

Exploration and practice of university physics experiment wisdom classroom

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Abstract: at present, with the rapid development of the Internet, we have entered the information digital era. People have applied information digital technology in various fields and achieved great results, including the field of education. Therefore, for university physics experiment, which is a highly practical course, in order to make students learn more scientifically and efficiently, it is necessary for teachers to organically combine physics experiment teaching with internet information technology, build a modern and efficient university physics experiment wisdom classroom, and complete the reform of teaching mode, so as to improve students' physics experiment ability, Cultivate their good sense of innovation and scientific literacy, and promote the improvement of teaching efficiency. Therefore, this paper discusses in detail how to build a university physics experiment wisdom classroom according to Internet information technology, for the reference of the industry.

Key words: University; Physics experiment wisdom classroom; Practice strategy; Internet

university physics experiment is a basic experimental course for students of science and engineering. The experimental items can be mechanical experiments, thermal experiments, electromagnetic experiments, optical experiments and other independent parts. 40 articles of higher education in the new era has guided the direction of teaching reform in Colleges and universities. It proposes to comprehensively implement quality education and take promoting the all-round development of students and adapting to social needs as the fundamental standard to measure the level of talent cultivation. Therefore, universities should pay attention to the teaching of physical experiments, and build a university physics experiment wisdom classroom with the help of "Internet +" to promote the innovation of the course, promote the improvement of students' physical experiment ability, implement the requirements of quality education, realize its all-round development, and cultivate innovative and applied talents in the new era. At present, although in the wave of higher education reform, university physics experiment teaching has been innovated for many times and achieved good results, there are still many problems in today's university physics experiment teaching

1. Clarify the connotation of wisdom classroom

The "wisdom classroom" built through information technology and multimedia refers to the thinking mode of "Internet +" based on human-computer collaborative work and a series of cutting-edge information technologies such as cloud computing, big data and artificial intelligence. Through the rational use of these technologies in teaching, teaching knowledge and various technologies can be effectively integrated to produce a complementary relationship, Finally, the "wisdom classroom" was constructed. In addition, wisdom classroom can also build an intelligent learning environment, optimize physics experiment teaching, and give full play to the role and value of "wisdom classroom" in teaching through new technology functions such as AI class, training camp, double teacher course, and practice field containing short books. The advent of the concept of "wisdom classroom" has proposed the embodiment, application and promotion of information technologies such as intelligent terminals, cloud boxes, big data analysis and artificial intelligence in the field of education. It has taken "students' intelligent development" as the core and constructed a new teaching form, which is not only conducive to the cultivation of intelligent talents, It can also realize interactive learning in the classroom, enable teachers to receive students' feedback information at the first time, and respond in a very short time, effectively solve these problems, and truly realize the high integration and accurate docking of "teaching" and "learning". In short, the construction of wisdom classroom in university physics experiment teaching can realize the intellectualization of physics experiment teaching and open up a new situation of educating people for university physics experiment teaching.

2. Characteristics of intelligent classroom of university Physics Experiment

(1) Situational resources to reduce the difficulty of understanding physical abstract knowledge

The construction of wisdom classroom in university physics experiment teaching can display abstract physical knowledge for students in vivid and intuitive forms such as videos, pictures and simulated dynamic pictures, reduce the difficulty of understanding, create diversified teaching situations for students, promote the improvement of students' experimental ability, and help students better understand the essence of many physical experiment phenomena, Then master the basic laws and basic concepts of physical knowledge, and complete the improvement of personal core literacy.

(2) Fragmentation of knowledge to improve students' mastery of difficult knowledge of Physics

Because the wisdom classroom of university physics experiment is built based on "Internet +", the advantages of convenient and efficient Internet have a positive significance for its teaching. In the wisdom classroom, teachers can use the form of micro lecture to enhance students' repeated observation and learning of the important and difficult points of the experiment. This practice can highlight the teaching focus, enable students to learn through this "fragmented" knowledge, form a unique knowledge system, and then practice in the real physics experiment course, saving classroom teaching time, Teachers can also pay more attention to the explanation of key and difficult points.

(3) Interesting teaching to enhance the confidence and interest in learning physics

Among the physical knowledge, there are a lot of abstract knowledge, including many complex and boring physical concepts, formulas, etc. In addition, the teaching methods used by teachers tend to be traditional, which leads to the boring of university physics experiment teaching. In the process of learning, university students will inevitably be tired of this kind of knowledge, and even have resistance. However, in the wisdom classroom of physics experiment, the rich teaching content and teaching resources can stimulate students' interest in learning and greatly enhance their interest and confidence in physics experiment learning.

