

Teaching System Design Based on Applied Talents Classified Cultivation Mode of the Independent Colleges

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Abstract This paper directs at the problem of applied talents cultivation target homogeneity of the independent college and proposes the idea of classified cultivation for students which is combined with students' characteristics of the independent college and requirements of service regional economic development goals, namely, cultivating market application-oriented talents and professional promotion-oriented talents. And on this basis, it explores teaching system design in the mode of classified cultivation. "Application based on market type" teaching system design bases on different levels, different industries and different enterprises and "promotion based on profession type" teaching system design directs at studying abroad type, future study type and technology innovation type.

Key words The independent college; Classified cultivation; Teaching system; Application based on market type; Promotion based on profession type

1 Introduction

The independent college is a new running form which first appeared in the process of higher education's reform and development in recent years in China. According to China education career development statistical bulletin released by the ministry of education in 2007, China had 318 independent institutes including students of 186.62 million that accounted for about 10% of the students of common higher education. The independent college is developing rapidly with an unprecedented scale expansion and has become the fresh troop of common higher education. In order to gain a position in the intense competition, the independent college must cultivate application-oriented talents with high-quality centering on the demand of current society on talented person. Except a few public universities that put training objectives target at academic talented person and research personnel, most independent colleges put training objectives target at applied talents. Although the same training objectives target at meeting the talent diversity needs of economic and social development, at solving the structural contradiction of talent demand, the independent college only implement differentiation strategy of development according to talent market demand and its resources^[1].

The differentiations are mainly manifested in the following two aspects: First, open majors or professional emphasizes no other schools open similar majors or professional. Second, cultivate students to learn the same major with different cultivation mode. Opening different majors is mainly limited by two aspects under current higher education system in China: limited by China's college professional directory; limited by professional approval of the administrative departments of education. There are many difficulties when it comes to set and construct new majors in universities because of these restrictions. And once the new major has been approved and the market situation is optimistic, other universities can rapidly imitate the practice and declare the same major. Results often lead to professional convergence. Obviously, in order to realize the development goals of differentiation, the independent college must choose the mode of classified cultivation while its teaching system design under classified cultivation mode is the core content and its core competitiveness should be strengthened through the school-running features of teaching system of classified cultivation.

Running property of the independent college is between those public and private colleges and has only existed for eleven years in China. No experts have researched this abroad. Domestic education scholars have only put forward their views about positioning of the independent college, talent training scheme, curriculum settings and faculty construction, etc. It's still in the initial stage in the area of classification cultivation and teaching system design of classification cultivation combined with students' characteristics of the independent college and social demand characteristic. This paper is based on such background.

2 The Concept and Types of Applied Talents Classified Cultivation Mode of the Independent College

The concept of applied talents classified cultivation mode of the independent college is on the basis of full implementation of quality education, and according to the demands of the society for talents under the regional economy, knowledge structure of students of the independent college presents the features of diversity and multi-links. And the training objectives of applied talents in the independent college center on designing various training modes in line with each student's characteristic. The purpose is to improve the teaching quality, fully excavate students' ability and then make contribution to the development of regional economy. According to the objective of classification cultivation, applied talents classified cultivation mode of the independent college can be divided into two types: "application based on market type" and "promotion based on profession type".

3 Teaching System Design of the Cultivation Mode of "Application Based on Market Type"

With the thinning of economic society division, the requests and standards of applied talents at different levels, different industries and different jobs are different. Some are on basic theoretical knowledge and others are on practical skills, so the implementation of talents' classified cultivation should be in accordance with the objective requirement of the market for talents under the condition of education resources of the independent college [2].

3.1 Hierarchical classification

With the basic quality, application ability and innovation ability as the mainline, hierarchical classification breaks up the traditional teaching system of independent division; combines the theoretical teaching system and practical teaching system; combines obtaining knowledge, improving quality and cultivating ability organically; establishes the four hierarchical new teaching systems combined with the basic quality module, professional knowledge module, professional skill module and professional direction module.

