to be desired in the further study.

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On Conflicts of Family Ethics and Social Norms in the Lottery*

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Abstracts: American female author Shirley Jackson's recognized masterpiece, the short story *The Lottery*, has showed her discussions and criticism on people's living conditions and thoughts after World War II. In this novel, conflicts of famous ethics and social norms have been demonstrated thoroughly by the reverse attitudes of the families during the ritual. And those conflicts could be divided into conflicts on conjugal relationship, conflicts on child-parent relationship and conflicts on sibling relationship. Researching on those conflicts in this novel would definitely contribute to conflict resolving in contemporary society.

Key words: The Lottery; Family ethics; Social norms; Conflicts

1 Introduction

The short novel *The Lottery* earns Shirley Jackson numerous compliments along with overwhelming criticism. There are lots of discussions about the theme of this novel.

Though Shirley herself had responded to her readers in *San Francisco Chronicle* about her intentions of writing this story that "Explaining just what I had hoped the story to say is very difficult. I suppose, I hoped, by setting a particularly brutal ancient rite in the present and in my own village to shock the story's readers with a graphic dramatization of the pointless violence and general inhumanity in their own lives." There are still lots of comments and discussions from various aspects.

Scholars have their own distinct views from various perspectives, such as insight into symbolism, allusion to McCarthyism, condemning to massacre, metaphor for the Bible, image of scapegoat. For example, Helen E. Nebeker discussed in the critical essay *The Lottery: Symbolic Tour de Force* that every major name has a special and potential meaning. "She has also hinted at larger meanings through name symbolism. 'Martin', Bobby's surname, derives from a Middle English word signifying ape or monkey. This, juxtaposed with 'Harry Jones' (in all its commonness) and 'Dickie Delacroix' (of-the-Cross) urges us to an awareness of the Hairy Ape within us all, venerated by a Christianity as perverted as 'Delacroix' vulgarized to 'Dellacroy' by the villagers."

Nevertheless, despite that democracy and humanity are thought to be the main topics of this novel, the conflicts of family ethics and social norms dose attract people's attention. Family relationship is recognized as the most intimate relationship comparing with other social ones, let alone blood relationship. So this paper wants to probe into the conflicts of family ethics and social norms in this novel to deeply demonstrate the general thoughts about this topic.

2 Family Ethics and Social Norms

2.1 Family ethics

Family can be normally defined as a group of people affiliated the recognized birth, the marriage in the context of human society. At the same time, family has its own social attribute that people are connected together through separate small families. Men and women, the two groups of persons with opposite genders, are endowed with respective characters and physiological status. Thus, family is created to have more intimate relationship and also mankind can procreate to maintain the continuation of the race and it can be traced back to the very beginning of the history of human.

Family relationships have their own nature ethically significant, which generates the familial obligations. In this sense, family is tightly linked with familial obligations and this ethical nature in family is then highly appreciated. "Since the family is considered a social unit which normally involves an intense and long-term protective, supportive, and cooperative relationship among its members." And this nature of family relationships requires people to make appropriate responses to the family members' needs, interests or problems.

2.2 Social norms

The term "social norm" can be referred to a particular category of action-guiding prescriptions,

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prohibitions, and permissions, which can be distinguished from other kinds of practical considerations on ontological, epistemic, and normative grounds. In that case, social norms circulate within specific groups, organizations, or societies.

Part of the normalization of social norms is grounded in existing or perceived social practices. Maybe sometimes people have got used to it and will obey it unconsciously. It will never say that social norms do not exist. For most people believe in that, a specific system of one norm will be established to better control the actions and talks of people to reduce the chance of arguing for senseless things. It's better to say that social norms write the standards other than create the standards.

Nevertheless, without correct public concepts, the formulation of social norms would result in escalation of disputes and the whole society would be in turmoil.

2.3 Conflicts of family ethics and social norms

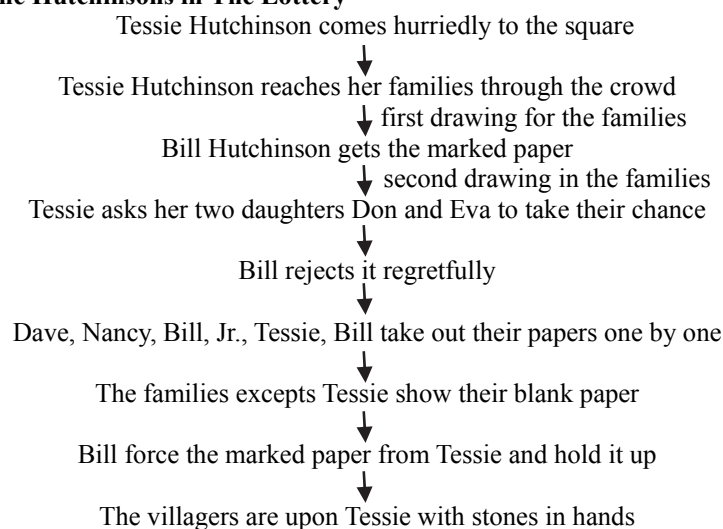
Just like what the sociologist says that these family groups are probably among the oldest and most basic types of groups. Family can be taken as the micro-world of the society. The society's characteristic decides that of the family. Accordingly, the change of the family mainly results from the change of the society. And the family, which plays an important role on the personality of the individuals, is the place for individuals to be directly connected with the society. Well-functioning families' social or political utility can surely provide a justification for the practice of certain family morality within a society, which means it's the key element of a society of stability and integrity. Meanwhile, the atmosphere of the society could easily influence the status of each family member. For example in ancient China, the patriarchal society advocates the three cardinal guides that the ruler guides his subject, the father guides his son and the husband guides his wife. The basic stratum is set up on this social background.

Generally speaking, family ethics and social norms have mutual effects with each other and mutual adaptation exists throughout the whole process of development. Otherwise, some sorts of conflicts can be seen even in our daily life. Family ethics and social norms do not always completely match that a series of slight differences may lead to an enormous divergence.

Families are requested to support and respect each other. However, a number of old ideas like gender discrimination make familial relationship become abnormal and deviate from its original nature. In the story of *The Lottery*, we witness a subversive change of the families' attitudes towards their folks with whom they are living together for the most time of their lives.

3 Conflicts of Family Ethics and Social Norms in the Lottery

3.1 Time line of the Hutchinsons in *The Lottery*



3.2 Conflicts on the characters' personalities of the Hutchinsons in *The Lottery*

3.2.1 Tessie Hutchinson—the protagonist and the victim

Tessie Hutchinson, the protagonist of the story, is absolutely the victim of this traditional ritual.

Mrs. Hutchinson has the contradictory attitudes towards the lottery. At one hand, she doesn't care too much about it that she "clean forgot" about the day and is the last one to appear in this civic activity. At other hand, she tries to follow the general trend and "came hurriedly along the path to the square".

Under the invisible pressure of social groups, everyone will make a concession and attempt to bring into correspondence with the masses to avoid being isolated or condemned. This so-called conformity is extremely displayed on Mrs. Hutchinson.

In that case, when facing the threat of being killed, she argues on letting her two married daughters take part in the second round of lottery. Maternal love is always having a high reputation in the society. Mothers are thought to be willing to give up their own life in order to save their children. But in this story, Mrs. Hutchinson is struggling to reduce her rate of being killed by making her daughters take their chance which is definitely against the rules and against her duty in the family.

When the crowds including Tessie's families are upon Tessie, here comes the end of the story and the end of the relationship of the families which is destroyed by the social norms.

3.2.2 Bill Hutchinson—the host of the family

Bill Hutchinson, who draws the lots as the head of the family, is empowered in the patriarchal society. While exercising power, he is required to undertake the corresponding duty at the same time. In this sense, Mr. Hutchinson violates his responsibility and doesn't stand out for his family. He follows the rules and puts his wife and children in danger and may even kills his wife just as what others.

He does reject Tessie's suggestion but this is an adjective deserving to be researched on—"regretfully". What makes him give up the participation of his two daughters is not because of the paternal love but the social standard rules. In other words, if this is allowed by the norms, he is likely to take Tessie's suggestion. It's obvious that social norms have effected the way they get along with family members. The author has hinted that in two details. One is before the second round of lottery Bill Hutchinson takes one quick glance at his wife and children. The other is when Mr. Summers asks Mr. Hutchinson to show Tessie's paper, He "forced the slip of paper out of her hand" without any hesitancy. It's not until then people find out that Bill is ready to abandon his wife and take his responsibility as a citizen. The family relationship has been totally overturned by the social norms.

3.2.3 Nancy—an elegant young girl

Nancy is only twelve years old, but she is quite calm when recognizing that she may be killed in such a cruel way soon. In addition to this, Nancy seems to be very popular and favorable among her school friends. She is the only one supported by other people.

When she opens up the paper, she "beamed and laughed". It's no doubt that while Nancy finds out her being relieved from being executed from death penalty, she could be as much excited and crazy as she could. But it must occur to her that one of her most intimate family members would become the "lucky" one and be killed for she has been sober all the time. Maybe she just hasn't got enough time to deeply think about or realize this. Or maybe she has already got sufficient mental preparation before the whole ritual.

3.2.4 Bill, Jr.—the heir of the family

Bill, Jr., who is given the same name with his father, is the oldest child in this family. And as the oldest boy in this patriarchal society, he would take over the head of the family along with the patriarch.

"His face red and his feet overlarge, near knocked the box over as he got a paper out." This rough nervous boy seems to be extraordinarily scared when taking his paper. No matter how shy and careless he is, he acts exactly like his sister that they "beamed and laughed, turning around to the crowd and holding their slips of paper above their heads." After he is claimed safe from the execution, he wants to share his happiness with the crowds and also demonstrates the evidence of his not being chosen. Being a normal person just as the masses, nobody can be excluded from mundane emotions and the deep humanity is expressed to the extreme.

3.2.5 Little Dave—an unenlightened baby boy

Little Dave is the youngest child in the Hutchinsons family. He is so young that he couldn't understand what the ritual is about and why he is asked to take a paper out of the box. He is so young that he doesn't know he would lose one of his family members which is decided just on that shit of paper. Dave laughs when puts his hand in the box and feels confused Mr. Graves removes his paper from his hand. This is the only depiction of Dave's action. Young as he is, he is unconsciously involved in this slaughter. He takes part in the final lottery. In addition, he is taught to throw stones at his mother. And those who give him stones are kids alike. Dave is a pure and naive child who has no idea of the adult world. He is not contaminated by the complex relationship and contradiction of the grown-ups.

The author sets Dave who is clean and immaculate as the origins of human beings. But the disputes of the world would affect all the children including little Dave. Love isn't necessarily perfect; the natural affection isn't necessarily eternal; and the friendship isn't necessarily honest. All of these social phenomena have been unfolded before his eyes in one day. It's undoubted a great shock on him though

he may not quite understand the meaning of those. But seeing from what the children do, it's obviously that little Dave would be assimilated into the same person as the adult.

Table 1 Different Personalities before and after The Lottery

Name	Personalities	
	Before	After
Tessie Hutchinson	Humorous, friendly, duteous	Impulsive, selfish, indifferent towards her children
Bill Hutchinson	Responsible, law-abiding	Crucial to his wife
Nancy	Elegant, calm, popular	Indifferent towards her families especially her mother
Bill, Jr.	Rough, careless	Indifferent towards his families especially his mother
Dave	Clean, immaculate	Maybe the same
Don and Eva	No appearing	

3.3 Conflicts on family relationships in The Lottery

3.3.1 Conflicts on conjugal relationship

Conjugal relationship is the relationship between wife and husband. When two persons are getting married, they will be legally committed as a registered couple. It's more than a certificate which confirms this relationship. It's more about the obligations that families should be considerate of each other and they should face the difficulties together.

Considering the duty of the wife and the husband, Tessie and Bill are ought to defend their marriage and be united when one of them is challenged with torment. To the contrary, they hope to sacrifice one of their relatives to survive. Before the lottery, they seem to be a harmonious couple that they have a normal family as other families and Tessie shows her dependence on her husband and children. Due to the rules of the ritual, they are forced to be strangers.

3.3.2 Conflicts on child-parent relationship

Children and parents are direct relatives who are closely tied by blood relationship. Mother love has been praised as the most selfless and great power in the world. No matter how we define this, it's deniable that almost every mother would cherish their children and would rather sacrifice themselves to save their babies.

The Lottery has extremely subverted this acknowledged emotion which deeply riles the readers. As a mother, Tessie intends to sacrifice her two daughters. As the kids, Nancy and Bill, Jr. feel relieved when their mother will be killed instead of them. The social norms determine their performances and make them against the nature of human beings. That's how conflicts work and bring destabilizing factor to the society.

3.3.3 Conflicts on sibling relationship

Sibling relationship refers to the relationship between sisters and brothers of the same generation in the same family. Born and being raised up together do affect people's feelings on their playmates. Though children will have small fractions in daily life, they indeed have great affection and that kind of feeling would burst in certain situations.

In this story, maybe it's because that none of the children gets the paper with a black spot on it, they don't have any concerns about their sister and brothers. But there is not body movement or even an eye contact to express their worries. That is unnatural.

Table 2 Family Relationships Reflected in the Context

Conjugal relationship	Bill	Taking quick glance around at his wife before the second drawing; forcing the marked paper out of Tessie's hand and holding it up
	Tessie	Trying to reach her families when late for the ritual; yelling about the unfairness of the lottery at her husband
Child-parent relationship	Don and Eva	Mrs. Hutchinson asks them to take their chance in the second drawing; Bill rejects Tessie regretfully
	Nancy and Bill, Jr.	Laughing when they are not chosen and showing no sympathy for their mother
	Dave	Knowing nothing about what is happening
Sibling relationship	Don and Eva	No appearing in the whole process
	Nancy and Bill, Jr.	Showing no care about their families
	Dave	Knowing nothing about what is happening

4 Conclusions

Social conflict, the product of social and economic development, is a universally social phenomenon in human society. It's the drastic confrontation form of social contradictions which deeply displays the tension and opposition of different social relationships.

Nevertheless, there are no fundamental conflicts and some of them can be avoided if effective communications are conducted and feasible measures are taken. To face with the conflicts, it's not only about perfecting the social institution and political system, but also about transforming negative side of human beings into the positive one. How people deal with those conflicts matters and how people treat basic social ethics decides whether they are going to fight against the conflicts or barely be indifferent with the conflicts.

Generally speaking, family ethics are one of the most important standard public concepts. A number of conventional principles about family ethics have been rooted in people's minds, such as respecting the elder, taking care of the children, supporting each other in the family and so on. Each country in each time may have a variety of family organization forms along with specific social norms to achieve those principles, but they won't deviate from the most basic one.

How people deal with those conflicts matters and how people treat basic social ethics decides whether they are going to fight against the conflicts or barely be indifferent with the conflicts.

Thus, to resolve the conflicts between family ethics and social norms, everyone is required to stick to the righteous inner faith and the elementary social morality. And the society is supposed to construct rational and reasonable social rules to guarantee the moral and ethical obligation to be carried out effectively and accurately.

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Effectiveness Analysis of the Ideological and Political Education for College Students Based on the Reinforcement Theory

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Abstract: This paper analyzes the psychological characteristics of contemporary college students' thought and behavior and gives a clear picture of the Reinforcement Theory, which serves as the theoretical framework for the effectiveness discussion of the ideological and political education for college students. It is concluded that it is an effective approach to improve the ideological and political education for college students by guiding their subjectivity development and creating fine behavior by means of stimulating their learning motivation through reinforcement, in accordance with the characteristics of contemporary college students' thought and behavior.

Key words: Reinforcement; Reinforcement Theory; Ideological and political education; Effectiveness

1 Introduction

In behavioral psychology, reinforcement is a consequence that will strengthen an organism's future behavior whenever that behavior is preceded by a specific antecedent stimulus. The concept of reinforcement as well as the Reinforcement Theory has experienced a gradual development and constant breakthrough. The famous Russian physiologist Ivan Pavlov first put forward the concept of reinforcement while Skinner further developed the Reinforcement Theory with changed essence. In the following decades, a large number of psychologist and sociologist in the west such as Thorndike and Bandura have made great contribution in richening and modifying the theory.

The study of the Reinforcement Theory began much later in China, in around 1930s. One of the most significant figures was Pan Shu, who was thought to be the founder of modern psychology in China. From then on, the research and study of psychologist in China gained much attention and development, in which some research findings were gradually applied in education.

In modern psychology, reinforcement refers to the potential events which are conducive to increasing the probability of repeated behaviors. So far, the concept of reinforcement has been a research topic much discussed by the psychologists and physiologists all over the world. A theoretical system has been established. However, the study of ideological and political education for college students based on the Reinforcement Theory is compared to be inadequate, especially with increasing attention of the central government and the college educators on the development of college students' psychological development.

2 Psychological Characteristics of College Students

It is widely accepted that people's psychological characteristics differ with the variation of external factors. Young college students are in rapidly developing stage of growing mature while being not fully mature at the moment. A thorough understanding of the characteristics of college students in different periods can help improve the effectiveness of ideological and political education.

Thus, this group has its unique psychological characteristics, which is reflected in the fact that their intelligence, emotion, will and mode of thinking have moved into a relatively high level. Moreover, the intelligence level of college students has reached a higher stage and is more systematic, comprehensive and accurate than before. However, due to their superficial knowledge of cognition, there is an obvious trend that college students have much higher IQ (intelligence quotient) compared with their EQ (emotion quotient). The thinking mode and thinking capability of college students have entered a more advanced stage, which helps create a good psychological environment for cultivating innovative talents. However, as a result of their imperfect thinking quality, they tend to behave blindly and superficially while advocating personality in daily life. Contemporary college students have clear goals and aspiration, and are willing to make unremitting efforts. But they also have fragile psychological bearing capability. They go easily desperate and are unable to recover once suffering setbacks.

The psychological characteristics of college students can be divided into three stages, namely low stage, medium stage and high stage. The freshmen who just enter the university are in the

“psychological weaning period” They are unfamiliar with and don't take the initiative to adapt to the way of life and study in university. And they feel having lost their superiority in secondary school. As for students of sophomores and juniors whose inadaptability has faded away, they have moved into a relatively steady college life and focus more on the improvement of their competence and knowledge. Senior students are more mature so that their personality can be developed. They know clearly what they should do. However, some of them may grow out of line with the society due to factors such as employment and entrance exams for postgraduate schools.

Therefore, to fully understand the psychological characteristics of college students in different periods can help improve the effectiveness of ideological and political education.

3 Main Points of the Reinforcement Theory

The famous Russian physiologist Ivan Pavlov first put forward the concept of reinforcement. In Pavlov's classical conditioning, reinforcement refers to the presence of unconditioned stimulus accompanying conditioned stimulation.

Later, Skinner further developed the Reinforcement Theory, but the essence changed. In Skinner's operant conditioned reflex, reinforcement refers to events that go after certain behavior and help increase the probability of repeated appearance of that behavior. In Skinner's Reinforcement Theory, behavior can be divided into two categories. One is respondent behavior which is born with. It is instinctive without learning and caused by specific and observable stimulation. The other one is operant behavior which must be obtained through learning. It is the response from the organism itself and has nothing to do with any known stimulus. In correspondence with the two categories of behavior, Skinner also divided reflex into two categories. Respondent reflex corresponds to respondent behavior while reinforcement determines response. Operational reflex corresponds to operational behavior while response determines reinforcement. According to Skinner, human behavior is mainly composed of operational behavior caused by operational reflex. Operational behavior acts on the environment and produces results. Skinner attaches great importance to operant conditioning, because this kind of reflex can shape new behavior, which is especially important in learning process. Education is to shape students' behavior and specific reinforcement measures must be established for successful education and training. He regards reinforcement as a learning process and the key to shaping behavior and maintaining behavior intensity. Therefore, the Reinforcement Theory is the most important part and the basis of Skinner's learning theory.

In Thorndike's Law of Effect, learning is the association of stimulus – response caused by mistake. The main law of learning is the Law of Effect. Changeable association can be formed between stimulus and response. If an association is followed by a satisfying state of affairs it will be strengthened and if it is followed by an annoying state of affairs, it will be weakened. (Chen Qi, Liu Rude: 2001) Reward is the main factor influencing the effect of learning.

As a social psychologist, Bandura further developed the reinforcement theory in his observation study. He divided reinforcement into direct reinforcement, indirect reinforcement and self-reinforcing. Indirect reinforcement means observer or imitators would not be directly affected by external reinforcement in learning. As long as the example he observed or imitated serves as the medium, he will react accordingly with indirect strengthening experience. Self-reinforcing refers to that people can predict the results of their actions spontaneously. They can control their own behavior with self-assessment and adjustment by relying on the feedback. (Lv Jing: 1992)

In the recent years, the concept of reinforcement has been much discussed by psychologists and physiologists all over the world. In modern psychology, reinforcement is a consequence that will strengthen an organism's future behavior whenever that behavior is preceded by a specific antecedent stimulus. (Chen Qi, Liu Rude: 2001) When it comes to student ideological and political education, many operators take punishment as a means of reinforcement applied in education. It will play a negative role in students' development and weaken the education effect seriously. It is necessary to strengthen the on the application research of the reinforcement theory in education, so that the educators can be able to correctly practice this method and avoid its negative effects. Therefore, in ideological and political education for college students, it is of vital importance and necessity to practice the application of reinforcement theory and intensify the efforts to carry out the cultivation of comprehensive quality education according to the psychological characteristics of college students.

4 Role of the Reinforcement Theory in Ideological and Political Education

4.1 Influence of reinforcement on students' learning attitude and learning motivation.

Correct behavior feedback should be appropriately provided to students so that they can conduct self-reflection and self-assessment, which helps further consolidate the development of good learning behavior while correcting inappropriate habits. The information provided to the students should be strengthened so that they can see their progress. The confirmation of their existing learning styles helps stir up higher learning desire and enhance the probability of favorable learning behavior. Also, appropriate evaluation feedback of shortcomings and insufficiency play an important role in enabling the student to understand the gap so that they can be motivated and students' bad behavior can be probably weakened.

4.2 Influence of reinforcement on students' emotion.

Different reinforcement will always result in students' different emotional experience. In general, favorable evaluation such as reward, praise and smile can attract students' positive emotional experience while unfavorable evaluation such as punishment, criticism causes students' unpleasant emotional experience such as being nervous. In addition, the personality of educators themselves also plays a part in reinforcement effect. Factors such as true love, high expectation, serious scholarship and tenacious will of the educators will set up the example for students. This penetrates into concrete reinforcement delivered to the students and adds to strengthening the credibility and influence of reinforcing. Therefore, reinforcement strengthens the emotional exchange and communication between educators and students and deepens students' emotional experience.

4.3 Influence of reinforcement on students' self-reinforcing

Ye Shengtao once said: "Real education is self-education". Self-reinforcing is a part of self education. In reinforcing students' behavior, the educators also pass the evaluation standards of the behavior to them. And the students are able to gradually master the evaluation system of certain behavior that will be internalized into their own evaluation system. In this way, students can constantly practice self-affirmation and self-negation. It is conducive to the formation of students' real inner motivation. The Reinforcement Theory has experienced the transformation from full attention to the behavior results to increasing attention to internal mental process of the organism and the transformation from completely passive external reinforcement to active self-reinforcing. It makes the Reinforcement Theory richer and more colorful with increasing explanatory capability.

5 Application of the Reinforcement Theory in Ideological and Political Education

5.1 Reinforcement applied in the guidance of students' subjectivity development

Autonomy and enthusiasm are the basic characteristics of subjectivity while creativity is the development and sublimation of subjectivity. How to give play to and cultivate students' subjectivity has become an issue that should be considered in the implementation of quality education. First of all, positive external reinforcement should be applied in guiding the students' development of subjectivity. The educators should not only provide external reinforcement, but also actively create conditions and opportunities to enable the students to achieve their expected goal so as to harvest the joy of success. Secondly, self-reinforcing should be applied to promote the development of students' subjectivity. In education, the educators should clear the education goal and hierarchicalize teaching targets as well as establish reference basis for the students for self-reinforcing, so that the students can choose and determine the development goals suitable for their own level, according to their own learning situation.

5.2 Immediate reinforcement appropriately applied in education

Researchers have found that it is important to conduct immediate reinforcement after the performance of individual behavior. It helps the individual to establish direct contact between the result of certain behavior and the behavior itself, so as to promote the probability of the behavior. Otherwise, inappropriate delay of reinforcement would result in the blockage of students' motivation and fails to provide the information necessary to maintain learning behavior. Immediate reinforcement and appropriate method to delay reinforcement in education should be applied flexibly in proper time and place according to specific situation. The learning of general knowledge skill and behaviors of students with poor self-awareness should be reinforced timely. Moreover, the joint and appropriate application of the two kinds of reinforcement can bring about favorable effect. Students are both the object and subject of learning behavior. Thus, it is highly necessary to cultivate their comprehensive ability of self-reinforcing and enhance their consciousness. They should have a good knowledge in the application of self-reinforcement for the benefit of consolidating their learning result.

5.3 Shaping students' fine behavior

Education is the shaping of behavior favorable to both others and students themselves in the near future. Cultivation refers to the gradual change and improvement of reinforced behavior so as to achieve the goal. The stimulating scene usually remains unchanged while the response will develop from the initial one to ultimate goal behavior. Reinforcement is an important method to shape students' behavior. Skinner once said: "Education is shaping behavior". As for how to shape behavior through reinforcement, Skinner applied the method of continuous approach in which response that leads to the goal behavior will be constantly reinforced the new behavior appears.

6 Conclusion

The paper makes a general effectiveness analysis of the ideological and political education for college students based on the Reinforcement Theory. It is proposed that the Reinforcement Theory plays a significant role in ideological and political education, which is an indispensable and fundamental part of high education in China. Reinforcement exerts influence on students' learning attitude and learning motivation, students' emotion as well as students' self-reinforcing. It can be effectively applied in the guidance of students' subjectivity development. Moreover, immediate reinforcement is suggested to be appropriately applied in education. Students' fine behavior should be shaped through reinforcement in education.

In conclusion, the research on the basic concepts of the Reinforcement Theory in education has far-reaching significance in stimulating students' learning motivation and interest, as well as correcting students' inappropriate behavior while shaping good ones. The application of the Reinforcement Theory in education has certain referential meaning to understand students' learning and improve learning efficiency so as to shape new behavior. The ideological and political education for college students should be conducted flexibly and scientifically due to the variation of the characteristics of college students in different periods.

As this paper mainly focuses on the effectiveness analysis of the ideological and political education for college students, the analysis on the whole is far from enough. There is much room for further improvement and exploration. More attention needs to be paid to the research on the ideological and political education for college students from different perspectives.

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Research on the Revolution of University Courses Based on Oriented Understanding*

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Abstract: Studying for understanding is not an unfamiliar concept, but the practice of applying this concept into one real class has been always one of the hottest debated issues. The current teaching performance in present university is not as plausible and also teaching methods inquired urgently innovation. Both the definition of teachers' function and the status of students needed to be re-orientated. This paper applied comparative discussion on current status of university classes in China and the mode of TFU originate from Harvard University, and then made advanced research on relevant strategies of revolution of university course based on oriented understanding to help improve teaching performance in current universities.

Key words: Teaching for understanding (TFU); University courses; Teaching revolution; Strategies

1 Introduction

To help students to get understanding has always been one of the most important goals of class education, but it is also one of the toughest ones as well. For one course, teaching is not only activities to lead students grasp knowledge, but also the process of developing students' inner personality and enriching their spiritual world. A seemingly simple 45 min's course carries students' desire for knowledge, the expectations from parents, and the hope of the whole nation. Therefore, the university classes are not simple, great significance only could be got resulted in associating lecturing knowledge with expectation of students and social concern. So how can make this happen? "Only understanding could draw a real connection between the knowledge from the courses with students' life experience, but simply a cognitive approach couldn't achieve it."^[1] The relationship between understanding and lecturing has been getting increasingly closer.

2 Current Status of University Classes

Ever since the policy of "Expanding enrollment", higher education is gradually getting into a common educating phase in China. While the number of university students is increasing quickly year by year, which result in the problems of the shortage of teaching resources, poor teaching quality. Ministry of Education, local education organization, and various universities had put efforts on upgrading teaching quality, and resulted in some kind of improvements. However, a real change depends on the improvement of inner teaching circumstances, which is the progress of teaching quality. During the lecturing, teachers are still the core component of higher education as they are the media of spreading knowledge. Consequently, to discover the restrictive factor of university classes is vital to the improvement of teaching performance.

2.1 Rigid teaching methodology and teaching patterns

Currently, college classroom is mainly using the traditional lecture method in China. Although expository method has been applying in teaching practice over the years with its advantages of clear logic and purpose, fundamentally, the premise of this teaching method is the assumption that students' ignorance to knowledge, only to rely on teachers' lecture to instill them a complete system of knowledge. But in today's information age, in addition to traditional classroom, college students have wider access to knowledge and information channels, students are no longer inclined to uncritically accept knowledge from teachers. Moreover, compared with the middle school teaching methods, passive acceptance of knowledge involved in university teaching is more easily to be forgotten, rote learning in college classroom is completely unable to meet, and it is not helpful for cultivating students' independent learning, thinking skills and innovation capacities that particular emphasized on the national stage.

Meanwhile, in the traditional "lecture-style" university classroom, the teacher's classroom task is to lecture knowledge and theoretical principles clearly, which plays the role of knowledge embodiment;

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and the corresponding student's task is to listen and to accept, plays the role of knowledge slaves. Only the teacher's voice would be focus, while the student response, views, ideas are not on such a timely attention to classroom and guidance, classroom teaching practice has become a one-way transfer of knowledge, lack of teachers and students interaction. "Mouthpiece", "Full tank", "Paraphrased knowledge" make no criticism, creativity or thinking activity atmosphere in monotonous college classroom^[2].