3. Practical strategies of university physics experiment wisdom classroom

University physics experiment is a course of deep integration of theory and practice. Its purpose is to train students' application ability of physical knowledge, let students understand the principle and formation process of some specific physical phenomena through physical experiments, and it is of great benefit in deepening physical knowledge, cultivating students' innovation ability, and improving students' comprehensive quality. It is also the core component of university physics teaching. However, there are some problems in the traditional teaching of university physics experiment, which affect the efficiency and quality of university experiment teaching, such as simple experiment, lack of advanced instruments and equipment, lack of some experimental materials and so on, which is extremely disadvantageous to the improvement of students' physics core literacy. To solve these problems, it is necessary for teachers to use the "Internet +" technology in physics experiment teaching to build a modern and efficient physics experiment wisdom classroom, closely connect the "Internet +" technology with the teaching content, and promote the innovation of experimental teaching by creating a rich teaching situation.

(1) Enrich the teaching content of science experiment by using network resources

The intelligent classroom of university physics experiment needs a lot of network resources, so teachers should collect the teaching resources and network resources of university physics experiment teaching through the Internet, informationize the electronic courseware, constantly improve it, add vivid and intuitive video data, dynamic pictures and virtual experiment process, and optimize the presentation form of the classroom. In more specific practice, teachers enrich physics experiment teaching through network resources, and build a wisdom classroom, which can fully explain the wonderful stories behind the experiment for students, cultivate students' habits of expanding knowledge, observing knowledge, and thinking about knowledge, and build a smart teaching scene that is enlightening, exploratory, and creative. Realize the new situation of common progress between teachers and students. In addition, in the wisdom classroom of university physics experiment, the rich network resources can enable students to preview the classroom physics experiment in advance, and get familiar with the experiment in advance by watching the simulation experiment or conducting the virtual experiment operation through the relevant technology platform, so as to avoid the frequency of accidents in the real experiment, and improve the success rate, stability and security of the physics experiment. According to their own physics learning situation, students can also rely on network resources to carry out autonomous learning and realize research-based learning and inquiry learning.

(2) Using network resources to expand the goal of experimental education

For example, the teaching of physics experiments through demonstration instruments and dynamic information has swept away the boredom of university experiment courses in traditional teaching, effectively stimulated students' learning enthusiasm, and made physics experiment teaching more interactive. For example, the relevant resources of "sound velocity measurement" are displayed to students through teaching resources. For example, the first full measurement of sound velocity was carried out in France and Paris. At that time, people knocked one side with an iron pipe of more than 900 meters, and the other end would receive two sounds, namely, the air in the iron pipe and the sound transmitted. After measuring the two sounds, it is calculated that the sound velocity in the iron pipe is about 15 times that of air. Through the description of this kind of teaching resources, it can stimulate students' interest in learning, enhance students' innovative thinking ability, practical ability and comprehensive quality, expand educational objectives, and improve the marginal benefits of experimental teaching.

(3) Constructing online and offline hybrid teaching through "Internet +"

Nowadays, online and offline hybrid teaching has become the focus of attention in the field of education. Therefore, in the wisdom classroom of university physics experiment, teachers can also use this method to implement Hybrid Teaching in teaching relying on online teaching platforms such as Tencent classroom, cloud classroom and learning innovation platform. For example, in hybrid teaching, students can retreat to the "formula of velocity and displacement of free falling body" in the "Research on the law of free falling body movement", and ask teachers questions online, which saves time for both sides and improves the efficiency of teaching and learning.

4. "Internet +" technology to improve the efficiency of experimental teaching

The wisdom classroom of university physics experiment can be intelligently promoted by using the "Internet +" platform. For example, before teaching, Tencent classroom can be used to send relevant courseware and experimental videos to students, so that students can preview in advance, and cultivate students' habit of autonomous learning in this form. At the same time, students can also submit their homework after class through the network platform, and electronic homework is easier for teachers to review and check. After the teacher annotates the homework, it can be sent to each student again with the help of intelligent functions, which can greatly save the workload of teachers and improve work efficiency. It can also summarize the common errors of students when correcting the homework, record them on the teaching platform, and then focus on correcting these errors in experimental teaching. Specifically, it can be carried out from the

following three aspects:

(1) because of its convenience and efficiency, the "Internet +" technology can guide students' autonomous learning. At present, many colleges and universities have their own network teaching platforms, which play an important role in teaching. However, with the wide application of "Internet +" technology, a large number of teaching platforms with rich teaching resources, online live broadcast, course video playback, student community and other functions have emerged, breaking the restrictions of space and time on physics experiment teaching. It can not only cultivate students' habit of autonomous learning, but also improve students' inquiry ability and learning enthusiasm, which is of great benefit to the improvement of students' comprehensive quality.

