The MOOC Teaching Research on the Teaching Reform of Computer-aided Design

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Abstract: The course of computer-aided design is very practical. The purpose of this course is to enable students to master the basic design of computer. As a new educational mode, its remarkable characteristics can help CAD curriculum and change its teaching mode. This study analyzes the characteristics of the application of the curriculum, combined with the computer-aided design course, makes a new course teaching model, and takes the students of the forest engineering major of Fujian Agriculture and Forestry University as the practice object, and analyzes the effect of students' learning of the course, hoping to provide a new way of thinking for the reform of the university education.

1. Introduction

Computer aided design has become one of the most important basic technical courses in China's colleges and universities. Its teaching content covers basic drawing knowledge, the creation of basic graphics, and the establishment of a layer. As the basic course of science and engineering, the mastery of computer aided design knowledge has a profound influence on students. However, because of the strong logic of the subject, the complicated operation interface and operation content can easily cause some students to master poor. Since 2012, Moore as a new learning way has provided a new way of thinking for teaching [1]. The study aims at combining the 2014 class forest engineering students of Fujian Agriculture and Forestry University as the research object, combining the curriculum platform with the computer aided design course. The purpose is to improve the master degree of the students' engineering drawing skills so as to make it easier to apply the computer technology in the future study and work [2-3].

2. The characteristics of Mogao class and its advantages in CAD courses

The characteristics and advantages of Mogao mainly include the following aspects: the diversification of tool resources. It provides a variety of learning tools and rich teaching resources for global netizens. Students can only watch and learn after registration and login according to the instructions. The curriculum does not make any provision for students' hard conditions, and all videos are free. Because all the courses are provided by the network, watching video is convenient, students can make full use of their own fragmented time to study independently, and arrange the course schedule according to the actual situation of the individual. Mocking videos should be online,

so students can arrange their time at any time, learning flexibility and autonomy is high, and the number of courses is unlimited [4]. As long as the Internet is universal, as long as the Internet is popular, this tool can be used to watch the teaching video. We can speak freely and communicate in the forum, share different views, and help to solve the problem in a three-dimensional way [5].

The combination of mocking teaching platform and CAD course makes full use of the following advantages of MMU teaching system: (1) Rehearsal effect. The rehearsal function of computer video is lack of the traditional classroom teaching. Students can watch the key difficulties repeatedly in the computer, deepen the impression, and strengthen the knowledge point memory more deeply. (2) segment teaching. The teaching design of mousse divides the content into a few parts, divides the whole content into several parts, and divides the teaching content into the teaching task, which is the sum of the whole teaching task after the completion of the teaching task one by one. (3) Improve the operation skills. Computer aided design is a course that needs to test the ability of students' hands-on operation. It requires students to apply the book knowledge to the software, and the online learning is just used by the computer, which makes the students more convenient to apply the theoretical knowledge to practice. (4) Arrange the time independently. Students can make overall arrangements for the time according to their learning goals, make the most efficient in a limited time, and use the fragmentary time flexibly.

3. The mod teaching design process of CAD course

The main process of teaching design of computer aided design course based on the concept of admiring lesson first is the formulation of the course task list, and then in turn is to make course video, students' self-study, and then discuss and analyze, instruct and answer questions, teachers receive feedback information and teacher evaluation. The goal of teaching research is to improve the students' interest in learning through systematic computer aided course learning under the concept of admiring curriculum, and to provide teachers with corresponding teaching design templates and reference materials.

The design process plan of curriculum study clearly records what time to learn and what time to study, and when to make the assessment test, make the students clear the current learning plan, independently arrange the learning progress, and control the learning task. Teachers can make instructional videos according to the theory of Moore learning platform, and customize learning tasks.

The production of course video courses is led by learning goals and meets the needs of learning. The principle of making the teaching task list: the student is the main body, conforms to the characteristics of the learners and meets the daily routine characteristics of the learners. The "Chinese University MOOC" is selected as the online education platform for this practice. The curriculum video is designed by the teacher according to the syllabus, and is sent to the Internet to inform the students to receive and use it.

