

Application of “Online + Offline” Teaching Mode in Undergraduate Course Construction

Chunguang Wang, Zhirong Jia, Jianping Liu, Tian SU*

Shandong University of Technology, Zibo, Shandong, 255000, China

*Corresponding Author

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Abstract: A series of reforms have been carried out in teaching mode, online teaching conditions, teaching methods, as well as assessment and evaluation. Through the teaching reform, this paper discusses how to take the network teaching platform as the support, take the students as the center, pay attention to the learning process, and emphasize “cooperative learning” and “process evaluation”. Therefore, students can self-study before class, deep participation in class and reflection and summary after class to improve the learning ability, practical ability and cooperation ability. Through this teaching mode reform, three transformations can be achieved: (1) transforming textbook into digital resources to support learning, (2) transforming teaching content to learning process and learning activities, and (3) transforming summative evaluation to process evaluation.

1. Introduction

Blended learning is a kind of learning method that can transfer “appropriate” ability to “appropriate” learners at “appropriate” time by applying “appropriate” learning technology and “appropriate” learning style, so as to achieve the optimal learning effect [1]. In other words, the advantages of traditional learning methods with those of online network learning should be combined.

Blended learning is a concept that began to spread in the field of educational technology in China after Professor He’s introduction [2]. Purnima of NIIT in India divides the blended learning model into skill driven learning, attitude driven learning and competency driven learning [3]. Professor Huang Ronghuai and others have studied the process model and activity model of blended learning [4]. Scholars believe that the following factors should be considered in the design of Blended Learning: Learners' learning needs, the types of learning content and the feasibility of technical solutions[5].

2. Research Contents

In this project, blended learning theory is applied to the teaching practice to achieve the “online + offline” teaching mode. The research contents include the following three aspects:

2.1 Summarize and analyze the theoretical research on blended learning, understand the relevant

research results, research focus and trend of Chinese and foreign scholars, conduct investigation and objective analysis and evaluation on the application status of blended learning, summarize the successful experience, find out the existing problems and the problems that need further research.

2.2 According to the characteristics of undergraduate education courses, the blended learning scheme is designed, and the online network course development and teaching implementation are carried out by using the school network teaching platform, mainly including: video, PPT courseware of knowledge points, typical cases, exercise database, course design guidance, engineering information database, course development, online testing, online discussion and other learning resources.

2.3 Reform the way of course assessment and evaluation, adopt the assessment method of combining process assessment and summative examination, assess students from the aspects of knowledge mastery, comprehensive ability of applying knowledge and innovation ability, and pay attention to the cultivation of students' autonomous learning ability.

3. Key Problems to Be Solved

How to improve the teaching process and improve teaching strategies, in order to do a good job in the organization of learning process and learning activities before, in class and after class, as well as fully mobilize the initiative and enthusiasm of students, guide students to take the initiative to complete learning tasks and achieve learning objectives is a key problem of this study.

How to make full use of online network teaching platform and teaching QQ/Wechat/DingDing group to provide the high-quality teaching resources and teaching platform, and build a perfect curriculum information environment is another key issue of this study.

4. Implementation Plan

4.1 “Online + Offline” Teaching Mode

Relying on the network teaching platform, the design and connection of before class, in class and after class learning tasks need to be done; therefore, the integration of before class, in class and after class learning activities can be achieved to fully reflect the essence of “task is the main line, teacher to lead, and student is the center”.

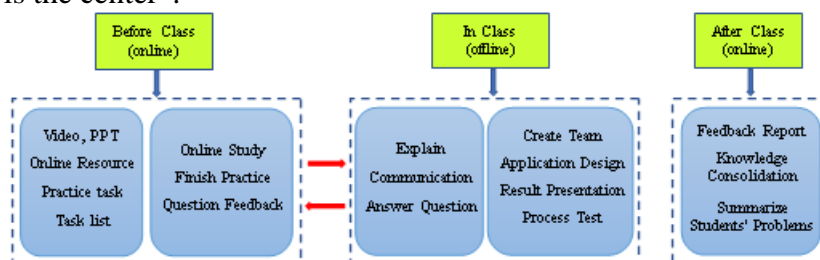


Fig.1 “Online + Offline” Teaching Mode

4.2 Reform Teaching Methods

4.2.1 Task driven teaching method. According to the unit learning objectives of the course, taking the completion of specific “tasks” as the clue, teachers skillfully hide the teaching content in each “task”, and guide students to complete the corresponding “tasks” while learning. When the students complete this task, they will construct the new knowledge learned in this lesson. Then the students' awareness of active participation in learning can be improved and students' interest in learning can be inspired. In the end, the students' ability to solve complex engineering problems can be achieved.

4.2.2 Project teaching method. According to the specific ability objectives of each teaching unit, through the implementation of a series of complete teaching projects, the theory and practice are organically combined. Teachers first decompose the projects and make appropriate demonstration, and then students complete the project tasks by division of labor and cooperation, and summarize and evaluate the achievements of the project, so as to realize the learning mode of “learning by doing”.

