

Exploration and Practice on the Reform of Multi-angle on-line and Off-line Integrated Teaching Mode in Students' Perspective

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Abstract

The traditional teaching method often inclines to positive inculcation, the study effect is relatively poor, and the students' independent exploration and the problem-solving capacity can't get effective promotion, the disconnection between learning and application is serious. The reform of multi-angle on-line and off-line integrated teaching mode in students' perspective, overturns the traditional teaching method, stimulates the students' capacity to explore the unknown, and trains the students' comprehensive ability of self-study, teamwork and problem-solving. Taking the course of "concrete structure" for example, this paper summarizes the online-to-offline integrated teaching model in students' perspective, which integrates such information-based teaching methods as MOOC, SPOC flipped classroom and rain class, at the same time, concludes implementation methods and suggestions, in order to provide some references for the teaching reform of higher education.

Keywords

MOOC; SPOC; Reform in education.

1. Introduction

Civil Engineering is a professional and practical discipline, including structure design, construction and maintaining. In China Civil Engineering discipline has developed for nearly a hundred years, meanwhile plays a major role in the process of building Socialist modernization. Concrete Structure is a core and required course, including Design Theory for Concrete Structure and Design of Reinforced Concrete Structure. It is an important foundation for college students' future career, also, on offer currently in almost all of the colleges and universities in China. Generally, the method of Concrete Structure teaching is just imparting knowledge, whereas the knowledge application is the problem for students to solve in practice after graduation. It results in a serious disconnection between learning and application. In addition, the students can't understand the knowledge in the course of learning, and can't apply knowledge for practice in their works either.

2. Problems in the Teaching of Concrete Structure Course

Currently, the traditional teaching model of Concrete Structure course is just "Teachers speak on the stage, students listen to the audience", also called "spoon-fed". In this model, teachers teaches knowledge in textbook by blackboard-writing and PPT, while students learn the

knowledge point passively, and just finish exercises after class. [1] Of course, teacher does not have to spend more time on and pay more attention to classroom teaching in this model, even, the teaching progress goes well, but from the learning efficiency and learning effect of students, the shortages of traditional teaching model begin to appear.

2.1. The Progress and Quality of Students' Learning Are Difficult to Ensure

In traditional teaching model, for the lack of interaction between students and teachers, few students could appear their study progress, or show their understanding of knowledge, let alone feedback their questions. Teachers who just arranges the teaching step by step, has little idea about the quality of students' learning, and is hard to handle the teaching quality. Generally, students cram for a test instead of paying attention to classroom learning [2]. In a word, it is difficult to ensure the progress and quality of students' learning in traditional teaching model, also incapable to enhance the teaching effect by improving instructional design and arrangement.

2.2. Learning Interest and Innovative Thinking of Students Can Not Be Stimulated Without Initiative of Learning

According to a study by Huazhong University of Science and Technology, "gain happiness continuously in study" ranks number one in the option "enhance students' interest in the course most", while "autonomic learning" ranks number one in the option "the most wanted learning style of professional course". However, in traditional teaching model, teachers pay attention to imparting knowledge instead of cultivating students'

capacity of active thinking. Because of the lack of interaction between teachers and students, students just accept the content and pace of teaching, and finish the class and the exercise as a task. The lack of autonomous inquiry and thinking innovation in the process of students' learning also leads to a lack of cooperation and communication [3]. Obviously, the traditional teaching model, which is incapable of arousing interest and motivation, is difficult to help students enjoy the happiness of study and develop innovative thinking.

2.3. Students Fail in Understanding the Knowledge and Practical Application

Genuine knowledge comes from practice. In the learning of Concrete Structure course, theoretical knowledge can only be truly understood and firmly grasped through practical application. Students, who passively accept knowledge in class, lack the process of active understanding, exploration and practical application, while review materials after class, are unable to grasp thoroughly and firmly what has been learned [4]. Because of the low efficiency of learning and Lack of mastery of knowledge, students cram for a test and learn by rote generally.

