Study on Teaching Reform of Higher Vocational Architecture Engineering Major under the Information Age

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Abstract: The information age has changed the way of teaching of architectural engineering in higher vocational colleges. The popularization and application of various information technologies make teaching resources more abundant and teaching methods more diversified, and promote the effective improvement of teaching efficiency and quality. Teachers need to explore the new path of the deep combination of information technology and construction engineering education, in order to improve the quality of training and better respond to the needs of talents in the field of construction. Based on this, this paper first analyzes the influence of information technology on the teaching of architectural engineering in higher vocational colleges, and then studies the teaching reform path of architectural engineering in higher vocational colleges in the information age combined with the author's practical experience, in order to provide references for colleagues.

Key words: Information age; Higher vocational college; Architectural engineering major; Teaching reform

Introduction

The advent of the information age has brought the trend of globalization, digitalization and networking, and education is also facing great challenges and changes. In the process of training technical talents, the architectural engineering major in higher vocational colleges needs to adapt to the development requirements of the information age and carry out teaching reform. Making clear the important influence of information technology and exploring the path of in-depth combination of information technology and construction engineering education are the important tasks of the current teaching reform of construction engineering major in higher vocational colleges.

1. The influence of information technology on the teaching of construction engineering in higher vocational colleges

With the continuous development and progress of science and technology, information technology has become a necessary skill in all walks of life. Especially in the field of construction engineering, the application of information technology has become an important means to improve the quality of construction and accelerate the speed of construction, which has an important impact on the teaching of construction engineering in higher vocational colleges. First of all, information technology has brought more abundant teaching resources for the teaching of construction engineering in higher vocational colleges. Traditional teaching methods only rely on teachers to teach PPT, while the introduction of information technology can facilitate teachers to use more high-quality teaching resources to guide students. Through the Internet and other channels, teachers can easily obtain all kinds of drawings, systems, norms, papers and other materials related to construction projects. Integrating these materials into the classroom as teaching content can promote students to have a deeper understanding of professional knowledge. Secondly, the development of information technology provides a more convenient, rapid and effective teaching method for the teaching of architectural engineering in higher vocational colleges. For example, BIM technology in construction engineering is a highlight of information technology in the field of construction. Teachers can introduce BIM technology into the classroom and digitize the model of construction engineering, so that students can understand the structure of the model from multiple dimensions and have a deeper understanding of the overall structure of construction engineering. At the same time, BIM technology can also provide various functions of reporting, communication and management. Teachers can guide students to simulate the actual construction engineering drawing process through BIM technology, so as to complete the learning task more quickly and efficiently. Thirdly, information technology can also promote the development of students' independent learning ability. Information technology provides a channel for students to learn independently without time and place restrictions. Students have access to more self-study materials and course content via the Internet or mobile devices, and can evaluate their own learning results and adjust their autonomous learning plans through online tests or other forms of examination systems. In general, information technology has many influences on the teaching of architectural engineering in higher vocational colleges. It enrichis teaching resources, provides more convenient teaching means, and promotes the development of students' autonomous learning ability. The effective application of information technology can not only promote the improvement of teaching quality, but also cultivate students' information consciousness and comprehensive ability.

2. The path of teaching reform of architectural engineering specialty in higher vocational colleges under the information age

(1) Guide students to self-study with the help of information-based education platform

In the information age, the teaching of architectural engineering in higher vocational colleges pays more attention to the innovation and reform of teaching, and in this process, the use of information education platform has become a necessary tool for the construction of teaching mode. First of all, teachers can use the information education platform to guide students to independently learn professional knowledge. In the traditional teaching mode, the interaction between teachers and students is relatively simple, and students' subjective

initiative is limited. However, through the information-based education platform, teachers can set up online courses, guide students to learn actively, and cultivate students' independent thinking and problem-solving ability, so as to improve the teaching quality and reduce the teaching pressure of teachers. Secondly, teachers should use the information-based education platform to obtain teaching resources and provide students with intuitive teaching situations. In the teaching of architectural engineering in higher vocational colleges, the content of lectures, teaching design and experiment scheme are all very important teaching resources. With the help of information-based education platform, teachers can integrate these resources, build a network teaching resource library, share teaching resources, provide convenience for explaining professional skills, and provide students with intuitive teaching situations. Finally, with the help of the information-based education platform, teachers should change the way of teaching guidance and promote the development of students' independent learning ability. On the information-based education platform, teachers can interact with students in various forms by creating exchange forums and carrying out online discussions, which is conducive to establishing interactive teaching mode, expanding students' learning space, and cultivating students' innovation and practical ability. In addition, teachers can also enrich the content and forms of classroom discussion through online interaction, adapt to the diversified learning needs of students, stimulate students' learning interest and enthusiasm, and improve the quality and efficiency of teaching. With the advent of the information age, information-based education platform has become a necessary choice to promote students' independent learning, which is of great significance from the perspective of improving teaching quality, realizing teaching resource sharing, and promoting teaching reform.

