Research on the Innovation and Application of Cloud Technology in the Construction of Management Laboratory

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Abstract. With the rapid development of information technology, cloud technology is widely used in various industries. In the field of education and teaching, colleges and universities have invested more in the application of cloud technology in laboratory construction. The application of this technology has greatly improved the management effect of university laboratory, improved the overall quality of teaching and promoted the development of school education. This paper focuses on the typical application of cloud technology in the construction of economic management laboratory, and puts forward some existing problems and prospects for the future of cloud technology in the construction of economic management laboratory, so as to promote the cloud technology in the field of education to achieve better development.

1. Introduction
The construction of the school laboratory is very important to the teaching development of the school, so enriching and perfecting the laboratory infrastructure construction is the most important part of the school development and construction. However, the basic equipment and management level of traditional laboratory can not meet the experimental needs of management specialty. Therefore, colleges and universities can establish the strategic mode of "Internet education" and innovate the development of university laboratory with the help of the current rapid development of cloud technology. The specialty of economic management has strong practicality and great demand for laboratory, so the school can use more information technology and cloud technology to promote the innovation and development of laboratory.

2. Current Situation of Construction of Management Laboratory
The construction of management laboratory is a complicated construction project. Therefore, colleges and universities should have multiple considerations when establishing management laboratories. The construction of school laboratory should not only pay attention to the feasibility of laboratory, but also pay attention to the establishment of multi-level and shared service platform of laboratory, so that the management laboratory can really serve education and research. According to the statistical analysis of the data, colleges and universities have invested many kinds of simulation experimental technology, virtual reality experimental environment, cloud desktop technology and cloud storage technology in the construction of economic management laboratory. It can be concluded that cloud technology is developing rapidly to the university management laboratory and is constantly helping to improve the level of infrastructure construction in the field of education[1].
2.1. The school pays less attention to the laboratory construction and the understanding of the construction is not in place.

Most schools do not pay enough attention to leadership, and there is no professional teacher guidance. The construction and management of school laboratories is considered to be only the affairs of the construction department, and professional teachers and leading departments are not interested in the construction. Many schools even think that the laboratory is a tool for auxiliary teaching, and it is not necessary to establish a special and independent laboratory. It lacks a professional understanding of the construction of the economic management laboratory and a correct assessment standard for the construction of the laboratory. Lead to mistakes in construction. These are the problems of insufficient attention and understanding of laboratory construction.

2.2. The school to the management class laboratory construction manpower and material resources investment is insufficient.

Many colleges and universities think that laboratory construction is a short-term process, only to solve the current experimental teaching difficulties, but ignore the future experimental development planning. As a result, the school to manage the laboratory investment of funds are inadequate phenomenon. The construction of economic management laboratory needs high professional level, high technical scientific guidance and sufficient capital investment in order to establish a qualified and long-term planning laboratory. A qualified and advanced laboratory can not only solve the current needs of experimental teaching, but also improve the experimental level of school education and teaching, and promote the development of management specialty[2].

2.3. The technology of the management laboratory is relatively backward.

Because many economic management experiments are simulated on computer systems, economic management experiments are closely related to the development of computer technology, but many school teachers are limited to the current technical experiments. Ignoring the rapid development of computer technology and the shortage of school funds, the experimental equipment can not be updated in time, which leads to the backwardness of economic management experimental technology and the stagnation of experimental level.

3. Innovative Application of Cloud Technology in the Construction of Management Laboratory

Cloud technology (Cloud technology) is a kind of hosting technology which integrates a series of resources, such as hardware, software and network, to realize the calculation, storage, processing and sharing of data in WAN or LAN. This technology is based on cloud computing business model application of network technology, information technology, integration technology, management platform technology, application technology and so on, can form a resource pool, on demand, flexible and convenient[3].

Cloud technology is to collect and integrate data resources through a large network of computer data processing systems, to form a huge cloud resource platform, and then to send the results to users through data analysis of multiple network server systems. Nowadays, cloud technology also provides important technology applications for network services, such as putting virus samples into servers, automatically judging whether files have virus cloud technology through intelligent detection of hundreds of servers. Cloud disk storage technology, cloud desktop and big data analysis technology are representative applications of cloud technology in the development of management laboratory.

3.1. Cloud Desktop Technology

Cloud desktop technology, by improving the background network service system to establish virtual desktop software, to provide users with more convenient and personalized use. This technology has many advantages. On the one hand, cloud desktop technology improves the background server and personalizes the terminal, which not only avoids the conflict of computer model configuration, but also solves the compatibility problem. On the other hand, the use of cloud desktop technology
provides important innovative applications to economic management laboratories set up in many colleges and universities. For example, many schools in the management of banking management, accounting, audit, e-commerce, industry and commerce courses are independent database, separate cloud desktop use. And cloud desktop technology has a separate background software configuration, the implementation of open sharing platform. Experimental managers, teachers and students can operate these audit laboratories, economic data analysis laboratories, accounting laboratories, enterprise operation laboratories through different experimental needs and landing corresponding experimental cloud desktop platforms. Project design laboratory, simulation bank laboratory and so on cloud desktop platform, to achieve research and teaching convenience[4].