This short-term memory knowledge will soon be forgotten after examination, and has little use for teaching effect and practical application in the future.

To solve the problems above, the article take Concrete Structure course as an example, exploring the reform of multi-angle online and offline integrated teaching mode in the perspective of students.

3. Reform and Practice of Multi-Angle Online and Offline Integrated Teaching Model in Students' Perspective

3.1. The Utilization of Information Resources

With the deepening of education informationization, the reform of teaching mode has a good foundation and supporting platform. All kinds of new teaching models based on the Internet sprout and grow up quickly, especially MOOC (Massive open online course). MOOC, which is a

new course of open education in recent years and the product of "Internet plus education", has the characteristics of openness and large scale. In contrast to MOOC, SPOC, which was first proposed and used by professors at the University of California, Berkeley, is Small Private Online Course for short. Small and Private in SPOC is compared with Massive and Open in MOOC. Small means students scale typically range from a few dozen to several hundred, while Private means restrictive admission conditions are set for students, and only those who meet the requirements can be included in the SPOC. However, whether taking MOOC or SPOC as teaching way, in order to let students really learn and master the essence of the course, teachers need to design the whole teaching in the perspective of students.

3.2. Integrated Online and Offline Teaching Integrated Into Flipped Classroom

In teaching practice, we skillfully combined flipped classroom to carry out multi-angle online and offline integrated teaching, and achieved good results. So called "Flipped Classroom" or "Inverted Classroom" is a teaching way in that teachers readjust the time in and out of class and transfer learning decisions from teachers to students, meanwhile, replanned the use of classroom time and realized the innovation of the traditional teaching mode. The main points of implementation are as follows:

(1) Effective combination of MOOC and SPOC for pre-class autonomous learning

The teacher assigned flipped classroom tasks before class. For example, let students through independent exploration learn about "flexural performance of normal section of flexural member", "structural form of the floor" and so on. Driven by the goal task, students will explore actively and directionally. In this link, teachers can provide a series of MOOC resources for students to learn independently. When certain requirements are met, students are eligible to apply for SPOC courses, and to have online discussions and exchanges, and to receive the corresponding points. Goal-driven students usually show strong learning motivation. In this process, students can learn and gradually master knowledge through independent exploration. At the same time, they will dig out deeper problems and carry out further exploration with these questions. Enthusiasm and curiosity of students' will be constantly stimulated out in this series of processes.

(2) Online and offline seminars in class

Compared with the traditional teaching model, in which teachers focus on imparting knowledge, in the integrated teaching mode, teachers select some representative students play the role of "teacher" to do the teaching and explanation to the other students, like the flip of teacher and student identity. If the students have any questions, they could ask and discuss the questions online by "Rain Classroom", while the "teachers", who are played by students, finishes their explanation, all of the students could discuss offline or in groups. Usually everyone's question will come to a conclusion in the heated discussion, also a deeper question is appeared in the heated discussion. It creates a virtuous circle that the students internalize and absorb knowledge by Multi-angle on-line and off-line integrated teaching.

(3) Sublimation after class

The students summarize the results of discussion, form a study report after class. This could promote the students to master, absorb and sublimate the knowledge point, to achieve the purpose of applying what they have learned. At last, the teacher assigns an after-class extended exercises, to make the classes open and enhance students' innovation capability.

4. Conclusion

First of all, multi-angle on-line and off-line integrated teaching mode in students' perspective is a teaching model that takes students as the main subject, with the teaching design is carried out in the perspective of students, focus on constantly stimulating students' desire for exploration

and curiosity, and cultivating students' comprehensive ability of independent learning, team cooperation and communication to solving practical problems.

Secondly, multi-angle on-line and off-line integrated teaching mode is not just stacking the various teaching models, it is a multi-angle teaching design after fully analyzing the characteristics of students and teaching content, which help improving the accuracy of teaching. Finally, the learning motivation and the knowledge assimilation of students has been greatly enhanced, what's more the learning motivation of student has been cultivated.

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