

Design and Application of Intelligent Teaching Model

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Abstract. With the advent of the Internet plus era, education has entered the Internet era. This paper discusses the process of introducing MOOC into mobile teaching platform and constructing a new intelligent teaching mode. By using this teaching mode in our school's PHP Programming course, we can see that the intelligent teaching mode based on mobile teaching platform has advantages over the traditional teaching mode.

Keywords: Teaching mode; MOOC; Intelligent.

1. Introduction

With the advent of the 'Internet plus' era, new technology has brought tremendous changes to education. The Internet plus education mode has greatly affected the traditional teaching mode. Nowadays, 'Phubber' can be seen everywhere in the classroom. They use mobile phones to watch videos, send micro-messages, brush blogs, etc. But it is undeniable that students can also find learning materials through mobile phones and use some educational apps to learn. Smart phones bring great challenges to traditional classroom, but also bring new ideas to traditional classroom.

PHP Programming is a professional course for computer majors. For many years, it has been taught by teachers in class and students practice after class, but the teaching effect is not very good.

The main manifestations are as follows: First, Students are passive in learning, and the classroom atmosphere is not active enough. Under the traditional teaching mode, the teacher talks in class, the students listen passively, 45 minutes each class, the students are distracted by the boring grammar, the students can not actively learn. The classroom atmosphere is not active. Second, students practice too little. Programming is a subject with strong practicality, which requires more practice and practice to be integrated. Due to the limitation of the class hours students do not have a deep understanding of what they have learned and the key technology and Implementation Technology in PHP programming. (3) Less interaction between teachers and students. The learning atmosphere in universities is relatively relaxed, and students have more time to study by themselves. When students have questions after class, they can't seek a teacher for advice. There is too little time for students to interact with the teachers.

In view of this learning situation, grasp the characteristics of students like to use mobile phones, try to introduce MOOC into teaching, enhance students' interest in learning, and then improve students' learning quality. Therefore, in the course of PHP Programming, we should innovate the teaching mode, that is, the 'smart classroom teaching mode'.

2. Intelligent Classroom and Teaching Model

2.1 Intelligence Classroom Connotation

At present, many scholars in China have different understandings from different perspectives. The definition of intelligent classroom in academic circles is biased on the perspective of information technology. It refers to the use of a new generation of information technology to create a wise classroom teaching environment, realize the intellectualization, visualization and efficiency of pre-class, in-class and after-class teaching, and ultimately realize the generation of students' wisdom. In this study, the connotation of wisdom classroom is summarized as follows: first, the support of new technology; second, the guidance of theoretical basis; third, the concept of wisdom education; fourth, the extension of classroom scope to pre-class, in-class and after-class; fifth, rich media resources; sixth, the purpose of wisdom generation.

2.2 The Connotation of Teaching Mode

At present, there are many popular teaching modes, and there are many understandings of teaching modes. However, a single understanding of ‘mode’ as ‘method’ or ‘structure’ is one-sided. It takes both method dimension and structure dimension into account. We should grasp the connotation of the mode as a whole.

Joyce and Will of the United States first introduced the word ‘mode’ into the field of teaching and systematically studied it. Professor Joyce believes that teaching mode, namely learning mode, helps students acquire knowledge, skills, methods, values and ways of thinking, but also teaches them how to learn better. The application of mode can achieve most of the goals of the school and can carry out school planning. The design of courses, units and even a class, from arranging classes, creating courses to designing teaching materials including multimedia programs, aims at promoting the formation of students’ learning skills and improving learning effects.

At present, many enterprises and schools in China have jointly issued the related products or applications of ‘smart classroom’. The application of smart classroom teaching mode in this paper emphasizes the combination of mobile terminal and classroom, and establishes a smart classroom teaching mode based on mobile terminal, which provides an efficient teaching and learning mode for teachers and students.

3. Intelligent Classroom Teaching Model

3.1 Design of Intelligent Classroom Teaching Model

Joyce and Will are the earliest educators who put forward the term ‘teaching mode’. According to their teaching mode theory, this paper draws the elements of wisdom classroom teaching mode, including theoretical basis, conditions, objectives, activities and evaluation of wisdom teaching.

The theoretical basis of intelligent classroom comes from constructivist learning theory and mixed teaching theory. Constructivist learning theory holds that learning is not a process in which teachers instill knowledge unilaterally into students, but a process in which students actively construct their own knowledge through the help of others in a certain social and cultural context. In the 20th century, e-Learning developed rapidly in the field of education, forming the theory of blended learning. Mixed learning is a learning mode that combines the advantages of traditional learning with those of online learning. It not only plays the leading role of teachers, but also embodies the main role of students.

The realization conditions are external support conditions, including teaching tools (intelligent mobile terminal), intelligent technology (intelligent learning technology), teaching environment (intelligent learning environment) and teaching resources (intelligent learning resources). In addition, it also includes the subject of teaching and learning, that is, teachers and students. As teachers, they should change their educational concepts in time, improve their information literacy and highlight the subject status of students.

The ultimate goal of wisdom classroom teaching mode is to promote students’ wisdom generation.

Intelligent classroom teaching activities are divided into three stages, namely, pre-class, in-class and after-class. Each stage has its basic steps. These teaching steps are not invariable. Teachers can make corresponding adjustments according to the actual situation to meet the needs of teaching.