3.2. Cloud storage technology
Cloud storage technology is to use network service system and file management system to collect a large number of experimental data information, and then data classification storage and personalized management, which provides a huge database for the laboratory. Cloud storage technology releases data from personal computers or network servers according to experimental requirements, concentrates on the background service center of the laboratory, and then freely accesses by the terminal. In this way, on the one hand, cloud storage technology improves the teaching efficiency for teachers. Teachers collect teaching resources through cloud storage technology and upload them to cloud disk, which can not only carry teaching materials, but also provide open resource sharing platform for students. On the other hand, it also improves the teaching quality. With the rapid development of the network and the rapid updating of experimental data, cloud storage technology can quickly obtain the latest data through computer platform, the latest teaching resources, that is, improve the timeliness of teaching and improve the accuracy of teaching. On the one hand, centralized and unified data service center provides more efficient and convenient service for laboratory background management.

3.3. Application of big data Analysis Technology
Big data analysis technology is to establish a big data experimental teaching platform with the help of cloud technology platform. Nowadays, with the help of more professional big data platform analysis tools ——Hadoop the university management laboratory realizes the application of big data analysis technology. Through Hadoop and HDFS, a simulation experimental teaching platform for big data acquisition, analysis, management and storage is constructed. According to the different experimental needs of teachers and students, the platform provides teachers and students with various experimental environments, experimental data, and with the help of information analysis of big data platform, the accuracy of the experiment can be improved. Thus, it can help teachers and students to complete the experimental tasks efficiently and accurately. The construction of big data experimental platform can not only help the completion of laboratory research and education tasks, but also help more laboratory managers to complete the work efficiently. The experimenters use the big data analysis technology platform to carry out effective experimental project analysis through a large number of graphic and text data, user information, experimental data, etc. Get more accurate experimental results, continuously promote the improvement and development of experimental projects, improve the value of scientific experiments[5].

4. Significance of the Application of Cloud Technology in the Construction of Management Laboratory

4.1. The application of cloud technology provides abundant experimental and teaching resources for management laboratories.
The establishment of cloud technology platform enriches laboratory data resources and forms a database that integrates data resources at home and abroad. Through the platform, laboratory managers, educators, and students can search for experimental data and reference materials according to the
needs of the experiment. Therefore, the construction of cloud technology laboratory platform can provide different experimental environment and diversified experimental services for the experiment, can make a rapid response to the development of teachers' teaching activities, and provide the appropriate experimental environment and experimental data quickly.

4.2. The application of cloud technology provides an open learning platform for students.

The main characteristic of cloud technology is the strong ability of resource integration. Cloud technology can collect and integrate the experimental data of each laboratory in colleges and universities through many channels, which is convenient for students to enter and inquire without obstacles. And teachers also through the platform missionary materials to facilitate students to obtain timely information, consolidate knowledge. Moreover, the biggest characteristic of the laboratory in colleges and universities is the huge digital resource bank. If, in the construction of the laboratory, cloud technology is used to build an open cloud service platform, it will greatly facilitate students' self-experimental activities. By providing an open experimental environment, the laboratory is conducive to cultivating students' self-exploration ability. Even if there are experimental difficulties, it can be helped and guided by cloud platform[6].

4.3. The use of cloud technology innovative education and teaching model, training high-quality talents.

Nowadays, with the deepening of education, colleges and universities also attach great importance to educational equipment. The continuous complexity of the experimental content in the laboratory puts forward higher requirements for the experimental equipment. The application of cloud technology has become a good bridge between modern computer network technology and innovative experimental facilities. From the construction of cloud technology laboratory platform, constantly innovative education and teaching model. The integration of science and technology provides a good infrastructure for the cultivation of high-quality talents. The organic combination of laboratory cloud technology platform and educational concept of cultivating high-quality talents is a great development of education and teaching mode and promotes the progress and improvement of cultivating high-quality talents.

5. Prospect of Cloud Technology in Construction and Application of Management Laboratory

If colleges and universities want to improve the scientific and normative construction of administrative laboratory, they must exert the strength of cloud technology and resolutely achieve the following points:

Table 1. Prospect of the Construction of Economic and Management Laboratory under Cloud Technology

| Prospect of the Construction of Economic and Management Laboratory under Cloud Technology |
|---------------------------------------------------------------|
| open Time opening Project opening Examination opening Geographical opening |
| Sharing Experimental Performance Sharing Experimental data Sharing |

5.1. Realize the openness of cloud technology management laboratory.

On the basis of cloud technology, the construction of open management laboratory is not only conducive to the optimization of resource sharing, but also to the improvement of teachers' teaching efficiency, as well as the improvement of students' learning level. To promote the further development
of economic management experiments. The opening of management laboratories can be manifested in the following aspects[7].

