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A Study on Tacit Knowledge and Design Education in High Vocational Colleges

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Abstract

This study explores the art and design education mode in high vocational colleges within the theoretical framework of tacit knowledge. I propose that by understanding the tacit knowledge theory and principles behind the acquisition of art and design education as a cumulative developmental, the art and design expertise can be greatly enhanced by the introduction of three educational modes: First, apprenticeship mode which advocates students to learn from masters, seniors and peers; Second, situational teaching which utilizes trial or simulation of design sites; Third, analogical reasoning which infers from art and design examples.

Key words: Tacit knowledge, apprenticeship, situational teaching, analogical reasoning

Introduction

Tacit knowledge is an important concept in the individual knowledge theory of Polanyi (1958), a British physicist and philosopher, and can be divided into two categories: 1) skills, techniques, and feats (weak tacit knowledge), and 2) judgment, discriminability, interest, and creativity (strong tacit knowledge). Included in personal knowledge, tacit knowledge is rooted in individual behaviors and embedded in practical activities. It is not easy to be clearly expressed with languages and words, and thus it is difficult to be massively accumulated, saved, and spread. [1]

In the current job-demand-oriented education of high vocational colleges, it is necessary for art and design education therein to pay attention to training students' creativity and practical abilities. However, it is obviously insufficient to acquire both abilities by only depending on classroom knowledge. Thus, based on the perspective of the tacit knowledge theory, seeking teaching methods that improve students' practical and innovative abilities from the development ways of non-intellective factors such as their emotions, attitudes, and values has become very important in art and design education in high vocational colleges.

In December 2016, the Premier Li Keqiang offered important instructions at a symposium on promoting the modernization of vocational education, requiring high vocational colleges to accelerate and to cultivate a large amount of high-quality laborers and talents equipped with professional skills and craftsmanship spirit. The cultivation of craftsman spirit can improve the current situation of excessive emphasis on skills and the neglect of training students' mental personalities and creativity at China's high vocational colleges. According to Polanyi's definition of tacit knowledge, the craftsman spirit is the strong tacit knowledge of individual craftsmen. Therefore, an in-depth study on the strong tacit knowledge theory in the tacit knowledge and art and design education at high vocational colleges has become design education researchers' teaching strategies different from those used to explore explicit knowledge.

Strategies for art and design education in high vocational colleges under the perspective of the tacit knowledge theory

A. Advocacy of the three apprenticeship educational modes: learning from masters, seniors, and peers

From the studies of Polanyi and Collins et al. related to tacit knowledge and its transference, it is found that tacit knowledge transference is most easily produced from the experiential knowledge exchanges between masters and apprentices as well as from accumulation of and reference to past experiences [2][3]. The historic Staatliche's Bauhaus stressed the important role of apprenticeship in design education [4]. In the past two years, a large number of folk technologies and handicraftsmen have been introduced into classrooms in China, thus targeting apprenticeship in practical design education.

The apprenticeship educational mode mainly advocated in art and design education at high vocational colleges is the master apprenticeship. Combining the study results related to tacit knowledge transference, the continuous internal interaction within groups is one way to overcome the barriers of tacit knowledge transference [3]. In practical design fields, in addition to the introduction of master educational modes, the educational mode between seniors at different grades and the peer educational mode between classmates can be added to art and design education in high vocational colleges. Through these apprenticeship educational modes, students can carry out exchanges and activities during the process of personal observation and design a project simulation to enhance their learning and understanding abilities of tacit knowledge in art and design.

B. Application of situational teaching: simulating or reproducing design fields

Tacit knowledge has a strong dependence on situations. During transference, the knowledge receivers' environment is stressed [5][6]. If the knowledge receivers are under similar

situations, then the tacit knowledge transference process can be easily activated and properly used by the knowledge receivers. This feature requires applying the situational teaching method in art and design education at high vocational colleges to attach importance to simulating or reproducing design fields.

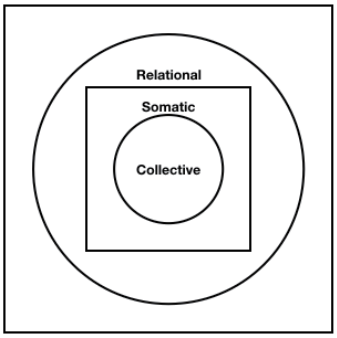

Fig. 1 Source of tacit knowledge. [3]

Structure science is one of the basic professional courses of art and design, and beginners are unable to associate the basic design knowledge with the practical design experience in their brains; hence, for teaching, teachers are required to simulate or create situations suitable for basic teaching. For instance, they introduce handicraft into the structure science through descriptions on the theoretical knowledge of structure science to reshape the teaching situation of structure science. They then take handicraft learning as the situation and import the theoretical knowledge of structure science to enable students to repeat and experience the teachers' way of thinking in design and to feel and comprehend the meaning of the establishment of teaching situations.

C. Emphasis on the process of analogical reasoning

On the training of tacit abilities, Polanyi believed that skills and discriminability are transmitted by examples, and Kant also noted that judgment (whether prescriptive judgment or reflective judgment) is improved by examples. Analogical thinking or example reasoning is the basic way to effectively transmit or acquire tacit abilities [7]. However, the analogical reasoning process cannot be stylized, formalized, and mechanized. Hence, during design education, teachers are required to pay attention to not only the effects of the examples on the students, but also to the students' simulation exercises during the analogical reasoning process, so as to help them improve their tacit abilities in simulation exercises.

Conclusion

If art and design education in high vocational colleges merely simulates modern educational modes, then tacit knowledge inheritance in the discipline system will be easily neglected. As a result, in high vocational colleges, three apprenticeship educational modes are advocated: learning from masters, seniors, and peers. Situational teaching is applied to simulate or reproduce design fields, and the process of analogical reasoning is emphasized to strengthen learning and grasping of strong tacit knowledge. Studies on tacit knowledge provide favorable theoretical support to the research and reform of art and design education in high vocational colleges and will play an important role in the talent cultivation therein.

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