

Encouraging Knowledge Worker to Generate Innovation Behavior: an Empirical Research Based on Technology Acceptance Theory*

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Abstract: It is precondition of making proper incentives to stimulate the innovation of knowledge workers, it is important to analysis what is the motivation elements. Based on Rogers innovation diffusion theory, this article argues that the elements that stimulate knowledge worker accepting the existing innovation technology are the same as encourage them generate innovation behaviors. Proceed from the knowledge worker's characters, this paper established a structure model base on UTAUT. An empirical research shows that social influence and facilitating conditions are motivation elements for knowledge workers' innovation.

Key words: Knowledge worker; Technology acceptance; UTAUT model; Innovation diffusion theory

1 Introduction

Peter F. Drucker thought knowledge worker is the person that who grasps and utilizes the mark and the concept, work with knowledge or information^[1]. In the concept a lot of middle managers, handler and profession technical personnel belong to knowledge worker at present. Knowledge worker is the group which pursues self-reliance, personalization, diversification, it is a team of creative talents and is the source of entrepreneurial creativity.

Regarding the Chinese knowledge worker's innovation incentives, many scholars proposed strategies, such as SMT (Self Management Team), R&D staff Salary Based on Compound Option Model (2007), knowledge workers' innovation incentives framework based on the Wuli-Shi li-Renli(WSR) theory(2011)^[2] and etc. But we should find main motivation elements for making effective incentive strategies. Maham. Tampu thought, Self Developing, Work independently, Work Performance and Reward. After analyzing 858 workers (include 160 knowledge workers) in Australian, American, Japanese many professions, An-Sheng Consultant firm(1998) has listed the knowledge worker's motivation elements. The first 5 elements is: reward, work nature, promotion, and colleague's relations as well as influence decision. Chinese scholars' research shows, the An-Sheng consultant firm's research results is much more closely to the Chinese enterprise knowledge worker's realistic condition^[3].

The Rogers innovation diffusion theory (IDT) believed that after the individual in organization has accepted the existing innovation generally, they can have the new innovation behavior^[4]. Therefore we believed that the element that effected knowledge worker accepts the existing innovation, which is motivation element that encourages him to generate innovation behavior. So, we think we should research knowledge worker's motivation elements on technology acceptance. One of the latest models on technology acceptance, the Unified Theory of Acceptance and Use of Technology(UTAUT)^[5], synthesized elements across eight well known technology acceptance models: the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model (MM), the Theory of Planned Behavior (TPB), the combined TAM and TPB, the Model of PC Utilization (MPTU), the Innovation Diffusion Theory (IDT) and the Social Cognitive Theory (SCT). The objective of the UTAUT was to achieve a unified view of user acceptance (Venkatesh et al., 2003). The resulting unified model consists of four core components or determinants of intention and usage (these are described later). Since its inception in 2003, researchers are increasingly testing UTAUT to explain technology adoption, such as Intranet^[6], E-government^[7], 3G, mobile payment, ERP. Its consideration factor is comprehensive, explanation strength.

This article researches knowledge worker's motivation elements based on the UTAUT model. First,

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we construct a research model according to Chinese knowledge workers' characters. Second, we make an empirical study to test this model. At last, we discuss the results, and proposed that social influence and facilitating conditions are main knowledge worker's motivation elements on the aspect of technology acceptance.

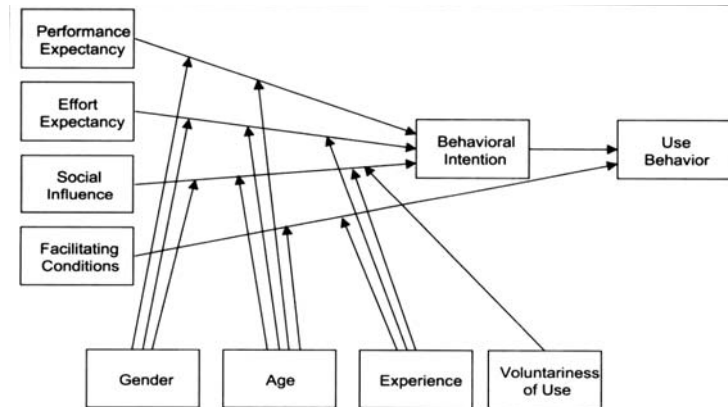


Figure 1 UTAUT Model (Venkatesh,2003)

2 Model Constructions

Based on UTAUT model, the research model is constructed in the paper.

