Innovative Design Of Model Of Teaching In Colleges And Universities Based On Knowledge Management

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Abstract: In the complex and volatile competitive environment, enterprises are in urgent need of talents with innovative ability. The key to innovation is the capability in knowledge management. This paper points out the capabilities required in innovation and knowledge management. With the spiral development of knowledge as the main way, the composition of capabilities in knowledge management is conducted for analysis and the innovative design scheme of teaching model in colleges and universities is implemented based on knowledge innovation.

Introduction

In competitive environment with uncertainties and rapid changes, enterprises attach great importance to the capability of independent innovation and the talents with creative thinking. Innovation is the process of creating new possibilities by integrating different knowledge sets and transforming knowledge capabilities into market value in the context of high uncertainty. The core is to integrate ideas based on various kinds of knowledge to form products or services to provide customers with expected experiences and win the shares in the market. Therefore, the cultivation of students' innovation capability becomes the key goal of colleges and universities in teaching.

1. Innovation

Professor Craig m. Vogel and Jonathan Cagan hold that the same goal to produce useful and user-friendly products according to the requirements of customers should be achieved revolving the equal and unified standards in the era of experience economy so that users can have better experience in consumption in the process of usage of products to achieve certain dream in life and all value opportunities should be coordinated to create a complete psychological experience. Therefore, the ultimate goal of innovation is not to provide products and services, but to bring users some kind of experience, as a result, the higher value of the products will be achieved if the better experience is provided. People's dreams can be achieved by innovation which can create corresponding products and services to provide people with life experiences close to those dreams. Students should be provided with expected experiences by colleges and universities in teaching activities so that such colleges and universities can be selected and accepted by students. Meanwhile, the capability in innovation should be given the top priority in the process of learning of knowledge with the purpose to adapt to the requirements of the job.

2. Innovative capability drive by knowledge management

According to the book of the Spiral of Knowledge, the success of Japanese companies stems from their skills and expertise in organizing and innovation of knowledge, and the enterprises are particularly good at continuous, incremental and spiral innovation to achieve customer value. Organizational knowledge creation is the ability of an enterprise as a whole to create, disseminate and embody new knowledge in products, services and systems throughout the organization.[1-4] Knowledge is the only guarantee and the source for sustainable competitiveness, organizations must

be able to collect both the essence of the knowledge and give full play to the personal knowledge contained in the the members, Besides, knowledge is a kind of capability to constantly create new knowledge which can be widely spread in the internal of the organizations and be rapidly applied to new technologies and products.

Therefore, the key capability in acquiring the external knowledge and memory & repeat of the existed knowledge should be obtained by students, more importantly, the knowledge should be applied into practice according to the practical purposes and the accumulation of knowledge. Besides, new knowledge should be created in cooperation with other members in the team in the process of solving problems so as to develop the continuous organizational capability in innovation, which should be further advocated in innovative design of college teaching systems.

3. Composition of knowledge management of college students

Knowledge management is the management of existing knowledge with focuses on how to effectively and efficiently learn, imitate, absorb, summarize and organize existing knowledge. The existing teaching mode enables students to make clear the overall structure, phased learning content and objectives of the knowledge system they should learn, which is an effective mechanized mode. However, the most effective management of existing knowledge can never solve the problem of the creation of new knowledge related to people and the problem of adaptation of knowledge to different specific situations. A more important factor for knowledge management is the creation of new knowledge. Original new knowledge and original insight are the core qualities and fundamental consciousness that we should cultivate students.

Therefore, colleges and universities should cultivate an environment suitable for creation of knowledge and create a culture that encourages innovation, and promote students' capability to create new knowledge while learning existing knowledge.[5-6] At the same time, colleges and universities should also give consideration to the management of "existing" and "innovative" knowledge so that internal and external knowledge be mutual complemented with the purpose to constantly improve professional knowledge system of the colleges and universities, as a result, students will be provided with more personalized and specific teaching resources.