Table 1 Teaching System of the Cultivation Mode of "Application Based on Market Type" Based on Hierarchical Classification

Teaching level	Teaching properties	Teaching requirements
Basic quality	Course property: The public basic courses(core) Experimental property: Basic experiment	Selecting on the principle of "necessary and sufficient for degrees", reflecting "the cultivation of basic quality and basic ability to work", cultivating students' political, ethical and professional quality, let students have English, mathematics, computer basic knowledge and ability, and comprehensive abilities of analysis problem and problem-solving.
Professional knowledge	Course property: Specialized courses (core) Experimental property: Basic experiment	According to the laws of professional characteristic and professional construction establish "close integration of theoretical teaching and practical teaching, many crosses, repeated cycles, steady promotion and gradual improvement", reflect the teaching mode of "three phases mode", that is theoretical teaching combine with campus practice base, course teaching combine with course practice and theoretical teaching combine with outside practice, implement the circulation of "Curriculum theory teaching-- Curriculum practice-- Curriculum theory teaching", "Master theory-- Special practice—Theory promotion" and "Integrated theory-- Social practice-- The comprehensive utilization of theory", make mutual permeation of theory and practice, circle rising.
Professional skill	Course property: Specialized courses (core)+ Professional direction courses(core) Experimental property: Basic experiment+ Comprehensive experiment+ Designing experiment	
Professional direction	Course property: Specialized courses (core)+ Professional direction courses(core)+ Professional direction courses(optional) Experimental property: Basic experiment+ Comprehensive experiment+ Designing experiment+ Subject research experiment	

Different levels mark different knowledge levels and professional skills. Such a system will be a

step mode rising from low to high, from the foundation to the front, from accepting knowledge to cultivating comprehensive ability.

3.2 Industrial classification

The basic task of the independent college is to cultivate high-level application-oriented talents, and the target is to adapt to social needs, and the mainline is to cultivate application ability, to design the students' knowledge, ability, quality structure and training programs. The following teaching content system is constructed according to the industry characteristics of the three industries (agriculture and forestry, industry and service) in China.

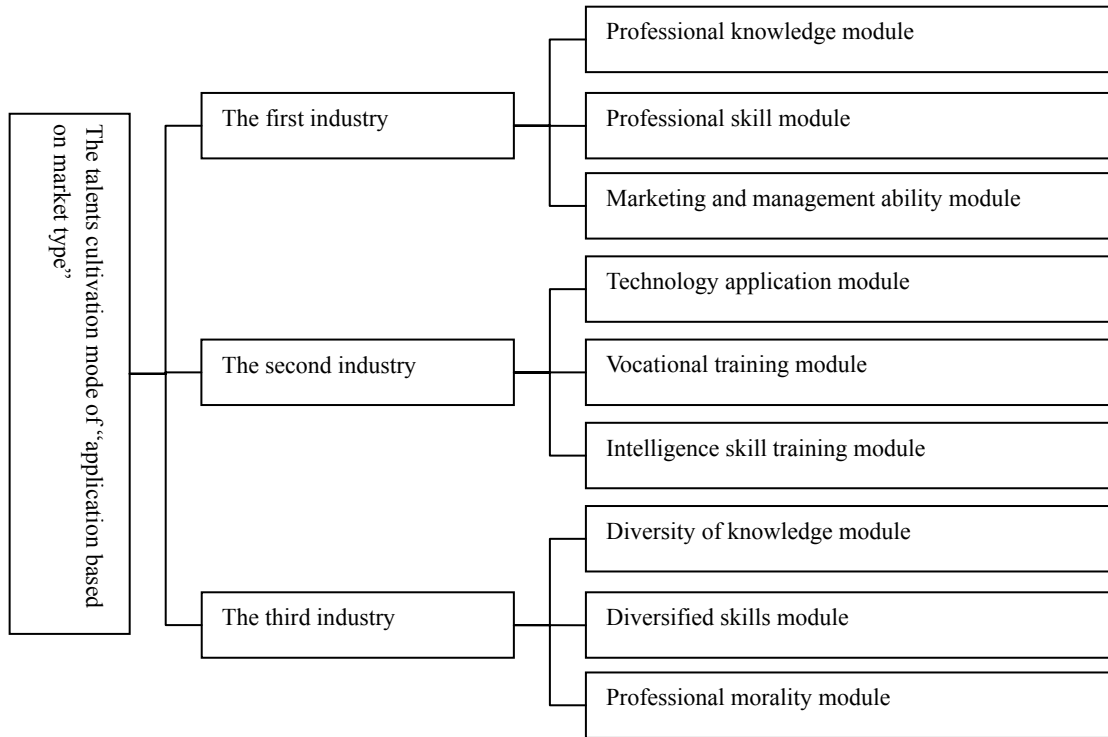


Figure 1 Teaching System of the Cultivation Mode of “Application Based on Market Type” Based on Industrial Classification

3.2.1 The first industry

There are many differentiations between modern urban agriculture and forestry and traditional agriculture and forestry. The proportion of the first industry is constantly reducing in the GDP contribution of metropolis. The concept of new rural construction of socialism contains modern agriculture science and technology, economic management, rural democratic management and law, agricultural products sales and rural tourism, etc. The contributions made by non-traditional agricultural professional talents to new countryside construction are increasingly great. And with the speeding up of internationalization of metropolitan suburbs agriculture, large numbers of marketing and management personnel talents with international background are needed.

