

Exploration on the Reform of Higher Vocational and Technical Education under the Guidance of Constructivism

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Abstract: With the rapid development of my country's economy and society, my country's socialist modernization has an increasingly urgent demand for high-tech application-oriented talents, and the talent gap is increasing. Higher vocational and technical education colleges bear the important task of cultivating applied technical talents. How to deepen the reform of higher vocational and technical education and train high-quality technical applied talents has become an important issue that needs to be solved urgently. Constructivist theory emphasizes the learner-centered, the overall development of human beings as the goal, and the contextual and social aspects of learning, which are highly compatible with the characteristics and requirements of higher vocational and technical education. This article analyzes the teaching thought contained in constructivism and explores the possibility of applying it to the reform practice of higher vocational and technical education.

1. Introduction

With the in-depth study of the laws of human cognition by psychologists, constructivist learning theory has gradually become popular. Studying and researching the learning theory of constructivism, and carrying out the exploration of higher vocational and technical education reform based on the guidance of constructivism theory, will have a positive effect on cultivating students' post-holding ability and improving the effect of education and teaching.

Constructivism is a theory about knowledge and learning. It emphasizes the initiative of learners. It believes that learning is a process in which learners generate meaning and construct understanding based on their original knowledge and experience. This process is often completed in social and cultural interaction.

The earliest proponent of constructivism was J.Piaget in Switzerland. He believes that in the interaction with the surrounding environment, children gradually build up their understanding of the external world, so as to develop their own cognitive structure. This is Piaget's "cognitive structure theory"^[1].

On the basis of J.Piaget's theory, Vygotsky also conducted related research. He believes that human psychological development is both individual and social. Learning is not only the process of individual knowledge construction, but also the interaction between self-cognition and social background. This is "social constructivism"^[2].

On the basis of J.Piaget and Vygotsky's theory, Sternberg, Katz, Spiro and others have also conducted a series of studies. These studies have further enriched the theoretical system of constructivism, and created conditions for the practical application of these theories in the teaching process.

2. Teaching Thoughts Contained in Constructivism Theory

The teaching thoughts contained in the constructivist theory mainly include its views on the nature of knowledge, the views on the learning process, the positioning of the roles of learners and teachers, and the views on teaching goals.

2.1. Views on the nature of knowledge

Constructivism believes that knowledge is not a mirror image of the real world, it is just an explanation and a hypothesis of the world. Knowledge is not static, but is developing and evolving. It changes and develops with cognitive activities. Knowledge cannot be used once and for all, it needs to be updated and created continuously. Therefore, people's learning of knowledge is endless.

2.2. Views on the learning process

Constructivism believes that the process of learning is a process of knowledge construction and a process of changing people's cognitive structure^[3]. Therefore, learning is not a simple accumulation of information, but the result of continuous interaction between new and old knowledge. The new knowledge is abstracted from the old knowledge, and the original knowledge is adjusted and changed due to the entry of the new knowledge, which triggers the reorganization of the learner's cognitive structure.

2.3. Views on the role positioning of learners and teachers

Constructivism believes that the learner is not a passive container waiting to be instilled, but a subject who actively seeks meaning. The learning process is not simply the transfer of knowledge by the teacher to the students, but the process of constructing knowledge by the students themselves. Students are not passive receivers of information, but active builders of knowledge. This means that learning is active. Each learner is using his own known knowledge to understand the current new knowledge, based on his original experience, to interpret the new information to construct his own understanding. The role of the teacher is the supporter, guide, and collaborator of students' knowledge construction.

2.4. Views on teaching goals

The teaching goal of constructivism is not simply to impart knowledge, but to emphasize "experiencing the process of knowledge construction" and "actively constructing meaning". Learners should learn the knowledge that can be used, rather than some empty and meaningless concepts. Teaching goals should also include training students to discover and solve problems, and to criticize, explore, and innovate.

3. Characteristics of Higher Vocational Education

Higher vocational education is a type of higher education that appears with economic construction and social development. General higher education focuses on cultivating academic and engineering talents; while vocational education focuses on cultivating high-level technical application talents. The purpose of training is to cultivate technical and application-oriented talents who are urgently needed in the front lines of production, operation, management and service, who not only master certain scientific and technological knowledge, but also have strong professional skills. Therefore, higher vocational education is a higher technical education oriented to vocational positions and based on vocational technical ability. With the development of the times, vocational education reflects the following characteristics:

3.1. Student-oriented

The purpose of higher vocational education is to cultivate technical application talents with innovative spirit and practical ability. In the teaching process, on the one hand, it focuses on starting from reality and cultivating students to master scientific and cultural knowledge and operational skills. On the other hand, it also focuses on cultivating students to be good at observation, diligent thinking, and imaginative, so that students can creatively solve problems encountered at work in the future. Therefore, higher vocational education emphasizes "student-oriented" in the purpose of education.