3.1 The dichotomy of knowledge: Formal knowledge and tacit knowledge

Knowledge is divided into formal knowledge and tacit knowledge. Formal knowledge is knowledge expressed in words, numbers, sounds and can be expressed in formal language. The formal knowledge of one person can be formally and conveniently conveyed to others in a formal or systematic manner, which has always been the dominant mode of knowledge in the western philosophical tradition. Currently, most of the knowledge that schools impart to students through teaching in classroom belongs to formal knowledge. Tacit knowledge refers to personal knowledge related to a particular situation, which is deeply rooted in the individual's actions and personal experiences, as well as the ideals, values or emotions they believe in. It is difficult to be expressed clearly in words or language. Tacit knowledge may be summarized as subjective insight, intuition and presentiment, and it is not easy to share tacit knowledge through interpersonal communication.

3.2 Knowledge creation: The interaction between tacit knowledge and formal knowledge

Tacit knowledge and formal knowledge are not completely separated from each other, rather they complement each other. Knowledge is created and expanded through the social interaction of tacit knowledge and formal knowledge, which includes the four steps:

Mutualization: From tacit knowledge to tacit knowledge. Mutualization is the process of sharing experiences and a process of creating tacit knowledge in shared mental models. Individuals can share and create tacit knowledge through direct experience rather than communication by words.

Representation: A process from tacit knowledge to formal knowledge. In the process of expressivity, personalized, context-dependent tacit knowledge that is difficult to be formalized and be used for communication with others is transformed into transmissible and expressible knowledge through dialogue and reflection.

Connectiveness: A process from formal knowledge to formal knowledge. Connectiveness is the process of systematizing and utilizing formal knowledge and information and in the process various concepts are integrated into knowledge systems. Existing information is reconstructed by sorting, adding, integration and classification of formal knowledge, and correspondingly new knowledge can be produced.

Internalization: A process from formal knowledge to tacit knowledge. Internalization is the process of learning and acquiring new tacit knowledge in practice making formal knowledge reflected on tacit knowledge. The experiences in the process of mutualization, expressivity and connectiveness are internalized into the tacit knowledge bank of individuals in the form of common mental models or technical know-how.

3.3The spiral of creation of knowledge

The creation of organizational knowledge is a dynamic process of interaction of tacit knowledge and formal economy. Innovation can be achieved in interaction of tacit knowledge and formal knowledge.

Firstly, the mutualization model started from the establishment of the so-called “field” which is a place for members to promote the sharing of their experience. Secondly, the presentation model is triggered by dialogue and collective reflections. In the process of dialogue and reflection, proper use of metaphor or analogy will be conducive for the expression of tacit knowledge. Besides, connectiveness model is triggered by the network of existing knowledge in other departments of the organization and newly created knowledge. Therefore, all these knowledge is reflected on the new products, service or management system.

The organization needs to mobilize the tacit knowledge created and accumulated by individuals, and amplifies it through four modes of knowledge transformation at the organizational level, and crystallize it at a higher level of ontological dimension. This process is called "knowledge spiral". In the process of knowledge spiral, the interaction between tacit knowledge and formal knowledge increases with the rise in the ontological level. Therefore, the creation of organizational knowledge is a spiraling process, which originates from the individuals and continues to move forward as the interactive community expands beyond the boundaries of groups, departments, divisions and organizations.

4. Teaching design in colleges based on knowledge creation

The innovation of education system of colleges and universities is required to bring new value to students and stimulate their intrinsic learning motivation so as to make the learning process become the experience that students really expect.