3.2.2 The second industry

According to the analysis of the second industry development in China, a lot of skilled talents are needed in all walks of life. The train route is to introduce various advanced technology in the curriculum system and make students grasp the latest industry technology.

(1) Implement the teaching mode based on competency, with technology application ability training as the mainline, combining with general skills, special skills and comprehensive skills. Total classes of practical links such as the highest level of professional training accounts for 50% of teaching plan.

(2) Fully implemented the skill certificate system outside the diploma. In order to let students achieve skills required by this industry, when it comes to curriculum construction, according to training plan, all the students must finish the corresponding types of grade appraisal and obtain “grade certificate” upon completion of the professional skill training.

(3) Pay attention to the development and training of intellectual skills. Skills can be divided into intellectual skills and movement skills. The latter are basic requirements that a professional worker must possess. Those skills with regeneration repeatability under fixed production process and environment have great proportion in traditional manufacturing. But the former is a kind of creative skill, a comprehensive ability of all kinds of skills and intelligence and a comprehensive embodiment of skills, certain knowledge and theory. The former is the cultivating key in the trend of automation, flexibility and personalization. The independent college can establish a new generation of experiment and practice platform with related enterprises to match the requirements for advanced manufacturing high-skill talents. Such as conducting technical skill innovation activities for all kinds of students, organizing various skill competitions and cultivating students' innovative ability and intelligence skills.

3.2.3 The third industry

The development of the third industry needs the support of the corresponding professionals. The particularity of the third industry decides the industry's basic requirements for talents:

(1) Knowledge structure of multi-level

Generally, the third industry talents should have multi-level spans and reasonable knowledge structure with multi-disciplinary knowledge as the background and possess basic knowledge, professional knowledge and relevant knowledge which are decided by the third industrial service's product humanity, cultural characteristics and comprehensive and compound requirements of the third industry on talents.

(2) Abilities of diversification

In order to verily create wealth for the society and reflect life value in the major battlefield of the economic construction, the third industry talents not only should grasp necessary theoretical knowledge, but also adapt the application of talents cultivation of the third industry through the knowledge transformation and practice with the quality of diversification.

(3) Good moral character and psychological quality

That the third industry is highly dependent on human morality also decides the three industry talents must have good professional morality especially humanistic consciousness (Consumer standard consciousness), service consciousness, credit consciousness, sense of responsibility and legal consciousness. The first thing is "learn how to be an upright person" and become a qualified "social man" and citizen who is highly responsible for the society and consumers.

3.3 Enterprise classification

With the development of social economy, the society and enterprises' demand on talents is increasing but many college graduates can not find suitable work which brings much social pressure of employment. The main reason is students' skills and quality cultivated by universities couldn't reach the enterprises' standards and requirements. Based on this situation, The independent college should cultivate talents according to enterprises' requirements, build open system, fully integrate social resources, arouse the enthusiasm of enterprises, develop "order" talent cultivation with enterprises and cultivate high-quality skilled talents of "zero distance" with basic requirements for the enterprise^[3]. Teaching system is composed of four sections: Industry essential quality, professional knowledge, basic skills of industry and comprehensive utilization ability. Industry essential quality is the most basic teaching content of the university stage including service consciousness, communication skills, foreign language ability and computer application ability, etc; professional knowledge and basic skills of industry are the core of the teaching content and should be trained in the classroom teaching and experiment; the cultivation of comprehensive utilization ability (including innovation ability, organizational ability, communicative ability and self-development capability, etc.) will be implemented as the school-enterprise cooperation mode.

4 Teaching System Design of the Cultivation Mode of "Promotion Based on Profession Type"

The cultivation mode of "promotion based on profession type" includes: studying abroad type, future study type and technology innovation type.