5.1.1. Manage the opening of laboratory time. In the traditional laboratory, there are certain and certain teaching experiment time limit, which is not conducive to the teaching progress, to promoting students' autonomous learning and independent inquiry. But if the opening of laboratory time is realized, the freedom of laboratory is improved, and teachers and students can use the laboratory freely and complete the progress under the condition of teaching progress and experimental needs. Open management laboratory not only enables students to make full use of their spare time, do meaningful things, but also cultivate students' interests and hobbies, and can make efficient use of laboratory resources, which is not easy to lead to the waste of experimental resources.

5.1.2. To realize the opening of laboratory experimental projects. The development of experimental projects is not limited to small groups of classes or laboratories. If laboratory projects are opened, students can learn more about experimental projects through the network. Then join the experiment by signing up and carrying out experimental inquiry. And students can even carry out experimental projects independently, use laboratory resources, set up experimental teams, so that their own ability can be developed and improved.

5.1.3. Realize the open examination of economic management experiment. The economic management experiment examination can adopt the multi-scheme choice mode, lets the student have the independent choice examination plan, the examination form. The open assessment system not only provides students with more choices, more opportunities, but also provides students with more thinking and open assessment conclusions. It also promotes the communication and discussion among students. The experiment is drawn from the continuous communication and research. Such open examination is of great help to students' learning and experimental inquiry.

5.1.4. To achieve the management of laboratory regional opening. Under the innovation of cloud technology, the management laboratory can realize the opening of the region. On the basis of open time, students can enter the network platform and carry out remote experiments through Internet technology, so that teachers and students can carry out experiments at any time without the limitation of time and space. This provides more teaching opportunities for teachers and more experimental opportunities for students to improve their experimental efficiency and quality. The opening of laboratory area plays an important role in promoting the development of experiment.

5.2. On the basis of cloud technology, the construction of shared management laboratory is realized. Management laboratories can be open on the basis of cloud technology to achieve multi-faceted sharing. The economic management laboratory has the characteristics of many experimental items, large experimental data and complex experimental process, so it can be shared by cloud technology to facilitate the experimental teaching of various economic management classes. The sharing is mainly manifested in the following aspects.

5.2.1. Sharing of laboratory performance of management students. In the traditional teaching evaluation mode, teachers evaluate students' experimental results and performance in many aspects, but this kind of teaching not only consumes too much time, but also lacks targeted guidance and evaluation. But today's innovative laboratory of cloud technology gives every student a virtual laboratory platform and cloud space. Through the recording and tracking of cloud technology, the students' experimental process and results can be clearly recorded, so that teachers can clearly understand the students' specific information, specific experimental results, and can give students purposeful guidance. Improve the students' experimental level.
5.2.2. Management of student laboratory data sharing. Through the big data management and analysis system of cloud technology, the data of online and offline experimental projects are collected, and the sharing of experimental data is realized, which provides students with a variety of experimental project selection and reference for various project experimental design. Based on cloud platform technology and using Internet technology, students choose experimental members and learn from experimental data to complete the experimental tasks efficiently according to the different experimental courses shared on the network platform. On the basis of cloud technology, the opening and sharing of management laboratories can effectively help laboratory managers to manage convenient data and allocate and maintain experimental machines. Experimental and liberalized allocation of experimental resources can be remotely controlled to improve laboratory management and maximize laboratory utilization.

Because the use of cloud technology is realized by data collection, transmission and service of network platform, it has high requirements for the basic equipment of cloud technology laboratory with large capacity storage technology and high speed server. In order to improve the professionalism of economic management experiments, colleges and universities need to provide regular maintenance for the experimental setup, so the laboratory also needs to be equipped with professional technical personnel to assist in the repair and maintenance of equipment, but at present, There is still a lack of professionals in this area. In addition, cloud storage is a virtual data network world, which is likely to be threatened by network viruses and malicious attacks and destruction by some criminals. Once the data is tampered with or inadvertently lost, it will affect the experimental process and results of the experimental users. The harm caused by these is unimaginable. Therefore, how to protect data and improve the security of access data are all worthy of discussion and study, and need to actively propose and find solutions.

6. Conclusion
Through the analysis of cloud technology and management laboratory construction, this paper explores the innovative application of cloud technology in the construction of management laboratory, and demonstrates the importance of cloud technology being widely used in the construction of university laboratory. Cloud technology not only helps to optimize and upgrade the management laboratory in construction, but also enriches the application depth and breadth of the management of the management laboratory. In the future, cloud technology will be invested in the construction of more university laboratories to help the development of education.

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