

The application of flipped classroom in the teaching of safety specialty

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Abstract. The traditional classroom model in Chinese colleges and universities reduces students' learning enthusiasm. At the same time, the feedback results from graduates show that many graduates are not qualified for the job. Regarding these two current problems, this course innovation needs to solve the main problems. Flipped classroom can cultivate students' professional ability by exploring the student-centered approach and grasping the needs of talent cultivation in the classroom. In terms of classroom mode, teachers assign tasks and ask questions before class, and groups of students cooperate actively, think actively and complete tasks before class. Students in the class to explore the problem, teachers and students together face the problem, solve the problem; After class students reflect on the problems such as "before class, during class, after class" links to build a new model of classroom teaching. The results show that the teaching effect feedback is good, the teaching major students in the humanities quality, professional ability and other aspects of ability has been greatly improved.

Keywords: Student exploration; Talent demand; Flipped classroom.

1. Introduction

By studying the classroom phenomenon in Chinese colleges and universities, it is found that although Chinese colleges and universities have rich teaching resources and high-tech teaching tools, the classroom is still a traditional classroom teaching mode based on traditional instilled knowledge. The traditional classroom teaching mode is composed of two stages: classroom teaching by teachers and review by students after class. There is little interaction between teachers and students. Teachers act as the disseminators of knowledge, while students often passively accept knowledge without stimulating their learning drive. This dogmatical teaching mode of instilling knowledge not only violates the psychological cognitive law of students, but also ignores the subjective initiative of students to learn new knowledge. It not only causes the dull classroom, but also easily causes students' rebellious and weariness, and it is difficult to mobilize students' interest in learning[3-4]. In the long - term exploration of this course, it is found that the traditional teaching mode reform has reached a stage that must be changed.

2. Flipped classroom

2.1. Origin of flipped classroom

In 2011, Salmand Khan gave a speech at the TED conference titled "Re-creating Education with Video", introducing the concept of flipped classroom. Since then, this new teaching form has become familiar to many teachers and attracted wide attention in the global education community . This flipped classroom overturns the traditional classroom teaching mode. Teachers provide learning resources mainly in the form of teaching videos, and students watch and learn learning resources such as teaching videos after class with the assistance of information technology. In class, teachers and students mainly complete collaborative exploration and interactive communication activities together [5-6].

2.2. Features of flipped classroom

1). Advanced information technology is needed for support

The realization of flipped classroom requires teachers to make teaching courseware in advance, process it and upload it to the network. With the help of advanced information technology, students can use the Internet to obtain high-quality teaching resources before class to complete the knowledge transfer process, and turn the classroom into a place for interaction between teachers and students. This teaching mode can provide learners with valuable learning materials and truly make education move towards an open environment full of information flow.

2). Take students as the center and fully mobilize the cooperation among students

Flipped classroom creates a learning environment for students to take the initiative to learn. After the learning content is permanently saved by using courseware, students can freely arrange the learning time and place according to their actual situation. The learning process can be arranged in a relaxed atmosphere. You can always repeat courseware content or adjust the teaching pace according to your acceptance of the teaching content. Flipped classroom can increase students' interaction and cooperation, allowing students to complete learning tasks in cooperation. Students can form cooperative learning groups to help, learn from and learn from each other, and cultivate their spirit of mutual assistance and cooperation.

3). Teachers and students become a learning community

In flipped classroom, students watch the courseware before class. In class, teachers participate in the discussion of students' study groups to understand and answer the specific problems students encounter in the learning process. When necessary, they can organize students who meet the same problems together to set up a tutoring group or hold small lectures. The flipped classroom changes the role of teachers from the traditional knowledge imparts to the facilitator and instructor of learning.

3. Curriculum Implementation

A course of "theory + practice" is offered. Its function is to match the training objectives of professional talents, and train students to have "cherish life, be willing to contribute, innovative thinking, craftsman spirit" and other professional qualities for safety technology and management positions. Through systematic theoretical teaching and scientific practical training, this course enables students to understand and master the constituent elements of fire and explosion and their mutual relations. Combined with practical case analysis, this course enables students to master the method from the shallow to the deep, truly connecting theory with practice, and cultivating students' comprehensive professional ability, innovative spirit and good professional ethics. It lays a good foundation for students to engage in professional work in the future, adapt to the changes of vocational posts and learn new production science and technology.

(1) Analysis of learning situation

This course is an important professional orientation course for junior students, who are in the key period to form their outlook on life and master professional theory, technology and skills. The educational purpose of this major is to cultivate excellent planning and design talents for the country in the future, so it requires high humanistic and professional quality of students. Among them, teamwork ability, communication ability, innovation ability and expression ability are the abilities that science and engineering students have been lacking. Therefore, it has become a very important task demand in classroom teaching to improve students' humanistic quality and professional quality ability.

