

Exploration and Analysis of Online Course Development of "Construction Technology" in Higher Vocational Colleges

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ABSTRACT

In order to achieve the goal of talents training and improve the teaching effect, the online course of "Construction Technology" was developed. According to the characteristics of the course, divide the knowledge points, form teams, integrate teaching resources, interdisciplinary, heuristic teaching and informatization teaching and other teaching methods, and introduce moral education into the classroom to form curriculum characteristics. After continuous teaching practice, it has achieved a good teaching effect. And some of the existing common problems are summarized, and now collated, hoping to help colleagues online course development.

Keywords: *Online Course Development, "Construction Technology", Higher Vocational College.*

1. INTRODUCTION

According to the outline of the national medium and long term education reform and development plan (2010-2020), "the development of vocational education is the key link to promote economic development, promote employment, improve people's livelihood, and ease the contradiction between supply and demand of labor force, which must be placed in a more prominent position." What kind of teaching mode should be adopted to make the vocational education of our country develop better? If more high-tech application-oriented talents are cultivated for our country in the new era, it is an urgent problem to be solved at present. The reform of teaching mode is the trend of the times and is imperative.

As an important part of distance education, the quality of online courses directly affects the learning effect of distance learners. With the rapid development of new technologies represented by "cloud computing", "big data" and "artificial intelligence", new teaching modes such as "MOOC" (MOOC for short), "flipped classroom", "hybrid learning", "adaptive learning" have emerged, and online courses have attracted more and more attention in both traditional higher education and distance education fields^[1]. In order to adapt to the development and change of the times, governments at all levels are also actively formulating relevant opinions and plans for the

construction of online open courses. In April 2015, the Ministry of Education issued the opinions on strengthening the application and management of online open courses in Colleges and universities^[2], proposing to identify more than 3000 national top-quality online open courses by 2020; in June 2016, the Ministry of Education issued the notice on the 13th five year plan of educational informatization, clearly proposing to put the teaching reform, especially the curriculum reform, under the background of the information age. Design and promote, promote the construction of a number of online courses in Colleges and universities and open them to the society^[3].

Online courses go through three stages.

- E-Learning
- OER (open education resources)
- MOOC (mass online open courses)^[4]

In recent years, cloud computing and big data technology have gradually matured and developed rapidly. Because of their sharing, high service, flexibility, low cost and scalability, they provide a new technical guarantee for the development of open courses. It is a subject of continuous exploration and practice to carry out online course teaching of "construction technology" in Higher Vocational Colleges and improve teaching effect.

2. CHARACTERISTICS AND CONTENTS OF THE COURSE "CONSTRUCTION TECHNOLOGY" IN HIGHER VOCATIONAL EDUCATION

2.1. Characteristics of Construction Technology Course in Higher Vocational Education

It has the characteristics of many knowledge points, trivial, involving a wide range of disciplines, many key and difficult points, strong practicality, etc.

2.2. Course Content and Knowledge Point Division

In the specific teaching, taking the construction process as the main line, it is divided into three stages: foundation construction stage, main construction stage and decoration construction stage. It is further divided into ten topics, including introduction, earthworks, foundation treatment and reinforcement, shallow foundation construction, pile foundation construction, masonry structure construction (including external insulation construction), reinforced concrete engineering construction, structural installation and steel structure construction (including prefabricated concrete structure construction), waterproof engineering construction, building decoration construction. Each topic is divided into several knowledge points.

After years of accumulation, there are a large number of construction pictures, construction animations, construction videos and construction courseware for each topic. How to integrate resources and make them serve the content is a difficulty in curriculum design. This requires that the teacher is not only an actor, but also a screenwriter and director, designing scripts, refining the connection of each content, when to watch which animation? When to see which construction pictures? Which content in the construction video is shown, specifically from \times minute \times second to \times minute \times second? What chart should be drawn on the blackboard to help students understand the key and difficult knowledge...

2.3. Team Building

"Construction technology" is a very comprehensive course, which has strong practicality, and involves many related courses such as "construction materials", "construction survey", "construction cost", "construction quality acceptance and data sorting", "construction structure and map recognition", etc. Therefore, the knowledge structure of curriculum team should be comprehensive and practical. For this reason, our team members include one academic and technical leader of civil engineering, two associate professors, three structural postgraduates, six lecturers and two senior

engineers. They are respectively responsible for the division of professional knowledge points, resource integration, courseware production, micro class recording, informatization and online promotion of curriculum resources. In addition, in the process of online open curriculum development, in order to respond to the changes of students' needs and the development of related technologies, members of the curriculum team should often participate in various trainings, such as focusing on strengthening the training of courses construction, course application and application of information-based teaching platform. [5]

In April 2005, the team leader presided over the vocational education teaching reform project - "research and Practice on improving the teaching effect of" building construction technology "by using a variety of teaching methods". In September 2007, he won the first prize of vocational education achievement of Henan Provincial Department of education. For more than ten years, we have been practicing and improving many kinds of teaching methods in the teaching process, and have achieved good teaching results.

