

Research on Bim Network Teaching Based on Big Data “Internet Plus” Mode

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Abstract: The rapid development of information technology represented by the Internet has promoted the development of the information society. The online education of open universities depends on information transmission and information interaction, and it also needs continuous development and innovation. With the development of Internet technology and the birth of a new generation of media systems, in order to accelerate the popularization of BIM network technology in higher vocational colleges and promote the cultivation of BIM application-oriented talents, this paper proposes a module based on project cases and the Internet BIM, in the case of BIM technology in higher vocational colleges is generally difficult. The network teaching mode provides a reference for improving the quality of higher vocational education.

1. Introduction

At present, the domestic construction industry is facing the needs of transformation development and high-quality development. The construction of intelligent building and intelligent city urgently needs application-oriented technical talents who master BIM Technology. At present, China has initially formed the BIM Technology Application Standards and policy system, laying a solid foundation for the rapid development of BIM. However, the lack of technical talents in BIM industry restricts the development of BIM Technology in China. Higher vocational colleges are the main force of training professional talents. Higher vocational colleges urgently need to introduce BIM Technology and offer BIM related courses. At present, the teaching of BIM Technology Course in higher vocational colleges is in the exploration stage. Some vocational colleges that introduce BIM Technology mostly adopt sporadic pilot teaching mode. Because BIM Technology runs through the whole life cycle of the building, with the characteristics of cross specialty, practicality, systematicness and comprehensiveness, there are many difficulties in introducing BIM Technology in higher vocational colleges.

2. It is Difficult to Integrate Bim Technology into the Existing Curriculum System,

The application of BIM Technology is obviously different from the current teaching mode. BIM Technology takes practical projects as the carrier, pays attention to practical application, and emphasizes cross specialty collaborative work; the current teaching system is divided by specialty, each specialty is relatively independent, and the teaching method is mainly based on theoretical knowledge indoctrination. The two systems belong to different systems, and lack of integration point. Therefore, it is difficult to implant BIM Technology in the existing teaching system.

3. The Three-Year Vocational Education System of Bim Course in Higher Vocational Colleges Can Not Be Fully and Systematically Introduced.

The total class time is limited and the course arrangement is compact. BIM Technology is systematic and knowledge content is complex. The introduction of BIM course in higher vocational colleges will inevitably squeeze the existing courses and add many extra hours, which will bring great changes to the existing teaching system, which is also unrealistic. 3. BIM teaching resources are scattered, lacking BIM Technology, involving theoretical knowledge, software knowledge, software operation, project cases and many other contents, including text, image, animation and

other forms. At present, there are many teaching materials and training materials about BIM on the market, but it is difficult to find a complete set of books or materials covering all knowledge of BIM. The Internet plus Internet plus occupation education model based on Internet plus is based on the Internet + occupation education mode in the implementation plan of national vocational education reform. BIM Teaching mode is based on the above BIM Technology in the development of Higher Vocational Colleges in general difficulties. Modular BIM teaching system can be formed by using modular teaching concepts to form modular BIM teaching mode. Modular teaching is a kind of teaching mode that pays attention to the cultivation of learners' application ability and comprehensive ability. The modular form makes the curriculum more systematic. According to the requirements of BIM teaching, BIM system is divided into five modules: the basic module, professional module, practice module, evaluation module and certificate module, and the modular teaching system from teaching links, teaching content, teaching organization to teaching evaluation. The goal of each module is clear, and the learning direction of students is clear. Internet plus vocational education is the combination of Bim and vocational education. This is a new and effective vocational education model. With the help of Internet, higher vocational colleges can establish a teaching resource platform with BIM module as the core. The platform is divided into two channels: teacher teaching and student learning. BIM teaching around the platform can combine students' online self-study with teachers' classroom teaching and students' online self-study.