2.2 Unappealing teaching process

In present university classroom, many teachers follow along traditional teaching methods and teaching mode, teaching reform is the lack of awareness and innovation. Some teachers even thoughtlessly imitate majority of teaching content and mode, and internalized into their teaching process, resulting in some obsolete teaching content lag, unattractive, low long-term efficiency of classroom teaching, which seriously affecting the quality of university talents.

Currently, college students are mostly in their 20s, their ideas, acknowledges of professional major and studying needs are very different from teachers. The reality is that most teachers teach almost taken for granted, as the teachers do not know what students want to know and learn. Therefore, some problems involved in university class, such as the theory is always broken from practice, ignoring students' personality and needs, scripted style to teaching materials, read PPT and other serious issues. Students' interest is very low which results in serious skipping phenomenon.

The sense of synchronous development involved in learning and studying during the teaching process and guaranteeing quality of after-teaching is not strong. Currently, the teacher-based classroom has been on focus, stressing memory processes and the process of teaching so-called knowledge, lacking of interactive teaching which result in whether students really understand and digest the knowledge taught is under on consideration. In the latter part of teaching, teachers are rarely concerned about the students at the end of classroom, no feedback are taken after class, not focusing on the lesson before teaching content for review or inspection. So students are only learning in class basically, but they will not seek answers to difficult problems from teachers and then resulting in none previous knowledge have been digested, but also start to learning new knowledge, which lead to teaching results are unsatisfactory, even make students lost interests to learn because of as strange overlap knowledge.

2.3 Biased understanding of classroom learning

There are many college students do not want to walk into the classroom since the misunderstanding the relationship of subject-object in the classroom, which lead to the teacher is the main object of teaching process, but them dispensable, so some of them skipping often. Some students sit in a classroom, yet focus on the outside of the classroom and lack of thinking. In particular, giving up what they do not understand, without asking and communicating with teachers. They think that understanding could be got by just reviewing their own reading notes before the exam, but ignoring the importance of classroom teaching, thus affecting the quality of classroom teaching.

Meanwhile, the modern college students misunderstand the purpose of classroom learning; the sense of utilitarian is too strong. Some students think the university is general for employment, they focused on the examination and employment needs, to understand and grasp knowledge as a means to achieve a certain purpose, access to grades or academic degree, be rewarded or certificates, to seek other work or career. Students on this course with a lot of another textbook, or the use of class time reading the CET or computer proficiency exam grade materials or some other competency exam books, greatly affected the quality of teaching.

In addition, a problem can not be ignored is that the current quality of university student enrollment has been declined. They could not keep up with new courses of study, so that they can not understand the knowledge granted, which lead to studying motivation and interest is poor and complaining on teachers psychologically because of fast progress, and therefore contradict the classroom teacher, and this also affected the improvement of teaching quality.

In summary, above three problems can be summed up as a multi-university teaching part has not clearly understand what to teach, why to teach, how to teach, to learn what, why and how to learn. Accordingly, it is time for college classroom teaching should apply an urgent innovation, which needs to reposition the status of teachers and students, to update teaching philosophy and to build teaching mode adapting the development of era.

3 Mode of TFU

From 1989 to 1996, Graduate School of Education of Harvard University developed a project

called "Teaching for Understanding (referred UFT)" mode, for some students specific understanding of things to explore, and sustained attention response from the students in understanding the development process. After years of research, "Teaching for Understanding" pattern formatted and started to promote in some cities in China in 2005.

TFU is derived from the teaching philosophy of constructivism, namely that learning is a continuous effort by the student how to solve real-life combined with the problems that arise. Only when the learning knowledge could correlate to students' life experience, great significance for the growth of students then could be reached. On the one hand, this model can help teachers design effective teaching programs and teaching objectives to help students develop and deepen their understanding of key concepts; on the other hand, this model emphasizes more active "learning from action" to help students to "show" evolving understanding through their behavior, language and achievement. Thus, in real life, it is possible for students to solve real problems by the way of illustration, discovery, production, useage knowledge and acquired skills have been learned or described by analogy in the face of certain circumstances. And also actively explore how to create new products on the traditional basis, which will help the students' spiritual world growing rich. Design, implementation and reflection to develop students' understanding are core purpose of classroom practice, which is the essence of TFU model [3]. The components of TFU is as following Table 1.

Table 1 The Components of TFU^[4]

Sequence number	Concrete components	Concrete contents
1	Throughlines	Throughout the academic year or the entire curriculum to achieve important overall goal is to understand what?
2	Generative Topic	What teachers should teach - what students need to understand the most important content or philosophy? Why is it worth to learn?
3	Understanding Goals	What students should learn - students need to understand what a unit core concepts, content and skills?
4	Understanding Performance	What students need to do (in order to achieve the purpose of learning & to build their own understanding and prove that they have understood)?
5	Ongoing Assessment	How teachers and students understand knowledges already know? Does his/her master it? How to conduct a deeper understanding?
6	New Technologies	How to strengthen the TFU? How the new technology used in TFU?

4 Strategies for Oriented Understanding Revolution

4.1 "Multiple intelligences" way of thinking to expand traditional heuristic teaching

In the traditional heuristic teaching model, teachers are often in instructional design curriculum planning based on multi-dimensional teaching objectives, such as knowledge, skills, understanding, procedures, methods, emotions, attitudes, values and so on, but difficult to simultaneously achieve these goals. Especially in the regular classroom, teachers often accustomed to a problem or knowledge or difficulties of repeatedly explain, but students still do not understand. While TFU provides an effective way to solve the multi-dimensional classroom teaching to achieve the objective: the design in the classroom, educators no longer solely to consider the implementation of the so-called knowledge points, but to think about the knowledge of the "gold", that is, whether the core knowledge, so knowledge of the classroom is no longer isolated "point", not just a "line", and should be able to guide students to build knowledge generated "Body". Specifically, teachers can design inspired by nature topics, the issue centers around the multivariate design, from students interested in things easily accessible aspects of the phenomenon of life, literature and art of performance, such as multiple forms of expression inspired designed to enhance students' problem positioning of the content of classroom teaching of initial interest and understanding directions.

4.2 Promoting students' thinking involved to ponder and understanding

"Question" is the way to explain a student psychological disharmony between learning content and knowledge, and also an effective channel for the teachers to get students' level of understanding. In the given situation, teachers guide students to think - research - dialogue - discovery - solve the "lack of coordination" to promote students to actively participate in thinking, enhance understanding^[5], to completely change the past type of "full crown", "duck-stuffing" involved in teaching model. In particular, to pay attention to the early understanding of the process of teaching activities, mid and late continuous evaluation and questioning, by continually asking questions and thinking, which stressed both sides, discuss teaching and learning. Understanding the activities in question continue to explore the process, so that the teachers continue teaching the curriculum content creation and conversion,

effectively guide students to discover new problems, analyze and solve new problems, while allowing students to persistent questions and answers for teachers and concern resonance, the real question to ponder which are helpful for understanding and learning^[5].

4.3 “Reflection” through teaching process always

Constant reflection and adjustment of teaching content through a lesson plan, a class, one problem, which help teachers themselves have a clearer understanding of think process of students. Research on helping students gradually deepen understanding by designing progressive activities, designing sustainability assessment and designing progressive targets based on the degree of students’ understanding will let teachers always make reflection of their teaching effect, and also the real problems needed to be solved in teaching could be recognized, and then correct understanding of teaching targets and meanings could be achieved. And this could be applied by the mode of MOOCs which have been a popular research target in China’s college^[6].

4.4 Innovating lesson plans and design templates

Oriented understanding lesson plans should include the following five aspects: Cover (as following Table 2). Through lines: full academic year or the entire course should achieve the important goals of an overall understanding of these goals. Those goals remain unchanged throughout the school year or the entire course.) The expression should be were set in two forms as questions and statements to enable the students to understand.

Table 2 The Cover of Lesson Plan

Teaching unit: _____
 Your name: _____
 Date: _____
 Course: _____
 Grade and class: _____
 Student situation: _____ all are top students; _____ top & poor students; _____ other situation (explain)
 Lecturing time: _____
 Main lecturing materials: _____
 Abstract of unit: _____

Generative topics (a phrase or a concept related to the unit): measurement criteria need to be discussed to help teachers find the point that students interested in learning. Specifically, measurement criteria could come from the centrality (which discipline involve your topic could play central role? Why do you think this topic on the subjects play an important role?), Attractiveness (Why this topic will attract you and your students, or why has the potential to make your students are interested in? How to attract students by using this topic?), the easy availability of resources (please indicate 2-3 related, available to you and specific resources used by students related to this topic), connections (What is the relationship between this topic, other topics in the discipline, and extra-curricular life?).

Challenge and summary reflection. Challenge would describe “difficult place” that the student may encounter, which is the difficulties students would met when understanding this topic, and also the ways to help students overcome these difficulties. Summary reflection refers to brief summary of main arguments above five aspects discussed, and emphatically explained in one or two aspects why this is a good generative topic^[7].

5 Conclusion

Characteristics of classroom teaching reflect the spirit and trait of university organizations to some extent. The traditional classroom teaching unilateral, one-way sexual indoctrination type features have been no longer meet the changing social environment, while oriented understanding involved in university teaching has become a top priority. University classroom always focus on learning value, but more attention paid to TFU, and also be central to appreciated learning, enjoy learning, good at learning. Only in this way, the university was worthy of university, and teachers be worthy teachers. Whether humanities curriculum or social nature curriculum, teacher should actively reform teaching mode and method, applying “multiple intelligences” of thinking to expand the traditional heuristic teaching, promoting the participation of students’ thinking, encouraging students to ponder and question, studying for understanding. And always “Reflection” and innovate lesson reforming plans and to truly improve the quality of classroom teaching.

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The Effects of Portfolio Assessment on Writing Performance of EFL Students

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Abstract: The primary focus of this study was to determine the effect of portfolio assessment on final examination scores of EFL students' writing skill. To determine the impact of portfolio-based writing assessment 40 university students who are non-English majors were initially selected and divided randomly into two experimental and control groups. A quasi-experimental research design was adopted in this study. In order to appraise the homogeneity of the experimental and control groups Comprehensive English Language Test (CELT) was employed at the beginning of the study. The pre-test was applied to both the experimental group and control group. Later in the study, a post-test of dependent variables was implemented for both groups. Data analysis was carried out by SPSS 16 statistical computer program. The statistical techniques being applied were the Levene statistic of One-Way ANOVA and the Paired-sample T-test. The results of the study revealed that that students whose work was evaluated by a portfolio system (portfolio-based assessment) had improved in their writing and gained higher scores in final examination when compared to those students whose work was evaluated by the more traditional evaluation system (non-portfolio-based assessment). The findings of the present study highlighted the fact that portfolio assessment could be used as a complementary alternative along with traditional assessment to shed new light on the process of writing.

Key words: Portfolio; Portfolio assessment; Writing skill; Portfolio- based instruction

1 Introduction

Within the communicative framework of language teaching, the skill of writing enjoys special status. There is no doubt that writing is the most difficult skill for EFL learners to master. With so many conflicting theories concerning writing, the teaching of writing has undergone a great change in the past quarter century. The paradigm shift in writing theory from a focus on writing products to that of writing processes has also resulted in the popularity of portfolios among the educators as an alternative approach both in EFL and in ESL contexts as an instructional tool for preparation of students for examinations. Due to the fact that the skills involved in writing are highly complex; students have to pay much attention to higher level skills (macro level skills) such as planning, organization as well as lower level skills (micro level skills) such as spelling, punctuation, word choice, and so on. The process of generating ideas, drafting, redrafting and editing are vital elements of writing and these important dimensions are not sufficiently assessed in a one-shot attempt of traditional testing.

As it is reported in the literature writing skill is more challenging for students in EFL context. Johns (1991) claims that it is more difficult to assess ESL students' writing abilities than native speakers' in timed writing assessment. Song and August (2002) point out that having a set time during a writing test, EFL students cannot focus on the skills needed for L2 writing and on culturally related issues in the process of writing at the same time. Hamp-Lyons & Condon (2000) argue that "portfolios provide a broader measure of what students can do, and because they replace the timed writing context, which has long been claimed to be particularly discriminatory against non-native writers". Thus, using portfolio assessment was found to be more suitable than the timed writing assessment.

Johnson (1996) defines portfolios as a cumulative collection of work students have done. In other words portfolios show a student's work from beginning of the term to the end. They give both teacher and students a chance to evaluate how much the students' writing has progressed. In the writing classroom how and when teachers' grade can make an enormous difference in the students' development. In general, students benefit the most when they receive feedback while they are still working on a paper rather than after the paper has been graded. Perfect writing can be possible only when students with feedbacks which are gained from teacher and/or peers in terms of writing system, mechanics of writing (punctuation, capitalization, abbreviation, numbering, and spelling) and grammar to solve the problem in writing effective compositions.

Focusing on writing as a process and using portfolio as a method of assessment of writing give the students the confidence to continue to write and continue to develop their skills and overcome their problems in writing. In order to appraise its usefulness for this purpose this study will document,

analyze, compare and contrast students' performances in the portfolios, the in-course pre-tests and the final examination with those of control group. The results will then be examined in order to reach conclusions regarding how effective writing portfolio is as an instruction method for students who take final examinations. The study, therefore, seeks to answer the following questions:

1) Is portfolio assessment an effective way of preparation for writing text under examination conditions?

2) Would the differences in instructional method (non-portfolio vs. portfolio-based instruction) be reflected in students' final examination scores?

2 Experiments and Data Collection

2.1 Method

This study is intended to determine the effect of writing and assessing portfolios on final examination scores of EFL students' writing. The design for this study is Quasi-experimental in nature, since the classroom groups are already in place and had to be intact. In order to have a strong quasi-experimental design, internal threats to validity were controlled by use of pretesting. To be confident that there were no significant difference among the subjects of the Experimental Group (EG) and Control Group (CG) regarding the variables under investigation, both groups were pre-tested at the beginning of the experiment.

2.2 Subjects

The sample for this study was drawn from the students who were enrolled in second-semester freshman English composition course at School of Information Engineering. Initial enrollment in this course totaled 68 students. Out of 68 examinees, the researcher finally nominated 40 participants and randomly divided them into two experimental and control groups. None of the students have prior experience with portfolios. Both groups involved in this study were taught by the same teacher in order to provide uniformity of instruction. Therefore, the researcher and the instructor were the same.

2.3 Data Collection Procedures

During the second week of the term, students who agreed to take part in the study signed consent forms. After completing the consent forms, all students were administered Comprehensive English Language Test (CELT), and Trinity's ISE (Integrated Skills in English) Writing Test. The instructional methods, textbooks, and assignments in both the experimental and the control groups were identical, and all groups were taught by the same instructor. Students in portfolio-based group were advised of format of portfolio based instructional procedures. The study extended over a timeframe of 16 weeks. Scores obtained on the scale of 1-6 comprised students' course grades. In compliance with the class syllabus, the instructor taught students how to shape their college writings. Instruction followed the writing-as-process approach as far as possible. All students completed six assigned essays, and a post-test timed writing during the 16-week semester.

As is common in a writing class with a traditional (non-portfolio) method of evaluation in place, the control group turned in each essay as it was due, and the instructor marked and commented on each essay and then assigned it a grade. In the experimental group, portfolio evaluation was established. Students turned in their essays and writings on the due date, but no grade was recorded at that time. They submitted one draft each session and received respective feedbacks (evaluation scales) by the next session that the class met. Students were credited for any revisions made. At certain points during the term, the instructor directed revision by focusing students' attention on certain strategies, such as sentence combining, strengthening weak verbs, writing effective introductions, titles, mechanics of writing (punctuation, capitalization, abbreviation, spelling, grammar, and use of numbers). Students could continue to work on previously written papers until the end of the term. At the end of the term, students presented a portfolio of work to the instructor for evaluation and the term grade. The portfolio consisted of two polished papers (final drafts) along with three first, second and third drafts for each paper respectively written during the term, and a meta-analytical cover letter. Students selected the two papers which represented the best of their work of the term. Students were encouraged to extensively revise these papers in the meantime. All prewriting, drafts, and evidences of revision for each of the two papers were included in the portfolio.

2.4 Analysis of Data and Interpretations

In analyzing the data for this study, the SPSS statistical computer program was used. All data were processed using SPSS Version 16. As the first step in the data analysis the sample was homogenized. A preliminary examination for homogeneity of the experimental and control groups was conducted with

68 candidates bearing almost the same background of English proficiency. The test scores obtained from the performance of subjects on the Comprehensive English Language Test (CELT). To have a more homogeneous group of candidates for the main phase of the study, high scorers and low scorers were eliminated from the main framework of the study. Almost +1 and -1 standard deviation from the mean score is the valid and reliable way of selecting homogenous sample population, hence, out of 68 examinees, the researcher finally nominated 40 participants and randomly divided them into two experimental and control groups. See table 1 for descriptive statistics.

Table 1 Descriptive Statistics

	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Male	34	58.2813	7.0949	1.2542	55.7233	60.8392	47.00	75.00
Female	34	58.7813	8.7279	1.5429	55.6345	61.9280	43.00	75.00
Total	68	58.5313	7.8941	.9868	56.5594	60.5031	43.00	75.00

The researcher conducted a One Way ANOVA including the Levene Test to approve of the homogeneity of both experimental and control groups in terms of their proficiency based on their scores on Comprehensive English Language Test (CELT). Table 2 reveals the results of the Levene statistical test on Comprehensive English Language Test (CELT).

Table 2 The Mean Difference Between The Two Groups

	Sum of Squares	df	Mean Square	F	Sig
between Groups	4.000	1	4.000		
within Groups	3921.938	66	63.257	.063	.802
Total	3925.938	67			

The mean difference between experimental and control group is not significant at all. On the other hand, means plot is totally flat line and there is a sharp and straight line of mean scores, and there exists no significant difference between the means of both groups. Hence, the researcher can conclude that the participants of two groups are homogeneous.

As for the phase of the statistical procedures, the researcher devised the Paired-samples t-test, because the trait to be tested was of the same nature for both groups, say, the writing skill of the ISE exam (Integrated Skills in English) being extracted from the Trinity Website (www.trinitycollege.co.uk). The differences between the pretest and posttest results in both groups indicate a significant difference between the experimental and control groups in writing skill.

The findings of this study evidenced that First, portfolio assessment was an effective way of preparation for writing text under examination conditions(questions1), second, the differences in instructional method (non-portfolio vs. portfolio-based instruction) were reflected in students' final examination scores(question 2).

3 Conclusion

The results of these statistical analyses confirmed the significant effect of writing and assessing portfolios on final examination scores of writing of EFL students. A possible explanation of these results may be linked to efficiency of portfolio-based writing and assessment. It may be that these subjects were benefited from a sufficient time span that the researcher calls it gift of time that enables them to use challenging structures in their written task performance. Findings from this study indicated that writing and assessing portfolios were beneficial to students. Even if they encountered many problems in the process, they learned a lot from solving their problems and shouldering the ownership of responsibility of learning. The students of portfolio-based group benefited from the reflective nature of the task. Reflection was a self-assessment tool, which helped the learner in the experimental group of the current study to look at the strength and weaknesses of a particular learning activity and consider how to improve the weakness.

Using this method, the instructor postpones assigning grades until students have had time to internalize instruction; this technique empowers students by giving them the opportunity to rewrite and polish their papers before selecting their best work for grading.

Since portfolio assessment provides a greater degree of student empowerment, students are able to continually improve previously written papers and select their best papers for final grading, a significant correlation occurred between the portfolio method of writing and assessment (portfolio-based

instruction and evaluation) and their final examination scores. Thus finding of this study corroborated that portfolio assessment is indeed very useful for ESL students.

4 Recommendations and Suggestions for Future Research

The condition is rapidly becoming more favorable for use of the portfolio as an assessment instrument. It sounds instrumental to refrain as much as possible from using grades to evaluate and respond to student writing as it is common in traditional (non-portfolio based) evaluation. It appears that we need to investigate alternative ways of giving students grades in writing courses. With the increasing use of portfolios, however, more research studies with different research designs should be conducted to further examine the effects of portfolio assessment as a practical evaluation process. With the advent of the web technology the electronic portfolios add new dimension to writing assessment by integrating real time interactive feedback that opens new horizons and requires new research agenda into portfolio assessment of writing.

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Research on Sharing Mechanism and Rational Distribution of Physical Education Practice Teaching Resources*

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Abstract: Practice teaching resources integration and utilization, is conducive to improve not only the teaching quality of sports professional teaching, but also the quality of practice teaching resources, in order to form the practice teaching of the resultant force. This paper takes the sports practice teaching resources as the research object, uses the knowledge of sports training, physical education, sports management and so on, exploratory discussed sports practice teaching resources sharing mechanism under the background of collaborative innovation strategy. The conclusions are as follows: physical education practical teaching resources sharing lies in the primary stage by now. There exist some troubles during the sharing process, for example, weak awareness, low sharing level, monotonous content, short of advanced management and long-term stable cooperation platform. Aimed at the existing problems, a variety of suggestions and measures have been put forward. Strengthening the awareness of physical education practical teaching resources exploitation, perfecting the construction of physical education practical teaching resources management system, perfecting physical education practical teaching staff, integrating physical education practical teaching hardware resources are also included.

Key words: Physical Education Practice; Sharing Mechanism; Rational Distribution; Teaching Resources

1 Introduction

At present, on the one hand, the society has a great demand for high skilled sport talents; on the other hand, it's difficult for our national universities physical major graduates to get good employment. Such kind of phenomenon indicates that there is deviation between national universities sport talents cultivation standards and quality and the huge demands for sport talents in society. However, practical teaching is the best way to train high skilled sport talents which is the crucial procedure to foster eligible talents. Meanwhile, it embodies the principle of "Integration of Theory with Practice".

Table 1 Data Statistics of General Higher Education

Time	Enrollment number	Enrollment increase	Student number	Gross enrollment rate
1995	92.59	2.61	290.64	7.2%
1998	108.36	8.32	340.87	9.8%
1999	159.68	51.32	413.42	10.5%
2000	220.61	60.93	556.09	12.5%
2005	504.46	57.12	1561.78	21.0%
2010	661.76	22.27	2231.79	26.5%
2020			3300.00	40%

Zhou Ji(2010)emphasized the following regulations more than once: national universities must strengthen the conscious of practical teaching, reinforce the practical teaching process, formulate the practical teaching plan and perfect the practical teaching system^[1]. Yao Yongcong(2012) advocated the practical instruction is an important part of higher vocational education, and it's an important way to personnel training^[2].Huang Wei(2015)advocated that as the development of national universities, there are an increasing number of sport talent populations every year. Due to the college expansion plan and diversification of education level, a lot of problems emerge. For instance, the shortage and disperse

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usage of practical teaching resources, inefficient teaching effects and so on^[3]. According to the current situation, this paper first analyses the connotation of athletic practical teaching resource reassignment in national universities. Then it points out the necessity of athletic practical teaching resource reassignment rational distribution. At last, the paper gives some methods and suggestions on the athletic practical teaching resource integration which can be used as reference for improving athletic practical teaching quality and innovating talent cultivation mode.

2 The Necessity of Physical Education Practice Teaching Resources

2.1 Improve the efficiency of teaching resources rational distribution

The characteristic of practice and applicability in national university PE major lays great importance in nurturing and training students' practical ability. In the social background of various job bidding employment forms and specialty differentiation in every walks of life, more strict talent fostering requirement are raised. Nevertheless, with the development of educational reform which stresses the subjectivity, personality, and practical ability training of students, it's hard to choose a teaching practical base. And it's harder to find an ideal one. Based on the situation, national universities should make an organic integration on athletic practical teaching resources, optimize each element and reach the goal of improving the intensified efficiency of athletic practical teaching resources.

2.2 Strengthen the core competence of sport talents

The sport and other subjects teaching practice have something in common, but the feature of PE major practicalness itself determines the peculiarity of university students' practical ability training. In the professional specialization view, sports training major aims at cultivating talents who will be occupied in PE teaching, training and competition; social sports major is designed to foster those who work on the organization, management, development and counseling of PE activities in this field; sports health care major is intended for high qualified specialists who are engaged in health promotion, nutrition guidance and sport injury. The PE major has a strong feature of practicalness which will strengthen the core competence of PE students.

2.3 Accelerate the whole promotion of students' comprehensive quality

The optimization of sport practical teaching contributes to nurturing the students' ability of "Integration of Theory with Practice" and promoting the whole quality. Through practical teaching, students are able to adapt the employment market and have a better understanding of the employing unit and occupation. In the next place, practical teaching exercises the professional skills of the college students. Also, it trains their independent working ability which will offer them more chances of better occupation. Finally, it's helpful for students to foster their professional ethics and teamwork. What's more, the social responsibility, adaptation to social environment and perspective of overall situation will provide a solid base for the social survival of students.

3 Influences on Physical Education Practice Teaching Resources Sharing Analysis

3.1 Perception barrier

In essence, national universities athletic practical teaching resources sharing are actuated by benefits. For immediate interests, students could have more opportunities to sport practice and to enhance practical ability. In the long run, the large scale promotion of student ability will gain a high reputation of the universities. Besides, it will make students more competitive and get more athletic resources and benefits. However, people have a sense of self-sufficiency and sealed subconscious in traditional view which is bad for sport practical resources sharing. Universities have already formed its own unique way of teaching. Universities who have different subjects and school levels vary in athletic practical educational concepts. Thus, they have developed their unique working thoughts. Each university has its own administration and relevant management system. If the athletic practical resources sharing among colleges are done, the institutions must be regrouped. New adaptive administrative organizations will be built which leads to the destruction of the original running mode. Therefore, university managers ignore the long-term benefits. Under this circumstance, there will be obstacles during carrying out the resources sharing. In addition, people are not positive about it which results in the difficulty of decision-making.

3.2 Administration cost barrier

In the process of resources sharing, administration cost is significant in preventing the accomplishment of it. For athletic practical teaching resources providers, they must not only consider the wastage and maintenance of resources during use, but also think about adding the labor intensity, workload, working hours of relevant athletic practical teaching resources administrators on the basis of

present occupation arrangement. Even, it will increase the employment cost. Besides the tedious administrative examination and approval procedures, they should take the management pressure and cost caused by coordination of different departments in resources sharing units. However, there aren't such charging standards about athletic practical teaching resources sharing. For example, sport fields, sport facilities, sport equipment and so on. As a result, athletic practical teaching resources providers will weigh the workload and salary which is brought by the sharing. Then, people have little enthusiasm in it.

3.3 Single sharing approach

At present, athletic practical teaching resources sharing among universities focus on colleges, colleges and enterprises. Firstly, the Mode of University League. Universities which depend on its athletic resources use the point-to-point sharing method with others. Generally speaking, this way of resources sharing limits the replacement subject because of the reciprocity principle, complementary principle and proximity principle. So it's hard to fulfill. Secondly, the Mode of School-Enterprise Resources Sharing. With the help of these two disparate teaching environment and resources, it takes advantage of classroom teaching and practical training to cultivate high skilled sport talents who have professional quality and innovational ability. Nevertheless, since universities make interim use of enterprise resources, enterprises need benefit maximization. On this occasion, periodic sharing requirement of universities can hardly get responses from factories.

4 Rational Distributions of Physical Education Practical Teaching Resources

4.1 Raise the awareness of athletic practical teaching resources development

The nature of athletic practical teaching resources development lies in establishing PE curriculum system in teaching practice, changing disparaging attitudes towards it. Meanwhile, guided by social need, we should combine athletic practical teaching resources development with our daily life in order to make sure the successful developing of PE practical training. However, to gain these aims, we need to create an athletic practical teaching environment atmosphere. In addition, we should give commendation to the advanced administrative staffs, gym teachers and counselors who make great contributions to the program development. Still, we should make the most of media to advertise advanced individuals and units. Both of the two ways are effective.

4.2 Perfect the construction of athletic practical teaching resources management system

Athletic practical teaching has the characteristic of covering a wide range, multiple targets and complicated processes. Actually, the management is more difficult than the theory teaching. Relevant functional department should make quality standards and administrative measures of each link in practical teaching on the basis of serious study. Under the circumstance, the practical teaching procedures will progress scientifically and normatively. For instance, physical education practice teaching resources management system related management measures; college sports professional student internship management regulations; college sports teachers credentials the exercise to the enterprise management method. Administrators must formulate regulations for athletic practical teaching tasks. Then, they should take the utter seriousness of teaching plan and curriculum. According to the requirements, teaching contents, teaching aims, teaching hours, teaching venues and teaching progress should be enacted. Someone is put in charge of this work and undertake the responsibility to ensure the implementation of the every athletic practical teaching step as planned.

4.3 Advance the construction of athletic practical teaching site

The exploration and construction of athletic practical teaching site is always a weak link. This phenomenon is manifested by small amount of teaching sites, single classification and service function, insufficient running fund and unsatisfactory practical results. Hence, management innovation in sports enterprises is a must when they fully advance the construction of teaching practice site, curricular resources exploitation and usage site, integrated practice activity site and so on. In this way, normal students can improve their teaching skills, curricular resources exploitation and usage ability, class management, organizing integrated practice activities, teaching management and research ability. Beyond that, it's a good way for school leaders to try to shoulder the responsibility together with external site principals. In the process of the construction, it's necessary to strengthen the sharing mechanism so that both of them can freely enjoy the teachers, material resources, financial resources, administrative resources, public awareness and reputation. In consequence, it will work in practical teaching.