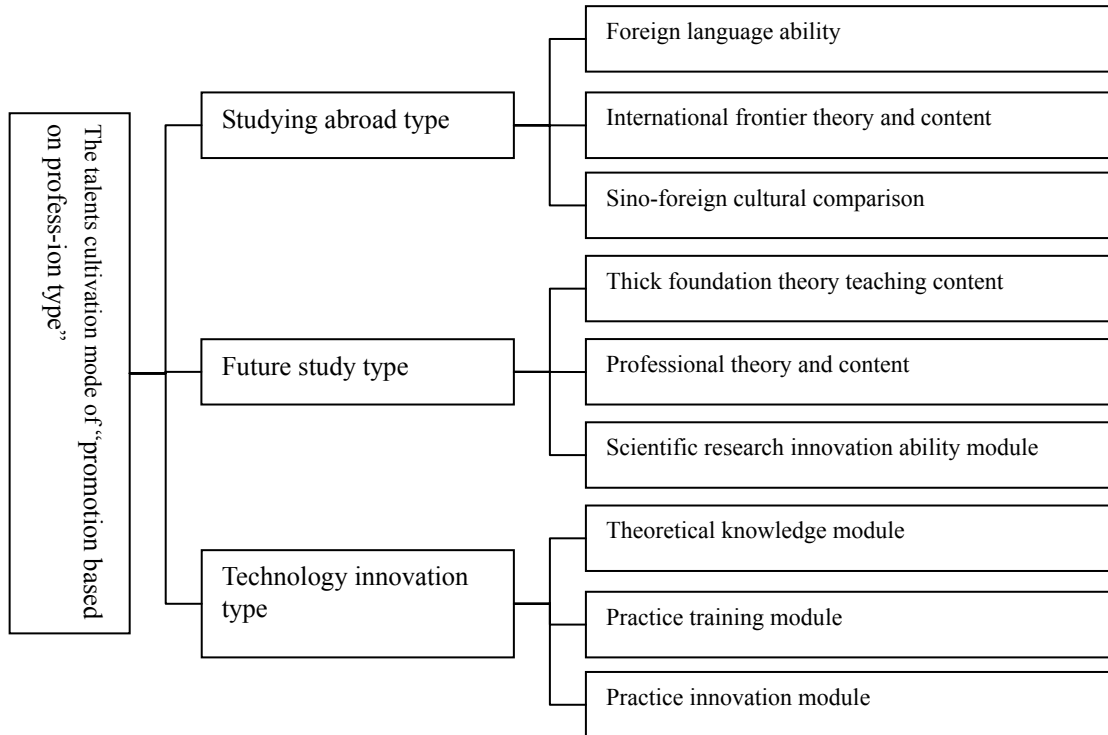


Figure 2 Teaching System of the Cultivation Mode of “Promotion Based on Profession Type” Based on Industrial Classification

4.1 Studying abroad type

For students who have plans to study abroad in the designing training mode, the independent college should mainly consider the following factors. First, the same cultivation target with the market application-oriented talents, i.e. to improve foreign language ability of students, mainly the cultivation of oral training, the IELTS exam and the TOEFL exam. The teaching plan of oral training can combine with the teaching plan of the front application-oriented talents cultivation. Teaching content of the cultivation of the IELTS exam and the TOEFL exam skills should be designed as the form of training. Second, teaching content design of Sino-foreign cultural comparison. Teaching content such as teaching system and culture and custom could be designed, because most of the students don't understand foreign culture before going abroad, and the ability to adapt to foreign life is week. Such courses can be offered in the form of lecture, report and elective. Third, teaching content design of international frontier theory and technology. In the choice of colleges and professional study abroad, most graduates are eyeless, so to understand international frontier theory and technology is very helpful for students to understand the professional international top colleges and the choose of profession.

4.2 Future study type

Teaching system design for students who do future study not only emphasize theoretical basis but also outstand students' need. And the most important content is to cultivate students' scientific research innovation ability. Teachers should teach school, provincial and national subjects combining with the social demands on talents and the frontier problems actively and make the students participate in to cultivate the scientific research innovation ability. The following problems should be considered:

4.2.1 Cultivation of primitivism innovation skills

Most of the basic principles and laws of college teaching content are original innovation achievements, so in the process of teaching the basic principles and laws should be proposed at the beginning to provide their historical and the social background. These "Human" problems belong to the humanities category but science teaching contents belong to natural science category. the mutual infiltration between humanity and natural science should be strengthened to promote the function of students' brain hemispheres of moon and let them participate" into" activities of primitivism innovation. Research on law of science from a historical perspective could cultivate students' original innovation

ability of the basic rule for nature.

4.2.2 Cultivation of integrated innovation capacity

Nowadays, many basis courses of the independent college copy the courses of general undergraduate colleges which are established in the old scientific structure and system and can not keep pace with the development of modern science and technology. And this leads to more sharp contradiction between advanced science theory and the old teaching content. Many technologies emerged in basic concepts and basic principles of foundation courses and have profound influence on foundation courses. Some concepts of basic courses need be established in new experiment so to get the new connotation; some principles of basic courses have new applications and people can have more profound understanding on these principles. Updating the basic content is the requirement of knowledge integration and opening teaching system. The introduce of modern new theories, new methods and new instruments of technology could cultivate students' integrated innovation capacity.