3.2. Contextuality and Practicality

Higher vocational education emphasizes contextuality and practicality in teaching methods. By creating scenarios and simulating future career positions, students can carry out simulated training courses. By entering real situations (such as companies, factories), students can carry out actual job training. Emphasize practicality in the curriculum setting, highlight the main body status of practical courses. The theoretical courses are based on "necessary" and "sufficient" standards to provide effective support for professional practice and skill training.

3.3. Lifelong Education

The core task of vocational education is to cultivate students' vocational ability, and human vocational ability is not static. It will change with the development of economy and technology and the upgrading of industry. In recent years, with the advent of the knowledge economy era, the value of knowledge has changed rapidly, and professional positions and vocational skills have also been rapidly updated. Individuals must constantly update their knowledge and skills to adapt to this change. Therefore, vocational education should establish the idea of lifelong education.

4. The Teaching Practice of Higher Vocational Education under the Guidance of Constructivism

Because the concepts advocated by constructivism are adapted to the requirements of the development of contemporary higher vocational and technical education, the theory of constructivism is gradually combined with teachers' teaching practice and become the guiding ideology for deepening the teaching reform of higher vocational and technical education colleges.

4.1. Teaching Ideas under the Guidance of Constructivism

Although constructivism has many schools and complex systems, all constructivist learning theories firmly believe that knowledge is not passively acquired by the cognitive subject, but the result of the active construction of the cognitive subject. Correspondingly, the learning process is a process of active construction, an active process of continuous interpretation and understanding of things and phenomena. Therefore, the important enlightenment of constructivism is that education activities should be student-centered and the students' main body status should be brought into play. Based on this theory, the "student-oriented" educational philosophy should be implemented in the teaching practice of higher vocational and technical education.

4.2. Teaching Objectives Design under the Guidance of Constructivism

Constructivism believes that the goal of teaching is not simply to impart knowledge, but also to focus on "actively constructing meaning" to cultivate students' ability to discover and solve problems. In the teaching process, mastering knowledge and developing ability are interdependent, mutually conditional, and mutually cause and effect, and mutually promote each other. On the one hand, mastering knowledge is the basis of developing ability, and knowledge is the "raw material" of thinking. Without knowledge, it is impossible to develop ability; on the other hand, ability is an important condition for mastering knowledge. Without basic cognitive ability, one cannot master what they have learned.

The purpose of higher vocational education is to cultivate high-level technical application-oriented talents. Therefore, the teaching goal of the school should be to cultivate students' ability to hold positions. Students must not only master the knowledge and skills required to be qualified for professional and technical positions, but also cultivate the ability to discover, analyze, and solve problems in the process of learning knowledge, as well as achieve the balanced development of the three training objectives of "knowledge", "skills" and "quality".

4.3. Teaching Content Design under the Guidance of Constructivism

Constructivism believes that learning is inseparable from a certain context, and knowledge is meaningful only in a certain context^[4]. Therefore, the design of the teaching content of higher

vocational and technical education should consider the actual situation of students' future professional positions. Plan the teaching content according to the needs of different professional positions. Through the "practical" teaching link, students are placed in a real situation, experience the process of knowledge construction, and realize the integration of "teaching, learning and doing", which is convenient for the mastery of knowledge and the application of knowledge. The knowledge obtained in this way is "living knowledge".

4.4. Teaching Method Design under the Guidance of Constructivism Theory

4.4.1. Give Full Play to the Student's Dominant Position

Constructivism believes that the teaching process is the learning process of students under the guidance of teachers. "Teacher-led" and "student subject" are dialectically unified in the teaching process. The role of the teacher should be the guide, not the indoctrinator. Students are masters of learning, not passive receivers of knowledge.

Based on this theory, in the teaching practice of higher vocational and technical education, on the one hand, teachers should give full play to the leading role of teachers to guide students to discover and analyze problems; on the other hand, they should also pay attention to the dominant position of students and encourage students to solve problems with independent and creative thinking. Let students actively master the basic theoretical knowledge and basic operating skills of their major under the purposeful and planned guidance of teachers, and form professional qualities and abilities.

4.4.2. Focus on Teaching Students in Accordance with Their Aptitude

Constructivism emphasizes the role of learner's experience in the construction of knowledge. Teaching activities should fully consider the actual situation of the learner to ensure that the learner is in the "recent development zone" in his study.

Based on this theory, in the practice of higher vocational and technical education, the characteristics of students should be fully considered, and students should be taught in accordance with their aptitude. Teaching must start from the students' existing knowledge, attitudes and interests, and precisely design the teaching situation so that students can construct their own knowledge.

4.4.3. Encourage Lifelong Learning

Constructivism emphasizes that knowledge is not static, but is constantly evolving. Therefore, higher vocational and technical education should establish the concept of "lifelong education". Carry out elementary, intermediate, and advanced vocational and technical education, provide targeted education services to students of different levels, and provide continuous support for the growth of technical application-oriented talents.

5. Conclusion

In summary, constructivism is a theoretical system of knowledge and learning proposed from the perspective of psychology. The teaching ideas contained in it have important reference significance for improving the teaching effect of higher vocational and technical education colleges and deepening teaching reform.

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