4.4 Perfect athletic practical teaching staff

The construction of athletic practical teaching staff aims at building a professional and part of the teachers and management team which is the assured guarantee of PE major cultivation effects. Nurturing by yourself and multi-channel development are the essential approach to gain the goal. So far, the general phenomenon of low practical teaching level drives administrators to make reward and punishment system and enhance practical teaching ability. What's more, it's significant to employ sophisticated practitioners and teachers as joint education tutors or guest instructors. Thus, the shortage of teachers and inadequate practical experience can be solved at a time. It's also good for communicating with the practical sites.

4.5 Integrate athletic practical teaching hardware resources

It refers to internal and external hardware resources. The internal athletic practical teaching hardware resources include stadiums, sport facilities and sport equipment. The best way to integrate these resources is to reserve, register, approve and open. Teachers and students who major in other subjects should choose the practical resources to exercise. However, external athletic practical teaching hardware resources, school stadiums, sport facilities and sport equipment in other universities. Due to the attribution difference, the practical resources can be available only to paying customers selectively with communication. Then, the integration of athletic practical teaching resources would be realized.

5 Conclusion

With the development of higher education in China, the elite education has gradually transformed to mass education. In consequence, education quality, as the lifeline, gets wide attention day by day. It has been found that education quality in practical teaching steps is one of the bottleneck problems in cultivating high-quality talents. Athletic practical education resources sharing lie in the primary stage by now. There exist some troubles during the sharing process, for example, weak awareness, low sharing level, monotonous content, short of advanced management and long-term stable cooperation platform. Aimed at the existing problems, a variety of suggestions and measures have been put forward. Strengthening the awareness of athletic practical education resources exploitation, perfect the construction of athletic practical teaching resources management system, perfect athletic practical teaching staff, integrate athletic practical teaching hardware resources are included.

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Common Intermediary Types of Chinese Art Market*

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Abstract: Chinese art transaction activities are carried out on an unprecedented scale. Many domestic, foreign scholars and critics consider the current art market from the viewpoint of marketing, cultural anthropology, cultural economics, predicting its future trends. While the current academic research places the emphasis on the analysis of art market macroeconomy, law, consumption and investment behaviors, there is no academic research aiming at the analysis of art market auction behavior. On the basis of the existing research, this paper mentions the common intermediate types in Chinese art market and sums up the basic condition of auction market under the current investment market background of art collection, in reference to the actual situation. Through the analysis of the relationship among the supplier, demand side and market intermediary, this paper tries to summarize the status and problems of Chinese art market and puts forward the prospect.

Key words: China artwork; Market; Intermediary; Type; Prospect

1 Introduction

With the rapid growth of national economy and the improvement of populace's cultivation, Chinese artwork market has become the third biggest industry following the stock market and the real estate industry. Supply demand, goods, price and intermediary are the five essential factors to form a market. Artwork market is no exception. Also, the market will take on more positive affection with the improvement of people's cognitive competence. Chinese artwork market has accomplished the continuous enormous transformation from collection primary market to investment intermediary market. Intermediary is not only an important belt between artists and customers, but also the main trade pattern on the sound artwork market. There are three main levels of markets on business intermediary of Chinese artwork market. Primary market includes gallery, painting shop and artwork companies, which makes the artwork ownership transfer by marketing. On the management idea and business pattern of business intermediary, primary market is divided into two parts. Primary pattern also means the dealer can act on behalf of the pianist fully to authentication and exhibition the artwork for a long time. Art exhibition is an activity to show or market artwork by selling booth, inviting artwork operator, art creation institution and other art groups. Such a management pattern is also a complement to the first two levels market.

Chinese artwork has fundamentally changed since 21 century. With the emphasis on income from investment, artwork investment has gradually developed from enlighten consciousness to the common consciousness. Chinese artwork market is turning from scattered collection market to scale, regulation and control investment market. Creation is a procedure which uses the new method to combine the past factors consciously with the precondition of market survey, market strategy and experienced unique mind training.

2 Current Situation of China's Artwork Market Intermediary

With reform and opening-up moving forward, our artwork market now is developing constantly. However, in general, it remains at a primitive stage or initial stage. Because a complete and mature artwork market should be a market where producers, consumers, intermediaries and art critics can interact and promote each other so as to make market coordinated.

The current situation is that producers are over too much. (there are about 1 million painters in the whole country), yet domestic artwork consumption haven not become a trend from

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consciousness and concept to affordability. Hence, the important link in artwork market---artwork intermediary is less-developed. As for the art criticism, it is becoming much weaker, almost as hire criticism. All kinds of problems, even some deformed development have arisen as market economy developed further and under the premise of less developed artwork market at primary stage. There are as follows:

Cultural differences between different regions influence on aesthetic consciousness and consumption.

In the cultural system of the world, the main reason why Chinese culture can make China become the only country with ancient civilization is its great containment. Due to the difference of geographic position, climatic conditions, economy development and living custom, the different culture had been shaped. Under the major premise of unity, different regions and ethnics' colorful culture woven into special, unitive, systematic, and continuous cultural mechanism through collision, signing each other, development, and changes, but still remain their specialty at the same time. This definitely affects the aesthetic consciousness and consumption. In the following, we will give a description about current conditions of several major artwork markets focusing area in China.

Guangdong is located in the south of the five ridges, commonly known as the Lingnan. It is the modern coastal opened earlier in the city, and its transportation is convenient, so it has advantages of absorbing foreign culture. Besides, Guangdong is the origin of the Revolution of 1911. During the process of Chinese bourgeois revolution, the reformists idea of learning western countries on the basis of insisting Chinese tradition value and cultural thoughts of old democratism has a great influence on art business. The artists are to reform the Chinese art market by absorbing the western painting techniques based on the traditional painting. As Guangzhou's economy surged forward, people's qualities and education level improved by a wide margin, artwork market gained its possibility of development for the economic capital surplus. In addition, Guangdong adjacent to Hongkong and Macao, it became an important base for Hongkong and Macao to buy inland artwork. Art dealers and collectors in Hongkong and Macao and overseas are main source for the Guangdong artwork market. For native consumers, partly are hobbyists who have a clear aesthetic tendency and different emphasis on their collections, and partly are emerging entrepreneurs with substantial assets, who have a wide collection but an unclear tendency and their collections are mostly stable and potential. They make an investment on artwork market for improving or building their cultural image or expecting the artworks' appreciation. Both the collectors are common in that they collect Guangdong work of painters, painting of "lingnan school" that popular all the time. Guan shanyue, Li xiongcai are welcome painters in Guangdong artwork market. Lingnan painters are main target of Guangdong artwork collection. Most people hold a wait and see attitude on other styles and advancing works in recent years. Those real art dealers who have a wide but not very much collections have poured the great efforts to launch the youth and middle-aged oil painting works, but have not gained profits as expected in Guangdong, although their propaganda are more concentrated than the local painters in the hype means. Collectors prefer to spend a lot of money on local famous painter's works rather than collecting those artist's works with strong art and rich appreciation potential. Overall, the art market in Guangdong region is relatively stable but conservative.

From the Southern Song Dynasty, as the cultural center southward, Zhejiang became one of the centers of Chinese painting. It has maintained a strong traditional literati. Poem and Painting are still fun to men of literature and writing. Painting and Calligraphy Institute are of great numbers. Art atmosphere prevails, which is similar to Jiangsu but compared with the literati painting of Jiangsu, the painter in Zhejiang is not limited on the description of Chinese water town. In addition, a large number of talent painters educated by China Academy of fine arts make the oil painting, printmaking, sculpture, crafts and arts in Zhejiang show a flourishing prosperity. There are traditional literati painting, and advancing emerging school too. Wu Shanming and Zhang Peili are representative of the two tendencies. In terms of the productivity of painting, Zhejiang is undoubtedly important place of Chinese painting.

Zhejiang's art purchasing power is not as strong as Guangdong's, but with rich cultural heritage. Zhejiang has a group of stable collectors. These collectors do not have enough financial

resources to collect the famous or cultural relics, but they are very keen to collect young painter's works featured by low price but strong art. It is difficult to find some explosive news from media reports about art market in Zhejiang. A picture can reach tens of millions of dollars on the Shenzhen auction house or Jiade auction, while in Zhejiang is incredible. It can be seen that there is a group of middle class art consumer groups in Zhejiang. In contrast, the limitations of Guangdong's art consumers are larger. Except for working-class buying some commodity painting for decorative purpose, most are rich businessman and they put their emphasis on trends and fame rather than art. Thus, their collecting quality is inferior to Zhejiang's. Zhejiang's art market enjoys high popularization, stable price, but the market is lacking in instructive art institutions. Market operation means of the normative agent system have not been established and the whole market is still at primary stage of homegrown.

As China's the earlier international commercial metropolis opening to foreigners, Shanghai is a modern city built by overseas Chinese businessmen and foreign immigrants. The commodity economy is the most important features in this city. The most representatives of the painting in the history--- Shanghai have all kinds of connections with the development of commodity economy. Ren Bonian, Xugu, Wu Changshuo are painters living in Shanghai. The reason why they go to Shanghai may be different, but more or less has direct links with economy. In modern times, Shanghai has organized China's earliest painting and calligraphy society with commercial guild nature of. It has perfect organization and has set up the trading venues in the name of the organization openly. Therefore, shanghai is exposed to extremely strong commercial atmosphere. To meet consumer demands, a large proportion of Shanghai works is the painting of flowers and birds, compared to strong expression of personality and temperament of literati painting. The flower and bird painting at this time pay more attention to the form of innovation, rich colors. Wu Changshuo was the first to introduce gorgeous color like the western red to the flowers and birds painting. Figure painting also take in Western painting techniques boldly, focusing on portrait. Many figures have obvious characteristics of portrait painting, which was apparently answering for the customer's needs. Shanghai artists' innovation to legalistic brushwork, conception and theme indirectly reflect a challenge to the tradition from the emerging bourgeois and economic advantage, bringing in Western civilization after the collision of the new culture.

Shanghai has the unique status of the international metropolis and good quality of the people, which is the basic guarantee for the development of the art market. Shanghai has a number of potential collectors. Because of the imperfection of the art market, nonstandard operation of intermediary organizations, and the impact of fakes and forgeries, the collection team did not erupt out due enthusiasm. The support of Shanghai art market is the private economy, while Beijing's state-owned enterprises are the support of the art market. In contrast, Shanghai consumers are more cautious. Shanghai art lovers are holding wait-and-see attitude and are quite carefully when buying artwork. In the primary stage of the art market, private transactions are mainly miscellaneous pieces and antique, the real art market has not come to its shape. Perhaps it is not enough for the promotion of the art collection, but with the consumers' awareness and awareness strengthen for the collection, the transfer of social public opinion, art consumption should be increased. There are a few large-scale galleries in Shanghai, its art market is not very big, but its market is closely linked to the development of economy. The prospect of art market depends on the economic development of the next few years. Shanghai is now in urgent need of a normal art trading channels. If the interests of art consumers can be effectively protected, Shanghai's art consumption will account for a large proportion of the country.

3 The Development Characters of the Intermediary Type of Chinese Art Market

With the rapid development of China's economy, improvement of people's life and cultural quality, the increasing number of people is involved in the art market and the art market is gradually coming into the market from the original edge. But the art market in China is not mature and it needs a more perfect agency and security mechanism to promote its healthy development. The following passage from gallery prospective gives a detailed introduction about China art market intermediaries -- Gallery of the situation and difficulties. Finally, from the angle of law, the paper describes the legal protection system of China's art market intermediaries.

In the Chinese art market, art can be mainly divided into three categories according to its types: Chinese paintings and calligraphy, porcelain miscellaneous, painting and contemporary art, which is also known as three parts of Chinese art. The total turnover of the three parts broke through 40.935 billion yuan on 2011 spring auction, accounting for 95.55% of the total turnover in this quarter. However, the development of the three parts has their own characteristics, and each is faced with different difficulties and challenges at the same time.

The art market relies on commercial intermediary to contact the art producers and consumers. Intermediary business is also art business operators and is the embodied form of art market operation. Intermediary patterns and operation are important factors on influencing the art market, which makes the ownership of works transfer and give out the artworks' aesthetic function, understanding function, education function, and entertainment function through the exchange of the economy, accomplishing the cultural meaning of artwork itself. There are many forms of art commercial intermediaries, which are divided into primary art market and second art market.

The main management way of the primary market is the ownership or ownership of art, and the way of entering the market again. The management mode of the second art market is mainly to accept the entrusting of art owners through the intermediary activities into the collection. Operators do not have the ownership of art. Primary market is dominated by galleries. The second market is of many forms such as art auction and art fair. Coordinated development of two markets can promote the development of the whole art market. But in our country the two markets are misplaced, even squeeze each other, and did not achieve the purpose of common development, which has brought serious negative benefits to the normal art market.

The operation principle of auction propels up the prosperity of local culture. In a word, regulated management and honesty are the primary reasons for the auction companies to keep growing. The excellent companies focus on learning and taking advanced auction operation system to optimize the service and upgrade the quality of the auction goods. They filtrate the auction goods to guarantee the rate of being auction. Meanwhile they strengthen the marketing, value the catalog and record, and provide the detailed information of works as possible. The collector can master real information and improve the ability of rational choice by detailed materials. It can not only strengthen the confidence of collectors and cultivate the auction and collection group of art auction market, but also make for popularizing the knowledge and enhancing the percipient word wildly. Learning is a process of inter-playing and interaction of many factors among urge stimulant, reminder, reaction, and strengthening.

4 Major Factors of Chinese Artwork Market Intermediary Action

The artwork market relies on intermediary (art operator) to connect the art produce and consumer. By exchanging the economic ways, it can transfer the owner of the works to accomplish the process of reselling and express the functions of appreciation, acquaintance, education and entertainment. The form of artwork market intermediary can be divided into the primary market in which galley leads and the secondary market where the auction and fair lead. The two markets can contribute to the development of artwork by inter working. But in Chinese artwork market, the two are inter-playing with each other, causing serious negative influence.

(1) Low standard. Low standard mainly means that the galley operation standard is very low. Now although there are about 2000 galleries in China, rare of them can be called real galleries. The galleries should implement agent system wildly to focus on the plan of market and the introduction of artists, and their major task is cultivating artists. However, according to the practice result, none of these galleries implement the agent system successfully. These so-called galleries are the commission shops of goods and the basic trade mode in artwork market. The operators buy and sell the paintings in groups, or they sell artworks copy and press works with low price as well. Not very different from the ordinary goods, these galleries are for general consumers not for collectors. Not being the trend of artwork market, they accept ordinary producers rather than the artists.

(2) Disordered competition. Disordered competition mainly means the disordered competition of first-class and second-class market. In recent years, auction companies have developed rapidly, and they also have enough capital and experts to purchase potential and famous paintings. They also invest heavily in advertisement to attract famous buyers. And the middle and low artworks also

find their way in the frequent small auctions. This kind of situation has serious impact on galleries, making their living space smaller. These galleries that really want to be art-standard are hard to take the ability of agents and advertise artists. Therefore, the disordered competition has been the latent rules in the circles. Not willing to collapse, these galleries have to resell with profits. Finally, the original second-class market auctions become the first-class ones. On the other hand, the primary ones become the secondary auctions. The disordered competition becomes worse and worse without leading position.

(3) Low constraining ability. Under the situations above, the galleries attempt to change their fates of broken up and the venality auction companies are also ambitious. Therefore, here come many behaviors which are lack of self-discipline, marking the fakes and rubbish. According to the convention, the galleries and artists will gain 50% of profits for each part after the sale. In this case, the artists think that the galleries take their money without efforts, so they would rather find guests themselves to buy their artists, or they just go to “zouxue” (perform for extra money), but the so-called zouxue can neither make the artworks have a stable price, nor have galleries promise their stable price, and finally, artworks will just be fakes. The auction companies will also operate in black box. In order to expanse the scales and comfort the sellers, they auction everything without distinguishing. The quality of the artworks makes people even more disappointed on the fair in recent years. The art fair will ease the standards of artworks to sell more booths. Millions of the artists in China come in great numbers without cost to take one booth, but the quality of artworks is just out of mind. The low constraining ability auction companies and art fair have made the fakes and rubbish penetrating in every place.

(4) The chaos of trade order, the imbalanced benefit and the defective of gallery system, and the "one hand covers two" status not being established. The artworks sent to the galleries by the artists are with low quality or even fake. Many artists take their artworks directly to the auctions or trade with collectors. And the trading point is the money and interest; even worse, some artists turn their companions from city galleries to town and village officers and collectors. Private transactions will not only lead to tax evasion and smuggling, but also undermine the market order and the rules of the game, resulting in transaction disorder. At this point, the determinant of the art price is artists themselves rather than the gallery. Artists no longer focus on art creation and research, and they are just like a businessman directly involved in the business activities of the intermediary business, considering acts of commercial economy, interest, dividends and other problems associated with the economic interests of their own, and making the optional formulation and stability of the price. So creators become experienced operators. Especially, galleries have become the servants of creators. The auction companies also face the problem of buying painting, while the artists become the biggest beneficiaries. The relationship between the interests of the art market and the chaos of the intermediary organizations in the confusion of the trading order, is of great imbalance, which directly impedes the development of the art market intermediaries.

(5) Insufficient accumulation and low sustainable development support. The galleries operate in low starting point, which fails to accumulate rich experience in the operation, and is unable to grasp the mature operation skills. Therefore, the operation is lack of vision and operation theory is behind. Many small galleries have closed, and big ones also feel powerless. From the auction companies, the number of the artwork auction companies arising in short term is great. In order to compete for the source and supply, most of them take the non-standard operation. Moreover, the auction companies find the small auction requires low investment with good return, so they hold a variety of small auctions. But too many small auctions make too many fake and bad ones, making collectors feel unreal. In fact, small auction has been a kind of promotion without meaning. From the artwork fair, there is no real artwork agent system in China. The artist cannot find the agent, so they have to jump on the bandwagon. Many of the works listed together cut the inherent personality, and also affect the grade of art fair, so the buyers flinch and walk away. These reflect that the Chinese artwork market intermediaries come into shape without enough capital and experience from one side. After the formation, their being short-term speculation and lack of long-term business vision and strategy of sustainable development will lead the collapse of intermediaries.

5 The Leading Position and Trend of Chinese Artwork Market Intermediary

Now, the intermediary walks from the entity to the virtual world. There are many people trying online galleries, online auctions, and TV shopping. Art share trading and fund as a new way is also ready to boom. With the diversification of the intermediary, the artwork market enters into modernization. With the rapid increase of network users, the Internet has become a rapid expansion and potential market, containing unlimited business opportunities. Intermediary should implement marketing activities to promote the individual's organization and trade activities with relevant method and theory.

In China, every year there will be a big artwork fair from the first fair held in Guangzhou in 1993, which were held in Shanghai, Beijing and Guangzhou respectively and seemed to be the symbol of the metropolises thrive in art. But the exhibitors, the lease of the booth or the proportion of the gallery are less than the proportion of the artists in Chinese artwork exhibition. Although the number of individual exhibitions is not the only criterion to measure the standard, it is also a reflection from the other side.

In recent years, the artistic quality and social benefits are not satisfying on the artwork fairs. In order to be able to sell more of the booth, they loose the selection of works. There are millions of artists in China. In order to gain a foothold in the market, they flock regardless of the expense. Those who can represent the real Chinese artists are not willing to be with them. Considering art fair to be a springboard for the primary artist and artwork markets, they do not want to join.

The volume of transaction of art on the exhibition is not high, many individuals exhibitors just rely on the opportunities on the exhibition to seek for regular buyers and agents. They do not want to make a deal directly on the exhibition, so the host cannot obtain a profit from the transaction amount, only focusing on the booth rental. The main cause of the different exhibitions is the non standard artwork market. There is no real art agent mechanism in China. The artist can do nothing but flock without agents. Those who push out agents list great number of artworks resulting in cutting the inherent personality and affecting the customers' desire to buy. So, the low artworks standards are bounded to exclude the high-end buyers, which is a vicious circle. Now, a variety of large and small fairs are also held, but buyers' market is narrow. Those investors and collectors who want to wait and see will go back because of the present situation. Fairs have become the artwork market of middle and low artworks. This kind of trend is not optimistic.

6 Conclusion

The current Chinese artwork market's passion fades away slowly and turns to be rational gradually. The quality of artists, collectors, investors, intermediaries and each group in this market gradually improve. From a macro perspective, the Chinese art auction market has ended its primary stage of development, the legal system, industry norms, are all in the mature market. Under such background, it means that the quality of the artworks is improving, the competition is increasing, and the mechanism is gradually standardized. Market speculation phenomenon will gradually decline and market competition is up to a sustainable development of new situation. First of all, from the request of artwork market, if there is no cultural connotation, the artwork is valueless in the end; for the auctions, if they just pursue volume and rate, rather than focus on the connotation of the auction and the culture, what they get is just the short term benefits. Apart from the standard of the auctions, the auction companies should improve their competitiveness and the value of corporate culture from the enterprise culture, vision and strategy, competition strategy. In recent years, many auction companies are in the efforts to develop the market. Some of them seek for new art auctions to explore and cultivate the plate with appreciation potential. Some auction companies focus on expanding their business scopes to develop different parts of the market. Remote joint auction can integrate local resource advantages and focus on the tastes and preferences of the local collectors to spread the ideas of art and its cultural value. The value is the attitude and opinion of human beings to social life.

Only with intensifying to establish a perfect gallery operation mechanism and agent system, can the artwork intermediaries make a difference in the art market intermediaries; can the artwork fair lead; can the situation of individual and bid scale private trade be changed by representative artworks, and finally the prospect of Chinese artwork market will come into shape.

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A Study of Fuzzy Comprehensive Evaluation of Engineering Students' Intercultural Competence*

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Abstract: Over the past 30 years, the term Intercultural Competence remains to be lack of unified definition and concepts, and the traditional evaluation method cannot evaluate it comprehensively and systematically. Thus, based on the intercultural competence theory and fuzzy comprehensive evaluation theory, this study constructs one complete, scientific and practical evaluation index system and evaluation model to evaluate engineering students' intercultural competence. Then, the evaluation model is applied to evaluate engineering students' intercultural competence. The findings of the study indicate that the engineering students' intercultural competence is at an average level, which proves that the evaluation model is highly applicable and effective.

Key words: Engineering students; Intercultural competence; Fuzzy comprehensive evaluation

1 Introduction

On the background of economic globalization, the Sino-international intercultural cooperation and communication are increasing, as well as the demand of international talents. Thus, the colleges and universities of China should not only cultivate better professional qualified people, but also international talents with intercultural competence (ICC). At present, it seems to be quite urgent about how to evaluate engineering students' ICC.

Although the foreign scholars in the 80s and 90s had divergence in the conception of intercultural competence, they have formed quite unified definition of it in recent 20 years. For example, Chen and Starosta (1996) define intercultural competence as the ability to effectively and appropriately execute communication behaviors in order to get expected response in a culturally diverse environment". Spitzberg (2000) notes that the judgment of intercultural competence is to consider whether a behavior is effective and appropriate in given environment. Wiseman (2003) suggests that intercultural communication competence is comprised of knowledge, motivation and skills needed to interact effectively and appropriately with persons from different cultures. It is obvious to find that scholars above all mention two factors in their definitions of intercultural competence: intercultural situations, effectiveness and appropriateness. In addition, scholars of different research fields advance their different views towards the components of ICC, which have their own priority. For example, Byram's European Multidimensional Models of Intercultural Competence (1997) notes that intercultural competence requires students to acquire knowledge, skills, attitude and critical intercultural awareness of intercultural communication. Spitzberg (1997) suggests that intercultural competence is made up of three elements: knowledge, motivation and skills, which are interactive and interdependent. Campinha-Bacote (1998) advocates the components of intercultural competence, which include five interdependent parts to develop intercultural communication competence : intercultural awareness, intercultural knowledge, intercultural skills, intercultural collision and intercultural desire. Yong Yun Kim (2001) suggests that intercultural competence is composed of cognitive competence, affective competence and behavioral competence, which are interrelated, interactive and inalienable with each other. Samovar and Porter (2004) clarify intercultural competence into motivation, knowledge and skills. Deardorff (2004, 2006) collects the views and experience of many international well-known intercultural research experts over intercultural competence based on Delphi expert method, and she notes that intercultural competence includes components as knowledge, understanding, skills and attitude with the expected external outcome and internal outcome of the intercultural interaction level. Scheitza (2009) summarizes the core elements of intercultural competence (attitude, knowledge, communication, confidence and social relations) from the previous varied theories. Now, there is a

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widely shared view among most intercultural research experts abroad, that is, resource factors such as knowledge, skills, awareness and attitude are indispensable in the components of intercultural competence (Chen Starosta,1996; Wiseman,2001; Kim,2001; Byram,1997; Spitzberg,1997; Fantini,2000, 2006; Kim,2001; Samovar& Porter, 2004;Dodd,2006; Deardorf,2004,2006; Martin,2009; Scheitza,2009; Behrnd,2011).

Therefore, based on the research findings of the intercultural experts, this study defines intercultural competence as the comprehensive ability to communicate and interact effectively and appropriately with persons with different languages from different cultures in culturally diverse environments by successfully using personal intercultural resources (e.g. knowledge, attitude, skills, awareness, and see Figure 1) (Chen &Starosta,1996; Wiseman,2001; Byram,1997; Spitzberg,1997; Fantini, 2000,2006; Kim,2001; Samovar& Porter,2004; Deardorf,2004,2006; Behrnd,2011).

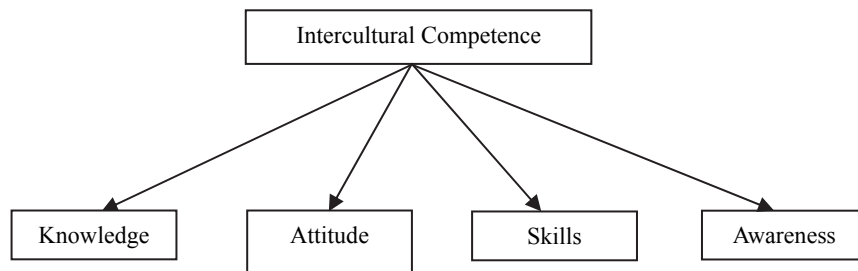


Figure 1 Intercultural Competence and Its Components (Fantini, 2000, 2006)

At present, on the evaluation of intercultural competence, most scholars lay their emphasis on the qualitative studies. And there are few quantitative studies having the systematic and complete comprehensive evaluation on ICC. Therefore, this study attempts to apply the fuzzy comprehensive evaluation (FCE) to construct a complete, scientific and practical evaluation index system and fuzzy comprehensive evaluation model to evaluate engineering students' ICC.

2 The Construction of Fuzzy Comprehensive Evaluation Index System of ICC

2.1 Setting principles of fuzzy comprehensive index system

1) The principle of being systematic and comprehensive

The evaluation index system must include indexes that can fully reflect all the aspects of intercultural competence evaluation, and evaluating objective links with evaluating index to form a well-bedded whole.

2) The principle of being concise and scientific

The evaluation must precisely reflect the dominance relationship between objective and index. The scale of the index system should be proper. Namely, the setting of the index system should be scientific. If the index system is too big, it will certainly attract evaluator's attention to trivial problems. While if the index system is too small with fewer levels of index and much too general index, it is impossible to fully disclose the actual condition of engineering students' ICC.

3) The principle of being flexible and practical

Evaluation index system should have enough flexibility and practicability in application, which is convenient for those learners who are not familiar to the construction process of the index system, and meanwhile the evaluators can make corresponding changes in the index system according to their different evaluating objectives.

2.2 The construction of fuzzy evaluation index system of engineering students' ICC

According to the above-mentioned principles and theories of intercultural competence, the questionnaire scale used in this study is a set of engineering students' ICC self-assessment scale (includes 4 main factors, 28 descriptive items), which is based on the multidimensional models of intercultural competence (knowledge, skills, critical cultural awareness, intercultural attitude) proposed by Byram (1997), in reviewing the intercultural competence self-assessment questionnaire (A YOGA FORM) invented by Fantini (2000,2006) and intercultural competence self-assessment questionnaire in federal EIL research project, and combined with the actual condition of the level of engineering students' ICC.

The ICC can eventually be summarized as four main dimensions: knowledge, attitude, skills and awareness. Such division approximately coincides with the views advocated by foreign ICC scholars

Byram (1997), Risager (1997), Fantini (2001, 2006), Deardorff (2004, 2006).

Thus, this study identifies that intercultural competence includes four first-level index dimensions: knowledge, attitude, skills and awareness, and constructs the comprehensive evaluation index system of intercultural competence with three layers indexes (see Table 1). The comprehensive evaluation index of intercultural competence (U) is evaluated from four aspects, that is, the sub-index of *knowledge*(u_1), the sub-index of *attitude*(u_2), the sub-index of *skills*(u_3), the sub-index of *awareness*(u_4). Seen from Table 1, the evaluation index is divided into three layers: goal layer, first-level evaluation index, second-level evaluation index. The contents in the first-level evaluation index and second-level evaluation index are respectively represented by first-level index (with one subscript) and second-level index (with two subscripts). So there is: $U = g(u_1, u_2, u_3, u_4)$, where g refers to comprehensive evaluation function, u_i can be measured by evaluating the second-level evaluation index of intercultural competence. Namely, $u_1 = g'(u_{11}, u_{12}, u_{13}, u_{14}, u_{15}, u_{16}, u_{17}, u_{18}, u_{19}, u_{110})$, similarly, $u_2 = g'(u_{21}, u_{22}, u_{23})$, $u_3 = g'(u_{31}, u_{32}, u_{33}, u_{34}, u_{35}, u_{36}, u_{37}, u_{38}, u_{39}, u_{310}, u_{311}, u_{312})$, $u_4 = g'(u_{41}, u_{42}, u_{43})$ (See Table 1).