(2) Use BIM technology to promote students' project-based learning

The information age is an era of rapid development. Information technology has an important impact on all walks of life, and the construction engineering industry is no exception. How to apply information technology to the construction engineering specialty in higher vocational colleges and improve its teaching quality and intelligent level is a problem worthy of in-depth study in teaching. In view of the fact that BIM technology has been widely used in the design and construction of large-scale construction projects around the world, it can improve the work efficiency and work quality of engineers and designers. Teachers can introduce Building Information Modeling (BIM) technology. BIM technology is a kind of digital information model that contains all the relevant information in the construction project, such as architectural design, structure, mechanical and electrical equipment, materials, safety and so on. First of all, teachers should systematically teach the theoretical knowledge related to BIM technology in the teaching of professional courses, introduce the development history, application scenarios, technical system, construction process and important tools of BIM, so that students can have a comprehensive understanding of the concept and practical application of BIM technology. Secondly, in order to effectively improve students' application ability and practical level of BIM technology, teachers can select some real engineering projects as teaching cases according to the curriculum Settings and actual needs, and guide students to experience the application of BIM technology by simulating the actual scene operation, so as to establish a more intuitive impression of BIM technology. Thirdly, teachers can establish a BIM technology laboratory, provide various software platforms and necessary support equipment, and guide students to practice and apply various BIM technologies more freely, so as to further improve their practical skills and comprehensive quality. Finally, teachers should attach importance to the cooperation with construction engineering related enterprises and institutions, jointly study the innovative application of BIM technology, carry out relevant courses and practical activities, and guide students to truly integrate into the practice scene and understand the latest trends and cutting-edge technologies of the industry.

(3) Improve teachers' information-based teaching ability and level, and promote the innovation of teaching mode

With the continuous development of information technology, education is also undergoing transformation, and information-based teaching is becoming the mainstream trend of college teaching. It is necessary to improve the ability and level of information-based teaching for teachers of construction engineering in higher vocational colleges, and it is also needed by The Times. First of all, teachers should have the ability to use teaching software. In information-based teaching, teachers can use teaching software to show students the content and practical operation of construction engineering more intuitively, such as using 3D model software to simulate building structure, or using VR technology to demonstrate building construction scenes. Therefore, teachers need to be proficient in the operation of these teaching software so that they can be flexibly applied in course teaching. Secondly, teachers need to have the ability to make courseware. Courseware is the basis of information-based teaching, which directly affects the classroom teaching effect. Therefore, teachers should have the ability to make courseware, and must master PPT, Keynote, Prezi and other commonly used courseware making tools. Making exquisite, clear and concise courseware can make it easier for students to understand and master the related knowledge and skills of architectural engineering. Thirdly, teachers should make good use of Internet educational resources. The Internet has rich educational resources, such as online courses, electronic books, teaching videos, etc. These resources can provide rich and solid knowledge reserve for teaching. Teachers should pay attention to relevant architectural websites and learn about relevant academic research results. After students have mastered the basic knowledge, teachers can use these educational resources to impart some advanced knowledge and skills, so as to make the teaching more forward-looking. Finally, teachers need to be good at using the network teaching platform to carry out curriculum design. The network teaching platform provides a convenient and practical platform for teachers and students to communicate and interact. Teachers can assign homework, correct homework and organize subject discussion through this platform.

3. Build virtual laboratories to promote practical teaching

Vocational education aims at cultivating talents for positions. The practical teaching of architectural engineering in higher vocational colleges is very important and an important guarantee for the quality of talent training. However, practical teaching has higher requirements

for experimental environment and resources, and there is a certain gap between teaching demand and teaching conditions. In order to solve the problem of insufficient experimental environment and resources, the construction of virtual laboratory has become an important solution. The construction of virtual laboratory is a new teaching method, which can effectively solve the problem of insufficient experimental environment and resources, and effectively improve students' learning interest and practical operation ability. In the process of teaching reform of architectural engineering major in higher vocational colleges, it is necessary to rely on virtual laboratory and create an almost real experimental environment with the help of computer and network technology to simulate various architectural engineering experiments, so that teaching activities are not restricted by place, time and environment. For example, according to the characteristics of the construction engineering major in higher vocational colleges, virtual laboratories of construction management and civil engineering can be opened up, so as to facilitate students to experience various construction links. In the virtual laboratory of construction management, students can deeply learn construction planning, implementation of safety measures, quality management and other contents through the virtual simulation teaching platform to improve their practical skills. In the virtual laboratory of civil engineering, students can experiment with various materials, such as cement, bricks, etc., so as to understand the relevant knowledge more intuitively. It can be seen that the construction of virtual laboratory is very necessary for the practical teaching of architectural engineering in higher vocational colleges, and can provide teachers with convenient, fast, environmentally friendly and practical teaching means. At the same time, the construction of virtual laboratory does not need to consume a lot of time and money, with a high degree of feasibility, is an effective way to improve students' interest in learning and practical ability.

Peroration

In a word, the teaching technology of architectural engineering in higher vocational colleges is more abundant and intelligent in the information age. Teachers should constantly innovate teaching methods and strengthen practice links, so that students can better master knowledge and skills, and train more outstanding talents for the development of the field of architectural engineering. As teachers, they should fully understand the influence of information technology on the teaching of construction engineering in higher vocational colleges, promote the teaching reform through the information education platform, BIM technology and virtual laboratory, and constantly improve their own information teaching ability and level.

References:

[1] Hui Jiang. Development Strategy of Curriculum System for Higher Vocational Architecture Engineering [J]. Journal of Hubei Open Vocational College,2022,35(13):153-154.

[2] Xuemei Zhang. Research on Training of Professional Group of Higher Vocational Architectural Engineering Based on "1+X" Certificate System [J]. Science and Education Guide,2022(15):39-41.

[3] Chunxu Zhou,Wei Lin,Yuzhou Shi. Research on the Cultivation Path of Innovation Consciousness of Architectural Engineering Students in Higher Vocational Colleges under the Background of "Mass Innovation" [J]. Journal of Qiqihar Teachers' College,2022(01):23-25.

[4] Xinzhe Xu,Yayu Ning. The Application practice of BIM in the Teaching of Architectural Engineering in Higher Vocational Colleges [J]. Anhui Architectu re,2021,28(03):100-101.

[5] Xing Kuang. Application of Revit Modeling Technology in Teaching of Architectural Engineering in Higher Vocational Colleges [J]. Anhui Architecture, 2019,27(12):131+153.