Finally, it is wisdom teaching evaluation, which evaluates students’ knowledge learning, including preview, classroom status, learning outcomes and self-evaluation. From this, we can draw the framework of teaching mode of intelligent classroom, as follows:

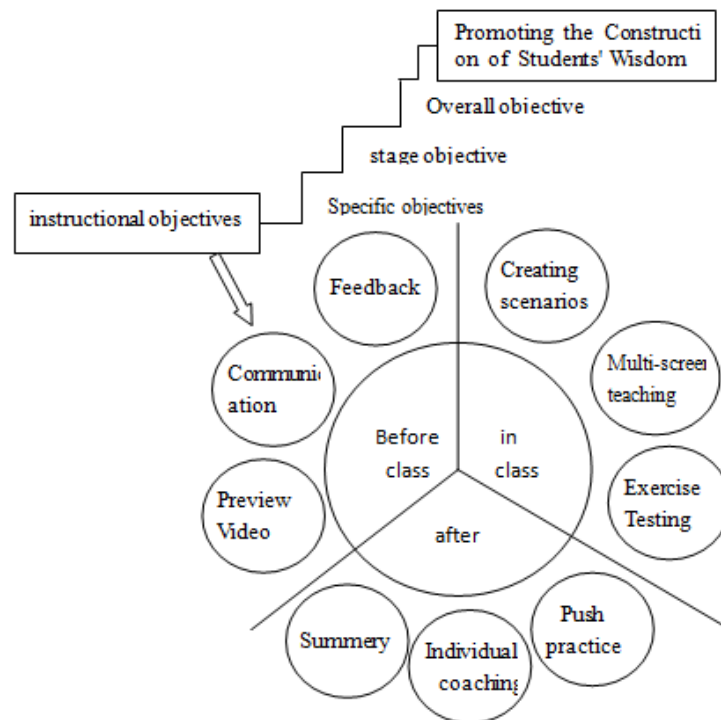


Fig. 1 Framework of Intelligent Classroom Teaching Model

3.2 Application of Intelligent Classroom Teaching Activities

In the process of designing pre-class preview activities, teachers should design preview contents, produce preview materials and provide expanded resources for students' pre-class preview activities according to specific learning objectives and requirements, combined with the analysis results of students' characteristics. Teachers design teaching activities and then push them to students through mobile devices. Students begin to learn before class.

Taking the chapter of 'Database Operation' of PHP Programming as an example, the whole chapter is divided into six knowledge points. According to these six knowledge points, the teachers of the course group have recorded seven teaching videos. The last one is the extended video. This paper mainly introduces the THinkPHP framework and MVC development mode, in order to prepare for the students who, have a good command of the situation. Through this video, the learning difficulty and knowledge can be improved width of knowledge. At the same time, a learning task list is set up for each knowledge point. The video content and the exercises to be completed are clearly required in the learning task list. One week before class, the learning videos and task sheets were distributed to the students through the mobile teaching platform, and the students were asked to submit the exercises they had prepared one day before class. Teachers should complete the criticism of students' learning exercises before class, and then master the students' learning situation.

Table 1. Knowledge points of Chapter of Database and PHP

number	Knowledge points
1	Connection of database
2	Database connection exception handling
3	Database Operation (CRUD)
4	Data Base Result Processing
5	Statistics of database information
6	Database Preventing SQL Injection

The specific pre-class teaching and learning process is as follows:

In the interactive stage of class, the key of intelligent classroom teaching lies in classroom interaction, the core of which is the three-dimensional interactive process. Firstly, according to the

completion of the previous day's learning task list, teachers will focus on explaining the knowledge points or techniques that students generally do not master well. After that, we will discuss how to finish the homework and how to improve it.

Release new exercises, conduct classroom follow-up tests, and comment on the results of follow-up tests. This kind of teaching process is different from the traditional classroom interaction. It is not only the verbal interaction between teachers and students in the classroom, but also the three-dimensional, pluralistic, sustained and efficient interaction between teachers and students by means of relevant information technology learning platform. In the process of interaction, it promotes the generation of students' wisdom and emphasizes the students' principal position. Teachers play the role of guider and promoter.

After class, through the intelligent learning platform, teachers can push personalized review resources according to students' individual differences, and expand learning video resources. When students submit their homework to the teacher after a certain period of time, the teacher platform will receive the students' answers. Individualized counseling is more efficient, intuitive and fast. Students can check their homework in time, communicate with teacher online, correct homework, and make a summary and reflection.

3.3 Analysis of Teaching Effect

The course of PHP Programming is divided into two semesters. The experimental class which adopts the wisdom teaching mode and the traditional teaching mode are the ordinary class. The results of the two classes were analyzed at the end of the semester. The average score of the experimental class was 78.27, while that of the traditional class was 73.76. In addition, from the point of view of the excellent rate, the excellent rate of the experimental class reached 56%, while that of the traditional class was only 33%. From these two aspects, it can be concluded that the intelligent teaching mode based on mobile teaching platform has advantages over the traditional teaching mode.

4. Summary

From March 2017 to January 2018, our school practiced two teaching modes, the experimental class and the traditional class. The traditional class still adopted the teaching mode of teacher's lecture and students' after-class practice, while the experimental class adopted the intelligent teaching mode based on mobile platform. Under the new teaching mode, students need to watch teaching videos before class. Teachers explain the key and difficult points in class, organize students to discuss and exchange accounting-related knowledge. Practice has proved that the intelligent teaching mode based on mobile platform has obvious teaching effect than traditional teaching mode in improving students' interest in programming courses, mobilizing students' enthusiasm, activating class atmosphere and improving students' examination results.

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