(2) the "Internet +" technology can expand the teaching of physics experiments in the wisdom classroom of university physics experiments.

university physics knowledge covers a wide range, not only has a large number of physical knowledge, but also contains a lot of practical knowledge. For example, in the experimental teaching of "measurement of the heat of dissolution of ice", students should learn to correctly use the physical balance, calorimeter and thermometer; The heat of solution of ice was measured by mixed calorimetry; Learn how to correctly select parameters in the experiment; Learn a method of roughly correcting heat dissipation - compensation method. These are the principles behind which can be clarified through practice. In Distance Education Based on "Internet +", teachers can transmit relevant experimental videos, image resources and courseware for students at any time through the platform, so that students can learn in depth and achieve its efficiency.

(3) in the wisdom classroom of university physics experiments, the deep integration of "Internet +" technology can promote the quality of communication between teachers and students. In traditional physics experiments, the communication between teachers and students is only completed by asking questions in teaching or guiding the experiment process. However, after the integration of "Internet +", the ways of communication between teachers and students are enriched, and are no longer subject to the influence of previous time, place and form, which promotes the improvement of the quality of communication, For example, teachers and students can communicate for a long time through the network, and can also carry out detailed communication based on complex physical experiment knowledge, leaving chat records, which is convenient for students to take notes or look at them in the future, and often look at them.

5. "Internet +" reform of experimental teaching mode

The introduction of "Internet +" technology in university physics experiment teaching needs to build a network experiment platform according to the teaching materials and the content of physics experiments. University physics laboratory is usually divided into different functions according to the teaching content of university physics, so the website of physics laboratory should also have different functions, so as to carry out physics experiments effectively. At present, the university laboratory network platform has the function of laboratory teaching organization and management. These improved functions have a great impact on university physics teachers and students. For students, they can log in to the laboratory network platform and select the experimental projects to be carried out. On the one hand, they can let students know the preview experimental project in advance. On the other hand, it saves unnecessary time to a great extent. For teachers, university physics teachers can use the experimental network system to manage experiments and improve the original teaching mode.

To sum up, the intelligent classroom based on "Internet +" can not only enrich the diversity of university physics experiment teaching, optimize teaching mode and evaluation mode, but also enhance students' practical ability and cultivate innovative thinking ability, effectively improve the marginal benefit of experimental teaching, and provide a useful reference for university Physics Experiment Teaching under the background of "new engineering".

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Reconstruction of the training mode of applied talents in preschool education based on OBE concept

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Abstract: Taking the opportunity of teacher education professional certification, this paper reconstructs the talent training mode of preschool Education specialty based on the concept of Outcomes-Based Education (OBE), which aims to improve the weak links in preschool education. It has been a difficult problem for our country to train the applied talents with the spirit of innovation and practical ability. To tackle the problem, this paper will first explain the connotation of the OBE concept and analyze the current situation of the cultivation of applied talents in preschool education, and then, based on OBE concept, this paper will explain the cultivation of applied talents in preschool education from the aspects of objectives, content, implementation, evaluation, etc., and reconstruct the new cultivation mode.

Key Words: OBE concept; preschool education; application-oriented talents; training mode

1. Proposal of OBE concept

In 1981, American scholar Spady first put forward the concept of OBE in the article "Outcome-Based Instructional Management: A Sociological perspective", and then made a systematic discussion on OBE in the article "Outcomes-Based Education: Critical Issues and Answers" published in 1994. In 2003, Acharya systematically pointed out four implementation principles of the concept of OBE: clearly focusing on learning outcomes, expanding students' learning opportunities, improving teachers' expectations, and reversed designing curriculum and teaching. In the past 20 years since the concept of OBE was proposed, researchers have created a variety of distinctive curriculum modes according to their own needs and environment. More and more scholars are trying to apply the concept of OBE to the construction of various majors and disciplines.

《In OBE: Education Based on Results》, Jiang Bo, a Chinese scholar, first discussed the origin, essence, system and principles of OBE concept in detail, and recognized the advantages of OBE concept in talent training. Zhou Hongbo and others pointed out that it is necessary to start from the four steps of OBE concept realization, implement "reverse design", establish the logical relationship among training objectives, graduation requirements and curriculum system, organically integrate the core elements of OBE concept into the formulation and implementation of talent training plan, promote the comprehensive development of students' knowledge, ability and quality, and achieve the intended learning results.

2. Problems in the Cultivation of Applied Talents in Preschool Education

There are various ways to cultivate preschool education professionals in China, mainly including undergraduate education, higher vocational education and secondary vocational education. At present, these three ways all have problems in cultivating applied talents.

As for the training goal, no matter it is undergraduate course or higher vocational or secondary vocational school, there are some problems such as the vague orientation of the training goal and the lack of foresight. For universities, it is very difficult to realize "Academic" and "Applied" in its training goal. At the same time, there are no clear requirements for the application-oriented talents in the orientation of higher vocational schools, and the similar goals hardly reflects the characteristics of each school. In the curriculum system, some colleges and universities have too many theory-related courses, which leads to the lack of field practice. Also, the guidance of practice and qualified practice facilities are insufficient. Some higher vocational schools, influenced by historical factors, pay too much attention to the art skills

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