(2) Problems and solutions

Problem1: The traditional classroom is full of teachers, students passively accept knowledge, learning enthusiasm is weak, the classroom efficiency is low.

Question 2: Based on the demand for planning and design talents, it is found that science and engineering graduates are deficient in humanistic quality and professional quality, and weak in the

expression of planning and design schemes and the ability of team communication and collaboration, which are the tasks that need to be paid attention to in school classroom teaching.

Solution1: Build a new model of flipped classroom with student exploration as the center of the classroom, so that learning from passive to active.

Solution 2: On the one hand, teaching should be organized according to the needs of talents. Before class, students should discuss and learn in groups to enhance their teamwork ability. Report the plan in class to train students' language organization and expression ability. Students review the plan with each other to promote students to acquire strong communication and expression ability. On the other hand, ideological and political contents should be integrated into classroom teaching to arouse students' enthusiasm and improve their humanistic quality.

(3) Methods and approaches

This course is composed of three parts, including theoretical teaching, case teaching and practical teaching. The application of this new flipped classroom teaching model can be used in the theoretical teaching stage, can also be used in the case sharing stage, and is more suitable for the experimental teaching stage. When teachers implement the teaching plan, they are divided into three parts: before class, during class and after class.

Before class: that is, after the teacher publishes the learning task list on the online learning platform of network teaching, students can face the learning task before class, which is conducive to students' initiative and independent learning.

In class: the class is handed over to the students. The students have completed the learning task list before class. In class, the students first report the work plan of their pre-class project, and then group, discuss and comment; Finally, the teacher made comments and summarized the feedback from students, and gave on-site guidance to individual students who needed guidance.

After class: After class activities belong to the deepening of students' learning. Student: Revise and improve the works after class. Reflect on the problems. Teachers: Teachers review students' works, summarize frequently asked questions and answers, and expand the breadth of teaching. At the same time, the after-class activities will also be extended to the practice of major courses, and students will be organized to continue the field study.

(4) The change of teachers' roles

a. Extend teaching outside the classroom. The teacher prepares the self-learning task list and searches for or records micro-lessons in advance. Students can choose to watch the corresponding video independently after class according to the self-learning task list (they can watch it repeatedly if necessary, or they can also watch online and offline or discuss with classmates. If they really can't understand it, they can ask for help in the class group through QQ or wechat.

b. Stratified teaching has been implemented preliminarily in the classroom. After self-study, students can decide whether to watch the micro-lesson or not according to their own needs, and how many times to watch it. For students with faster learning progress, they can better deepen their knowledge by helping other students to solve doubts and answer doubts.

(3) The independent learning task list with knowledge as the core highlights the "learning" of students rather than the "teaching" of teachers, learning before teaching, so that questions and cooperation are more targeted. Flipped classroom puts the transfer of knowledge outside the classroom and the internalization of knowledge inside the class. Both in and out of class have highlighted the students' independent learning.

(5) The change of students' roles

a. Cultivate students' learning initiative ability. Implement the new model of classroom teaching, strengthen the preview and advance thinking stage of learning, and then complete the relevant problems. Improve students' learning initiative through independent learning.

b. Improve the students' expression ability and innovation consciousness. In each class, students are always in the state of thinking, analyzing, exploring and improving, with active thinking and deep understanding. Their ability to analyze and solve problems is gradually improved, and their innovation awareness and expression ability are obviously enhanced.

c. Students learn according to their own rhythm, to meet the needs of independent learning. Students can master the progress according to their own learning situation. They can learn according to the progress of the teacher or advance in step, which provides students with a lot of flexibility space.

4. Teaching effect feedback

In the past few years, teaching innovation has been implemented, and the teaching effect has been well received. Students majoring in teaching have been greatly improved in humanistic quality and professional ability. Through the course training, students are enthusiastic to participate in various competitions. In the past three years, students have won 22 national competition awards and 9 provincial and ministerial level competition awards.

5. Conclusion

(1) Flipped classroom has explored and formed a relatively mature classroom model, which is forward-looking and pioneering, and conforms to the needs of the development of The Times.

(2) It has strong traction for cultivating students' active learning ability and exploration consciousness.

(3) It also has great potential, such as the establishment of the whole school, the whole city, and even the whole country of mixed teaching resources, the new teaching model can be promoted in the classroom of our school and other schools.

More refined before class, more refined during class. A very important part of the new teaching model is the intervention of pre-class links, so the next step needs to be more detailed pre-class links. It is also necessary to refine the management of the links in the class so as to better improve the quality of the class.

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