Table 1 Evaluation Index System of ICC

Goal layer	first-level evaluation index	Second-level evaluation index
Evaluation index system of ICC(U)	knowledge(u_1)	u_{11} Understand the knowledge of history, geography and social-politics in home culture
		u_{12} Understand the knowledge of social etiquette and religious culture in home culture
		u_{13} Understand the knowledge of lifestyle and values in home culture
		u_{14} Understand the knowledge of history, geography and social-politics in host culture
		u_{15} Understand the knowledge of social etiquette and religious culture in host culture
		u_{16} Understand the knowledge of lifestyle and values in host culture
		u_{17} Understand the knowledge of cultural taboos in host culture
		u_{18} Understand and compare the knowledge of fundamental norms and behavior of different cultures
		u_{19} Understand basic knowledge about culture, intercultural communication and transmission, etc
		u_{110} Understand some strategies and skills for a successful intercultural communication
	attitude(u_2)	u_{21} Willing to learn foreign languages well and understand foreigners
		u_{22} Willing to communicate with and learn from foreigners from different cultures
		u_{23} Willing to try to forgive the different values, eating habits, taboos, etc of foreigners
	skill(u_3)	u_{31} Ability to negotiate with and explain self culture to others when intercultural misunderstandings arise in order to achieve mutually satisfactory
		u_{32} Ability to communicate with body language or other non-verbal ways in a language communication barrier
		u_{33} Ability to try to avoid offending foreigners in language, dress, and behavior when communicating with them
		u_{34} Ability to look at the issue from different cultures and multi-angles when looking at events such as politics, economy, religion, etc taking place in other countries
		u_{35} Ability to try to avoid prejudices and stereotypes of foreigners when communicating with them
		u_{36} Ability to treat foreigners with courtesy when communicating with them
		u_{37} Ability to avoid any reference to the topic about privacy when communicating with foreigners
		u_{38} Ability to successfully communicate in foreign languages with people from different social and cultural backgrounds and areas
		u_{39} Ability to have sensitivity towards intercultural differences
		u_{310} Ability to use a variety of methods, techniques and strategies to help learn foreign language and culture
		u_{311} Ability to reflect and learn, even seek proper settlement when intercultural conflict and misunderstanding arise
		u_{312} Ability to directly obtain related knowledge of intercultural communication by contacting with foreigners
	awareness(u_4)	u_{41} Aware that there are cultural similarities and difference when communicating with foreigners
		u_{42} Aware of different cultural styles and language use, as well as their impact on social and work scenarios
		u_{43} Aware of the differences between self cultural identity and his/her cultural identity when communicating with foreigners

3 The Construction of Fuzzy Comprehensive Evaluation Model of ICC

3.1 First-level fuzzy comprehensive evaluation model

1) Determine factors set to evaluate engineering students' ICC

The factors set of intercultural competence evaluation is designated as $U=(u_1, u_2, \dots, u_n)$, where u_i is the factor that affects the evaluation object. Here in this study $U=(u_1, u_2, u_3, u_4)$. Namely, $U=(knowledge\ u_1, attitude\ u_2, skills\ u_3, awareness\ u_4)$, where $u_1=g^3(u_{11}, u_{12}, u_{13}, u_{14}, u_{15}, u_{16}, u_{17}, u_{18}, u_{19}, u_{110})$, similarly, $u_2=g^3(u_{21}, u_{22}, u_{23})$, $u_3=g^3(u_{31}, u_{32}, u_{33}, u_{34}, u_{35}, u_{36}, u_{37}, u_{38}, u_{39}, u_{310}, u_{311}, u_{312})$, $u_4=g^3(u_{41}, u_{42}, u_{43})$ (see Table 1).

2) Determine comment set to evaluate engineering students' ICC

Suppose the comment set as $V=(v_1, v_2, \dots, v_m)$, where V_j stands for the comment result, $j=1, 2, \dots, m$. Since evaluation grade often ranges from 4 to 9, here suppose $m=5$, there is $V=(v_1, v_2, v_3, v_4, v_5)$, namely, $V=(very\ low/weak, low/weak, average, high/strong, very\ high/strong)$.

3) Determine weight distribution of comment sets

If $A=(a_1, a_2, \dots, a_n)$ is a fuzzy subset of U , it is called weight distribution subset, hereinto, $\sum_{i=1}^n a_i = 1, a_i > 0$, a_i refers to the degree of importance of the i_{th} index in comprehensive evaluation.

The weight in this study can be determined by the use of experts' estimation method, or Delphi expert method, which selects 15 experts engaged in teaching intercultural communication for years, then organizes, calculates and analyzes the weight, and finally determines the weight of each index. In order to determine the weight coefficient of the various indexes, weight coefficient set constituted by first-level index is as follows: $A=(a_1, a_2, a_3, a_4)$, and weight coefficient set constituted by second-level index corresponding with the first-level index: $A_i=(a_{i1}, a_{i2}, \dots, a_{ij})$, $i=1, 2, 3, 4$ $j=1, 2, \dots, n_i$ is the number of second-level index under the i_{th} first-level index. This study collects the evaluation data made by 15 domestic experts over the importance of the indexes in the evaluation of engineering students' intercultural competence in three rounds and conduct statistical processing, thus the following weight coefficient of each index is derived.

The weight of first-level index is:

$$A=(a_1, a_2, a_3, a_4)=(0.35, 0.19, 0.31, 0.15)$$

The weight of second-level index is:

$$A_1=(a_{11}, a_{12}, a_{13}, a_{14}, a_{15}, a_{16}, a_{17}, a_{18}, a_{19}, a_{110})=(0.05, 0.04, 0.06, 0.15, 0.15, 0.16, 0.12, 0.11, 0.05, 0.11),$$

$$A_2=(a_{21}, a_{22}, a_{23})=(0.50, 0.17, 0.33),$$

$$A_3=(a_{31}, a_{32}, a_{33}, a_{34}, a_{35}, a_{36}, a_{37}, a_{38}, a_{39}, a_{310}, a_{311}, a_{312})=(0.09, 0.11, 0.10, 0.10, 0.09, 0.09, 0.09, 0.09, 0.09, 0.05, 0.04, 0.06),$$

$$A_4=(a_{41}, a_{42}, a_{43})=(0.40, 0.20, 0.40).$$

4) Determine fuzzy evaluation judgment matrix

For the i_{th} index, the degree of membership of each comment is the fuzzy subset on V . Judging from each index, the comment rates of them are given, so that a relationship between the evaluation index and comment rate is established, that is the fuzzy relationship matrix from U to V . Thus, the fuzzy evaluation judgment matrix of each index is:

$$R_{(i)} = [\bar{R}_{1(i)}, \bar{R}_{2(i)}, \dots, \bar{R}_{m(i)}] \tag{1}$$

$$R = [r_{kj(i)}]_{n \times m} = \begin{bmatrix} r_{11(i)} & r_{12(i)} & \dots & r_{1m(i)} \\ r_{21(i)} & r_{22(i)} & \dots & r_{2m(i)} \\ \dots & \dots & \dots & \dots \\ r_{n1(i)} & r_{n2(i)} & \dots & r_{nm(i)} \end{bmatrix}, \quad i = 1, 2, \dots, 4 \tag{2}$$

Where “ i ” refers to the number of first-level evaluation index, “ m ” refers to the number of examinees. “ $n(i)$ ” is the number of second-level evaluation index under the i_{th} first-level evaluation index, and “ $r_{kj(i)}$ ” is the degree of membership of the k_{th} second-level evaluation index under the i_{th} first-level evaluation index corresponding with the evaluated Y_j

5) Construct first-level fuzzy comprehensive evaluation model with multifactor

Since the single-factor fuzzy evaluation can only reflect the impact of one single factor on the evaluated, a comprehensive evaluation is expected to be made in order to obtain the comprehensive effects of all the factors on the evaluation object. The following single-level fuzzy comprehensive evaluation model is constructed from the fuzzy set on factor set U and fuzzy evaluation transformation matrix R :

$$B = A \circ R = (a_1, a_2, \dots, a_n) \begin{bmatrix} r_{11(i)} & r_{12(i)} & \dots & r_{1m(i)} \\ r_{21(i)} & r_{22(i)} & \dots & r_{2m(i)} \\ \dots & \dots & \dots & \dots \\ r_{n1(i)} & r_{n2(i)} & \dots & r_{nm(i)} \end{bmatrix}, i = 1, 2, \dots, 4 \tag{3}$$

3.2 Second-level fuzzy comprehensive evaluation model

In a complex system, there is always a multi-level of multifactor since a lot of factors are to be considered. If some sub-factor set u_i still contains many factors, u_i can be subdivided, so there is multistage model. For such multi-level problem, we can respectively make comprehensive evaluation on all the sub-factors and then on the whole, or synthesize the lowest-level factors first and then the high-level factors, sequentially integrated layer by layer until the highest level. This study only needs to build second-level fuzzy comprehensive evaluation model, namely the fuzzy comprehensive evaluation model to evaluate engineering students' ICC:

$$B = A \circ R = (a_1, a_2, a_3, a_4) \circ \begin{bmatrix} B_1 \\ B_2 \\ B_3 \\ \dots \\ B_m \end{bmatrix} = (b_1, b_2, \dots, b_m) \tag{4}$$

Seen from the formula above: A is the weight number of the i_{th} factor u_i in fuzzy comprehensive evaluation ($i = 4$), namely the weight of layer u_i on upper layer; A_i is the weight distribution of the i_{th} factor u_{ij} in $u_i(u_{i1}, u_{i2}, \dots, u_{ij})$, namely the weight distribution of layer u_{ij} on layers u_i ; Respectively, R and R_i are the fuzzy evaluation transformation matrix of the first and the second layer. And B is the comprehensive evaluation result of engineering students' ICC U .

4 Application Analysis

4.1 Subjects

In order to verify the validity and practicality of fuzzy comprehensive evaluation model of ICC, this study randomly selects 310 engineering students as the subjects of ICC evaluation, where 272 are boys and 38 are girls. Their ages range from 19 to 20 and all subjects have intercultural experience at home.

4.2 Instruments

The questionnaire is a set of engineering students' ICC self-assessment scale (includes 4 main factors, 28 descriptive items) and interview items are eleven questions about engineering students' ICC.

4.3 Data processing

4.3.1 Arithmetic mode of fuzzy comprehensive evaluation

In order to obtain a unified standard on data statistics, assignment quantization process is conducted on all the questionnaire results of engineering students before data analysis, namely A, B, C, D, E are unified transformed into interval [0,1] and are assigned respectively. Let A = 0.1, B = 0.3, C = 0.5, D = 0.7, E = 0.9, i.e. from "very low / weak" to "very high / strong". Then, all the calculations are conducted in accordance with this model: $B = A \circ R = (b_1, b_2, \dots, b_m)$. " A " represents the weight coefficient set, " R " represents normalized results of the sample investigation and assignment, and " m " represents the quantity of the subjects. In this study, $m = 310$, $i = 1, 2, \dots, m$; " b_i " is the ICC comprehensive evaluation score of the i_{th} subject.

4.3.2 The results of fuzzy comprehensive evaluation

According to the above-mentioned weighted value of each index and comment set of engineering students' ICC evaluation determined by Delphi method, the data collected from 310 engineering students are processed by the comprehensive evaluation of engineering students' ICC, and the results of the parts and the total of their ICC are as follows:

Table 2 FCE Results of the Engineering Students' ICC

	N	Minimum	Maximum	Mean	Std. Deviation
Knowledge (reference value 0~0.35)	310	.00	.33	.115	.014
Attitudes (reference value 0~0.19)	310	.02	.18	.120	.039

Skills(reference value 0~0.31)	310	.03	.29	.165	.049
Awareness (reference value 0~0.15)	310	.02	.14	.051	.029
ICC Total (reference value 0~1)	310	.25	.87	.451	.097
Valid N (listwise)	310				

As can be seen from Table 2, in *knowledge* within the reference value 0~0.35, the 310 engineering students get the mean value of 0.115, which means most of the engineering students' ICC at *knowledge of self* is at a lower level. In *attitudes* within the reference value 0~0.19, the mean value is 0.120, which means their ICC at *attitudes* is at a higher level. In *skills* within the reference value 0~0.31, the mean value is 0.165, which means their ICC at *skills* is at an average level. In *awareness* within the reference value 0~0.15, the mean value is 0.051, which means their ICC at *awareness* is at a lower level. About the total value of ICC within the reference value 0~1, the mean value is 0.451, which means most of the engineering students' total ICC is at an average level.

Based on the ICC comprehensive evaluation above on 310 engineering students' ICC, it shows that their ICC is generally at an average level.

The results prove that the fuzzy comprehensive evaluation model of engineering students' ICC is practical in actual application and the evaluation indexes are rather systematic and comprehensive.

5 Conclusion

This study constructs a systematic and practical index system and mode of fuzzy comprehensive evaluation on engineering students' ICC based on the fuzzy sets theory and describes its comprehensive evaluation mechanism and evaluation process, and then applies this model in a survey of engineering students, which proves the reliability of index system and evaluation model as well as their effectiveness in practice. In the follow-up studies, empirical study of comprehensive evaluation on other subjects in terms of their ICC will be conducted in the use of this index system and model.

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A Research of the Enlightenment to Modern Moral Education by Social Honesty in the Pre-Qin Period

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Abstract: The rapid development of social economy shows the lag-behind of cultural development in modern society. Therefore, influenced by utilitarian concept, moral education nowadays turns to be empty, hollow and with low efficiency, and the social honesty has become an issue in moral education. Whereas, in traditional Chinese Confucian culture, the concept of social honesty is of great importance known as morality first, knowing and doing, honesty in commerce, governing and interpersonal relationships. This paper tries to study the social honesty in the pre-Qin Period and attempts to get some enlightenments for today's moral education by a comparative study of honesty ideas from the originality of words and derived meaning, the moral criteria for individuals and for "social groups".

Key words: Confucian in the Pre-Qin Period; Social honesty; Unity of knowing and doing; Moral construction; Enlightenments

1 Introduction

Since the Reform and Opening-up, the market economy has brought unprecedented prosperity to people's material life, but also instability to the development of society. Money worship, hedonism grow to spread; corruption, fraud and other criminal acts become a common occurrence; academic bubble and corruption meet the eye everywhere. Reasons for these phenomena can be seen as the imperfect legal system, short-sighted education, matchless development between economy and culture. But the main reason is the cultural rupture in moral education. It is said that moral education to some extent even gives way to exam-oriented education. Morality is no longer a unity of "knowing and doing", but becomes an abstract concept, which leads to the dislocation of values. With the economic stimulus, lack of honesty has become a common phenomenon, and has penetrated into all areas of social life with a strong impact on people's morality and it even challenges the majesty of law. Strange phenomena can be seen everywhere as anti-honesty doings: Those who keeps honesty are regarded as "weird"; those who tell truth are considered as "incompetent"; those who are dishonest whereas are known as "smart and flexible". As is known to all, moral construction cannot be achieved only by moral education. It is a comprehensive, multi-faceted construction and renovation, among which the cultural value is the core. Only when cultural utility and slavery are got rid of, can moral education come into action to help shape people's moral mind.

At present, it is not easy to flyback to ancient culture in China's educational development. The purpose of education is the full growing and free upgrade of people, instead of the achievement of practical value but the humane care and experience. What's more, the nature of education has actually appeared on the deviation when Western education is introduced. Even though Confucianism has been influenced by radical moral revolution in the late Qing Dynasty and in the Cultural Reform, it still largely affects people's life ethics and moral psychology (Wan Junren, 2002). So critical assimilation of traditional culture is still very necessary in having moral education with Chinese characteristics. Honesty is the cornerstone of human development and a core element of moral construction. In the long history of China, how people know, regard, develop and implement social honesty and put it to all levels of social life is of great importance in developing good moral education today. This paper attempts to analyze the influence of Confucianism in the pre-Qin Period to social honesty and tries to get useful references to today's moral education.

2 Definition of Honesty

In ancient Chinese language, "honesty" are in two Chinese characters which have nearly the same meaning according to the Analytical Dictionary of Chinese Characters. The Chinese characters also have literal meanings as "what is said is what in one's heart" (Marx K., Engles F., 1956). From this it can be seen that "speech" and "idea" should be the same, make the value of honesty and show the interpersonal relationships (Xu Wenjing, 1998). In "The Book of Yupian", it is said that "honesty" means "sincerity" and "respect", which shows that one should respect others and have humble attitude

in communication with people. Only by doing so can the two sides be fully and sincerely understood. Before the Han Dynasty, people were only honest to people but sincere to “Heaven” or “God”. In the Book of History, it is said that “if people cheat each other, the society will be disordered; if people do not keep promises, the oath can be nothing at all.” From today’s point of view, “honesty” can be regarded from two aspects. It both refers to the real inner attitude and quality of one person with the focus on “I”, and also refers to other’s attitude to “I” with the focus on “others”.

In the Confucianism of the pre-Qin Period, “honesty” more often than not was used to show “sincerity”, and was regarded by Confucius as one of the four creeds and one of the five virtues. From his speech, Confucius considered “honesty” as an important character and moral of people, and it involved all aspects of social life with rich content and important instructive meanings to today’s moral education.

3 “Honesty” as Self-Cultivation

In his education, Confucius ever proposed the idea of “self-constraint and self-revision”, of which the former means one should have strict constraints on himself, restrain his words and deeds and make it in line with moral ethics, the latter means one should often reflect on his doings, have self-supervision in his mind, and make it part of one’s mind and consciousness.

In his book the Analects of Confucius, Confucius said, “I daily examine myself on three points: whether, in transacting business for others, I may have been not faithful; whether, in intercourse with friends, I may have been not sincere; whether I may have not mastered and practiced the instructions of my teacher.” These words convey that Confucius had rigorous daily introspection on his behaviors. He asked whether he had met the requirement of “honesty” in moral aspect and “good teaching” in professional aspect. “Honesty” here means to treat people with sincerity and trust in social intercourses and emphasizes the consciousness of self-revision. What’s more, Confucius required his students to have “soul-searching” to promote skills and virtues according to his saying “a gentleman sets strict demands on himself while petty men sets strict demands on others”. He wanted his students to follow the men who were in good morals and to have self-examination whether they were like the men who were not in good morals. From this it can be said that in Confucius point of view, “to study without reflection makes no progress in one’s learning”. It is in the same meaning of Mencius’ saying “if your efforts all fall flat, you should examine yourself”.

In the Great Learning, “honesty” is also regarded as a necessity in people’s morals. It was important in supporting one’s family, self-cultivation, and governing the country. “Honesty” shapes people’s mind and cultivate one’s moral character. Only when “honesty” and “self-examination” work together, can people’s moral character be promoted.

4 “Honesty” as the Base of Self-Reliance

In the Confucianism of the pre-Qin Period, “honesty” was not only regarded as the goal of self-cultivation in one’s life but also a yardstick to judge people’s moral cultivation and accomplishment. Confucius always required his students to be honest to people and act in good faith.

“Honesty” is the foundation of behaviors. If there was no “honesty” to guide people’s behaviors, then people would lose direction in their doings, so did the principles of moral deeds. So “honesty” helps people to be good at personal relationships, and acts as the principle of personal relationships as well.

Be as good as your words with your friends.

If a man does not keep his word, what is he good for? If a cart has no wheel, what is the cart good for? --- The Analects of Confucius

In Confucius eyes, the interpersonal relationships would not exist if there was no honesty with them. What honesty to men is what wheels to a cart. Therefore, “honesty” is the bond of personal relationships, the footstone of a harmonious society, the base of self-reliance.

5 “Honesty” as the Unity of Knowing and Doing

Morality is a unity of knowing and doing. Here “knowing” can be seen as moral consciousness, “doing” as the behaviors, the moral practice. Only when “knowing” is put into “doing”, can one really be called honest. So Confucius emphasized the result of “doing” which was triggered by “knowing”. He advocated that knowing and doing shall come together, one’s actions must be in keeping with his words.

Promise must be kept and action must be resolute.

A gentleman would rather be quick in action than talk a lot.

I observe what people say and what they do as well.

Young people should be filial to their parents at home and respectful to their elder brothers when they are with them. They should be serious and trustworthy, love the populace extensively and be close to those who are humane. When all this is done and there is time for other things, they should use it for the study of the classics.

A gentleman takes it as a disgrace to let his words outstrip his deeds. --- The Analects of Confucius

Confucius thought a man of noble character should practise what he preaches, match his words with his deeds. He thought “to walk the talk” was the criterion to judge whether a person is a gentleman or a petty man. To see how a person delivers his speech and how he delivers on his speech is a measure to judge his moral ethics.

Enlightenment can be given to us from Confucius: First, both morality and moral education must be achieved by moral practice. Single preaching is hollow, and moral education achieves results through social practice. So classroom teaching for moral ethics acts only as the input of moral consciousness, and it is not the complete moral education. Second, the task of education refers to moral education. Professional education is secondary to moral education. So it is of great significance to handle well the relationship between professional education and moral education, to weaken utilitarian education and highlight humane education.

6 “Honesty” for Statesmen

“Honesty” means to keep one’s promise and be faithful in action. Confucius thought if a person is not honest, then he will not be able to walk. He also warned that even if a person lives in poverty for a long time, he should not forget his promises. A gentleman should first be trusted by people, and then be able to govern them. To statesmen what one says and does is not his own business but the business of his people and country. As it is said that “those in subordinate positions will follow the example set by their superiors”, so the statesmen should set good examples by make their deeds consistent with their words.

Be honest, and the people will be honest to you.

Watch a man’s action after listening to his words.

A gentleman takes it as a disgrace to let his words outstrip his deeds. --- The Analects of Confucius

The statesmen should both try to promote their self-cultivation and to keep their promises. Man can’t do anything without a good credit.

Confucius pointed out, if the statesmen lose trust of people, it would be difficult for them to keep his country stable. He thought “honesty” was more important than “soldiers” and “food”.

To the statesmen, one word is as heavy as nine tripods. What the statesmen says should be out of repeated considerations.

A flaw in a piece of jade can be cleared while a man’s dishonesty can not. --- The Book of Songs

A gentleman does what he says. --- The Commentary of Zuo

A gentleman regards being dishonest as disgrace. --- Xuncius

These ideas to today are still of significance in practice. The statesmen should not only strengthen their own morality, be honest, trustful, but also be fair in their work, loyal for their duty. Therefore, “honesty” is a criterion for moral ethics and a manifestation which shows whether the statesman has fair governance, credibility, and responsibility in his job.

7 “Honesty” in Commercial Business

Commerce transactions are based on the basis of honesty. Authentic products, honest trading process, good after-sales maintenance and service show the honesty between businessmen and the value and loyalty between the producers and consumers. It also shows the concern for the human living environment. It tests whether a businessman makes his profit in a proper way and whether the market runs stably.

The man who sells beef will not ask the price too high; the man who sells pork will not decorate it. --- Family Analects of Confucius

Even a child will not be cheated in the market. --- Sayings of Mencius

Mencius thought the market transactions should be fair, just and honesty. Confucius also had reforms in the market in his day by emphasizing honesty should be what the market based on, the products and transactions.

Modern market and trade involve all aspects of people’s lives nowadays. Even it has changed a lot

in trade patterns, and trade areas. But it is very worrying that fake and shoddy products can be seen everywhere, like “the garlic storm incident”, “excessive packaging incident”, “milk powder incident” and others. That is all because of the loss of honesty, which was resulted from bad moral education and cultural education.

8 Conclusion

In Confucianism, honesty as a fundamental requirement of moral cultivation, runs through all levels of social life. To comply with the ruling class and to adapt the needs of different historical periods, Confucianism has undergone a series of evolutions, reconstructions and developments, many of which have been distorted or different from the original meaning of Confucian and Mencius thought, like “Ban from hundred philosophers, venerate Confucianism” by Dong Zhongshu, “Chengzhu Thought”, “the philosophy of the mind” by Wang Yangming and Neo-Confucianism. Honesty mentioned in the text, does not manifest all the real ideas of Confucianism. There of course exist some ideas which serve for the dominance hierarchy or the feudal class. What people should do now is to choose the advanced and correct ideas, absorb and renew them and pass them to the next generations as excellent traditional cultures. Meanwhile, to promote moral cultivation, what people should do is not only to touch upon honesty in Confucianism, but to really understand and know what honesty in Confucianism really means by learning it in the original context. In the same way, only when people put honesty into Confucian moral education, can people acquaint themselves with honesty as a whole, can moral education become an organic integration of people’s mind.

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Innovative Research on Translation Skills for Campus Public Signs in Chinese Universities

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Abstract: This paper firstly introduces the significance of public signs together with the historical development of related research. In addition, the paper presents the “Interpretive Theory” (also known as “the French School”) in order to better illustrate the current problems existing in the translation of campus public signs which are listed as samples from different campuses of Wuhan University of Technology by surveying and researching. Besides, under the guidance of the theory, the paper also proposes appropriate skills and puts forward innovative ways for the improvement of the English version translations, which aims at a better application in the universities and colleges of China.

Key words: Campus Public Signs; Features and Classifications; Dynamic Equivalence; Translation Skills

1 Introduction

Public signs have been playing important roles in our daily life as well as in the internationalization of large cities in China. Public signs also belong to very special writing style, which usually uses concise and clear language to present the public the information of directing, restricting, prompting, and compelling. For one thing, it's convenient for foreigners who are staying in China, and it's also a better way to make them feel like at home. For another thing, English, as a tool, is very important to Chinese. Bilingual public signs on campuses of colleges can provide a good atmosphere for us to learn English. What's more, standard English versions of campus public signs can contribute greatly to a good image for the universities.

The study on the translation of public signs started in 1989 and later developed rapidly in the following decades with a variety of classifications, including city public signs, tourism public signs, traffic public signs, high-speed railway public signs, campus public signs, etc. The first research group of public signs translation was established in 2002. One year later, a website named “Online Research and Service on Chinese-English Expressions of Public Signs” was established as an important resource for the research on public signs translation. In addition, a dictionary called *A Chinese-English Dictionary on Signs* by Lv Hefa and Shan Liping was published in 2004. Moreover, the Translators Association of China began to pay attention to the translation of public signs. It held two different national seminars on public signs translation respectively in 2005 and 2007, which resulted in an increasing focus on public signs translation. Later from 2010 to 2014, more research on the current situation and mistranslations of campus public signs from different perspectives of theories continued to boost the development of the field. Although the study on translation of campus public signs has made great progress, there still exist various problems, which lead to the bad effects on the international image of China.

2 The Interpretive Theory

The Interpretive Theory is also referred to as “interpretative approach” or “theory of sense”. This theory is mainly adopted by the personnel of the Academy of Translation and Interpretation of Paris, usually known as the “Paris School”. It is a French school that conducts theoretical researching and practical teaching on interpreting and non-literature text, which was born in the 1960s. The Interpretive Theory advocates that translation should be considered as paraphrasing, meaning that a translator should emphasize the equation of the sense or effects of the original text rather than the linguistic units. A number of professors like M. Lederer, D. Seleskovitch, and F. Herbulot, have been strongly supporting the theory, which has helped lay a solid foundation for their teaching careers in the Paris Senior Translation and Interpretation School.

Generally speaking, the Interpretive Theory is built upon four basic points, namely, command of the native language, command of the source language, command of relevant world and background knowledge, and command of interpreting methodology.

To illustrate the first point, it is understandable that translators and interpreters must be able to use

their mother tongues in all kinds of language applications. For the second point, the command of the source language is more difficult to evaluate precisely. To acquire a second language, translators and interpreters have to overcome a variety of difficulties existing in phonological, grammatical and lexical levels, which indicates that the acquisition of the second language is actually a lifelong and open-ended learning process. The same is true of the third point, because both the world and background knowledge also develop and change like everything else. In other words, the accumulation of the knowledge is also a continuous and dynamic process of acquisition. For the command of interpreting methodology, the Interpretive Theory advocates that methodologically the process of translating requires an understanding of sense, known as the combination of language meaning and cognitive complements, as well as a formulation of the translation on the basis of the synecdoche principle.

To better apply the Interpretive Theory, the authors made an empirical study on the translation of campus public signs in Wuhan University of Technology (WUT). The following parts will first present the research on the current situations of WUT campus public signs translation and then probe into the innovative solutions to the existing problems.

3 Empirical Study

3.1 Research methods and process

In order to find out the real situation of campus public signs translation in Wuhan University of Technology, a survey was carried out through the whole campus. Indeed, public signs are everywhere: libraries, restaurants, hotels, classrooms, parks, transport tools, scenic spots and so on. In all, there were three kinds of questionnaire (Li & Xiang, 2015) designed for the research.

The first one was an English version questionnaire. The questionnaire was handed out to foreigners or the English majors, because it was convenient for them to read and understand which could also make the results more accurate.

Another one was a Chinese version questionnaire. It was handed out to the Chinese students, teachers and staff members in WUT, because their mother language was Chinese and only in this way could they fill out the questionnaire efficiently.

The last one was an Internet-based Questionnaire (<http://www.sojump.com/jq/3607714.aspx>). It was handed out through Internet to those who knew about WUT, which was used as a complementary survey. In addition, on the other hand, the authors also went around all three major campuses of WUT to collect public signs by taking photos as many as possible.

3.2 Research results and analysis

Based on the survey, most of the campus public signs in WUT were written in Chinese, bringing great inconvenience to foreigners. In addition, there were some problems with the English version public signs, which could be classified into the category that defied essence of the Interpretive Theory. Many words or expressions were chosen carelessly without fully understanding the meaning of the source and target languages. Therefore misunderstanding appeared. The errors in Chinese-English (C-E translation) translation of public signs are listed as followings.

