

Practice of online and Offline Hybrid Teaching of College Physics in the Post Epidemic Era

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Abstract

This paper explores the online and offline hybrid teaching practice of college physics based on superstar learning in the post epidemic era. The necessity of expediting educational reform and offline teaching in the post epidemic era and the advantages of online teaching are analyzed. Taking learning communication as the carrier, combined with digital teaching resources, carry out the construction of college physics online courses, and integrate online teaching resources into offline teaching links, in order to play a better role in teaching effect and education level.

Keywords

Post epidemic era; College Physics; Online and offline; Teaching practice.

1. Introduction

In the spring semester of 2020, the Department of higher education of the Ministry of education required relevant units to carry out online education and teaching due to the epidemic situation, and the national colleges and universities generally carried out online teaching practice, which had a profound impact on college education and teaching. With the development of the times and the small-scale repetition of the epidemic, it is an inevitable trend to carry out online and offline mixed teaching in the post epidemic era. Our school actively summarized the successful experience of teaching during the epidemic, analyzed the existing problems, and organized the construction of online and offline mixed teaching courses in the post epidemic era. College physics is a compulsory basic course for science and engineering majors in Colleges and universities. Many scholars have also carried out many reforms in how to stimulate students' interest in learning, improve students' awareness of autonomous learning, and expand students' learning vision, such as micro class, Mu class, flipped class, etc., but there are still some problems to be solved in college physics teaching [1].

2. The Post Epidemic Era Promotes the Reform of Teaching Methods

During the epidemic period, many courses use Tencent conference, Tencent classroom, nailing conference and other functions to support online meetings, have strong video and audio capabilities, and can achieve high-quality and smooth live broadcasting effect. At the same time, it supports PPT presentation, screen sharing, drawing board, questioning and other functions to meet the basic requirements of live classroom [2]. Students' homework and problems can also be carried out online. Students have more ways to learn knowledge and teachers' process assessment and evaluation are more quantitative, which facilitates teaching. In the post epidemic era, how to combine traditional offline teaching and online teaching, give full play to their advantages and better serve students is the focus of this paper.

3. Necessity of Offline Teaching of College Physics

College physics is a discipline with rigorous theory and strong logic. Any new teaching mode can not replace the traditional teaching mode [3]. (1) Face to face teaching guidance between students and teachers is still a very important part of classroom teaching. There are many knowledge points of college physics, and many concepts and laws are abstract and difficult to understand. Classroom teachers can understand how students understand by observing students' listening state, and can teach them pertinently. (2) It is unrealistic for students to memorize some theorems and laws. Only when students deduce the causes and consequences step by step on the blackboard can students understand them comprehensively and apply them easily. (3) Offline teaching has the possibility to communicate with students, stimulate the emotional collision between teachers and students, and students recognize teachers and are often interested in this course. Based on the above three points, offline teaching is an essential link in college physics teaching.

Online teaching requires students to have a good sense of self-discipline. Students' consciousness and initiative can not be controlled by course teachers through the network [4-5]. With the development of teaching software, the organic combination of online teaching resources and offline classroom teaching for hybrid teaching is not only in line with the psychology of students, but also in line with the teaching characteristics of college physics, and can create an efficient college physics classroom.

4. Advantages of Online Teaching of College Physics

Developing intelligent education and exploring efficient intelligent classroom is the trend of educational development. Carrying out online teaching with the help of college physics teaching resources of network and superstar learning platform can fundamentally make up for the shortcomings of traditional classroom. In addition, online classroom has the following advantages: (1) taking the network as the carrier, students' learning becomes more convenient and free to meet students' needs of learning anytime and anywhere; (2) Teachers make full use of information-based means in all links to combine words, pictures, audio and video[6], so as to visualize and visualize obscure and boring knowledge points, which can impact students' senses and stimulate their interest in learning; (3) We can use the network to build new teaching materials before and after class, which not only expands the breadth of teaching, but also connects with professional knowledge. (4) It can be tested in real time in class to timely check which knowledge points of students have a low scoring rate and explain to the target.

5. College Physics Online and Offline Mixed Teaching Practice

The hybrid teaching mode combines the advantages of online and offline teaching. In the process of developing the hybrid teaching practice of college physics, this research mainly relies on the super star learning smart classroom as the carrier.

5.1. Online Course Construction

According to the requirements of the training program, this course mainly includes seven chapters: particle kinematics, particle dynamics, rigid body, vibration fluctuation, electrostatic field, steady magnetic field and changing electromagnetic field. Each chapter consists of 3-5 class hours. Each class hour is equipped with videos, PPT, test exercises and other materials. These are set as task points to urge students to learn. The videos include micro videos recorded by the course group, live clips, video materials from the network, etc.

According to the characteristics of this course, the online course also has special experimental projects, and uses the advantages of the Internet to collect experimental materials from brother colleges and universities and current events and news materials related to the experiment.

For college physics courses, doing questions is a good way to consolidate knowledge. This course has an assignment library and an examination question library. Usually, assignments are completed online. At the end of the spring semester of 2021, all 9 college physics classes adopt online examinations, which has achieved good results.

5.2. Online and Offline Hybrid Operation

At present, the use of teaching resources of superstar learning is mainly before and after class. Students study independently according to the task points before class, and complete the homework of superstar learning after class, so as to realize the paperless teaching materials. In offline classes, you can make use of superstar learning, sign in, answer, topic discussion, classroom test and other functions in various forms such as gestures, QR codes and photos to activate the classroom and avoid full filling.

6. Conclusion

In the information age, a single classroom teaching can not meet the needs of students. The pure online teaching mode can not completely replace the traditional physics classroom teaching. Only by combining the two modes can we have better results. At present, our school is still in the exploration stage in the implementation process. With continuous summary and improvement, it will have a greater improvement in teaching effect.

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