2.1 behavioral intentions

Behavioral Intention is a base cognition, which reflects individual who have wishes of some activity in a planned and conscious way, and it is the best target to Predicting behavior Behavioral Intention is defined inclination, wishes and motivation in our research.

2.2 Use Behavior

The use degree of technology has represented use result of the technology to a certain extent. Use degree of technology can be weighed by use of absolute use time. Moreover it can be measured by use of relative time, such as it can manifest use degree by comparing with average level. The paper weighs from the quantitative angle in the convenient angle.

2.3 Core variable

The factors which influence behavior intention in the different model are integrated by UTAUT: Performance expectancy, effort expectancy, social influence, facilitating conditions four Core Determinant. Based on our research, the four Core Determinant are defined:

2.3.1 Performance expectancy

Knowledge worker though use of technology can help to improve the degree of his working ability (efficiency) it includes comparative advantage and result expectancy.

2.3.2 Effort expectancy

Knowledge worker consider if new technique is easy. It made up of easily of system and use of user perception during studying and using.

2.3.3 Social influence

Knowledge worker feel the degree which he must use information technique to his or her important person. It includes management support colleagues influence and image. It is consistently paid attention to action of interpersonal relationship between elders, relatives, neighborhoods and friends in Chinese traditional culture. Trust of men around them Express to influence of individual employee action. The trusting relationships with Enterprise Interior member may be concentrated on their new job, capable of the Innovation Actions, Especially; it is high to leadership emotion and cognitive trust level.

2.3.4 Facilitating conditions

Knowledge worker can feel to support degree for organize and the technique infrastructure that use information technical. It includes the support of organization, the support of technique infrastructure, relevant condition which one owns. The facilitating conditions that user use information technical include business calculator, network equipment situation, information technique software compatibility, and also include relevant condition which one owns such as preparations of correlative knowledge skill and support of organization technology departments. The correlative base conditions will influence practical using.

We study the initial model, shown in formula 1 and 2:

$$BI = w_1(PE) + w_2(EE) + w_3(SI) \tag{1}$$

$$BU = x_1(BI) + x_2(FC) \tag{2}$$

In the formula, BI is Behavioral Intention, BU is Use Behavior, PE is Performance Expectancy, EE is Effort expectancy, SI is Social influence, FC= facilitating conditions, x_1, x_2, w_1, w_2, w_3 are correlation coefficient. The model is shown in fig .2.