3.2.1 Grammatical errors

A standard version should at least stick to the grammatical rules of English grammar points, but translators may have a poor command of English, so there are obvious grammatical errors in C-E translation of public signs, which may lead to misunderstanding to readers, for example, “the box for collecting the complaints from students”. It has been translated as “complain box”. It’s right from the surface, because it is translated word by word according to the Chinese meaning. However, from the prospect of English grammar, it’s not proper, because “complain” is a verb, and “box” is a noun. We all know a noun can be followed by adjectives or nouns, instead of verbs. So when translating campus public signs, we are supposed to take grammar rules into our mind. “Complaint Box” is better, because “complaint” is a noun which can be a pre-modification. Grammatical problems in public sign translation are mainly regarded as breaking the coherence rule for the reason that the sign translations with grammatical mistakes are not good in coherence and they become obstacles for English readers, which will also break the fidelity rule, and give the readers wrong information.

3.2.2 Cultural misunderstanding

As is well known to us, people in different cultures have different perspectives, and they think in different ways. Chinese and English have different cultural backgrounds, so there are many differences between these two cultures (Thomas, 1983). When translating public signs, translators are supposed to consider this factor, for example, “the room for teachers to take rests during the intervals of classes”. It

is translated as “Teachers’ Restroom”. As we all know, “Restroom” in the Longman Dictionary of Contemporary English means “ a room with a toilet in a place such as a restaurant or cinema”, so “Teachers’ Lounge” is better, because “Lounge” means “public room in a hotel or other buildings, which is used by many people as a place to relax”. Besides, “the red line” is commonly seen on the roads of college campuses. We may translate it as “Road Red Line” at our first sight. However, foreigners can read the words, but they don’t know the exact meaning, so “ Road Restriction Line” is better, because foreigners can easily know the real meaning of the public signs. Then there is another example, especially for English majors, battery is necessary objects in our study, because two batteries must be placed in a radio receiver in an English listening tests. There was a type of battery in China which was translated into “White Elephant Battery”. However, “White Elephant” means uselessness to foreigners, which may lead to a misunderstanding. Therefore, the same word in different cultures has completely opposed meanings. When translating, it’s a must for translators to bear this factor in mind.

3.2.3 Word-for-word translation

According to my survey, literal translation is common in public signs, which is difficult for readers to understand the true meaning of public signs, and even lead to misunderstanding. Generally speaking, these translators think in a Chinglish way (Chen Jing, 2010). Chinglish refers to spoken or written English language that is influenced by the Chinese language and it is commonly applied to ungrammatical or nonsensical English in Chinese contexts (Nord, 2001). This kind of problems usually occur in the translation which breaks the coherence rule, for the translator’s modes of thinking and expression ways are often influenced by the Chinese culture and language, ignoring differences between English and Chinese.

For example, there is a type of discount for commodities in the supermarkets on campuses which means take 20% off. For this one most of translators may translate it as “80% Discount”, but actually, thinking from the opposite prospect, “20% Off” actually better shows the exact meaning of the Chinese public signs. Besides, for “Green Hand”, if we translate this phrase word-for-word, it will directly lead students to the meaning of “a green hand”, but actually its meaning is “new or fresh in something”. So when we translate public signs, we need to do it based on actual context and language points.

4 Innovative Ways for Solution

4.1 Diction

Diction means the choice of words and phrases to express meaning, and it must be based on the accurate comprehension of the original (Fang, 2011). Care should therefore be taken in translating to determine from the context the exact shade of meaning of a word or an expression in the source text and the choice of an appropriate one to express the meaning in the target version. The translation we have collected about the supermarket that is regarded as the model for other supermarkets is “Excellent Supermarket for Demonstration”. Seeing this sentence at the first sight, foreigners can’t understand its meaning. Thus “Model Supermarket” is better, because “Model” has covered all the good aspects and applied a meaning of something to be learned from or for demonstration, and the latter is simpler and more concise. It is a good example for the application of the Interpretive Theory. Another example is “Do Not Eat”. This translation is grammatically right. In China, it’s acceptable, but in western countries, it is not polite which makes people uncomfortable. Diction is of great importance. There are some words, such as “eat”, “diet”, “dieting” and so on. Since “eat” is a verb, thus it must be followed by objectives. However, “diet” is a noun, and it includes more extensive meaning. For public signs, the first letter should be written in a capitalized way, and “diet” can be used as a noun, so “No Diet” is suggested.

4.2 Adding

By adding, we mean supplying necessary words or phrases on the basis of accurate comprehension of the original meaning (Peter, 2005). For example, there is a sign which means keeping the campus clean is usually translated as “Please Keep Environment Sanitation” on our campuses. This translation has a serious grammatical mistake. In terms of sentence structure, it is obvious that the word “Environment” is the object of the verb “Keep” while the word “Sanitation” is object’s complement. According to the English grammar, there exists a logical subject-predicate relationship between the object and its compliment. However, it is obvious that there is no such a relationship between the words “Environment” and “Sanitation”. In addition, based on the basic Chinese meaning, “Tidy” should be added to the last part. Therefore, “Please Keep Environment Clean and Tidy” is suggested. Here, we add “Tidy” to the translation, which in turn makes the English meaning clearer and more easily to understand. Sometimes adding some words or phrases can be easier for people to understand.

4.3 Omission

Omission and adding are the two sides of one coin. The skill of omitting is not to omit certain content in the original text but the dispensable, repeated, self-evident, and those maintained words which aren't conformed to habits of destination language (Xu Jianping, 2012). Its aim is to make the translation more smooth and faithful.

For example, there is a sign which means to eat in politeness. We usually translate this sentence as "Wait in Line and Obey Rules and Be Polite to Eat". However, we know "Obey Rules" just means "Wait in Line", so the latter part is unnecessary. Considering the formal equivalence, "Wait in Line and Eat in Politeness" is much better. Besides, there is another example, that is, "Park Lot". The verb "Park" and the noun "Park" in English are two different words, and they respectively refer to "bring (a vehicle that one is driving) to a halt and leave it temporarily" and "a large public garden". In fact, the gerund of the verb of park can be used to refer to space for parking a vehicle in. Here "Lot" is not necessary, so the suggested translation is "Parking". For "Information Position", only one word "Information" is better. Omitting unnecessary parts makes the translation much clearer.

4.4 Negation

In translation, negation means the conversion from the affirmative into the negative or vice versa (Peter, 2010). What is affirmative in form in English maybe imply something negative in Chinese. Negation is a useful translation skill, despite of the way of express changes; the meaning is still the same (Xu Peng, 2010). Negative can make the meaning clear, strength the rhetorical effect; make it conform to the idiomatic use of the target language. For example, there is another sign which means "Do not make noise". Actually, it's an affirmative sentence. In English, we usually use negation to translate it as "Keep Quite Please", which better conforms to English language rule and sentence structure.

4.5 Inversion

In English grammar, inversion includes full inversion and partial inversion. In translation, partial inversion is widely used to make the sentence balance and beautiful. Partial inversion means reversal of the subject and the operator only. In translation, it's an important principle that leads to the expressing of idiomatic language. Inversion implies a necessary change of word order to conform to the good usage of the target language. For example, there is a sign which means "When Visiting, Please Register". In China, this is formal, but for foreigners, it's strange because of the word order, thus it can be changed in "Please Register for a Visit" for a better understanding.

4.6 Substitution

Substitution means replacing occurrences of some symbol by a given value. Public signs are easily seen in public places, and there is no deny that some of them have the same functions, so translators can learn them from reference. Professor Lv Hefa suggests that if Chinese signs and English signs are under the same circumstance, we can substitute the existing English ones for those with the same functions (Lv Hefa, 2005), which can avoid Chinglish and in turn make our English versions more understandable.

In translation, this skill is widely used. It may make sentence beautiful with deep cultural background. On our campus there is a sign which has been translated as "Everybody Loves Flowers and Grass, Air and Environment Are Good", actually it is translated word by word in a Chinglish way. However, by substitution, we can translate it as "Love for Flowers, Love for Ourselves", because good air and environment are good for our health, which exactly means "Love Ourselves". This translation is a typical example for substitution, because in English there is a famous saying "Love me, love my dog." Therefore, "Love for flowers, Love for Ourselves" indicates a substituted or borrowed translation from English idiom.

5 Conclusions

Public signs constitute an important part of our daily life, so do campus public signs for our school life. In the same way their English versions contribute a great deal to foreigners staying in China as well as students who want to study English in a good environment. Through the statistical analysis, we have found common problems and translation mistakes and proceeded to come up with innovative solutions to make the English versions of public signs more standard from the perspectives of the Interpretive Theory.

Language is the carrier of culture, and every nationality has a deep profound cultural foundation, so a deep study of English or public signs will be made in the future. In addition, a better cross-cultural awareness for translation will also be developed due to the cultural differences. Secondly, "Practice

makes perfect”. Therefore, more profound knowledge in the Interpretive Theory and translating practice together with application of translation skills will be done for better proficiency. Finally, plans and arrangements in advance according to time and process will be made so that more time will be devoted to the modification and revision of the English versions of campus public signs. Only in this way will campus public signs be more local and understandable in English.

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The Research of National Collegiate Social Entrepreneurship's Education and Practice Based on the Pursuit of the Core Values of Volunteer Service: A Case Study of the Growth and Development of the Social Entrepreneurship Team "Easier"

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Abstract: As an important content of the entrepreneurship, Social entrepreneurship receive well attention by public depending on its characteristics of social value and economic value. In recent years, the social entrepreneurship examples and public welfare innovation teams emerged from contemporary new youth students are recognized by the China's Communist Youth League and play an import role in promoting social harmonious development and social governance capabilities. giving the example of the "easier", the paper focus on researching of National Collegiate Social Entrepreneurship led by the volunteerism spirit, and make a beneficial exploration to the topic of "education and business endeavor education in college"

Key words: Social entrepreneurship; Volunteer Service; Core value; Innovation and EntrePreneur-ship

1 Introduction

The party's 18 report, mentioned several times on the content about employment, entrepreneurship, innovation; with the students' employment situation is worsening, the college graduates are actively encouraged to get jobs by the way of entrepreneurship; in recent years, the social entrepreneurship education model of the product, study and research integration of "public + Entrepreneurship + employment" was repeatedly raised, the implementation of national collegiate social entrepreneurship's education and practice has become an urgent requirement of knowledge economy era.

2 The "Easier", Acts for Public Good

The "easier" team of Wuhan University of Technology acts for public good, founded in 2012, originally called "Egg in action to support education group", which is a student groups led by the school party, and under the guidance of the Communist Youth League and Student Affairs, and managed by the Associations functions. After three years, the team is expanded to a social entrepreneurship team, which includes the "easier" education supporting group of Wuhan University of Technology and Wuhan Science and Technology Education, Inc.

2.1 Entrepreneurship Content

Wuhan Science and Technology Education, Inc's main business is mobile phone applications and cultural products. On the one hand, the company is based on discipline, and explores the potential of knowledge, independently researches and developments mobile phone APP program about tourism, games, crafts and design, and obtains profit through the promotion of the APPs. On the other hand, the company gives play to students' hard work, introduces of the original micro-film shoot, hand-drawn map of the campus, campus culture produced souvenir design, builds "easier station" (formerly known as "honest man station") which is sought after by the majority of the students in the campus in the reason of unmanned, self-store mode.

2.2 Entrepreneurship Value

2.2.1 The "easier" team is made up of entrepreneurship company and education supporting group. The entrepreneurship company develops to achieve the vision of the company and the value of team effort, and provides some financial support for the education supporting group.

2.2.2 The education supporting group brings the children left behind the camp-style cultural, psychological, quality, common sense and safety education, through carry out a series of socially activities which are mainly based on the summer education supporting to help mountain children.

2.2.3 The "easier" team are from young students, and serves the students and the children left behind mountains. On the one hand, the team contribute to the improvement of social outstanding issues. On the other hand, young students carry forward the spirit of innovation based on social reality, tempered character through charitable activities and business practices, highlighting the responsibility of feelings, play era responsibility, which is a powerful expression of socialist core values.

3 Embodiments of the “Easier” Core Value

The “easier” team from the initiator to grow, experienced only three short years, whose prototype is a regular summer social practice group. 25 players went to support education in rural primary school in Guizhou Province launched a 21-day teaching activities. During the teaching activities, students endured hardship, not afraid of hard, played to their strengths for the left-behind children depicting a colored sky. And this has gotten the attention of online media and young students, aroused strong social repercussions. After continuous exploration, the team gradually developed into a social entrepreneurship project entity. In 2014, the team successfully joined Qingtong plan, settled Wuhan University of Technology Venture Park.

Team members have a high degree of consensus when speaking to the team pursuit: First, acting for teaching; second, acting for action. they also take the innovative ideas into the team pursuit.

1) Acting for teaching, highlights the sense of era mission and responsibility of young students. Taking the point of the team's establishment mind, volunteer tutorial is their first target. Based on the outstanding issues and the status quo behind remote rural left-behind children, college students individually and collectively have shown the courage to act, willing to sacrifice valuable quality, and this is in line with the main theme.

2) Acting for action, highlights the young students' sense of dedication and integrity feelings. The “easier” takes “acting for public”, “acting for love” and “let you love to travel” as the slogan, which gained broad popular support in the name of love. Students have become “Applause” to “action”, consciously added to the ranks of volunteer service. Call from the team on campus volunteer, recruit a new interview process point of view, no one contrary to the original intention of acting for love enthusiastically. In the “honest man station”, the students ordered the station to comply with the agreement, self-discipline, integrity and quality conscious practice.

3) Creativity first, reflects the talent concept of professional consciousness and development. Team members include computer technology, art and design, language classes, management and other related professions' students, who acts from their own professional characteristics departure during volunteer service, shows their talents, enriches the teaching content and form, and are truly accepted and loved by children. In the course of business practice, the students are good at communicating, organic coordination with complementary expertise and mutual assistance, launched a range of disciplines blending, the actual project creative. Entrepreneurial achieved remarkable success, and the students grow significantly.

Social Entrepreneurship Research Center, University of Oxford, said: social entrepreneurship has three characteristics which are the “sociality”, “innovation” and “market-oriented”. First, the main business has a strong public service mission, willing to help others, contributing to society. Second, there is the formation of a dedicated team, a team of like-minded members of a public good. In addition, social entrepreneurship also need to focus on models' innovation, uses limited resources to create more social benefits.

From the summary of core pursuit above, the “easier” team, without doubt, is in line with the three basic elements of social entrepreneurship, which is the root cause of the success of the team.

4 The Relationship of Volunteer Service and National Collegiate Social Entrepreneurship

Volunteer service and social entrepreneurship belong to the category of public welfare, interpreting the corporate social responsibility. From the history of growth and development of the “easier” team, voluntary service is the mind, but also the spirit of philosophy throughout the whole story; the main form of the teams to create business entities and the content are closely linked with the university culture, which aims to support education career services.

1) Volunteer service constitutes a good basis for the development of social entrepreneurship. Broad participation provides the necessary human resources, and the firm pride to the volunteer services to establish solid spiritual resources, and positive identity of the people provides a good social resources they all jointly promote the healthy development of social entrepreneurship.

2) Volunteer Service in large part to enhances the thinking and understanding of the service principal (including the dedication and sense of responsibility, sense of innovation, the concept of talent, etc.), enriches their life experience, exercises their practical ability, which is consistent with the core pursuit of contemporary college students, and is also a key factor in social entrepreneurship's success.

3) National collegiate social entrepreneurship accounts social and economic interests, helps

voluntary service and enhance their own hematopoietic function, promotes volunteer service for the needs of the community, for the talent goal, to achieve sustainable development.

Encouraging students to leave the campus, server the society, and actively carry out youth volunteer service activities with the pursuing of responsibility, the practice content of innovation and entrepreneurship, and self-taught as a behavior-driven, leading the development of national collegiate social entrepreneurship are not only an important part of innovative universities' education in the background of the new times, but also the inherent requirements of the reform and development of socialist core values education.

5 The Practical Guidance of National Collegiate Social Entrepreneurship Which Takes the Volunteer Service as the Spirit

Volunteer Service and national collegiate social entrepreneurship has its commonality in the nature, purpose, operation rules, and the two promote each other under certain conditions, can also realize the transformation, cooperative development.

Volunteer Service can serve as the starting point in guiding national collegiate social entrepreneurship, which promotes contemporary college students' spirit and clusters characteristics of willing to sacrifice, brave to play, good in innovation, and plays an important role in practice.

5.1 Insisting the pursuit of Volunteer Service, building the spiritual position of social entrepreneurship

As the main core of modern public spirit, Volunteer service focus on people's happiness and social development, which reflects the socialist values. Campus is a valuable soil for cultivating the spirit of volunteerism, which promotes college students' pursuit of excellence and outstanding ability to germinate and grow. Carrying out the guidance of national collegiate social entrepreneurship, we should take the pursuit of the important value as the spirit position and improve students' thinking and the pursuit of life, so that the majority of students voluntarily devote into the ranks of volunteer service, and then play in the vast service platform and lift capacity. On the other hand, we want to promote community volunteerism positive energy with the volunteer service, mine the entrepreneurial inspiration which based on demand, adapted to the development, and promote the growth of the real entrepreneurial projects on this basis, growth.

5.2 Adhere to innovation and entrepreneurial university culture and consolidate the construction of basic social entrepreneurship

Innovation and entrepreneurship education is necessary to adapt to the economic and social and national development. To constructe innovation and entrepreneurship education system, it is necessary to take innovation and entrepreneurship into the school education system overall arrangement, whose contents may contain the theoretical study of innovation and entrepreneurship, the foster of college students' technological innovation and entrepreneurship projects and the creating of an innovation and entrepreneurship atmosphere and platform constructions.

(1)Improvint the theoretical research level of innovation and entrepreneurship education and learning from the successful experience of foreign countries on innovative business practices, help students avoid misunderstanding, as there are students using the competing ability values entrepreneurial ability and planning level to values the level of entrepreneurship such problems. There are practical problems to be solved, such as competing with momentary passion, blind imitation, lack of good projects. Innovative education can stimulate students to generate good entrepreneurship inspiration, and entrepreneurship study can improve students' methods of entrepreneurship practices.

(2)Increasing the project applying scope and support efforts of the college graduates' innovation and entrepreneurship helps develop students' awareness of innovation, and enhance their innovation capability. On the one hand, the project which applied successfully can get funding support, enhance social entrepreneurship's hard power. On the other hand, by the contrast of the innovation and entrepreneurship project, college students can be project-specific objectives, stimulate learning and impetus to growth and success.

(3)With taking the campus as the main platform,innovation and entrepreneurship atmosphere can be created.By enhancing ideological guidance and direction, we can promote the formation of benign economic effect and attract social support. While effectively play the educational function of the school, build the integration of a full range of business resources of community, schools, personal and other aspects, the basic protection of social entrepreneurship can be consolidated.

5.3 Implementing entrepreneurship to create jobs and improve the social significance of social

entrepreneurship

Volunteer service for students employment ability, high school's guidance in working, people's livelihood and social stability has a positive effect. Its specific performance can be that it significantly improves students' thinking and human capital, improves the knowledge structure, expands the social resources, adjusts employment psychological. And it can effectively mobilize students to actively participate in students "Village Officer", "three of a help" program, "west plan" and other volunteer service activities. And it can integrate the advantaged resources produced during service and practice. With entrepreneurial incentives, it can promote entrepreneurial projects run successfully and implement entrepreneurship to create jobs.

5.4 Relying business incubator and leading the development direction of social entrepreneurship

Social entrepreneurs in China started late, and social acceptance is low. The inadequate resources, imperfect security system, lack of capacity against the risk and other problems can be a direct result of the failure of social entrepreneurship. From the student's entrepreneurial practice, financial support, equipment, and other venues are outstanding problems to hinder entrepreneurial implementation. We should lead national science and technology business incubator system, and promote college students to create jobs through technological innovation. Relying on existing business resources of Universities (such as Qingtong plan, business park), student entrepreneurs platform can be built and students are encouraged to actively participate in innovative practices and project incubation. Growth cradle is provided for National Collegiate Social Entrepreneurship. At the same time, a sound system and the security system of incubators, contributes to the formation of development trend of the social entrepreneurship project openness, diversity, professional.

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Study on Innovative Management in Flipped Classroom of College English Listening and Speaking Course

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Abstract: This paper initially provides an introduction to the flipped classroom model. It then provides the contrast of the flipped classroom and the traditional classroom in the Chinese College English Listening and Speaking Course. This paper also presents how the innovative management is used in the flipped classroom model in the English class with the aid of Lange on-line platform and the reflection of the management. The paper concludes with a discussion of the implications associated with adopting a flipped classroom approach.

Key words: Flipped classroom; Innovative Management; English teaching; On-line platform

1 Introduction

Harvard professor Eric Mazur played a significant role in the development of concepts influencing flipped teaching through the development of an instructional strategy he called peer instruction. Mazur published a book in 1997 outlining the strategy entitled, *Peer Instruction: A User's Manual*. He found that his approach which moved information transfer out of the classroom and information assimilation into the classroom allowed him to coach students in their learning instead of lecture.^[1]

In 1993, Alison King published "From Sage on the Stage to Guide on the Side". King focuses on the importance of the use of class time for the construction of meaning rather than information transmission.

Lage, Platt and Treglia published a paper entitled "Inverting the Classroom: A Gateway to Creating an Inclusive Learning Environment" (2000) which discusses their research on flipped classrooms at the college level. Lage, Platt, and Treglia assert that one can leverage the class time that becomes available from the inversion of the classroom (moving information presentation via lecture out of the classroom to media such as computers or VCRs to meet the needs of students with a wide variety of learning styles.^[2]

Perhaps most recognizable contributor to flipped classroom is Salman Khan. In 2004, Khan began recording videos at the request of a younger cousin he was tutoring because she felt that recorded lessons would let her skip segments she had mastered and replay parts that were troubling her. Salman Khan founded Khan Academy based on this model. For some, Khan Academy has become synonymous with the flipped classroom, however, these videos are only one form of the flipped classroom strategy.

American High school teachers Aaron Sanns and Jonathan Bergman were the first to flip their classrooms. The Flip started when these teachers began supplying absent students with an on-line lecture they could watch from home or from wherever they had access to a computer and the Internet, including school or the local library. They soon realized that if all their students could do this from home, then they wouldn't need to lecture in class. Instead, class time could be used for expanding upon the content through collaborative learning and mastery concept exercises.^[3]

At recently, Flipped Classroom has become increasingly popular at home and broad as a new teaching model, which sets a new direction for the education reform especially for the College English Listening and Speaking Course in China. Compared with some traditional teaching model, Flipped Classroom stresses the idea of "Learner Center" more.

2 The Contrast Between Flipped Classroom and Traditional Classroom Teaching

In the traditional model of College English Listening and Speaking classroom teaching, the English teacher is typically the central focus of a lesson and the primary disseminator of information during the class period. The teacher responds to questions while students defer directly to the teacher for guidance and feedback. In a classroom with a radically traditional style of instruction, individual lessons may be didactic and entirely content oriented. Student engagement in the traditional model may be limited to activities in which students work independently or in small groups on an oral application task designed by the teacher. Class discussions are typically centered on the teacher who controls the flow of listening exercises and the conversation. But this kind of teaching model lacks efficiency. Students usually lose interests in the teacher-centered class.

The flipped classroom intentionally shifts instruction to a learner-centered model in which class time is dedicated to exploring topics in greater depth and creating meaningful practicing opportunities, while educational technology such as on-line videos are employed to deliver content outside of the classroom. In a flipped classroom content delivery may take a variety of forms. Oftentimes video lessons prepared by the teacher or third parties are used as a content delivery mechanism, though on-line collaborative discussions, digital research, or text reading may be utilized as well.^[4]

Flipped classrooms also redefine in-class activities. In Wuhan University of Science of Technology (hereafter referred to WUST), traditional English Listening and Speaking in-class lessons focus on the listening and speaking tasks in textbook. The flipped classroom may include more in-depth lecture or more English oral activity, among other practices, to engage students in the content.

3 Flipping the Classroom with Innovative Management

The need for improved teaching effectiveness and efficiency in College English Listening and Speaking Course drive us to apply the Flipped Classroom teaching model in the 64 English classes of the grade. The students of the class come from different majors.

What we use in the Flipped Classroom is Lange On-line Platform. Lange On-line Platform is the only platform in our university which can be utilized to flip learning. It integrates with current Learning Management System, and uses our existing infrastructure, so we can start flipping with existing computers supplied in the language learning centre. By implementing the flipped learning approach, we are able to save time, build stronger relationships with students, and let students take control of their own learning.

3.1 The management of the flipping the classroom

3.1.1 Record the screen. With the software, we can record whatever is on the screen—presentations, lessons, diagrams, and more—as sharable video for flipped learning.

3.1.2 Host the videos. Lange On-line Platform gives us the place to put the flipped recordings, where students can access them anytime in the language learning centre. Everything is stored in the server.

3.1.3 Check who watched the videos. After we put the videos on the platform, we can easily check which students watched the flipped videos and how much they’ve viewed because for each video we set a pass mark, with real-time analytic in Lange Platform. We can also add check-in points to the videos to make sure students grasp the lesson.

3.1.4 Rewind and replay instruction. Not all students learn at the same pace. We let students rewind and replay lessons as much as they need during the given time, so struggling students have more time to master tough topics. They can pause, jump to a specific section of the video, or even replay it at a faster speed (up to 2x), for quick review.

3.1.5 Adapt the listening tasks in the textbook. Contrary to traditional classroom, all the listening tasks are adapted into quizzes. During the given time, students are required to finish the quiz and get the score of the quiz. The feedback of the quiz is collected and analyzed by the teacher. The teacher can easily know the studies of all the students and which part of listening task should be given more concentration in class.

3.1.6 Lay the oral activities before class. Instead of spending time to prepare for oral activities in class, students can prepare oral activities or give their presentations right after the speaking section begins in class.

3.1.7 Design staged testing. During one semester, I can design several staged listening test. We can check the students’ learning and make adjustment to my teaching.

In order to supervise the students’ learning process, we set up new management system for student achievement.

Table 1 Management System for Student Achievement

Traditional Class			Flipped Class			
Learning record during the course	Attendance	20%	30% of the final grade	Attendance	10%	50% of the final grade
	In-class performance	40%		In-class performance	30%	
	On-line learning	40%		On-line learning	50%	
				Staged test	10%	
Oral Test	30%		70% of the final grade	Oral Test	30%	50% of the final grade
Listening Test	70%			Listening Test	70%	

Unlike the traditional college English listening and speaking classroom model, a Flipped Classroom puts students in charge of their own learning. By providing lectures on-line, we give students the opportunity to learn at their own pace. Once a student passes all the on-line tasks, he can move on. Also, students who need more time to master a concept won't get left behind.^[5] In the Flipped Classroom environment, the teacher becomes the guide off to the side, acting as more of a facilitator, helping and guiding small groups and individuals toward learning success.

4 Reflection of the Flipped Classroom in the English Listening and Speaking Course

The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. Short video lectures are viewed by students at home before the class session, while in-class time is devoted to oral exercises, presentations, or discussions. The video lecture is often seen as the key ingredient in the flipped approach, such lectures being either created by the instructor and posted on-line or selected from an on-line repository. While a prerecorded lecture could certainly be a podcast or other audio format, the ease with which video can be accessed and viewed today has made it so ubiquitous that the flipped model has come to be identified with it. The notion of a flipped classroom draws on such concepts as active learning, student engagement, and hybrid course design. The value of a flipped class is in the repurposing of class time into a workshop where students can inquire about lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities. During class sessions, instructors function as coaches or advisors, encouraging students in individual inquiry and collaborative effort.

The flipped classroom is an easy model to get wrong. Although the idea is straightforward, an effective flip requires careful preparation. Recording lectures requires effort and time on the part of faculty, and out-of-class and in-class elements must be carefully integrated for students to understand the model and be motivated to prepare for class. A questionnaire is conducted with 127 Flipped Class students for collecting data to analyze the management exerted in the model.

Table 2 Questionnaire for Flipped Class

Questions	A. Yes	B. No
Do you like the Flipped Class model?	87.76%	12.24%
Are there too many assignments?	45.91%	54.08%
Is the learning before class difficult?	30.52%	69.47%
Is the Flipped Class time-consuming?	64.58%	35.42%
Is the Flipped Class helpful for you?	65.27%	34.74%
Does the Flipped Class improve your self-study ability?	82.48%	17.52%

Although most students show their satisfaction toward the Flipped Class management, there are still some problems remained. As with any situation, there are always pros and cons.

4.1 The Reflection on a Flipped Classroom

4.1.1 Introducing a flip can mean additional work and may require new skills for the instructor, although this learning curve could be mitigated by entering the model slowly.^[6]

4.1.2 There is no guarantee students will watch the on-line lecture at home and come to class prepared. Even I set a viewing time for every video. Still there are some students don't watch the video within the given time. A Flipped Classroom's success is dependent on student engagement.

4.1.3 Some Chinese students may not like the idea of a Flipped Classroom. They get used to spoon-feed teaching. And they might have been known to complain about the loss of face-to-face lectures, particularly if they feel the assigned video lectures are available to anyone on-line. Students with this perspective may not immediately appreciate the value of the hands-on portion of the model, wondering what their tuition brings them that they could not have gotten by surfing the web.^[7] Teachers will need to be prepared to meet some resistance from the students.