4.2.3 Case discussion teaching method. According to the content of the course, the teacher provides the information of the case, raises questions, organizes the students to discuss and analyze the problems in groups, states their views, and then the teacher comments and summarizes with the students. This can not only achieve the purpose of solving problems, but also exercise students' expression ability, stimulate students' interest in exploration, encourage and cultivate students' creative thinking, and improve students' ability to analyze and solve problems.

4.3 Improve the Information Construction of the Course

Using the online network teaching comprehensive platform and teaching QQ/Wechat/DingDing group for students' before class learning and interactive communication, constantly enrich the network teaching platform resources, and create a three-dimensional learning environment. Through the network, students can obtain video, PPT, typical cases, exercise database, course design guidance, engineering information database, course development, online testing, online discussion and other learning resources. In order to build a perfect information environment and improve the teaching effect, it is necessary to realize the sharing of teaching information in and out of class, online and offline, and between teachers and students.

4.4 Reform the Way of Course Evaluation

4.4.1 Combining process examination and summative examination. Strengthen the daily assessment of students, pay attention to the control and evaluation of the learning process. Focus on learning task results, case analysis and discussion, online learning evaluation, stage online test, final comprehensive examination and so on. Fully reflect the whole process of curriculum assessment, diversified thinking.

4.4.2 Reform the examination content. Students are assessed from the aspects of knowledge mastery, comprehensive ability of applying knowledge and innovation ability. Increase the proportion of case analysis questions, comprehensive questions and other applied questions.

4.4.3 Pay attention to the cultivation of students' autonomous learning ability. The introduction of online learning evaluation, students online learning records, participate in online discussions, the introduction of self-learning content credit calculation.

4.5 Evaluation of Curriculum Implementation

Through the form of comparative experiment, online questionnaire survey and individual interview, we can get the first-hand information, understand the students' opinions on the blended learning mode, analyze the learning effect, and put forward the improvement measures.

5. Achievements and Effects

5.1 Teaching Conditions

5.1.1 Using the network teaching platform to improve the course information, the number of

teaching courseware is 10, and the total number of video, animation and other media is more than 5; The number of resource updates in each academic year is more than 2, the total number of questions in the test database is more than 3, each chapter is equipped with online tests or assignments, and the number of questions is more than 10; The total number of questions in the examination question bank shall not be less than 80, and more than 4 sets of examination papers shall be set up. The number of questions in each set of examination paper shall be more than 20, the types of questions shall be more than 4, and the number of questions updated in each academic year shall be more than 20;

5.1.2 The total number of online tests should be more than 3, and the feedback should be corrected in time. There are more than 20 topics in the course discussion area and more than 15 common questions in the question and answer discussion.

5.2 Teaching Methods

(1)Organize online and offline mixed teaching, reasonably organize the teaching process, use flipping, inquiry, discussion, participation and other teaching methods, and provide corresponding cases, videos, PPT, etc;

(2)The Reform of Assessment Methods and the Establishment of Formative Evaluation Standards Should Include Tests, Online Learning Behavior, Classroom Performance, Homework and So on.

5.3 Results and Evaluation

(1)Using the Network Questionnaire to Obtain Students' Teaching Satisfaction, and Aiming At the Shortcomings, the Teaching Revision is Carried out;

(2)Using the Network Questionnaire, the Teaching Effect Before and after the Reform Was Compared.

6. Conclusion

This paper showed the construction of the “Online + offline” mixed teaching mode.

Under the support of the online network teaching platform, we carry out the reform of the student-centered teaching mode, carry out the organizational design and practical exploration of the “Online + offline” learning activities, combine and complement the autonomous learning in the information-based learning environment and the cooperative learning in the classroom learning environment, and build a teaching mode that can give full play to the leading role of teachers in classroom learning. At the same time, it can reflect the students' new learning way of constructing knowledge through self-learning.

This paper also showed the implement the learning mode of “learning by doing + learning by evaluating + learning by helping”. Integrating task driven and project-based teaching into classroom teaching mode, taking learning task as the center, leading knowledge, skills and attitude, enabling students to learn relevant theoretical knowledge in the process of completing learning task, developing students' comprehensive professional ability and realizing “learning by doing”. Evaluation runs through the study before and after class, emphasizes the process evaluation of students, and realizes “learning by evaluating”. Through group cooperation and mutual assistance, peer learning can be carried out to improve the ability of cooperation and realize “ learning by helping”.

At last, the integrated teaching of “theory + practice” is realized in the reform. To carry out the research and practice of teaching methods from in class teaching to extracurricular teaching, extend in class teaching to work tasks, in class teaching to curriculum design, in class teaching to

professional practice, in class teaching to subject competition, in class teaching to extracurricular scientific and technological activities, break the situation of separation of theory and practice, and realize the integration of theory and practice.

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