4. Modular BIM teaching mode construction in the era of Internet plus media.

Professional module is based on the completion of basic module learning. According to the different needs of BIM Technology for different majors, such as equipment, construction, cost, safety, etc., select the corresponding BIM model and project case, and set it as a sub module embedded in the teaching of professional courses, mainly completed by teachers in the classroom. For example: the equipment specialty conducts collision inspection according to the three-dimensional model to optimize the comprehensive layout of the pipeline; the construction engineering specialty adds the construction organization schedule according to the three-dimensional model to form the BIM 4D (three-dimensional + time) model to simulate the construction progress, construction site, completion and delivery as well as the construction process. Practice module is an integrated application module of BIM Technology, which is carried out in cooperation with teaching and training links, emphasizing the coordination between specialties to consolidate and enhance BIM skills. Teachers can use typical cases to let students participate in the whole project process from bidding, design, procurement, construction to operation, and cooperate to complete the application of BIM Technology in the whole project life cycle, so as to cultivate students' comprehensive quality. Collaborative work ability, map reading and modeling ability, comprehensive application ability of construction technology, measurement and pricing ability, etc. Cooperate with teaching and training to strengthen BIM skills. Teachers can use typical cases to let students participate in the whole project process from bidding, design, procurement, construction to operation, and cooperate to complete the application of BIM Technology in the whole project life cycle, so as to cultivate students' comprehensive quality. Collaborative work ability, map reading and modeling ability, comprehensive application ability of construction technology, measurement and pricing ability, etc. Cooperate with teaching and training to strengthen BIM skills. Teachers can use typical cases to let students participate in the whole project process from bidding, design, procurement, construction to operation, and cooperate to complete the application of BIM Technology in the whole project life cycle, so as to cultivate students' comprehensive quality. Collaborative work ability, map reading and modeling ability, comprehensive application ability of construction technology, measurement and pricing ability, etc.

5. The design of Internet Teaching Platform

- (1) The advantage of network BIM teaching is to build a platform for teaching resources and

solve the problem of scattered and scarce teaching resources. It can integrate the scattered and diversified teaching materials, summarize them under the corresponding modules, push them to the Internet, build a BIM teaching resource platform, and facilitate the access of teachers and students. Students use learning channels to complete a series of BIM activities, from introduction to professional learning, to comprehensive application, as well as course evaluation and forensic training; teachers use teaching channels to maintain platform resource information, extract courseware information, and optimize classroom teaching.

(2) Sharing teaching resource information and solving the problem of cross professional cooperation, BIM teaching is based on the actual project, focusing on the construction and application of BIM model. Students of different majors can get models of different stages of the same project from the modules at any time, and then enter the next step of operation, that is, students of different majors can operate the same project model at the same time, thus breaking the barriers between the majors and realizing cross professional cooperation. The combination of physical classroom and virtual classroom is adopted in BIM teaching. The virtual learning space on the Internet makes learning more free. The time, place and content of BIM learning for students are more flexible. It can be used for scattered learning and effectively solve the problem of tense classroom teaching time.

(3) Promoting students' active learning and improving teaching effect are the biggest characteristics of online education. New and diversified modular teaching content and network form can stimulate students' desire for exploration and knowledge, promote students' active learning and return to the main position of teaching. As the guidance and assistant of students' learning, teachers can timely understand the progress of students' learning, master key and difficult knowledge, realize targeted teaching and improve teaching effect through big data analysis on the Internet. Under the Internet plus sign, the design of immutable module is not immutable and frozen. Teachers can adjust teaching effect and feedback according to teaching effect. The module content should be centered on the project case, emphasizing the decomposition and induction of the project model, as well as the maintenance and update of the module content. In addition, teachers should pay attention to the guidance of students' learning and the use and management of students' network platform. Students can learn in module order or choose any module freely. One trend of information technology application is the coming of information age. Using the Internet for information education will also become the norm. The modular BIM teaching mode under the "Internet plus" is the choice to adapt to the development of the times and the characteristics of BIM technology. Modularity makes BIM knowledge system simple, flexible and universal. In order to train more BIM talents, we should improve the modular BIM teaching mode under the Internet in practice.

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