4.1.4 Although allowing each student to work at their own pace may be extremely beneficial for the students, it may lead to a larger workload for the teacher. Having to manage multiple students working on multiple assignments within multiple standards may become time-consuming. And it is also a burden for the teacher to record all their performance on the on-line platform and in class.

4.1.5 Those who see themselves as attending class to hear lectures may feel it is safe to skip a class that

focuses on activities and might miss the real value of the flip.

4.1.6 Standardized testing can become problematic in a Flipped Classroom. Students may not get satisfactory scores in the whole grade examination.

The flipped classroom represents a reversal of traditional teaching where students gain first exposure to new listening material outside of class, usually via watching videos, and then class time is used to explain some difficult language points or listening skills, and also practice the oral activities such as role-play, discussion or debates. The use of video and other prerecorded media puts lectures under the control of the students: they can watch, rewind, and fast-forward as needed. Lectures that can be viewed more than once may also help those for whom English is not so proficient.

4.2 The Suggestion for Innovative Management

Devoting class time to oral activities might give instructors a better opportunity to detect errors in their oral English, particularly those that are widespread in a class. At the same time, collaborative projects can encourage social interaction among students, making it easier for them to learn from one another and for those of varying skill levels to support their peers.^[8]

4.2.1 Set a Date. Set a date of the learning of each unit in advance so that the students can finish their learning before the day.

4.2.2 Get out of the way. By creating an environment where students learn from each other and at their own pace, the teacher becomes a guide, offering more time for individual and small group guidance.

4.2.3 Record each student's learning carefully. In order to supervise their learning, the teacher is supposed to record the performance of every step in their learning both online and in the classroom.

5 Conclusion

The Flipped Classroom constitutes a role change for instructors, who give up their front-of-the-class position in favor of a more collaborative and cooperative contribution to the teaching process especially for the Chinese College English Listening and Speaking Course. There is a sharp change in the role of students, many of whom are used to being lectured as passive participants in the education process, where instruction is served to them. The flipped model puts more of the responsibility for learning on the shoulders of students while giving them greater impetus to experiment. Activities can be student-led, and communication among students can become the determining dynamic of a session devoted to learning through hands-on work. What the flip does particularly well is to bring about a distinctive shift in priorities—from merely covering material to working toward mastery of it. But how to utilize the Flipped Classroom model more efficiently in the teaching process of Chinese College English Listening and Speaking Course remains quite a lot of exploration. We are supposed to explore innovative management methods in the Flipped Class, which will guarantee the effectiveness of the new teaching model in the English Listening and Speaking Course.

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A Discussion on Six Characteristics of Exhibition Industry Development in Yangtze River Delta Economic Industrial Zone*

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Abstract: Exhibition industrial belt in Yangtze River Delta zone has achieved a rapid development and maintain a strong growth momentum in recent years relying on a powerful economic foundation and developed regional industry. This paper will analyze the division and role of domestic exhibition industrial belt as well as its basic situation. It will also focus on six characteristics including superior location, prominent industrial economic, advanced venues and equipment, high opening, high-quality exhibition brands as well as sufficient professional talents in exhibition industrial belt. The study on developmental advantages of exhibition industrial belt in Yangtze River Delta zone will be helpful of developing domestic exhibition industry as well as other industrial belts.

Key words: Exhibition economy; Yangtze river delta; Industrial belt; Mice brand; Characteristics

1 Introduction

There are several different understanding and division of exhibition economic industrial zone in China. Therefore, it is undoubtedly necessary to make some comparative thought and research taking characteristics of different regions into account.

The Yangtze River Delta industrial belt of exhibition economy has been put the first place based on its unique geographical advantages and active regional industry. It also owned a strong discourse power. An important reference for a healthy development of other industrial belt of exhibition economy will be given according to the analysis and research on developmental characteristics of the Yangtze River Delta industrial zone of exhibition economy.

2 The Division and Effect of Yangtze River Delta Exhibition Economic Industrial Zone

2.1 The fundamental division of Yangtze River delta exhibition economic industrial zone

The scholars of MICE industry have carried on in-depth study on exhibition industry zone (economic zone, etc.) with the rapid development of exhibition industry. Four main points of view will be list in the following paragraph:

2.1.1 “Four exhibition economy industrial zones and Midwest Convention Center Cities”

Four exhibition economy industrial zones includes “Beijing and Tianjin-North CHINA Exhibition Economic Belt”(Center: Beijing); “Yangtze River Delta-East China Exhibition Economic Belt”(Center: Shanghai); “the Zhujiang River Delta - South China Exhibition Economic Industrial Belt”(center: Guangzhou, and Hong Kong); Northeast border exhibition economy industrial belt (leading cities: Dalian, Harbin, Changchun and Shenyang). Besides, Convention Center Cities in Midwest are consist of Wuhan, Zhengzhou, Chengdu as well as Kunming.^[1]

2.1.2 “Three strategic ecology group of exhibition cities”

It is consist of “Northern Strategic ecology group of exhibition cities” (Center: Beijing); “Yangtze River Delta exhibition cities of strategic ecology group”(Center: Shanghai) and “Zhujiang River Delta strategic ecology group of exhibition cities” (center: Guangzhou).^[2]

2.1.3 “Four industrial zone of Exhibition economy”

It includes “Bohai exhibition economy industrial zone” (center: Beijing); “Yangtze River Delta exhibition economy industrial zone” (Center: Shanghai); “the Zhujiang River Delta exhibition economy industrial zone” (center: Guangzhou, Hong Kong) and “Midwest Exhibition economic belt” (leading

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cities: Chengdu, Kunming).^[3]

2.1.4 “Three circles and three zones of exhibition industry

It is consist of “Bohai exhibition Economic Circle” (Center: Beijing); Yangtze River Delta exhibition economic circle (Center: Shanghai);the Zhujiang river Delta exhibition economic circle (Center: Guangzhou); Northeast Asia Exhibition economic zone (core cities: Shenyang, Dalian, Harbin); Midwest Exhibition economic Zone (core cities: Wuhan, Zhengzhou, Xi’an) as well as southwest Exhibition economic Zone (core cities: Chengdu, Chongqing, Kunming).^[4]

It is seen that some consensus has been formed which majority of scholars recognized the presence of exhibition industrial zones of Bohai, Yangtze River and Zhujiang River. They also agreed with the viewpoint of taking Beijing, Shanghai and Guangzhou as central cities. However, scholars have kept the different understandings of exhibition industrial belt. The first difference is the number of industrial belt. The other difference come from the determination of core cities.

2.2 The main effect of Yangtze River delta exhibition economic industrial zone

Beijing, Shanghai and Guangzhou held 1931 exhibitions which accounted for 24.6% of the number of domestic exhibition in total in 2013. The exhibition area in the above mentioned cities (a total of 30.47 million square meters) in 2013 also nearly accounted for one third of total exhibition area in China. (Table1)

Table 1 Statistics of Three Exhibition Economic Circles in 2013

Sector	Yangtze River Delta	Zhujiang River Delta	Bohai Sea
The number of exhibition	3041 (Shanghai 798)	788 (Guangzhou 251)	1597 (Beijing 882)
The area of exhibition (ten thousand square meters)	3982 (Shanghai 1201)	1790(Guangzhou 890)	1808 (Beijing 956)

The main effects of exhibition economic industrial zone could be divided into three aspects.

2.2.1 Reflects the characteristics of the exhibition economic growth pole

The way in which focus on nurturing exhibition economic growth pole could enhance the impact of the regional industry in the exhibition economy around the world. Germany has attracted a lot of attention as a powerful country in the field of exhibition. In contrast, exhibition effects in China is far significant from Germany because the industry started late. Thus, facilities need to be improved, personnel training need to be actively promoted as well as exhibition laws and regulations need to be set up. The division of industrial belt is helpful of constantly refining the brand. It is also an important means of participating in global competition. Take the Yangtze River Delta exhibition industrial zone for example, this zone has become the most important “economic growth pole” in both China and the world relying on its own pillar industry. In recent years, Shanghai has made a great progress on venue construction. The completion of a serial of exhibition complex by the end of 2014 has made Shanghai to dominate the total size of venues in the world. It has changed the global exhibition pattern in a certain sense as well as enhanced radiation of Shanghai for the Yangtze River Delta industrial belt and exhibition industry in the world.

2.2.2 Promote the development of regional exhibition economic and the rise of competitive industry

The development of exhibition industry must rely on large-scale characteristics or competitive industries apart from infrastructure and institution building. For example, Booming regional industries in Jiangsu and Zhejiang Provinces provide a good industrial base for exhibition economy. A developed industry economy in the Yangtze River Delta contributed to the rapid development of exhibition industry in this area. Exhibition industry belt conversely gives a feedback to these supported industries. Moreover, it has become a accelerator for industrial economy. This division allows the regional economy and the development of competitive industries to get better. Therefore, it is necessary to carry out a better planning of exhibition and its related industries so as to take a deeper, wider range of influence on the whole country even the world.

2.2.3 Integrate and use of regional exhibition resources

From an viewpoint of exhibition ecology, creating a consistent exhibition brand should avoid duplicating exhibitions. It requires a integration and the use of the resources in exhibition industry. Meanwhile, it also requires a awareness of brand geographical distribution while nurturing regional specialties as well as focusing on brand exhibition features. For example, many cities in the Zhujiang River Delta have began to imagine to form a large-scale brand furniture exhibition on the basis of a serial of furniture exhibitions separately. Besides, the proposal of exhibition economy industrial zone is also helpful of attracting foreign exhibitors as well as integrating regional resources to participate

exhibition overseas. For example, many world-renowned exhibition companies landed in Shanghai and other cities in the Yangtze River Delta in recent years. It shows a great attraction of the development in the area. It also benefits to promote a bigger and stronger exhibition industry as well as build a globalizational, market-oriented, brand-oriented, specialized and standard exhibition economy.

3 The Overall Condition of Yangtze River Delta Exhibition Economic Industrial Zone

The Yangtze River Delta industrial belt is consist of 15 cities where come from two provinces and one municipalities (Zhejiang Province, Jiangsu Province and Shanghai) according to the viewpoint of geographical space.(Table 2) This industrial belt aggregats 6% of Chinese population. Its gross domestic product accountes for 20% overall.

Table 2 Main Cities in the Yangtze River Delta Exhibition Economic Industrial Zone

Province (Municipalities)	Provincial capital	Sub-provincial city (Municipalities)	Prefecture-level city	New entrants
Shanghai	Shanghai	Shanghai		
Zhejiang	Hangzhou	Hangzhou & Ningbo	Huzhou, Jiaxing, Shaoxing & Zhoushan	Wenzhou, Yiwu & Yongkang
Jiangsu	Nanjing	Nanjing	Suzhou, Wuxi, Changzhou, Zhenjiang, Nantong, Yangzhou & Taizhou	Kunshan
Total	3	4	11	4

The basic pattern of the Yangtze River Delta industrial zone is that Shanghai takes a place of leader while Nanjing, Hangzhou, Ningbo, Suzhou acting actively. (Figure 1)The regional economic foundation of the Yangtze River Delta zone is better then other zones as well as its higher GDP. Nowadays, it has achieved obvious advantages in domestic three exhibition industry zones. Its representative exhibitions includes 9th APEC and 41st World Expo in Shanghai as well as Hangzhou Westlake Expo and Tourism Expo in Ningbo.

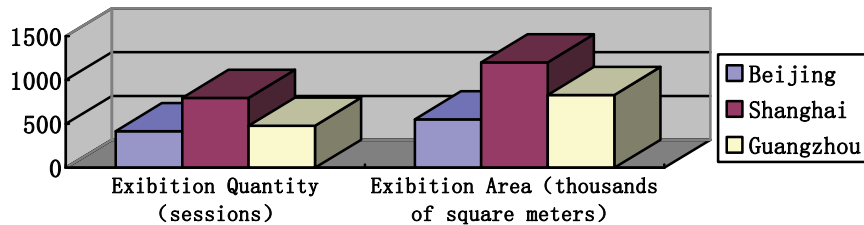


Figure 1 The Exhibition Situation of Beijing, Shanghai, Guangzhou in 2013

4 Six Characteristics of Exhibition Industrial Development about Yangtze River Delta Economic Industrial Zone

The characteristics of exhibition industrial development about Yangtze River Delta Economic Industrial Zone could be divided into six aspects.

4.1 Superior: obvious regional advantages

The Yangtze River Delta region is the largest open area and the most promising economic sectors in China. Shanghai is the transportation hub of the Asia-Pacific region. It owns a number of international routes and excellent transportation on both sea and air. Many multinational companies (such as Philip) and well-known companies (such as Shanshan) have moved its headquarters to Shanghai. For now, Shanghai have formed intense radiation to surrounding provinces relying on its capital markets, the automobile industry, the steel industry and the petrochemical industries.

Most cities in the industrial zone are near the coast. Sea Strategy in China provides a good market opportunity to it. Meanwhile, a papid development of highspeed railway makes cooperation more convenient between cities. Rich resource of ports in this area is another advantages to develop economy. Some well-known cities, such as Nanjing and Hangzhou which have precious cultural heritage also play an important role.

4.2 Highlight: a developed industrial economy

Zhejiang and Jiangsu have obvious industrial economic advantages in addition to Shanghai. Zhejiang Province owns a developed private economy. Its regional clusters formed early and nurtured distinctive characteristic of block industrial distribution. On the one hand, massive industry cluster, professional and strong economy is the basis for the development of exhibition industry. On the other hand, they could promote industry influence through vigorously multi-angle exhibition marketing. The comprehensive economic strength of Jiangsu Province has always been in the forefront of our country. It also maintains the leading place in the use of foreign capital. Jiangsu, Zhejiang provinces and Shanghai has always been occupying an important position in China's economic development on the basis of booming industrial development. The annual GDP in China achieved 56.8845 trillion yuan in 2013 while total GDP in the Yangtze River Delta zone achieved 11.833212 trillion yuan (account for 20.8%). Higher economic growth dynamics make this area to become a crossroad in which connects capital flow, personnel flow, flow of goods, technology and information flow. Therefore, the five flows could be used as a great power to promote the rise of the Yangtze River Delta industrial zone.

4.3 Solid: improved venue facilities

Exhibition venues and other facilities are essential elements of the exhibition industry. Venue construction achievement in Shanghai in the past three years is remarkable. Shanghai Hongqiao National Convention Center (predit to complete in the end of 2015) will be the world's largest and best International Exhibition Centre. The volume of the new venue will be equivalent to the scales of three Shanghai New International Expo Centers. The completion of these giant stadiums with international level will ease the prominent contradictions between pavilion utilization and the relatively limited exhibition area in Shanghai exhibition industry (New International Expo Centre's utilization has reached 72 percent compare with 35% of global average utilization). Shanghai will become the city with world's largest scales of venues. Its exhibition economy will undoubtedly enhance competitiveness in further. At the same time, the main cities in the Yangtze River Delta, such as Hangzhou and Nanjing, have achieved great process on modern stadium construction.

4.4 Active: high level of opening

Based on the location along the coast of the characteristics and unique transportation advantages, Cities in the Yangtze River Delta have a higher degree of openness compare with other domestic cities basing on its advantages of location and transportation.

In recent years, the advantage of internationalization in exhibition industry in Shanghai continues to be highlight. Shanghai held 247 international exhibitions (accounted 31% of the number of annual exhibitions in total) with a total exhibition area of 8.745 million square meters (accounted 73% of the overall annual area) in 2013. It is estimated that the proportion of international exhibitions area in Shanghai would reach 80% by 2015.^[6] The number of international exhibition accounted for 18.1% of total annual exhibitions in Zhejiang Province in 2012. In 2013, 5000 local enterprises in Zhejiang Province to participate in exhibitions overseas with exhibition area of 50,000 square meters.^[6] At the same time, Jiangsu Province has also accumulated a wealth of experience in the introduction of international exhibitions as well as brand exhibition cultivation.

4.5 Quality: numerous brand exhibitions

The Yangtze River Delta industrial zone has formed a number of exhibition projects with large-scale and high quality after several years of development. Almost each city has owned one famous brand exhibition at least.

Take Shanghai for example, a serial of well-known exhibitions, such as China International Industry Fair, Shanghai Automobile Exhibition, China International Furniture Fair and China Plastic and Rubber Industry Exhibition have grown. Festivals and special events are also active in Shanghai. Shanghai International Film Festival, Shanghai International Arts Festival, Shanghai International Tourism Festival and Shanghai International Fashion Festival are all scaled. Jiangsu Province has also nurtured lots brand exhibitions, such as Nanjing International Shipbuilding Fair, International New Energy Expo, International Pharmaceutical Expo, which reflecting the strong competitive advantage. Major exhibition cities in Zhejiang Province have formed brand exhibitions with characterisitic industry. Yiwu Expo, International Machine Tool and Mold Exhibition and China Textile Fair are representative exhibitions.

4.6 Sifficient: ordered professional talents training

On the one hand, exhibition education in the Yangtze River Delta has a leading place in China. Universities and colleges in Shanghai, Hangzhou and Nanjing have provide different levels of professionals to exhibition industry. 34 colleges and universities in Shanghai and Zhejiang Province

carries on professional exhibition education.^[7] On the other hand, local Exhibition Industry Association has conducted various fruitful training. For example, Shanghai Exhibition Industry Association has organized several times of professional skills training in exhibition management. 2013 More than 500 people in the industry were given lectures and achieved different levels of qualification by 2013. Additionally, local exhibition industry associations has carried out exhibition planning contest for college students each year and supplied college students with a good platform in which could help them to early adapt community as well as industry competition.

5 Conclusion

The Yangtze River Delta exhibition economic zone has formed a good situation of resources sharing, complementary advantages and win-win cooperation. It has made remarkable achievements. However, the Yangtze River Delta industrial belt of exhibition economy still needs to continue to seize the opportunities and faces positive challenges. Standardization, ecology, brand building should be focused. It is responsible that The Yangtze River Delta exhibition economic zone should improve international competitiveness of regional MICE brand. Therefore, it could make a more positive contribution to the exhibition industry development in China.

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EVALUATION OF SUSTAINABILITY OF BRAZILIAN ETHANOL PRODUCTION: A MODEL IN SYSTEM DYNAMICS

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Abstract

System dynamics is an approach to analyze the behavior of complex systems, such as the productive chains, strictly considering the inherent characteristics. This approach is based on mathematical concepts of nonlinear processes developed in mathematics and physics and consolidated in engineering. The concepts inherent in this approach assists in creating a mathematical model which represents a production chain by using computer simulation. Thus, the main objective of this paper is to present the formalization of the dynamic model of assessing the sustainability of Brazilian ethanol production, its borders (external environment) and the scenarios needed for a deeper understanding of relation of cause and effect, causal loops and diagrams of flows and stocks as a result of the awareness stage, with regard to understanding the problems involved, according to methodology known as design science.

Keywords: ethanol, system dynamics, sustainability

1. Introduction

1.1. Ethanol Production in Brazil

The Brazilian supply of ethanol grew in the period 1994-1998 when a crisis period began due to high inventory levels and drop in the domestic market. During this period the price of sugar in the international market has increased and consequently the supply of ethanol in the domestic market plummeted. With the fall in demand, the share of ethanol-powered vehicles decreased from 75.5% in 1985 to 0.06% in 1997, with high financial and tax costs. This picture has reversed since 2001, when ethanol engines began to be produced again. This trend has given rise to the emergence of a new ethanol industry since 2003 when entered the scene with flexible fuel engines.

Brazilian sugar and ethanol industry gathered in the biennium 2012/2013, 602 million tons of sugarcane by 8.5 million hectares. Production accounted for 38.8 million tons of sugar and 23.9 billion liters of ethanol. This represents a share of 41.8% in the total world production of ethanol, estimated at 49 billion liters. It is expected that Brazil bend the growing area of sugarcane in the next twenty years reaching a production of 40 billion liters of ethanol.

Despite the picture above, the ethanol produced from sugarcane has turned recently the subject of intense attacks by European authorities. They see the expansion of biofuel production around the world the reason for a rise in food inflation. The United Nations (UN) sentenced the biofuels, with the Special Rapporteur statement to the High Commissioner for Human Rights, that mass production is a crime against humanity for its impact on world food prices. According to Oliveira (2009), through the expansion of biofuels remains follow in question: what are the consequences for food production in Brazil with the expansion of the sugarcane crop in the next 20 years?

Data from the Brazilian Institute of Geography and Statistics (IBGE), between 1990 and 2012, show that the reduction of food production, imposed by the expansion of planted area of sugarcane, grew in this period, more than 2.7 million hectares. Taking the municipalities that had the expansion of more than 500 hectares of sugarcane in that period verify that there was reduction of 261 thousand hectares of

beans and 340 thousand hectares of rice. This reduced area could produce 400,000 tons of beans, ie 12% of national production, and a million tons of rice, equivalent to 9% of the country's total. In addition, in these municipalities the milk production was reduced to 460 million liters and the amount of cattle was reduced by more than 4.5 million.

São Paulo State, in 2006/2007, cultivated 3.8 million hectares of sugar cane, representing 61% of national total sugar cane area. In the same year, it produces 61.5% of ethanol (10.9 billion liters), 65.8% of sugar and 61% of sugar cane from national total production. In 2007/2008, the outlook is a national production of 20.5 billion liters, and São Paulo would participate with 12.7 billion liters, about 62% of the total. In 2015, its participation would decrease to 54.9% due to availability and much lower cost of land in other region. This deconcentration, will depend on mid-west logistics for product transportation, as the Transpetro's ethanol pipe from Senador Canhedo, GO, linking Guararema, and from there, linking São Sebastião harbor, in São Paulo State. Global sugar cane ethanol supply is in expansion as other nations are wakening for this lower cost renewable fuel, while the United States are increasing the production of corn ethanol, with a higher cost. However the drivers of this process of the global supply Market is much more related to the amount of investments in science and technology for the next generations of ethanol production from many other sources of biomass. Therefore, the competitive advantage of countries that rely only in the availability of land and sun light and the actual ethanol technology is not guaranteed in the long run.

Nevertheless, the role of technology transfer for widespread sugar actual cane technology yet has the important argument of creating an ethanol international supply market, decreasing risks for traders and users. However, as history matters, global markets of many other agribusiness commodities have being developed along the last centuries and problems of supply (lack and excess), protectionism, and crises are still happening. But the increase of a renewable source of energy will be inexorable, as the investments in production, from the global agribusiness players: traders, logistic operators, mills corporations, regarding mills acquisition, joint ventures and fusion strategies, obtaining advantages with knowledge, supply, economies of scale, market power, transaction costs reductions and risk management. As a result of this dynamic, the Brazilian domestic consumption for fuel hydrated and dehydrated ethanol, in 2006, was 14 billion, and the 3.6 billion were exported, and the remaining 1.4 billion were for industrial use.

Despite the production of ethanol is being studied in various universities, research institutions, government agencies and the private sector, regional production and distribution characteristics have not been sufficiently addressed in research, but are essential to assess the risks and the consequences of such expansion in the environment and in food production.

The picture above associated with the fact that the simulations make it possible to observe the risk factors more clearly than it is possible in real scale, given the complexity of the production-distribution processes, justifies the development of a dynamic model of production based on dynamic ethanol system. In this simulated microcosm becomes possible to isolate the effects and causes more easily than when engaged by the complexities of the real world. (WARREN, 2008).

1.2. Public Policy Prospective Analysis

The literature of prospective analysis describes applications for science, technology and innovation planning, business strategies and governmental policy. The methodological path discussed in this section describes a broad range framework of techniques, highlighting linkages among them, which were used in the prospective ongoing process that will be described in the end of this section.

Prospective studies aims obtaining information for deciding about future events to anticipate and understand the drivers, potentialities, evolution, characteristics and effects of innovation processes, institutional and technological change (Coelho, 2003; Zackiewicz and Salles-Filho, 2001). Technological prospective exercises and its variety analysis tools can be an important instrument for focalization primary needs and identification of knowledge gaps to be filled by research institutions and therefore their resource allocation.

Foresight is a multidimensional process to understand the long term future drivers that have to be taken into account to policy, strategy, planning and decision formulations (Coates, 2001). It uses qualitative and quantitative methods for monitoring signs and trend indicators of an evolving issue. Coelho (2003) considers intuitive methods based on specialist assessment are more suitable and cover

a broader range of applications in this approach. Although, foresight per se doesn't define policies, it can develop visions about how the future could be built (Santos et al, 2004), and suits better when applied to policy analysis and its implications, helping policies to be more robust and flexible in its implementation according to time line and changing conditions. However, these foresight processes are increasingly complex and new techniques are being applied to decrease complexity in the foresight, by constructing roadmaps (Saritas and Oner, 2004).

Road mapping is a planning framework (Phaal et al, 2004) been used by a broad range of purpose applications including to support strategic and long-range planning intraorganization, inter-organizations (industry), from the private sector science & technology driven to the state-owned companies and governmental policy agencies. It is a systemic approach (Garcia and Bray, (1997) for a live monitoring instrument which provides a tool for linking the environment scanning with scenario planning (Schoemaker, 1995) and other prospective techniques. It also links drivers` evolution and inter-relation on markets, products, technologies, knowledge, resources and policy development and implementation in a time line. A policy road mapping process can deal with different levels of future drivers: macro socio-technical transitions and institutional changes, industrial organization, supply-chain interaction and science organization. A roadmap can link these levels of analysis to business/industry sustainability threats and opportunities and the policy formulation agenda. It also links impact analysis and rank the eligible paths according to the evolving future.

In the case of public policy formulation road mapping process, the knowledge flows are of two types: one "pull" driven process, in which requirements of knowledge and research are identified and resources are allocated for a long term problem solving approach; other is a "push" driven process where knowledge and capabilities are allocated to influence and establish the policy formulation process and content for a short term problem solving approach. Porter et al (1991) classify families of prospective methods that are described according to their refinement, information availability and treatment. Creativity is a technique for knowledge interaction and generation of a great volume of new ideas.

Specialist panel detects tacit knowledge and weak signs, therefore, it brings ambiguities and is used when information can't be quantified or modeled. Monitoring and intelligence systems are sources of pre-organized information for identifying critical trends and events, their relations, opportunities and threats. However, it provides a great quantity of information from several sources, and when poorly managed, it can result in non-systematized, non-analyzed, non-selective information excess. Scenario aims to build alternative future pictures, analyzing dominant trends and disrupting possibilities, in a explorative or normative approach. Evaluation and decision are methods to decrease uncertainty complexity when multiple interests and dimensions are being taken in account.

Participative methods have become the key of prospective processes due to the application of its implicit democratic approach, conferring social legitimacy to results and have the ability to involve a diversity of participants, creating collective arrangements, searching for harmonic decision and implementation process. Other important major aspect is the fact that the knowledge construction has more effectiveness when there is interaction of knowledge dispersed among participants of an innovation process, and strategic information is widespread among key people involved. Due to these characteristics, they have an interesting appeal on methodology management. Impact assessment can be complementary when this activity is based on scenarios built by the prospective phase.

1.3. Application of system dynamics to sustainability studies

The system dynamics is an approach to analyze the behavior of complex systems, such as supply chains, strictly considering the inherent characteristics. This approach is based on mathematical concepts of nonlinear processes developed in mathematics and physics and consolidated in engineering. The concepts inherent to the methodology aid in the creation of mathematical models representing the productive chain may diagnose problematic points in chain structure using computer simulations employing an easy to understand representation.

The discovery that mental models influence the way people see the reality has, without doubt, directed the use of system dynamics more on order of explanation of thinking about reality than obtaining numerical answers for well-structured problems (Davies, 1996). In this sense, the most important in system dynamics of the use of the process is to produce insights during the modeling process, strongly identified idea to the creation of knowledge, which according to De Geus (1994), a former executive of

Shell, constitutions if the central to innovation and to the perception of new opportunities. This fact puts the system dynamics from a different perspective from traditional analytical and econometric methods, placing it in the heart of the practice and theory of organizational learning, as postulated by Senge (1990) in his book "The Fifth Discipline".

Agarwal and Shankar (2008) argue that due to the causal relationship, existing in the production system, the approach of dynamic systems is well suited to capture the impact of the dynamic performance of the variables on the integration and responsiveness of the production system in a given time interval.

Researches on systems dynamic applied to sustainability studies are divided into three major groups:

- i. Researches that contribute to the construction of theories about sustainability;
- ii. Researches using the system dynamics in solving sustainability problems;
- iii. Researches working in the development and improvement of modeling tools in sustainability.

The research of Chichakly and Eberlein (2013) is a typical example of the use of systems dynamic in theory construction. Studying IT service industry Minis et al (2010) proposed a new theory for the virtuous and vicious cycles, using an exploratory causal model to describe the interrelationship of the key success factors.

Morecroft (2007) uses the dynamic systems to solve strategy problems by developing a strategy management model for simulating several scenarios. Cha, Pingry and Thatchen (2008) investigated the amplification of demand in supply chains.

Research on the development and improvement of modeling tools in dynamic systems are an example in the work of Howick and Eden (2004) that studied the nature of discontinuities in system dynamics modelling of disrupted project. Another paper on the line is Arango and Osorio (2009), which considers also the technical, organizational complexity inherent to the system dynamics model for the world coffee market. The System Dynamics offers a suitable framework to accommodate various elements involved and the relationships between them, to integrate them seamlessly in a model that shows in a clear way the weaknesses of current policies and the possibilities of change.

1.4. Research aims

The main aims from this study are to:

1. Identify the main variables, flows and stocks and the causal relationships of sugarcane, sugar and ethanol production processes;
2. Explore how the production of ethanol in Brazil is increasing and how this production is impacting food production;
3. Apply the modeling and simulation in system dynamics in ethanol production system.