4.1 Construction of specialized knowledge bank : systematization of existing knowledge and new knowledge

In the arrangement of teaching plan, the existing knowledge should be sorted, refined and organized according to professional training objectives for students, and the basic framework of teaching contents should be constructed to form the basic knowledge base. At the same time, certain space should be left for new knowledge, of which the source derives from two aspects, one is from the outside, the teachers and students should have deep awareness in professional learning, and the acquisition channels for new knowledge should be extended. By professional knowledge databases, journals, books, news media and network, new produced knowledge can be understood and the screening and classification of new knowledge can be achieved to enrich the knowledge in the right location. At the same time, the combination of the existing knowledge and new knowledge and application should be given top priority. The other aspect is for internal one, that is, in the process of learning, teachers and students combine their accumulated knowledge with the knowledge they have learned, as a result, new ideas and methods are generated in the process of solving practical problem. New knowledge is formed after reflection, summary and refinement, which becomes an important part in enriching the knowledge base. Therefore, the professional knowledge base of the

teaching system is not fixed, but should be dynamically adjusted with the introduction of new knowledge. It is also an important content to provide students with a convenient and efficient way to retrieve knowledge.[7-9]

4.2 Different ways of organizing learning: formal knowledge and tacit knowledge

There are significant differences in the characteristics, representation and acquisition of formal knowledge and tacit knowledge. In the design of the teaching system, the two types of knowledge involved in the teaching content should be systematically classified, separately organized, and different ways of providing knowledge should be adopted to design the corresponding learning process. Formal knowledge can be easily expressed in language, numbers and words, and professional knowledge base can be constructed to effectively organize the resources of formal knowledge. Moreover, this part of knowledge can be learned in a simple way, which can be obtained by students through reading materials and listening to lectures.

However, tacit knowledge is highly personalized knowledge, which is rooted in actions and integrated into an individual's involvement in a specific situation. The arrangement of school curriculum is required to provide sufficient space and time for students to acquire knowledge through actively creating and organizing their own experience. Learning resources for students are not provided by integrating scattered data and information, the learning is highly personalized process, students need to agree the learning objectives and devote themselves in learning process. As a result, their physical and mental conditions are combined with specific details to mobilize resources to create image or pattern of something. The knowledge students mastered should be the fruit of deliberate efforts connecting with the world.

In the process of learning, students can discover new knowledge through the interaction with teachers and classmates according to the sharing of information and form a recognition of the disciplines and even the society as a whole to constantly enrich and perfect their knowledge system, which is regarded as a reality. In turn, the reality exerts influence on their judgment, behavior and attitude.

4.3 Assisting students in achieving self-transcendence: Constructing the spiral of knowledge creation

Knowledge creation starts from the process of mutualization, which can be systematically arranged by means of situation simulation, project learning and enterprise practice to provide students with first-hand experience of relevant tacit knowledge and practical awareness can be accumulated. For example, students can regard themselves as customers to feel and accumulate tacit knowledge regarding customers with the purpose to better understand customers' needs and create new customer values. Besides, the tacit knowledge in social environment can be absorbed by experience sharing. At the same time, reflection and discussion are arranged so that students can express their tacit knowledge through metaphor and analogy and share it with others, which includes students' own understanding and cognition of social events to develop new forms of formal knowledge with distinct personality. Next, the teacher organizes the students to summarize, demonstrate and refine the existing knowledge mastered, the tacit knowledge experienced and the new form of knowledge generated. According to the needs of solving problems or completing tasks, the teachers should organize and develop new systematic knowledge and then share it with all the students. Finally, the formal knowledge created and shared by organizations can be transformed into tacit knowledge in the process of internalization, and students should be given more time for systematic consideration to understand and grasp this part of knowledge. More importantly, students should be given more opportunities to apply these knowledge, as formal knowledge can be flexibly used by actions, practice and reflection, and truly become a part of the personal knowledge.[10]

Conclusion

Through the application of the spiral of knowledge creation in the design of teaching mode in colleges and universities, the interaction between tacit knowledge and formal knowledge is

amplified and enhanced through the four modes of knowledge transformation.Students can not only learn knowledge base of the existing knowledge in the original knowledge base, but also discover tacit and highly subjective insights, intuitions and presentiments.New knowledge can be produced in accordance with the accumulation condition of knowledge to enrich the knowledge of one person and new methods for learning can be mastered to cultivate and promote the innovative capability to adapt to environment for self-transcendence.

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