Most of the teachers in the team participated in the course construction of "construction technology" in the teaching and Research Office of architectural engineering technology, an excellent grass-roots teaching organization of colleges and universities in Henan Province in 2016. And the resource base construction of XM-1 backbone professional construction project of Henan Higher Vocational Education Innovation and development action plan - "construction engineering technology". In August 2017, he participated in the construction of teaching and Research Office of construction engineering technology, an excellent grass-roots teaching organization of Henan Higher Education Department.

3. CHARACTERISTICS OF ONLINE COURSE OF CONSTRUCTION TECHNOLOGY

3.1. Guiding Ideology

"Building construction technology" is one of the core courses of building construction technology specialty. It mainly teaches the main construction technology, construction technology and methods of construction projects, which is highly practical and comprehensive. Through the teaching of this course, the purpose is to train students to "understand technology, be able to construct, be able to manage", and make students have good professional ethics. Finally, a batch of qualified production front-line technical and management personnel will be delivered to construction enterprises, engineering supervision companies, cost consulting companies, real estate companies, etc.

The guiding ideology of online course development

of "construction technology" is based on the talent training program, with skills as the core, following the teaching rules, optimizing the learning process, adopting different teaching methods for different learning contents, and improving the teaching effect.

3.2. Production Link

The production process consists of three parts: curriculum design, curriculum recording and curriculum improvement.

In the process of curriculum design, teachers take the lead. The teacher team should complete the overall design of the course, the preparation of the teaching plan, and finally the preparation of the script, and prepare the construction courseware, construction pictures, construction animation, construction video and blackboard writing corresponding to the teaching content.

The course recording process is jointly completed by the professional company and the lecturer. Teachers should wear elegant clothes according to the requirements: avoid exaggerated or highlighted jewelry; avoid wearing sweaters, T-shirts with round necks and complex designs; male teachers can choose shirts, suits and black leather shoes; female teachers can choose suits, skirts and half heels.

In the process of curriculum improvement, teachers need to provide exercises and answers to build a test bank and dynamically inspect students' mastery.

3.3. Multidisciplinary Integration

For example, when explaining the introduction, there are two main lines.

A main line is the relationship between modern architectural history and construction technology. It is a sign of progress that human beings live in natural cave, half cave and a small amount of trees ("Youchaoshi" teaches people to "build wood as nest" to avoid wild animals, from cave to nest, from primitive cave dwelling to building houses. Now there are still tree houses in the south, which are evolved from them), cave houses, earth rammed walls, middle and high-rise buildings of brick and stone, high-rise buildings of reinforced concrete, steel structures, composite super high-rise buildings of reinforced concrete and steel, etc. the construction technology has developed from scratch, from the weak embryonic stage to the vigorous full development, which inspires the students until the conclusion is reached: the history of modern architecture The development of construction technology is closely related to the development of interdependence.

Another main line is the relationship between building materials and construction technology. As the saying goes, "a skillful woman can't cook without rice".

Building materials are widely used from natural local materials to artificial materials. A new building material will bring a new construction technology. It is concluded that building materials play a leading role in the development of construction technology.

With the integration of multi-disciplinary, students are more aware of the novelty when they listen to the class. They will follow the teacher to think actively and answer questions. The classroom atmosphere is active and the teaching effect is good.

3.4. Skilfully Setting Questions and Creating Situations

In the process of teaching, the students will be very happy to participate in the teaching process as long as they are creative and have suspense.

For example, when talking about "foundation treatment", let the students first look at the pictures of the Leaning Tower of Pisa, and then set the question "do you know this tower? Why does it tilt? "Teach students to see the essence through the phenomenon, and cultivate students' serious and rigorous ability. This is a necessary ability to learn the course "construction technology".

3.5. Combine with Traditional Culture to Educate People

In the teaching process of the course of building construction technology, we should keep in mind the teaching objectives, carry out oral communication, take morality as the core, and teach and educate people. As a teacher, it's really a pleasure to see that the students' vision has been broadened, their thoughts have been improved and their actions have become more civilized.

Moistening things silently, virtue comes back to practice. "Peaches and plums speak for themselves, but they make a difference." Education is influence, infection, edification, mutual supervision, restraint and promotion between teachers and students. "Teaching and learning grow together" is the truth.

4. CONCLUSION

Li Tianfeng, a professor of Yunnan Normal University, mentioned in the professional quality and professional growth of contemporary college teachers that a qualified college teacher should have the following qualities: philosophical thinking, literal expression, historical background, psychological experience and social extensive experience.

There are many knowledge points and complex contents in the course of "construction technology". In the process of online course development, there are many problems. For example, most of the teachers are inexperienced in script writing, and most of them are very

relaxed in actual lectures, as long as they do not exceed the moment at will. However, after writing the script, the teacher is required to complete it according to the script procedure. The free space is reduced, and it is easy to be nervous. The teacher suddenly becomes an actor. The expression, posture, speed and so on of the speech are limited, which requires the teacher to adapt gradually. A good teacher should have a good course, and a good course will make a good teacher. The curriculum should be innovated, the teachers should keep pace with the times, develop continuously, and cultivate more high-quality innovative talents.

Education Based on MOOC [J]. Electronic production. June 2017

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