

# Research on Teaching Reform of Computer Practice Based on Cloud Platform

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**Abstract:** The continuous development of computer technology brings new challenges to the teaching reform of computer practical courses. In order to improve the effect of computer practice teaching, the advanced technical means of cloud computing and cloud platform is used to improve the actual effect of computer practice teaching. The teaching system of computer practice based on cloud platform include curriculum experiment, innovation project and entrepreneurial activity. It is required to update teaching concept, strengthen capital investment and perfect course setup to obtain success of teaching reform of computer practice.

## 1. Introduction

Practice teaching is an important way to train students to master scientific methods and improve their practical ability [1]. In computer related specialties, good practice ability is the necessary professional quality of graduates. At present, there are many problems in the practice teaching of computer in Chinese universities. Lack of experimental teaching resources, obsolete experimental content and unreasonable assessment methods lead to poor teaching results. There is a big gap between students' practical ability and employment market demand. Cloud links a large amount of computing, storage, network and software resources together, forming a huge pool of resources, delivered to remote users on demand through the form of services. Users use cloud tools to access the cloud through the Internet, and acquire and use all kinds of resources needed. The current cloud virtual laboratory cannot fully support the whole teaching process. We propose to develop and deploy a variety of practical teaching services in the cloud environment on the basis of cloud-based laboratories to form a comprehensive computer practical teaching system to support the whole process of practical teaching operation. Cloud computing is to improve the data processing capacity of computers, which can effectively integrate a number of low-cost computer technology, so as to achieve a high degree of integration of traditional computer and network technology development. The computer practice mode based on cloud platform is to provide different levels of services according to different needs of computer practice through cloud computing platform, which can not only improve the actual effect of computer practice teaching, but also meet the different needs of different students and promote the level of computer practice teaching. The teaching mode based on cloud platform can stimulate interest in computer learning to a greater extent and cultivate student's innovative ability [2].

## 2. Teaching System of Computer Practice Based on Cloud Platform

### 2.1 Curriculum Experiment.

The teacher mainly carries on the experiment content explanation and the arrangement organization. The experimental tasks are mainly published in the form of micro-courses, including the review of the principle involved in the experiment and the guidance of the experimental operation. The program can be completed by itself or with reference to experimental materials. Students are free to combine into an experimental group. The teams can exchange experimental devices and make corresponding designs in the case of residual force. In the process of implementation, we should pay attention to the creation of experimental atmosphere and emphasize equal exchange, sharing and

integrity. Strict requirements for works, all external resources must be strictly marked quotations. These works involve the same basic principles of network and make wider communication possible. According to the requirements of curriculum system reform, we should optimize the content and teaching conditions of practical teaching. Ensure basic experiments. For core courses, such as program design, data structure. It is necessary to ensure the systematic practice of the hours and experimental content. Integrating part of the experimental content of the course, system view and overall view are established, such as computer composition, architecture, operating system integration into computer system experiment. Improve the computer aided experimental evaluation and incentive system. Strengthen the system to effectively monitor, evaluate and manage the 'usual experimental situation, and use the system to urge and encourage students to strengthen the usual experimental learning function. Course experiment is mainly by teachers according to needs, through the cloud management platform for each student account assignment of relatively fixed services, students can use the allocated services to complete the course experiment. In principle, students should go to the designated laboratory to complete the course experiment under the guidance of the teacher. If students want to use other time to improve the experiment, students can use the service anytime and anywhere as long as the campus network [3].

## **2.2 Innovation Project.**

Every year, colleges and universities organize students of different majors to participate in relevant competitions at all levels, such as national and provincial e-commerce competitions, network organization competitions, accounting skills competitions, computer application competitions and so on [4]. The ability of students to participate in these competitions has been greatly improved. Computer practice course can adopt the same method for college innovation projects. First, students need to write an application for college students' innovation projects. After passing the college evaluation, they will report it step by step, and finally decide whether it is a national, provincial, school or college-level project. Then, students sign up for the cloud platform management system based on project approval documents, and apply for corresponding services. The center is equipped with a dedicated administrator to examine and approve applications. After approval, students can use the service anytime and anywhere until the project is completed. For academic competitions, a dedicated teacher is responsible for organizing each type of competition, and all competitions have established a dedicated service, which can be used by students who sign up for the competition. For programming class competitions, we have established a good match training mechanism. We also set up a program design online evaluation system. Through this system, students usually train like a competition, the system will automatically judge the program submitted by students, record the completion of each student and according to the number of students to complete the program, difficulty, accuracy and other real-time announcement of the latest rankings, effective. It stimulated students' interest in learning. In order to score fairly and reasonably, each competition should invite customers, enterprise representatives, teachers, student representatives and others to propose scoring points according to the source of the project.

## **2.3 Entrepreneurial Activity.**

For college students' entrepreneurial activities, students need to write an entrepreneurial activity plan. We organize college entrepreneurship instructors and professional teachers to demonstrate entrepreneurship projects, and put forward some reasonable suggestions for students to carry out entrepreneurship activities. Once the project is demonstrated, the center's dedicated managers will communicate with the start-up team to discuss the services needed to implement the start-up project and determine the final service allocation plan. After that, the entrepreneurial team can always use the service until the end of entrepreneurial activities. Entrepreneurship education plays an important role in promoting the development of quality education. The core of innovation is human beings, and the cultivation of people's innovative ability lies in interest-oriented quality education. The implementation of entrepreneurship education can further expand the experimenter's experience and imagination, and improve the experimenter's hands-on creativity, which is the requirement for quality

education in the construction of an innovative society. In the course design of embedded system, students are more likely to see the complexity and challenge of Embedded System Course under the environment of entrepreneurship education. Compared with the emphasis on the underlying technical level of embedded systems, its curriculum design content can be more complete and more systematic. With the use of network resources, its curriculum design is easier to implement. But there may be a problem, that is, open source and reuse design is difficult to identify whether the work is designed for students themselves. The current practice is to attract some teachers' projects into the entrepreneurial space through dynamic review mechanism. Entrepreneurial activities provide basic technical support and activity services for projects, but also require that these projects are regularly shared and exchanged. Through this form, some teachers have mastered the basic technology of entrepreneurship education. But the requirement of entrepreneurship education for teachers is comprehensive, and the work in this area still needs the joint efforts of many parties.