The knowledge generated by this study allows for a more thorough discussion of the ethanol production impacts both on the environment and on food production as well as being the basis for the development of the equations that describe the behavior of variables and stocks that are at the root of the simulation process. The study concluded that beginning with the identification and characterized the elements for modeling and working with different scenarios simulation is better to understand the degree of sustainability of ethanol production.

Thus, the main objective of this paper is to present the formalization of the dynamic model of assessing the sustainability of Brazilian ethanol production, its borders (external environment) and the scenarios needed for a deeper understanding of cause and effect, causal loops and diagrams of flows and stocks.

2. Methods

The methodological framework of a research comprise in the selection and justification of a method that is able to respond to the formulated research problem, to be evaluated by the scientific community and demonstrate procedures that make robust research results. These logical steps should not be seen as obstacles to the conduct of research, but as procedures necessary to ensure the

impartiality, accuracy in work driving and the reliability of results. Thus, this research adopts the methodology the science design. As this research seeks to develop an artifact (dynamic model) to design science proved to be an appropriate methodology, not only dealing with the construction of an artifact but also requiring the application of rigorous methods, both in construction and in the evaluation of the artifact design. Accuracy is often measured by the adherence of the research to an appropriate collection of data and the correct technical analysis.

To identify the variables to the model and the causal relationships, was conducted an interview during the months August and September of 2014, with a group of ethanol producers of local productive arrangement of alcohol (APLA) in Piracicaba, SP. The analysis of these interviews has concluded awareness stage with regard to the understanding of the problems involved, according to the design science methodology. Romme and Damen (2007) argue that it may be necessary to understand the issues from a broader perspective, in which systems thinking (Andrade et al., 2006), for example, could bring a significant contribution.

3. Results and Discussion

In this section we discuss the overview of the model, the causal loop diagram, the diagram of stocks and flows of ethanol production and simulation scenarios. It is used to visual system dynamics modeling tool Vensim[®], software provided by the company Ventana System Inc., which enables the analyst to link words with arrows representing relations between the variables as causal relationships. The stock diagram and flow in Vensim[®] consists of auxiliary or constant, cash variables that represent actions or accumulations. This information is used by the equation editor to complete the modeling process.

3.1. Overview of the model

In the model, sugarcane production is considered as the most important production source, while the production of ethanol and sugar is the second level and the generation of solid waste and wastewater is the third level. The figure 1 is a schematic representation of product flows and inventory information associated with ethanol production. The model doesn't include the second-generation ethanol production, from sugarcane bagasse, because the amount of ethanol produced with this technology is small and doesn't influence the data for simulation.

The availability of land for planting is treated as being shared between sugarcane and food production, that is, it is considered a finite availability of land so that an increase in planting sugarcane implies the reduction in food crops. These increases and decreases are influenced by the planted crop productivity level. The amount of ethanol to be produced is influenced by the production of sugar, which competes in the consumption of sugar and productive resources, as well as by the level of consumption of other types of fuel such as gasoline and vehicular natural gas, in addition to suffering influence of investments in production and distribution infrastructure.

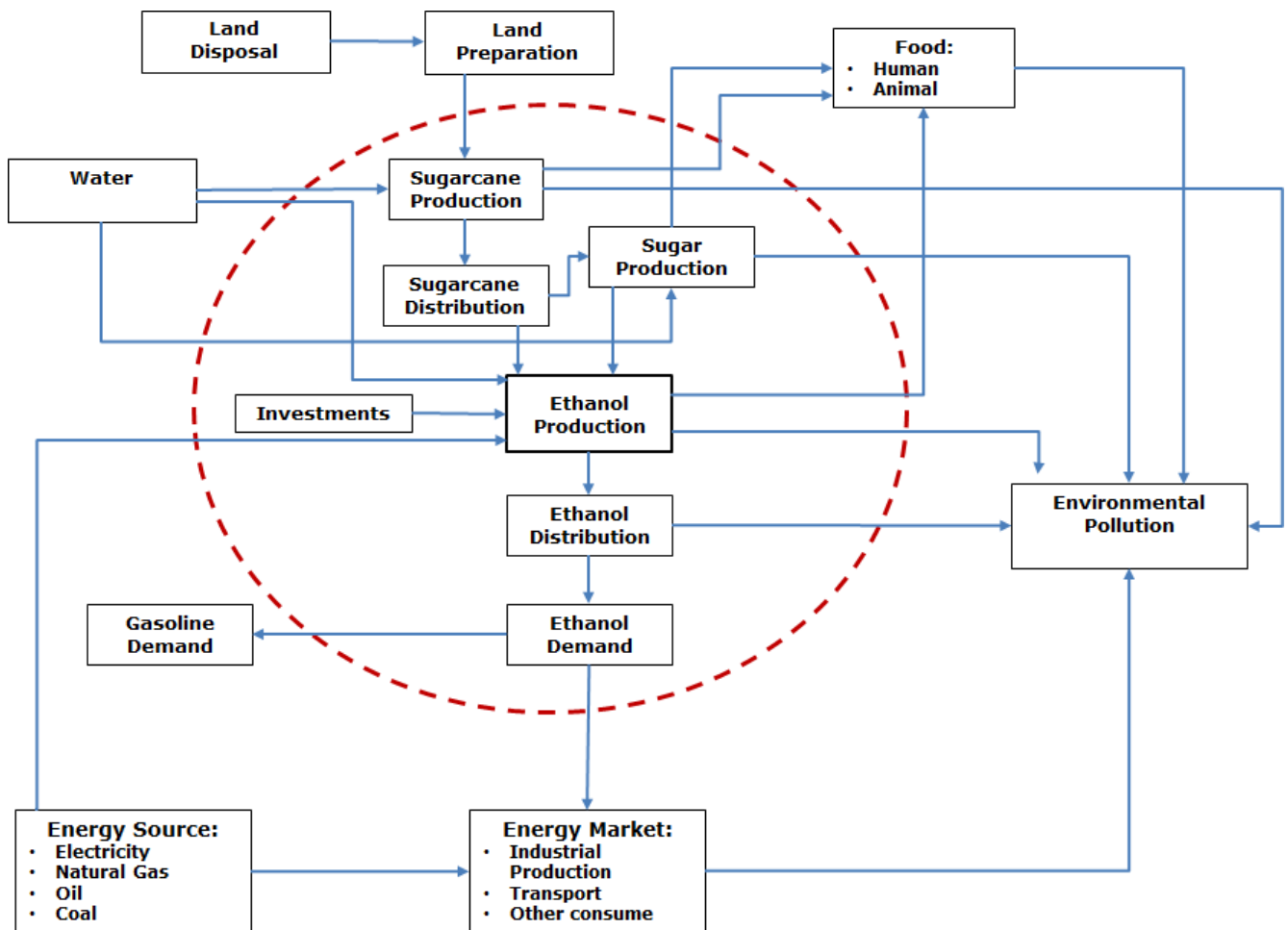


Fig. 1. Overview of the ethanol production model

3.2 Modeling

Modeling a system using the system dynamics is interactive and it's an ongoing process of formulating hypotheses, testing and review of formal mental models. According Sterman (2000), in modeling process a few steps should be considered, such as:

- 1) Problem Articulation - What's the problem? Why this problem? What are the key variables and concepts that should be considered? What time to be considered to the future? What is the historical behavior of the concepts and key variables?
- 2) Formulation Dynamics Hypothesis - Produce initial hypotheses, formulate hypotheses to explain the dynamics and consequences of endogenous feedback structure, develop maps of causal structures based on initial assumptions, key variables and other data available;
- 3) Formulation Simulation Model - Specification of the structure and decision rules, parameter estimation, behavioral relations and initial conditions, tests for stability with objectives and limits;
- 4) Testing – Does the model adequately reproduce the proposed behavior? Does the model behave realistically when subjected to extreme conditions? What is the sensitivity of the model?
- 5) New Policies and Evolution - What environmental conditions may arise? What new decisions, strategies and structures can be experienced in the real world? How can these new scenarios in the model be represented? What is the robustness of the recommended policies for different scenarios, considering the uncertainties? How policies interact? Are there any common actions or compensatory responses?

3.3. Simulation

Simulation is one of the most powerful analysis tools available to people in the design or operation of systems or complex processes. In an increasingly competitive world, simulation has become a powerful tool for planning, design, and system control. Always be remembered as the last resort, the simulation is now seen as an indispensable troubleshooting methodology for engineers, designers and managers. Simulate is to imagine, for the essence of without reality. A better definition for simulation is: the process of designing a model of a real system to conduct experiments with this model, for the purpose of understanding system behavior and / or evaluating various strategies for its operation. It is considered the simulation as the construction of the model and the experimental use with this model is meant to be the representation of a group of objects or ideas in some way than the entity itself. By a model is meant to be the representation of a set or collection of interrelated elements that work together to complete a set goal.

From the perspective of system dynamics, any system natural or artificial, can be described through a language composed of four elements: stocks (levels), which represent accumulations of a resource; flows, which are the activities that produce growth or reduction of inventories; converters that process the information regarding the stocks and flows or represent sources of external information to the system; connectors which are coupling elements of information describing the relationship between stocks, flows and converters. In order to provide a simulation model behavior, it is sufficient to define the relationship and the value of each variable at time zero of the simulation, using for this the features available in the system dynamics software.

According to Agarwal & Shankar (2005), the performance of a supply chain depends on the integration of its trading partners and the ability to respond quickly to market changes. By simulating, the model for assessing sustainability of Brazilian ethanol production wants to evaluate the effect of integration and speed of response to changes in sustainability. The dynamics of interactions between the variables related to the integration of cause and effect and speed should show the importance of the behavior of sustainability in different ethanol production scenarios (represent market changes that require quick responses).

3.4. The causal loop diagram

This diagram shows the interactions and relationships between ethanol production, land use and water consumption, production of sugarcane and sugar. The figure 2 displays the causal loop diagram of the ethanol production system and the factors of influence. The diagram consists of multiple loops that show, for example, the production of sugarcane, sugarcane price, the government tax incentives, demand for ethanol and gasoline prices affect the production of ethanol.

Thus an increase in ethanol production influences reduction in the price which can increase the demand resulting in the increasing of the price. But an increase in the price reduces the demand for ethanol, hence the negative polarity of the link arrow. Once you have a reduction in the price of ethanol, there will be an increased demand for ethanol followed by the gap between the demand and supply of ethanol respectively. This can lead to both an increase of investment in ethanol and more allocation of sugarcane to produce. An arrow closes the cycle of positive polarity since an increase in the allocation of sugarcane to produce ethanol mean an increase in ethanol production. This cycle is an example of a positive self-reinforcing process.

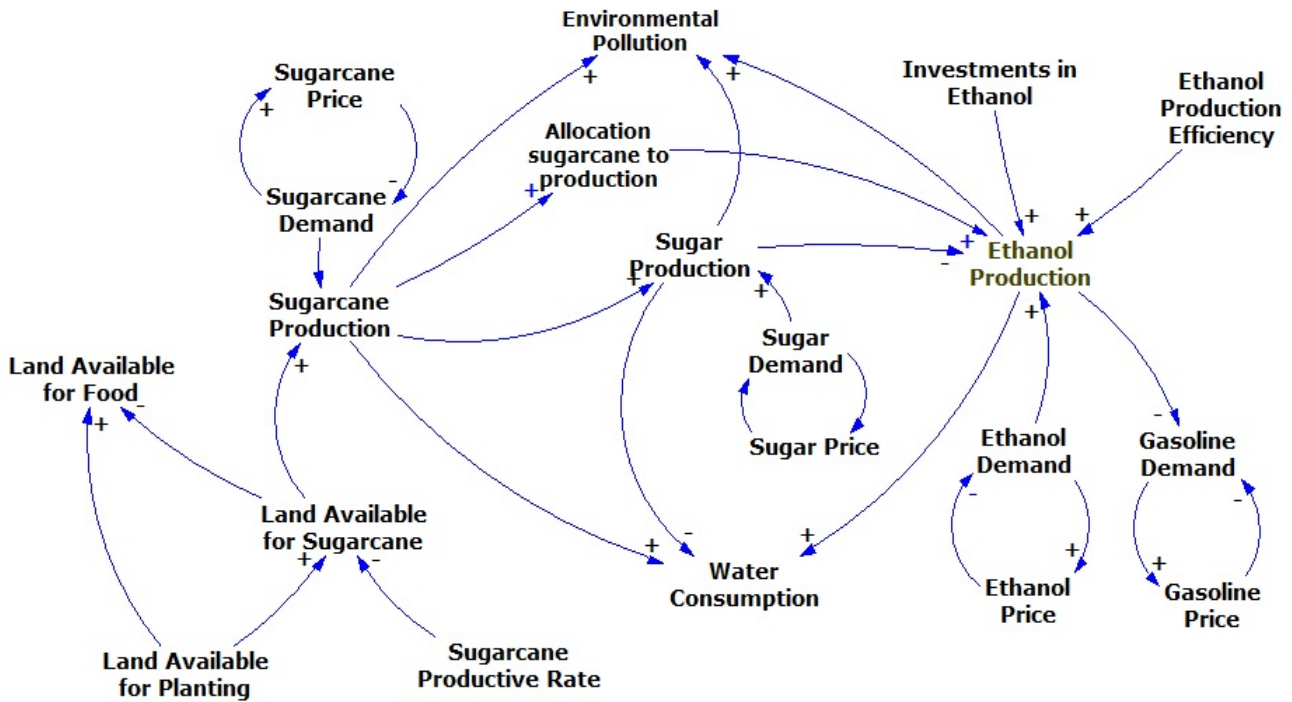


Fig. 2. Conceptual model of ethanol production

However, the cycle would be prevented from increasing the levels of each factor indefinitely because other factors beyond the loop, as the ethanol demand influence the price of ethanol. Gasoline demand also influence the demand for ethanol too.

Another example, an increase in yield obtained with the production and commercialization of ethanol positively affects new investments for the production of ethanol increases and the allocation of sugar for ethanol production. The effect of this is to increase ethanol production and decrease the price of ethanol by the forces of supply and demand. An ethanol lower price may reduce the profitability affecting investment levels. This subsystem tends to be inherently unstable if the acting forces do not take the self-regulation condition.

From the causal loop diagram is noticed that relevant factors for ethanol production level as investments in production, allocation of sugarcane production and profitability has a degree of dependence on production efficiency, the price of ethanol and sugar production, the availability of land for planting that can profoundly affect the needs for food and water production growth becoming unsustainable at expected levels.

3.5. Stocks and flows diagram

The equations that demonstrate the relationship between factors will be built on the basis of production data and investments of sugar and alcohol sector provided by the Department of Agriculture of the State of São Paulo, by the Council of sugarcane producers, sugar and Alcohol of the State of São Paulo and the Ministry of Agriculture.

The model is built considering four steps. The first step is the focal element ethanol and describes the dynamics of supply and demand, or deal with the production, storage and distribution of ethanol. The second stage, additional production, comes from sugar production model as a product substitute for ethanol production. The third step deals with the modeling of water consumption at various stages and land used for the production of sugarcane and food. The fourth step models the dynamics of capital, costs and investments. The forecast period begins from 2016 and extends until 2035. With this information it's possible not only to simulate the dynamic behavior of the production of ethanol, sugar and sugarcane as well as evaluate the impacts on the environment, water consumption and production foods, as illustrated in figure 3.

The flow diagram of inventory threats not only the direct demand for ethanol as well as indirect demand processes resulting mixture of ethanol and gasoline constituting a "pull" system in which the

pulling is demand production. On the other hand, sugarcane harvesting system is modeled as a system "pushed" in which the sugarcane is harvested and destined for processing. In the case of the demand for sugar is less than the expected, there is no formation of a reserve stock for a short period of time to keep it in delaying the harvest field. If demand is greater than expected and the plants have available production capacities, as there is no training of reserve stocks, you can bring sugarcane from other states since the price and shipping cost offset. In this case, the availability of sugar would be the limiting factor for ethanol production.

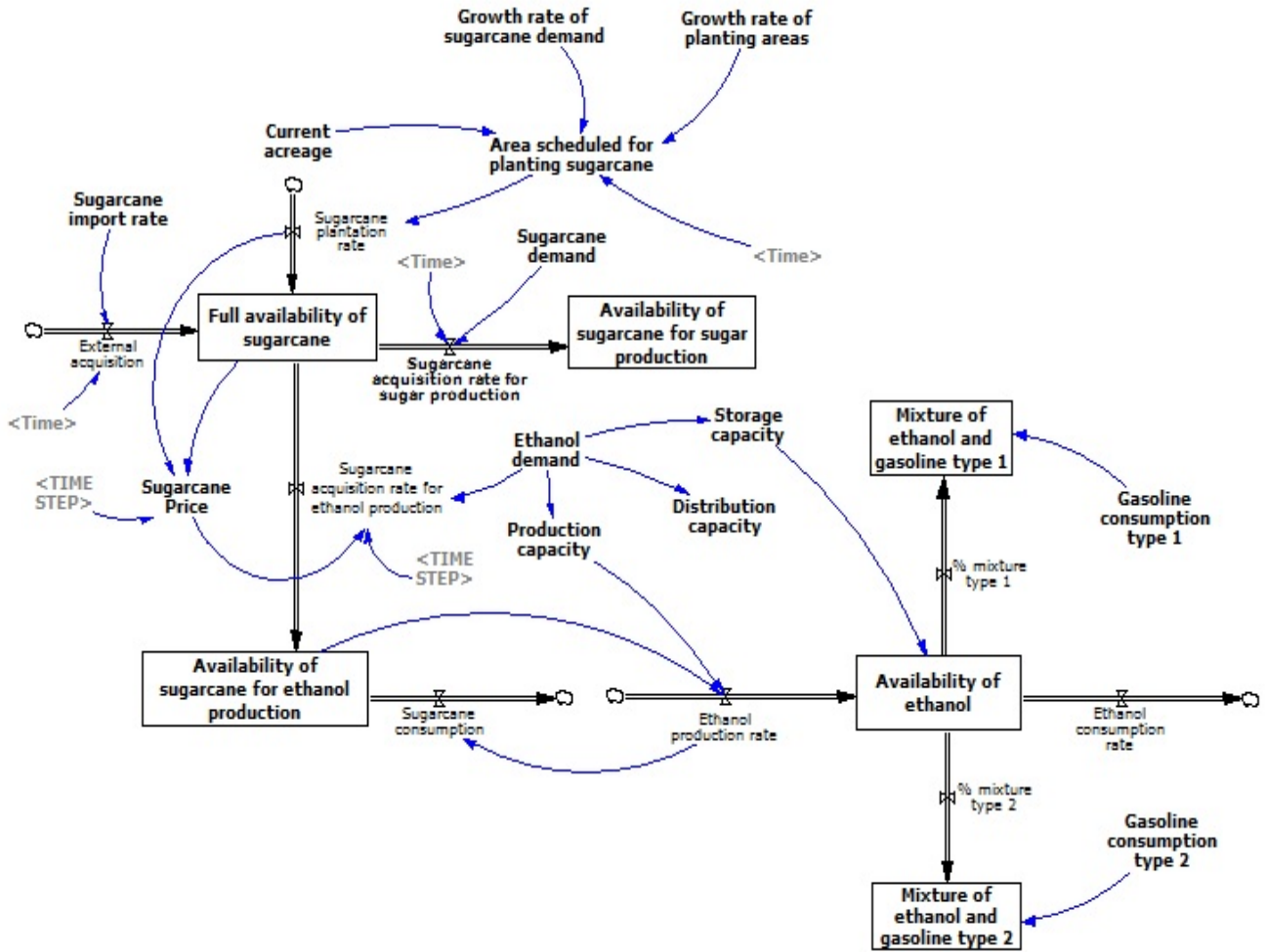


Fig. 3. Stocks and Flow Diagram

The demand of sugarcane for other purposes or sugar production and other industrial applications is shaped according to the projection. The sugarcane allocated to ethanol production depends on the demand, availability and price which in turn depend on the rate of acquisition of sugarcane for ethanol production. If the acquisition rate increases, the price rises and vice versa.

The diagram of stocks and flows also considers demand for ethanol and production capacity increase in the plants in proportion to the amount of sugarcane harvested, increasing the demand of growing areas, occupying spaces before intended for food crops such as rice, beans and corn. Investments in improvements in productivity to obtain the highest percentage of sucrose, exceeding 9% margin, allow the increase of ethanol production without an increase in the same proportion planted areas. This will appear in the diagram as a mitigating factor for consumption land available for planting.

One answer that is expected with this production simulation model is to evaluate how long production remains sustainable in the face of growing demand for ethanol.

3.6. Computational model

Once modeled in Vensim® the causal loop diagrams and charts of stocks and flows, the computer model will require the introduction of the equations that will govern the causal relationships of the

different variables used and the definition of simulation parameters such as unit time to be used and the simulation horizon.

The simulation will work with a set of scenarios to assess the behavior of the variables and the sustainability of production. In the simulation three scenarios apply: an optimist, a pessimist and more likely. In the first scenario, it is assumed that the first period of 120 months, changes in demand and other factors have stable growth rates. In the second scenario, it's introduced changes in production capacity in the plants, oscillating demand for ethanol, water scarcity and fluctuations in the price of the final product, while the other factors remain unchanged. In the third, it's contemplated a scenario in which demand, production capacity, price and production of sugarcane tend to stabilize in the second half of the simulation time.

The computer model allows the interface with other tools such as geographic information systems to display the variations in plantation areas in the form of maps, as well as promote and export data for processing by other computational tools.

4. Limitations of Study

This article discusses the use of system dynamics modeling to model the problem of sustainability of the ethanol production system. The system dynamics modeling appears to be a useful tool for creating scenarios for such problems. However, this article considers some limitations to the use of this specific tool for modeling ethanol production. These limitations are highlighted by the ideas of system theory and by complex science (BOSEL, 2007). There are also fundamental limitations to the correct prediction of the sustainability of ethanol production in the next twenty years, which are made clear by critics from of current production system (DeTOMBE, 1994) and chaos theory (GLEICK, 1987). These restrictions, however, do not set aside the importance of modeling and simulation tools as aid in understanding of dynamic phenomena such as sustainability.

5. Conclusion

As Mendonça (2007) pointed out: "Not long ago, biofuels were feted as an alternative to save the planet from carbon dioxide accumulation and excessive dependence on oil [...] were the synonym of a new era, the era clean and environmentally sound energy [...]". But, with so many contradictions, "[...] the wind shifted radically. Biofuels, almost overnight, is being considered the villain of the planet, responsible for the current food crisis, by soaring prices".

This article presented the step of formalizing the model for assessing the sustainability of ethanol production, its borders (external environment) and satisfactory solutions necessary to study the Brazilian ethanol production, its effects on the environment, food production and water consumption and future trends in three different simulation scenarios. The model considers that the importance of energy independence cannot be overestimated. Oil prices are expected to grow in coming years, as reserves are depleted and the remaining oil extraction process becomes more expensive. Ethanol is a biofuel which has an excellent history of use and relative ease of production as the basic raw material is sugarcane which can be easily cultivated. As a result, sugarcane production is expected to increase and more processing plants to be set up.

Improvements in farming technology are expected to increase productivity per hectare. However this increase can mitigate but not stopping the increase in sugarcane growing areas and hence bring significant reductions in food production with serious implications for the use of sugarcane as an alternative form of energy.

The use of modeling let to work with simulation scenarios and conditions where it is possible, given the initial conditions and the quality of the model, assess what would happen to the ethanol industry if ethanol prices float in response to the availability and supply of alternative energy sources for transportation or what would happen to food prices if ethanol demand continues to grow at an increasing rate. The model should be able to allow the situation of research that changes in planned production of sugarcane, the prices of sugarcane, capacity, demand and other factors relevant to the industry that can become business continuity unsustainable, either by lack of water resources or by the need of production and food for a growing population.

The sugarcane industry has increased sugarcane production due to economic pressures and due to increased demand for ethanol produced from sugarcane, in large part, by the introduction of automobiles that consume ethanol market. On the other hand, the use of intensive technologies in the production units, to increase productivity in the field, creates dependence on external inputs compromising their economic sustainability. Climate change projections indicate that the sugarcane production systems will be affected by rising temperatures and drought, among other extreme weather events.

Increase the responsiveness of the sugarcane production system to adverse weather events is increasing system resiliency. Like resilience is the potential of a particular arrangement of a production system to maintain its structure and function when a disturbance occurs, it became the biggest challenge that the sugar-alcohol sector will face in the coming years. Explore the concept of resilience enables better understand and plan actions towards sustainability of sugarcane production systems. In this scenario, the following problems arise: identify the types of production systems that will supply the growing demand for sugarcane in pressure situations by farmland, high price volatility, high costs and extreme weather events; identifying production technology and cutting sugar cane which contribute to increased resilience of cane production systems to climate changes disorders; identifying relevant to weather disturbances cane production systems.

The models are as useful as the data used in their construction, understanding of the analysts and the inclusion of important and relevant factors. Brazil is the leading producer of large-scale biofuels and, maintaining this leadership depends on largely sustainability of ethanol production. As such, an evaluation model of sustainable production will be useful to explore the changes in market trends, assessment of impacts of new technologies of production and genetic improvement of sugarcane constituting a research instrument for the assessment of the future impacts of production biofuels in Brazil.

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A COMPARATIVE STUDY OF THE WINNING COMPANIES OF THE NATIONAL QUALITY AWARD (PNQ) IN THE SCENARIO OF CORPORATE GOVERNANCE

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Abstract: This study depicts the performance of the winning companies of the National Quality Award, based on the analysis of the performance indicators, the setting of Corporate Governance. Along with the general objective of the performance review of the winning companies and finalists for the national quality award and how Specific objectives to compare the performance of the winning companies and finalists in relation to companies that do not compete for the award, evaluating the progress and efficiency of the two groups of companies, which has its indicators studied. The study is moored in corporate governance that has brought contributions to equip organizations in the strategic decision making and operational controls. Through codes of good practice in corporate governance, implementing risk management and aligning the decisions and processes to principles of transparency, fairness, accountability and corporate responsibility. It is a quantitative study – quality applied with the finalists and winners National Quality Award. Quantitative research, studies the economic and financial performance indicators published in the balance sheet. The rates of liquidity and profitability were objects of study by applying data envelopment analysis tool Data- DEA. The DEA tool, which allowed us to operate with linear progressions able to identify the boundaries of efficiency in performance indicators studied. The qualitative research was applied along the evaluators of the National Quality Award, and sought to know how happens visits, and meet behind the scenes of the evaluation process, asking for experiences, emotions, perceived impressions when the evaluation visit in companies. The expected result with this research is to prove investigating whether the winning companies PNQ stand out in relation to not winning, through the use of data envelopment analysis DEA data, which shows that the winning companies of the prize lie on the efficient frontier.

Keywords: Corporate Governance. Performance. National award Qualities.

1 Introduction

Quality Management Agencies reviewed the big companies in the world and identified the factors that define a world-class company. Thus emerged the Excellence Fundamentals of management for quality, explicit worldwide by international organizations that represent the Quality Management. In Brazil, the National Quality Foundation (FNQ) who plays the role of disseminating and a national representative of this management model, spreading throughout the territory the Fundamentals of Excellence in Quality Management and Excellence Model in Management (MEG). In order to encourage the adoption of quality excellence model, the organization like other entities in the world, offers a prize called the National Quality Award (PNQ), in recognition of the best steps taken by companies using the MEG.

Receive the PNQ puts the company in a prominent position in the market, improving the benefits for sales, competition between competition and the market itself. Thus, companies have stood out positively with the nomination and the award of contemplation.

Adopt best practices has become a strategic marketing condition, to validate the resource management organizations. Corporate Governance (CG) also suggests the use of good practices and, in this sense, is allied to the tactics adopted by the Quality Management (QA). With this alignment, strengthen the image and positioning of institutions.

According to the Brazilian Institute of Corporate Governance - IBGC (2009 p.15) "Corporate Governance is a system used to manage, control and relate the organization to its investors in order to ensure the management" and is based on four principles: transparency, fairness, accountability and

corporate responsibility. Can be used in any size or type of organization, such as business corporations (S / As), third sector, cooperatives, among others. Take advantage of good corporate governance practices guarantee investors and the market return an elaborate and adapted to the needs and market requirements.

Although it is used by business corporations, nothing prevents the model and philosophy of corporate governance can also incorporate the principles of management and can be used strategically to create competitive advantages.

Corporate governance and quality awards can place the featured companies and depending on the segment, innovate and position uniquely. Making thus attractive companies to the market in order to encourage investors to that channel their applications in companies to base their management models of excellence.

A simple model recognized worldwide for excellence, the Model of Excellence in Management (MEG), used by the National Quality Foundation (FNQ) aligns perfectly with the principles of Corporate Governance, proclaimed by the Brazilian Institute of Corporate Governance (IBGC), compromising organization in search results for this segment.

The MEG work with full focus on results, assuming that organizations need to be immersed in knowledge and information that will nourish the relationship with stakeholders, meeting customer needs in the production of goods and services, as well as in relation to society exercising their social role. Underpinning the performance leader that develops plan and strategies, manages processes by applying to these constant improvements. In another instance, develops a team of happy and competent people, ensuring the core competencies of the business (core business) and thus aligning the whole management to experience results that are grounded in strategic philosophy - values, business, vision and mission - and social responsibility, guaranteeing ethics and transparency.

As a general goal, this study analyzes the performance management of the companies awarded the PNQ, evaluating the results after receiving the award. Specifically occasionally checks the award criteria with the indicators of economic and financial performance published in the balance sheet referenced in the Corporate Governance scenario.

Compare the indicators between the two groups of companies (winning and not winning) to identify who has the best performance indicators, investigating whether the winning companies stand out in relation to not winning. To achieve the proposed objectives has been formulated the following research question: "Does the candidate companies to PNQ improve or maintain their organizational performance after the awards?"