Teaching content: conform to the requirements of teaching and improve the quality of teaching. Computer aided design course is a strong basic discipline. The teachers comprehensively consider the contents of the drawing order and the cognitive order of the students. The contents of the course AutoCAD command are processed and the engineering graphics test exercises are embedded in it in order to grasp the students' cognition in time. The design of mocking teaching methods can be divided into two parts: classroom education and online education.

At the same time, considering the difficulty of drawing knowledge, the instructional video is gradually divided into sub sections, and the design of each knowledge point is designed at 5~10 min. Considering the degree of mastery of knowledge and the consciousness of students, there are exercises after each section. In the course of the student class, the teaching content is studied in

advance through the course of admiring the lesson. The teacher will guide and answer the question in class, and integrate the online learning and learning with the learning on the other side of the class. It can not only play the leading role of the teachers, but also fully reflect the students' main position, thus making up for the defects of real emotional experience of online learning and promoting teaching and learning. The organic unity can fully realize the personalized learning of students. Combining the classroom instruction with the practice of the project drawing, the students should learn the knowledge points at the time of the class, and need to carry on the test or stage test, only through the next step. For students who haven't passed, analyze the reasons and put forward specific suggestions for them, so as to ensure the learning effect.

Classroom drawing command knowledge microelement is discussed, enlightening each other, and also can achieve interactive teaching through remote operation, and effectively improve the teaching effect of course.

Students learn independently, students view curriculum schedules, and watch computer aided design course videos. Through online learning resources on line, we can learn and broadcast or replay key and difficult knowledge according to our actual situation, or customize exclusive courses. In the learning unit of the course, the students have a corresponding test topic after a knowledge point. In general, it is one or two problems. Some of them may include the operation questions. After the students need to complete the corresponding questions, the students can continue to watch the video after the system is judged, so that the students can be detected in time. Learning and consolidating knowledge can also ensure students' learning progress. If students still don't know clearly or have doubts after finishing their learning tasks, they need to enter into the next knowledge internalization link with questioning.

Mutual supervision, discussion and analysis in this process, students in the classroom needs to be equipped with a notebook computer to facilitate the discussion of the difficulties encountered by their students in their study. In addition, at the same time, teachers participate in the discussion, and listen to the doubts, views and opinions that exist in the study, and help the individual students to solve the difficulties in their study. The interaction between teachers and students enhances the communication between teachers and students. This form of teaching is better than that in the traditional classroom. Individual guidance also reflects the individual learning system in Burke's individual teaching system. The main feature is to allow students to make self-study progress. Interaction and discussion in class improve students' neglected psychology and stimulate students' positive attitude. When the course is over, the teacher will make a concluding evaluation based on student's discussion.

The feedback information is discussed through the interaction of teachers and students, as well as the questions or suggestions completed by the students to complete the task table, and the results of the test work. The teacher can make an assessment table and write the assessment form according to the feedback information to achieve the purpose of real time correction and assistance to ensure the completion of the teaching task.

The design evaluation of teaching evaluation is divided into stages evaluation and summative evaluation. Stage evaluation: the stage evaluation can timely and accurately grasp the problems and stages of teaching in the teaching process, obtain information, so that teachers can adjust the teaching progress, teaching design plan and improve the teaching methods. Summative evaluation: summary assessment is used to test whether teaching activities are up to standard. The study is based on the observation table of teaching activities before and after the experiment and the interview with the students after the implementation of the case of the course. The summary evaluation of the study is completed.