### **3. Key Points of Teaching Reform of Computer Practice Based on Cloud Platform**

#### **3.1 Update Teaching Concept.**

With China's entry into the information age, information technology has affected all walks of life. In the process of computer practice teaching, we should pay attention to cultivating student's independent innovation ability. With the help of computer, we can carry out innovation and entrepreneurship, conform to the background of the current era of mass entrepreneurship in China, so that the Internet and information technology in China can provide more students with a platform for innovation and entrepreneurship. Therefore, schools should renew their concepts, take computer practice teaching as an important carrier and way to cultivate student's innovative and entrepreneurial ability, and vigorously promote computer practice teaching mode based on cloud platform to cultivate students' comprehensive ability. Today's world has entered the information age, the rapid development of information technology, information technology is profoundly changing the face of the world. New technologies are surging forward and developing rapidly. If we cannot update our knowledge reserves in time, we will soon fall behind the needs of technological development, but the update of knowledge cannot be completed by returning to the school classroom, so autonomous learning ability becomes particularly important. Internet and information technology are the most active areas of innovation and entrepreneurship at present. The goal of our practical teaching is to improve students' ability of independent learning and innovation and entrepreneurship. Cloud computing and big data are the hot spots and trends in the development of IT nowadays. Using cloud computing technology to build a computer practice teaching system is an important topic of laboratory construction. With the advent of the digital and information age, the traditional teacher-centered teaching model is bound to transform to the student-centered information-based teaching model. The use of cloud computing technology to build a personalized learning environment for students, in line with the teaching concept, can enhance interest in learning and give play to students' subjective initiative. Sex, to overcome the passive acceptance of digestive knowledge formed in the study of lazy habits, ignite enthusiasm for learning, and actively integrate into the study.

#### **3.2 Strengthen Capital Investment.**

Colleges should increase investment, cooperate with network companies, establish cloud laboratory system, realize the sharing of resources and information, so that students can carry out practical operation in combination with their own computer mastery, and cultivate student's innovative ability. Improve teaching equipment, so that students can better exercise their innovative ability and problem-solving ability in the experiment, improve student's computer professional ability, provide more computer talents for social development. Using the platform to integrate all kinds of hardware and software teaching resources in the school can have a positive impact on the construction of training resources and entrepreneurial resources. The construction of cloud platform

can develop innovative and practical ability and transfer the laboratory to the classroom directly. While students learn theoretical knowledge, they can carry out practical activities directly, satisfy the teaching mode of combining theory with practice, and finally realize the cultivation of individualized innovative ability. The development of colleges and universities, the relevant educational policies and systems, the degree of education informatization or its organizational structure, technology and so on are different. But they have one thing in common, which is based on a profound understanding of the nature of cloud computing technology. We should increase capital investment and build a computer practice teaching system based on cloud platform. Cloud computing technology is an important achievement in the development of computer in China. The application of cloud computing technology can optimize the curriculum, improve the actual effect of practical teaching, and help students improve computer professional technology. Colleges and universities should comprehensively assess their internal and external environment and study what cloud computing technology can do. Colleges and universities are actively looking for entry points and making use of cloud computing technology, while also striving to create conditions for the use of cloud computing technology, to promote the reform of computer practice teaching.

### **3.3 Perfect Course Setup.**

We should improve the practice curriculum and cultivate students' ability of innovation and entrepreneurship. When developing the computer practice teaching mode based on cloud platform, teachers should take the cultivation of student's innovation and entrepreneurship ability as an important teaching goal, and then let students self-operate, for example, let students carry out various tasks on the platform. In addition, in order to improve their practical ability, we should set up a more difficult innovation training platform, so that students with the ability to challenge, expand their knowledge and improve their comprehensive ability. Students can learn knowledge on the cloud platform, carry out independent entrepreneurial activities in specific service areas, and exercise student's comprehensive quality. Teachers can take cloud management to observe the students, timely grasp the situation of their practice, guide, and effectively improve the effectiveness of practical teaching. Teachers can specify the opening time of the virtual laboratory, which is not limited to class time, students can flexibly arrange according to their own learning habits. The student virtual machine can also be seen as a service, once created, it is registered in the service discovery service and associated with the course selection information in the course management service. In class, students log in from the unified portal to the course management service, they can see the courses they choose, browse the completed experiments and the currently completed experiments, and then, according to the binding relationship between the experimental environment and the course selection information, they can find the entrance to their own virtual machine through the query service, and they can do it in the virtual machine. Code writing, debugging and operation. After the experiment is completed, the students submit the experimental report, program code and other information in the course management service. The virtual experiment environment is cancelled in service discovery and resources are released.

## **4. Conclusion**

With the continuous development of science and technology, more attention is paid to the use of cloud-based teaching model in computer practice teaching. It helps to cultivate student's comprehensive quality and improve the level and quality of computer teaching. Our exploration of computer practice teaching mode based on cloud platform is still in its infancy, which needs to be further improved in practice.

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