4.2.3 Introduce the cultivation of digestion and absorption of innovative ability

An important factor to cultivate qualified graduates of high levels to continue their study is to encourage them to participate in scientific research instead of only sitting there and doing passive acceptance. It's helpful for students to cultivate scientific research innovation thinking to understand basic methods and then find economic, social problems and finally solve them.

4.3 Technology innovation type

The cultivation of modern applied talents is different from the cultivation of the traditional undergraduates who are general talents with solid foundation, strong ability and high quality. It undertakes the task of providing students with sustainable development potential for higher education, but is lack of pertinence. Practical skill training need be improved in order to improve students' professional ability and innovation ability. Being practical, comprehensive and innovative, practice teaching is the most direct and effective method to cultivate students' innovation ability. In order to change the condition of practice teaching being subject to theoretical teaching and enjoy the equal important position, a complete practice teaching system must be built to support the theoretical teaching system and serve the talent training target.

Currently, the position of applied talents cultivation mode of the independent college is fuzzy. Many colleges locate their targets at cultivating technicians needed by production lines, which is conflicting with the target of higher vocational colleges. With the development of the independent college, applied talents cultivation should target at the cultivation of high-level innovative technology talents. Short-term patterns should change from cultivating technicians needed by production lines to cultivation of high-level innovative technology talents. "3T" training mode should be used.

The training objective of "3T" is "solid foundation, practical value, high capacity and strong quality", combined with "Theory", "Test", "Try", which are shorted as "3T". The core is to strengthen the verification system and practice innovation system and strengthen the cultivation of practical ability of undergraduate teaching.

4.3.1 Theory

Theory consists of five teaching platforms: platform of public required course, basic course, specialized course, modular course and optional course. Public required course is required for all students; basic course and specialized course are set according to the 03's undergraduate course catalogue; modular course is set according to each specialized target. Usually, there set more than two modular courses; optional course consists of school optional course and college optional course (including self-professional and no-self-professional optional course). In the process of course setting, the whole theoretical teaching system should be optimal; there are fewer but better courses; especially the setting of modular course and optional course must fully considerate students' social adaptability.

4.3.2 Test

Test directs to the theoretical knowledge's scientific verification and comprehensive training of what are being learned and have been mastered. The course setting of test includes experiment courses, comprehensive training, course practice and pre-job training, etc. The comprehensive training (course design, the term paper, works design, etc.) should focus on the core curriculum for comprehensive application training, try to fuse learned lessons, give given priority to the form of extracurricular activities but with extracurricular as complementary, to lay the foundation of graduation design (paper) and cultivate students' innovative ability. The setting of experiment courses plans to start from the talent cultivation system, to change the traditional concept of the past experiment teaching depending on theoretical teaching, then to integrate experimental contents of similar courses with ability cultivation as

the mainline, finally to link different levels and multi-modules with each other, so as to not only achieve organic combination but also relatively independence from theoretical teaching, and thus to further promote the experimental teaching contents and reform of methods.

4.3.3 Try

Try is mainly set in line with the requirements of “2003’s Undergraduate Course Catalogue” published by ministry of education and the cultivation of comprehensive quality and innovative talents. Practice training mode and content of innovation are formulated by relevant professional. Main contents are as follows: establish innovative credits, put all kinds of creation, invention (design) and competition achievements students obtained as credit status for evaluation and give them enough space for innovation; expand and deepen the comprehensive practice which includes education practice, periodical practice and graduation practice, etc.; reform graduation design (paper); widely expand social practice which consists of organizing various social investigation, social services and public welfare work and putting centralized social investigation and public welfare work into the curriculum; notice students’ personality development and provide more individual learning guidance and practice. These links and components are mainly innovation systems based on practice and laboratory.

5 Conclusions

This paper starts with the problem of applied talents cultivation target homogeneity of the independent colleges and proposes the idea that in order to get characterized and sustainable development, the independent colleges should implement classified cultivation for students which is combined with students' characteristics of and requirements of regional economic development goals, namely, cultivating market application-oriented talents and professional promotion-oriented talents. on this basis, the paper explores the teaching system design in mode of classified cultivation, proposes the teaching system of “application based on market type” which classifies cultivation according to different levels, different industries and different enterprises and the teaching system of “promotion based on profession type” which classifies cultivation according to the studying abroad type, future study type and technology innovation type.

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