4. The practice of CAI lesson teaching by computer aided design

In the case of the application design case, the author aims at the students of the 2014 grade forest engineering of Fujian Agriculture and Forestry University, and takes the computer aided design (Auto CAD 2015) published by China Forestry Publishing House as the textbook, and carries out the practice of admiring the course in the computer aided design course. In the teaching process, we advocate following engineering cases, hands-on practice, and actively participate in various forms of learning, such as topic discussions, etc. The course learning plan can choose the relevant contents and learning methods of the knowledge points independently, such as the teaching video of the key points, the case analysis video, the experiment video of the engineering drawings, the video analysis video and so on. Each section has a subsection discussion and summary of knowledge and related exercises. Each chapter has unit test, self test exercise and exercise analysis and answer. In the course of learning, we can choose the problem discussion, programming practice and self-test practice according to the content, in order to strengthen the basic training of knowledge and the method of calculating thinking.

4.1 To carry out the records of the lectures before and after the teaching of the class

After the comparison and in-depth analysis of the teachers' early listening records and the later hearing records, it was found that after the design of the computer aided design course system based on the mousse platform, there were obvious changes in both teachers' teaching and student learning (Table 1).

Table 1 Contrast of lecture records before and after practice

Contrast item	Participation interest	Attention concentration degree	Attitude towards teachers' questions	Enthusiasm degree to do work after class
Before practice	commonly	commonly	commonly	inactively
After practice	active	superior	active	commonly

4.2 Analysis of students' interview data after the implementation of the class teaching

In order to further analyze the practical effect of the teaching of Mu lesson in the teaching of computer aided design course in undergraduate course, after the implementation of the teaching, many students were interviewed from the aspects of interest and effect. Through the way of micro course, the students' learning attitude has not changed into positive state from the positive state, and the attitude to the teachers' questions has changed from the general to the positive. After the implementation of Moore teaching, data analysis of student achievement is shown in Figure 1, which can clearly see the changes of students. The results were divided into five grades: A + was very excellent (100~90 points), A was excellent (89~80), A- and B were passed (69~60), and C was failed (below 59 points). According to the results before and after analysis, implementation of Moore teaching can improve academic performance and improve students' learning effect.
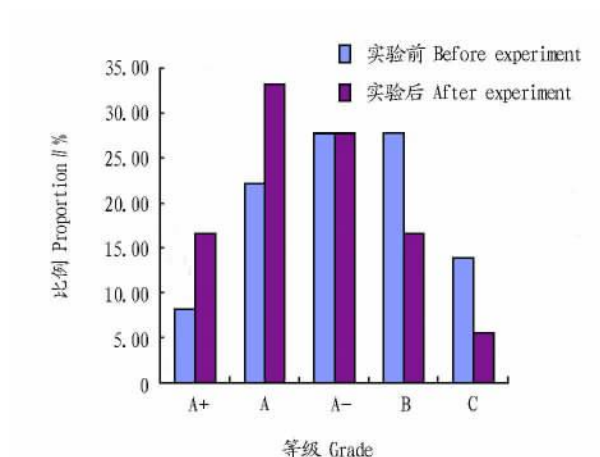
Figure 1. Performance comparison after the experiment of MOOC teaching

5. Conclusion

The significance of Mogao is the sharing of high-quality teaching resources. When the Internet enters the education industry and changes the way of receiving and learning with the Internet, the new trend of teaching should be changed rapidly. The computer aided design course under the Mu lesson platform has the advantages that the traditional classroom does not have. The new teaching mode can improve the students' enthusiasm and interest to the curriculum and increase the interaction between teachers and students, and the interaction between teachers and students is the basic form of education and teaching, and it is also the key element of the teaching reform. The new way not only provides learners with new ways of learning, but also creates opportunities for educators to practice teaching methods. To sum up, Mu lesson will have more and more important role in the future Internet education. The future of the course teaching will lead the new trend of education, which puts forward higher requirements for students and teachers. Under the platform of Mu lesson, the computer aided design curriculum teachers should renew the teaching idea, strengthen the course construction, organize the teaching content rationally, strengthen the training of information technology, improve the teaching level, and provide the students with multi-dimensional and multi-level teaching resources, so that the course teaching can meet the needs of each student's personality development. We should improve students' ability to solve practical problems by using engineering graphics tools.

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