The principles of good corporate governance practices, establish performance standards that improve the contents and results of organizations and according to Silveira (2006), in this sense corporate governance is performing a secondary role in management to establish best results, competitiveness and longevity.

Be aligned to best practices and to be recognized with the award can give the company a shield in his career, differentiating yourself from the competition by aligning the strategic guidelines, improving performance and generating competitive advantages.

The contribution of this paper is to demonstrate how the awards linked to quality management stimulating the positive performance of organizations, demystifying the myth that the awards are only for marketing purposes.

2 National Quality Award

Most excellence models (EMs) and (PNQS) were established during the late eighties and early nineties (Talwar, 2009). In this context studies conducted by Miguel (2004) point out that many countries have their national awards quality and recognition programs for excellence.

Study quality management has enabled organizations measure and improves organizational performance and thus worldwide management quality motivated the emergence of awards around the thematic.

Looking at the awards around the world following the notes studied by Silvestre and Mazzochi (2011), quality awards focus on management excellence, processes and relationship with the market as we noted in the characterization about quality awards in Japan, the US, Europe and most relevant, Brazil. The most relevant ones are the Deming award that originated in Japan and was created in honor of Dr. William Deming Eduard focused on the pursuit of quality performance management, the Malcolm Baldrige Award in the United States created in 1987 in order to stimulate the production of

quality products in a systemic evaluation. And in Europe the European Foundation for Quality Management (EFQM) whose award is granted to companies seeking to improve their customer relationships and new business opportunities.

The PNQ – National Quality Award of Brazil appears in the 90's with the establishment of the National Foundation of FNQ quality, whose mission is:

“Encourage and support organizations for the development and evolution of its management, through the dissemination of the foundations and criteria of excellence, to become sustainable, cooperative and create value for society.”(FNQ, 2011, p.1)

At the time the scenario was of world-class competitiveness, globalization was a reality and international transactions requiring Brazilian companies' professionalism, performance and competitiveness. Thus arises with the FNQ the quality of the national premium (PNQ), bringing an incentive to improve organizational performance.

The promise of a better performance of companies, is based on PNQ methodology as this allows a detailed analysis of the organization through performance indicators, on-site evaluation by a management consultant, performance leveling defined by examiners and award best practices of management excellence fundamentals. At the end of the process the organization has in its possession a comprehensive management evaluation report, with analysis and suggestions of various management aspects improvements.

The national award presentation Manual of the quality of FNQ (2014), discusses the benefits for organizations participating in the PNQ award process, citing the application of recognized excellence fundamentals and used worldwide such as: purchasing systems view, to focus on results, internal cooperation, information sharing and learning, identify strengths and opportunities for improvement, and enables organizations to self-assessment, obtain market recognition and society to have to measure their performance against recognized benchmark in the corporate landscape.

2.1 Concept

In competitive times is well known, by scholars that the administrative process is dynamic and that should change soon as the organizational system change (Silva, 2002, p.441). The management of awards has a role to motivate the organization to seek the best performance in the forward market to the competitor, customer, supplier, and adapt to the proposed changes in the environment.

The FNQ, influence on the organization's readiness for change as it is responsible for stimulating the processes and manage quality award stages throughout the national territory. Spread the benefits awarded the prize as the improvement of the company's management and contributing to increased competitiveness. Considers that regardless of the size of the company, its industry, number of employees, "[...] understand organizations as living systems, members of complex ecosystems, with whom they interact and on which they depend" (FNQ, 2011, p.8).

The award encourages continuous improvement, to be coupled to a model of excellence, assists in cultural development political, scientific and economic. The foundation cites in his FNQ manual (2014) other aspects that benefit the winning companies, such as grant public recognition to the world reference organization and makes public good practice in implementing the management model, suggesting benchmarking practices.

Companies applying for PNQ undergo a thorough examination of its management, made by examiners trained by the foundation, guided by a strict code of ethics, getting to the end of the process a broad management assessment report.

The methodology of the awards is divided into eight stages and some sub steps, called excellence criteria. The eight award criteria are divided into twenty-three items, comprising the paragon management (MEG), each with specific requirements, as they are identified and validated, unleash whether a sum that punctuates the organization according to the identified practices. The issue of corporate governance is contained in the leading item is the criterion number 1 to be evaluated by the PNQ.

3 Model of Excellence in Management

"A good management system begins with the formulation of the strategy. It's basically to understand where the company wants to reach "(Campos, 2013).

The management models are tools used by senior management to ensure the efficient conduct in the development of the organization. Anchored in the theory of organizational development, in which Silva (2002, p 400) tells us "be a systematic process, managed and planned in order to improve efficiency in solving problems and in achieving the goals."

Companies using management models have differences in their results and improvement in its processes, obtain greater involvement of its employees, which is more worked looking arouse consciousness of social responsibility, which allows to focus on the sustainable management and thus influence on the continuity of organization.

Excellence models improve the organization's management; its concepts help the leadership to implement the models and also provide competitive conditions to pursue apply to marketing awards of recognition as the PNQ.

In 1990 significant changes arise in the organizational setting and become part of the reality of the corporate market: globalization, integration, Brazilian trade, the government of Fernando Color began a more focused approach to international marketing and Fernando Henrique extended, which brought greater competitiveness for the companies located in Brazil.

The business community realized the need to adopt international standards to guide and evaluate, recognizing the management seeking higher quality and competitiveness, knowledge, improvement and excellence.

In this highly globalized scenario arises the National Quality Foundation (FNQ) and begins to disseminate the Model of Excellence in Management (MEG) as an essential tool for the complexity, sustainability, ethics and innovation in organizations of Brazil, and the foundation initiates management National Quality Award (PNQ).

PNQ is according to the FNQ the most important recognition to Brazilian organizations that stand out for their excellence in management. The award acts by extensive network of partners, study and share knowledge on management excellence, organizes study groups, knowledge niches, training discussions and seeks to generate value by supporting the pursuit of excellence in management.

The FNQ wants to be recognized as the most important promoter agent, articulating and spreading culture and management excellence in Brazil, communicates and disseminates the world its model of excellence that is based on thirteen foundations of excellence and reflects the experience of various organizations International implementing management excellence models, the Brazilian model helps organizations doing the alignment of resources in order to identify strengths and opportunities for improvement, also seeks to improve communication, productivity and effectiveness of its actions reaching the goals and strategies, advancing toward excellence.

3.1 Excellence Foundations

The foundations of excellence reveal interconnected cultural standards in world-class organizations internationally recognized and expressed through their management processes and consequently results.

The basis of excellence criteria are fundamentals that FNQ adopted based on the search information of world-class institutions that research in several countries, observed that some companies were more successes over the other.

Thus, the development of the FNQ excellence model was stimulated from the observation of international bodies and quality management, which examined companies and world-class organizations and identified factors and common standards, this look identified and classified the criteria of excellence present in MEG.

The MEG, "this founded on a set of core concepts and structured criteria and requirements that express the understanding of the Excellence in Management" (FNQ, 2015, p.9). The model has reference and international recognition, which refer to organizational development processes, practices, policies, perceived performance in managing world-class companies, which constantly adapt to business scenarios.

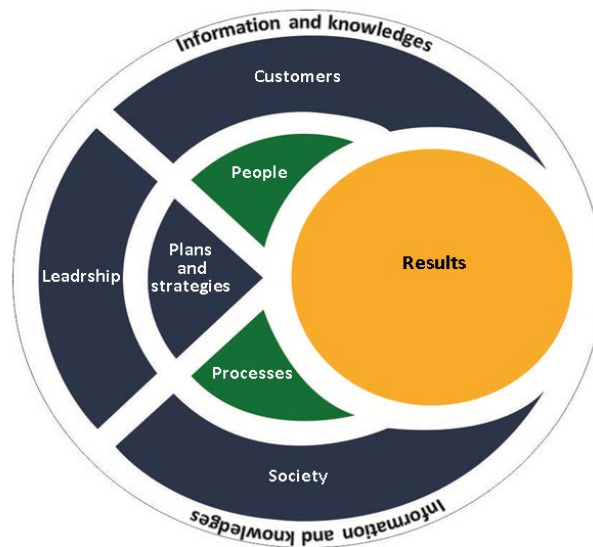


Figure 1: Model of Excellence in Management (MEG). Source: FNQ 2014

For FNQ the thirteen elements underlying the MEG comprise: Systems thinking, networking at work, organizational learning, innovation, agility, transformable leadership, look to the future, knowledge about the customer and the market, social responsibility, valuing people, key decisions, guidance process, value creation.

4 Corporate governance

In the corporate scenario waves of changes brought corporate governance and its good practices, to equip the organization, assisting in the management, to meet the stimuli of the market and their contemporary needs, be attractive to the investor market, profitable for the owners, responsible and complying of their social, economic and environmental role.

Constant and significant changes in the business environment stimulated the incorporation of organizational management models. From the separation of the ownership with the management, Jensen and Meckling (1976) called for as the dilemma of the agency, came the emplacements for the principles of Governance's management model.

Corporate governance for Mota Silveira and Borges (2006) relates to models of internal controls and risk management but keeps the part of the systems leading to strategic decision making of the company. The internal control system ensures visibility of assets and business results, while risk management makes the main alternatives to the uncertainty of events present in the organization of life and corporate governance also concerned with the ethical issue in relations the company with its interest groups.

“A representative model of corporate governance can be developed based on a set of different codes of good corporate governance practices, in order to assess the presence, or compliance with proceeding management in a given organization under review” (Mota, Silveira, & Borges, 2006, p.218).

According to the IBGC, (2009, p.19) "Corporate governance is the system by which organizations are directed, monitored and encouraged, involving the relationship between owners, board of directors, management and control bodies."

Corporate Governance is becoming more popular in the models of management of organizations, as a system whose model is anchored in the organization's results, the commitment to transparency to the market and the search for competitiveness and high performance of corporations.

One of the corporate governance goals mentioned by Martins, Silva and Barros (2005) concerns the protection of the company's value, performance indicators management, the control policies and monitoring the results, therefore the answer is increased accounting reliability meeting the

standards and complying with the rules, understanding and business risk management and the business scenario and its control elements. The governance board has a duty to provide the strategic orientation.

For generating significant contributions in organizational management and increasing access to capital, good corporate governance is respected and is well positioned, which has generated a favorable image in the market adoption of good practices.

“Minimizing the damage caused by the conflicts of interest among decision-makers and resource providers depends on the presence of a set of internal and external mechanisms that align the interests of managers to all shareholders. This set of incentive and control mechanisms of the name of corporate governance” (Silveira, 2006, p.27).

According to Jensen and Meckling (1976) there are two types of conflicts between shareholders and managers, and between creditors and shareholders. Conflicts between shareholders and managers occur because managers fail to capture all the gain generated in the activities that generate value. On the other hand are the administrators who bear the costs of the activity through his work. This inefficiency is reduced to the extent that the trustee holds share capital of the company.

Pillars are supporters of the construction, which give strength to sustained phenomenon is your assignment for the IBGC (2007) its good corporate governance practices is based on four basic pillars: Transparency, Fairness, Accountability and Corporate Responsibility.

“The four principles are present in the area of sustainability for businesses, such as long-term strategy, risk management, consideration of intangibles, the quality of relationships with the various stakeholders and the responsibility for the acts and omissions that sooner or later, may impact the economic value of the company” (IBGC, 2007, p.13).



Figure 2: Pillars of Corporate Governance. Source: IBGC (2008)

The principle of transparency is to the word of action information is the first pillar which aims to address the information, assuring shareholders, market investors and suppliers of goods and services, fast and secure access in relation to the facts of information acts and transactions conducted by the company. Besides showing through reports, all administrative actions, particularly in the annual reports that will go through the inspection of the audit.

The second pillar equity, the focus is the treatment of stakeholders fairly and equally, particularly minority partners. Any relationship Group and partnerships such as employees, suppliers, investors, maintaining equality policies and respect for all stakeholders.

The union of transparency and fairness ensure information necessary for decision-making for all market segments, so that none have inside information, and the opening of institutional information,

in the globalized environment, is considered a major factor (Souza, Lima, Barbosa, Coutinho & Albuquerque, 2015).

Accountability is the third pillar of corporate governance and is linked to responsibility and duties of the organization that uses the good corporate governance practices and should be carried out by the organization's managers to fully answer for acts and facts about their responsibilities.

Corporate Responsibility, the fourth pillar, focuses on sustainability to be one of the goals of this pillar care with long-term actions, which remain very well positioned organization, considering social and environmental issues, respect for the business, corporate values and the impact of decisions on society and the environment. Corporate responsibility is sustaining the strategies linked durability organizations, suggesting sustainable operational practices, which can bring a difference to the corporate environment (Rosini, Roble, & Oliveira, 2014). In this sense actions to its partners and employees are in addition to the definition of corporate strategies.

5 Corporate Governance and Management Model of PNQ

Corporate governance has been seen as a system or management model, by reducing the distance between owners and top management, to develop mechanisms by which resource providers' guarantee to you getting the return on your investment, because it involves a relationship between the organization's managers and their boards, shareholders and other stakeholders. The Governance is structured for the company to achieve the planned objectives and establishes the means of achieving them performing monitoring of indicators and looking for ways to improve performance (Malacryda & Yamamoto, 2006).

The research has revealed the trend that companies with the adoption of best governance practices tend to be well regarded and best positioned, and this reflects on their market value, the impact on ownership structure and performance (Silveira, 2006).

In this context for the PNQ governance is observed in the management process, seeking the establishment of the contribution that contributes to PNQ the organization's commitment to excellence and sustainability, nest evaluation criterion is salutary alignment to the principles that also are considered by the Brazilian Institute Corporate Governance- IBGC of transparency, equity, accountability and corporate responsibility.

Within the management processes, analyzed in the PNQ, corporate governance is investigated from various aspects, regarding the treatment of equity that the organization gives partners, maintainers or founders and how they protect the rights of interested parties, asks whether about controls the actions of the board, and the criteria to be analyzed institution must reply, also notice how the applicant company establishes and updates the values and organizational principles necessary to promote excellence, realize how this company creates value for stakeholders and also sustainable development.

The PNQ, seeking information about the rules of conduct and how the applicant organization for the award, deals with ethical issues, and ensures a committed relationship between its market partners, suppliers, employees, customers. Requests that the company describes codes of conduct, thinking of the principle of transparency and the concept of relationship that corporate governance shall establish and manage, suggests that companies detailing how and how many are the communication channels available to the workforce and society and all stakeholders, to receive complaints, complaints and suggestions.

Risk analysis to corporate governance is a mandatory item, so the evaluation criteria of the award, highlighted how the company manages risk, analyzing and sorting in order to identify the most significant in scope trajectory of goals through strategies, complementing with the IDs from the risks of involvement with partners markets, in market relations, ethical behavior linked this to the principle of corporate responsibility number four Brazilian Institute of Corporate Governance (IBGC, 2009).

Decision-making, is another step ascertained the prize on Corporate Governance, and the criteria that topic talk of alignment with the transparency and organizational responsibility as decisions are made, implemented. The questions take into account whether the company is concerned with all the actors involved in the business, identifies who are the decision makers, the ones who approve, and also the business model established.

The communication of the relevant facts to partners, stakeholders and society is also observed, and seek to understand what are the criteria that the company uses to identify and classify the facts relevant to society and prepare and make the communication to the market.

Another point studied is accountability of the IBGC principles that beacon corporate Governance in the category presenting the results to the market, interested bodies are also referenced.

The PNQ according to the FNQ (2014), want to know how the company ensures authenticity and sufficiency of the information regarding accountability. "As the Director shall report its actions and results achieved, to who elected, nominated or appointed?"

The management process is evaluated from data relevant to the implementation and analysis of the contributions from the operational and strategic performance of the candidates, information such as meeting targets, competitiveness levels achieved in the industry and market, beyond what is in the requirements suggested by the parties Business interests.

"As are identified the needs of comparative benchmarks to analyze the operational and strategic performance of the organization?" (FNQ, 2014, p.34). Organizational performance is an indicator of excellence which is based on various financial and economic rates of the organization, the National Quality Foundation (2014, p.34) "Display criteria used to determine which are the most important data to be compared, relevant comparative benchmarks used by the organization, indicating the main ways of obtaining."

The criteria will observe and map how the company and its board assess the performance from the point of view of sustainable development. Which practices and projects under the theme, as can also be seen is what sets the pillar of corporate responsibility, as under IBGC journals.

Identify the performance communication to the workforce and other stakeholders as well as monitor how the implementation of decisions arising from the performance analysis of companies entered for the PNQ and are part of the content analysis is made.

The theme is contained in the 1-Leadership criterion where it is possible to note the importance that corporate governance has for the award and the model of excellence in management and therefore the improvement in organizational performance.

6 Methodology

The methodology proposed in this study aims to analyze the performance management of the companies awarded the PNQ. The survey assessed the results before the award, in the year of receipt of the award and the year after the PNQ, and presented the criteria on which the award was presented, analyzed the annual development of enterprises and their evolution along the indicators of economic and financial performance published in the Balance Sheet.

The approach of the problem can be classified research as quantitative and qualitative. Godoy (1995) points out that the two approaches to research is characterized as a careful effort to discover new information or relationships and for the verification and expansion of existing knowledge, but the path followed in this quest can have different contours in each of these approaches.

Qualitative Research, according to Godoy (1995), involves obtaining descriptive data about people, places and interactive processes through the direct contact of the researcher with the studied situation. To understand the phenomena according to perspective of the characters involved in the situation.

Qualitative research gave emphasis to collecting information from PNQ evaluators their experiences and impressions perceived throughout the evaluation of questionnaires filled out by the candidate companies for the award, as well as visits in the field in their own organizations to assess and validate the information provided via forms in particular the criterion of the award - one leadership, which contains the elements and inquiries relating to Corporate Governance.

This study also used the Data Envelopment Analysis - DEA as a tool for the realization of quantitative research.

Data envelopment analysis - DEA is a nonparametric mathematical tool used to measure the efficiency with which firms transform one or more inputs on one or more outputs, through a production plan (Oliveira, 2014; Schull, Feitosa, & Hein, 2014; Barbosa & Bastos, 2014; Gonçalves, Lara, Lopes & Locatelli, 2013).

Using the DEA, Data envelopment analysis, in its translation into Portuguese, laced with linear progressions able to identify the boundaries of efficiency in performance indicators studied.

To identify the variables used in the DEA, we rely on data published in the balance sheets of three periods before, during and after the awards. Two groups of companies were investigated: candidate companies to PNQ and no candidate companies. The study object was the year award in 2012,

which analyzed the performance indicators published in the balance sheet relating to liquidity and profitability.

As the output data were checked the contents of current liquidity and overall liquidity. The liquidity ratios relate to how the company behaves in relation to their ability to pay. As inputs the asset profitability ratios and return on equity to analyze economic aspects and investments.

Thus the efficient frontier was calculated in relative terms that are, comparing the units based on actual information on outputs and inputs. This allowed us to a more detailed study in relation to the performance indicators of companies incorporated research.

6.1 Data Collect

Data collection was carried out seeking information to answer the research objectives, analyze the economic and financial performance in the management of companies awarded the PNQ, evaluating the results after receiving the award.

Extensive desk research was conducted in order to understand the methodology adopted by PNQ, his philosophy, application, visitation, interaction with the evaluator and overview of award.

In quantitative research our focus was the economic and financial performance indicators, the finalists for the prize in 2012, for a total of 7 companies made up this group, called group 1 (G1).

Composed the other group, 2 of baptized (G2), other companies were also evaluated in a total of 5 companies, in this case, they do not competed for the National Quality Award. The profile of this group followed the criteria of having relevance of experience in the domestic market, have well-positioned brand in its segment, actions in the bag, and even had their financial and economic indicators published in the balance sheet in the same period of the awarded companies in the G1 by PNQ .

The qualitative research was made in order to make a deeper search on the sidelines of the award, examining the timing of visits by assessors / examiners PNQ. Identifying assessor's perceptions regarding the management and PNQ requirements on corporate governance issue. Sought to understand how the assessor relates to the companies visited and his look of excellence manager, trained to understand and validate management practices reported by the organization in the previous phase, reported data presentation.

7 Results and discussion

In the analysis of data collected about the perception of premium evaluators, it is clear that with regard to the question that dealt with the finding of the data submitted by the participating undertaking of the PNQ in the FNQ issues report, it was clarified that, through reading of the information recorded by the applicant, presented in the same order of Management Excellence Model requirements (MEG), evaluators seek to verify the degree of compliance by the organization's management system, the evaluation factors established by FNQ criteria.

Survey responses presents a remarkable range of issues specified by the award which allows the evaluators involved in the visits have the perception of real engagement in leadership, people and processes.

On one of the aspects that impact the evaluator on visits to candidates for the national quality award, there is talk about the exquisite management practices of some candidates such as: The use of 5S (Quality management tool used to improve environments) and how to use the five forces of Porter: rivalry among competitors, bargaining power of suppliers, bargaining power of customers, threat of new entrants and the threat of substitute products.

When the issue addressed dealt with the best practices by the companies that have corporate governance, we obtained a general result, that the fact that the company have a corporate governance already shows an advanced stage of the organization's management of maturity and then talking about the sufficiency of items ensured for best practice management, adds that the way they are placed the FNQ questions allow the evaluator to see how they are being applied management practices.

When answering on companies which provide high performance and differentiation in the market, it stands out as features mainly the result of the organization, its longevity, and the confidence that their brands and products go to their customers, employees and society.

As for the question of the meaning of the indicators of excellence for FNQ, the responses made mention about the body of work that the organization employs to realize its practices as it applies excellence in their daily lives, highlighting the answer: "The "how", with which practices, the company caters to every requirement of Excellence Criteria, added to each displayed result, form a set of factors

that examined by the appraiser against the criteria, indicate the degree of maturity (excellence) of the management of organization. "

Was highlighted in research that a company has excellence when it presents relevant results, with favorable trends in long, periods longer than three years, exceeding, in these periods, results of comparative references, competitors or similar considered leaders of their activity.

As for the organizational influences that allow a good performance, these are vigorous leadership processes that guide the organization to challenges followed, motivating and charging people and processes to achieve high performance.

With regard to the comments of suggestions and contributions on the PNQ was observed in answers a widespread concept in the sense that the FNQ contributes to the consolidation of organizational results and Brazilian society, as can be seen in this speech: "The evaluation of PNQ serve more to the needs of Brazilian society when they can be applied extensively in government organizations, in its three levels, Federal, State and Municipal". The performance of companies operating in risk markets will always be dependent on the vitality of their leadership processes. It depends on its ability to identify changes and to adapt and live with exogenous aspects such as changes in technology, changes in markets, government policy changes, tax, among many other aspects.

The quantitative research was carried out considering 12 companies. Of which 7 are in group 1 (G1) winning companies of the PNQ in 2012 and five other organizations are part of Group 2 (G2) not winning companies. Chart 1 shows the surveyed companies in 2012.

Chart 1

Companies used for performance **investigation- DEA 2012**

COMPANIES	WINNER	NO WINNER
Cemig Generation and Transmission S/A	GI	
Eletropaulo Metropolitan and Electricity of São Paulo	GI	
Suspensys Automotive Systems Ltda	GI	
Energisa Paraíba Energy Distributor S/A	GI	
Volvo of Brasil Vehicles Ltda	GI	
AES Tiete S/A	GI	
Company of Basic Sanitation of São Paulo state	GI	
Vale S/A		G2
Ipiranga Petroleum products S/A		G2
Telemar North East		G2
Globo Communication and Participation		G2
Amil International Medical Assistance S/A		G2

Source: Elaborated by the authors

We collected data on the economic and financial performance indicators that are observed in the criterion 8- the result of PNQ, aiming to seek alignment between the models of excellence proposed by the awards and among the economic and financial indicators relevant to corporate governance and the issue organizational performance. Thus the liquidity ratios and profitability were treated by the DEA to design the efficient frontier.

The liquidity ratios relate to the organization's ability to meet its commitments to the market and so the point of view of the pillars of governance transparency and accountability demonstrates the organization's commitment to be complying with its obligations.

The profitability ratios are linked strategies of economic and financial management seeking an effective and proper management that generates return on what has been invested, is widely used to attract and retain investors, control target of corporate governance by the breadth of capacity in the market investor.

The job analysis and processing such data was conducted by DEA, Data envelopment analysis, which operates with linear progressions able to identify the boundaries of efficiencies of performance indicators studied.

Performance indicators economic and financial, published in the balance sheets, corresponding to the years 2011, 2012 and 2013 were the analytical basis for the DEA, that from these indicators, using

a linear progression calculations based, has calculated the border efficiency by following calculations between liquidity ratios inputs and outputs levels of profitability.

Figure 3 was arranged on the horizontal axis and vertical organizations the efficient frontier is possible to realize the distribution of performance indicators of the companies in 2012 and their alignments across the border efficiency built by DEA.

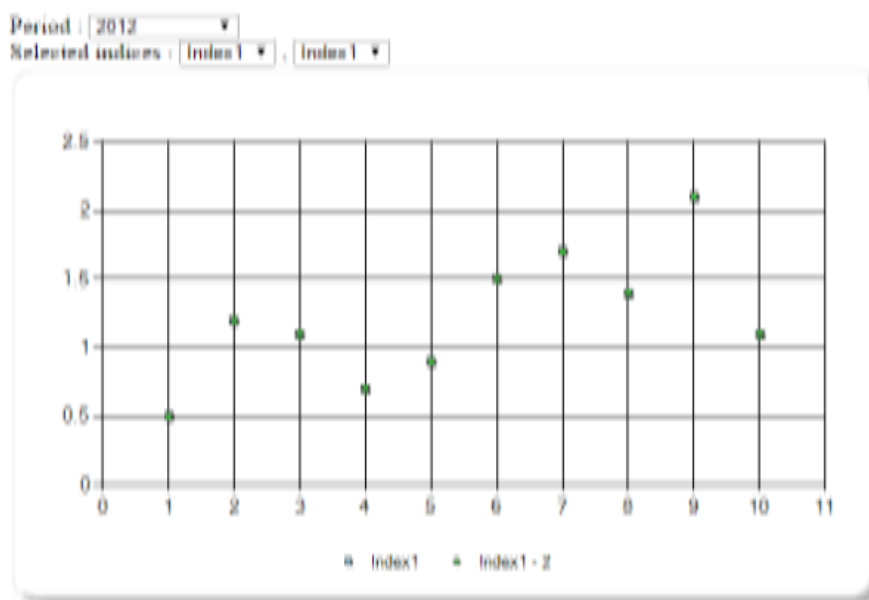


Figure 3 - Identification of the efficient frontier PNQ 2012
Source: Research Data

Figure 4 shows the AES company as the organization indicated by the DEA in the best position on the efficient frontier, occupying according to the distribution of its indicators space on the border that had the best performance among the other analyzed, taking into account the inputs liquidity and profitability of output as indicators presented for the DEA studies.

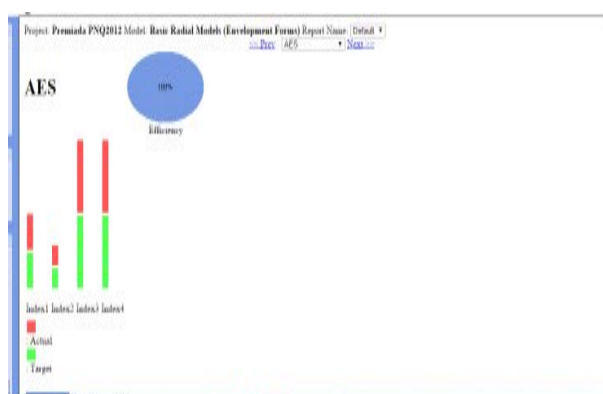


Figure 4 - Most Efficient Company
Source: Research Data

The company whose classification was the farthest from the line of the efficient frontier, according to the alignment presented by the DEA, and therefore would be on our list of valued organizations, the least demonstrates a significant front performance to economic and financial indicators, belongs the group of companies that did not compete to PNQ(G2).

8 Final considerations

The aim of this paper was to verify how is the influence of the National Quality Award in the organizational performance of companies winning the award, referred for corporate governance. The answers are sought to identify if the prize somehow have influence over the management and economic and financial performance of the awarded companies and also if these companies stand out, with better economic and financial results at the expense of not competing for the award and even if the PNQ this aligned with the pillars of Corporate Governance.

In this study it was found that the companies win the award in 2012 have economic and financial indicators that allowed being on the efficient frontier appointed by the DEA, data envelopment analysis.

With regard to financial performance, it was perceived that companies awarded the PNQ, demonstrate positive highlight in relation to the financial and economic aspects, published in the balance sheet at the expense of non-participants PNQ companies.

As to the question of the alignment of topic corporate governance and its pillars: equity, social responsibility, transparency, accountability and the treatment by PNQ's criteria, it was found next to the valued award documents and interviews with evaluators that there is alignment with the assumptions contained in the four pillars of Corporate Governance.

The study allows us to consider to be a company awarded a quality prize, behind a better positioning in the market, providing a shield on the trajectory of the organization, improve management, economic and financial performance and demystify the awards related to quality management as it is the PNQ with the myth that the awards are for marketing purposes.

You may notice in the financial performance indicators investigated, an improvement in management, and may be combined with the model of excellence in corporate management to the winning organizations, established the use of best practices in management suggested by the Excellence Model and referenced by the Corporate Governance, which meets in this case the role of ensuring the longevity of sustainable organizations.

This study has limitations with respect to post-award period surveyed to be only twelve months, suggesting further studies about organizational management excellence awards and models.

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