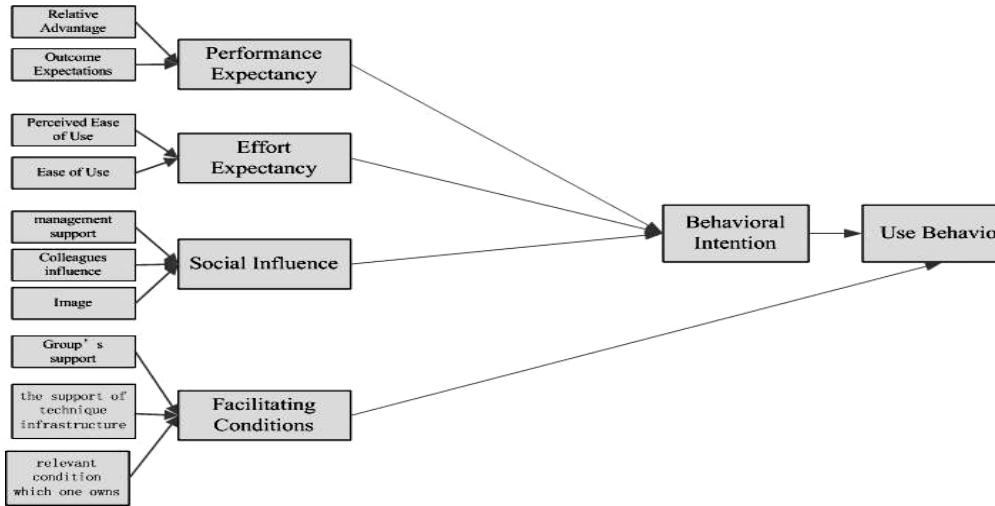


Figure 2 Chinese Knowledge Worker Technology Acceptance Model

3 Empirical Research

We design a questionnaire according to the model, enterprise knowledge workers in Guang Xi liu Zhou are chosen to be investigated. 200 questionnaires were sent out and 147 available questionnaires were retrieved after removing invalid questionnaires. We use Pass Cronbach' the s Alpha indicator to analyze reliability. All CITC value of indicator is above 0.5, α is bigger than 0.7, far above 0.6, it explains that the reliability of each indicator is very high. Effect is analysis by adopting primary constituent, the result of primary constituent analysis support the structure effect of the table.

Fig. 3 shows route picture of model by using LISREI8.7 software programming.

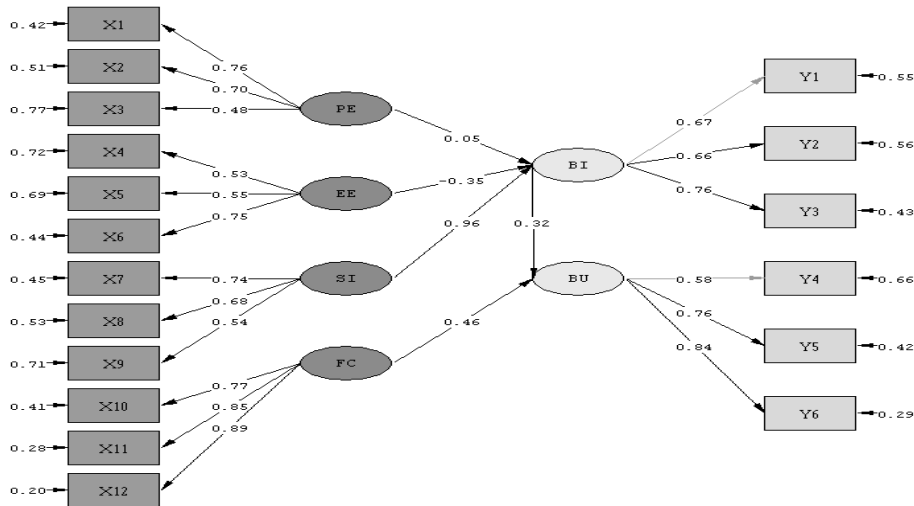


Figure 3 Path Diagram

As shown in fig.3, we obtain path diagram by using LISREI8.7 software programming. Unifies the path coefficient which LISREL calculates, the model is expressed by formula:

$$BI = 0.96(SI) - 0.35(EE) + 0.05(PE) \quad (3)$$

$$BU = 0.32(BI) + 0.46(FC) \quad (4)$$

5 Research Discussion

From the result of search, we find main factors that can innovate behavior in the knowledge worker individual technology acceptance's angle can divide:

(1) social relations: technology acceptance behavior intention of the Chinese knowledge workers can mainly be impacted by social influence ,Performance Expectancy and Effort expectancy is not remarkable. Therefore, good relations with the colleague and one's superior can drove that the knowledge worker accepts the existing technology and has the primary factor of innovation behavior. This indicated that good relationship in organization is more remarkable than the salary, the promotion and so on to the role that the knowledge worker Innovate the behavior. This is one of the knowledge worker's two characters that Peter F. Drucker describes: They will possibly reduce the productivity because of a group.

(2) Facilitating conditions: Another of the knowledge worker's two characters that Peter F. Drucker describes: They are not the employees, but are the volunteer; they also obtain the corresponding reward. AS seen in result, the behavioral intention and the facilitating condition that influence to the Chinese knowledge worker's technical use behavioral is remarkable. This is the same with UTAUT model's related research result.

In fact ,Chinese Enterprise in technical introduction like ERP usually decide by high-level leadership, the partial knowledge worker has certain policy right, but the influence function is limited actually to the decision, therefore which, the resistance is inevitable in passive accepts process. The enterprise should provide the related condition, the perfect hardware infrastructural facilities, strengthen the technical department's support, as well as implementation training, these measures may cause the knowledge worker to feel is taken seriously, then their absorptive existing technology positively, format the promotion organization innovation ability.

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