Research on the Construction and Evaluation of Virtual Simulation Laboratory for Economic Management Based on Big Data

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Abstract: In recent years, the establishment of virtual simulation laboratory has become the main measure for economic management colleges to carry out experimental construction, and has achieved fruitful results. With the rapid development of big data, how to make use of big data and cloud computing, Internet of things such as a new generation of information technology to speed up the construction step of simulation laboratory, on this basis, make a virtual simulation experiment teaching new mode and new methods, to cultivate high quality economic management talents, is the major difficult problems faced by the economic management college.

1. Introduction

The new generation of information technology can be used to simulate all the processes of enterprises. Combined with the teaching content, situational learning can be realized and the effect of combining theoretical teaching and practical teaching in the teaching process can be realized. Virtual simulation can be used. Through virtual simulation to carry out professional course teaching, theoretical knowledge becomes more image, business is no longer abstract, the classroom atmosphere gets rid of the downturn, students will not feel boring, the teaching effect will naturally make great progress. Therefore, virtual simulation can be regarded as an excellent way to cultivate practical talents, which will not only change the innovation of practical teaching mode of economic management, but also produce long-term positive significance. How to use the new generation of information technology, with the in-depth development of big data, accelerate the construction of virtual simulation laboratory, create a new model and new method of virtual simulation experiment teaching, has a very important significance to cultivate high-quality economic management talents, is all the national economic management majors must solve the problem.

2. Current Situation and Problems of the Construction of the Simulation Laboratory for Economics and Management

2.1. The Construction Scale of Virtual Simulation Laboratory is Constantly Expanding, but the Resource Utilization Rate is Low and the Construction Repeatability is Large

The development of science and technology promotes the enrichment of virtual simulation experiment teaching resources in colleges and universities. However, behind the rapid construction of virtual simulation laboratory and the huge amount of resources, there are still some problems. In the same institution of higher learning, due to different majors, laboratory teaching resources are isolated from each other, unable to be used, compatible or shared, resulting in severe resource isolation. The isolation of resources leads to the repeated construction of various specialized schools and departments, which leads to higher construction costs, a large number of idle teaching resources and low utilization rate of resources.

2.2. The Construction of Virtual Simulation Laboratory has more and More Distinct

Features, but the Simulation Degree is Insufficient

Economic management is different from science, industry, agriculture and medicine. As the virtual simulation of social science and economic management, it belongs to the virtual simulation of social nature. Due to the limitations of the current technical conditions, the vast majority of virtual simulation based on processes and positions. However, in fact, the business environment of enterprises is complicated, and the competitive environment and macro-economic environment are more complicated and more difficult to simulate. Therefore, it is difficult for students to obtain more and more flexible exploration space. Students can only learn business processes in an innovative way, but it is difficult for them to further improve their innovation ability and adaptability. Therefore, imitate the changeable business environment and market environment, improve the virtual simulation degree of market and society. Therefore, the construction of virtual simulation laboratory of economic management is an uphill battle. It is necessary to build a more extensible virtual simulation laboratory system with new generation of technology to achieve sustainable self-development, which can inject fresh blood into the construction of virtual simulation laboratory and provide lasting development power.

3. Research on the Construction and Evaluation of Virtual Simulation Laboratory for Economic Management Based on Big Data

Today, a new generation of information technology is leading a series of changes, including the fourth Industrial Revolution. Among many emerging technologies, cloud computing and big data are powerful engines driving the development of "Internet plus". Based on big data and cloud computing, this paper points out several important contents of establishing a virtual simulation laboratory for economy and management. These contents include: construction of physical simulation laboratory, virtual simulation experiment teaching resource sharing platform based on cloud computing technology, etc. Personalized learning platform, intelligent laboratory management system and teacher research platform for simulation experiments based on big data.

3.1 Simulation Simulation of Physical Laboratory Construction

After more than ten years of construction and development, the virtual simulation laboratory of economic management has made remarkable achievements under the joint efforts of various universities and cooperative enterprises. According to the existing construction mode, it is mainly divided into three levels.

(1)Basic virtual Simulation Laboratory

The basic virtual simulation laboratory conducts learning and training for individual professional basic knowledge and practical operation ability to help students master professional basic knowledge and acquire professional practical ability.

(2)Professional integrated virtual simulation laboratory

On the premise of acquiring basic professional knowledge and practical ability, students can further consolidate what they have learned through the professional integrated virtual simulation laboratory, so as to achieve a leap in the mastery and understanding of professional knowledge.

(3)Cross-disciplinary virtual simulation laboratory

The modern social environment is complicated, the competition is fierce, the outstanding single quality is difficult to meet the needs of social development. A proficient professional and multi-directional development model can better meet the needs of students to enter the society, which requires cross-professional virtual simulation laboratory to help students realize the improvement of innovation ability, innovation awareness and other aspects.

3.2 Virtual Simulation Experiment Teaching Resource Sharing Platform Based on Cloud Computing Technology

(1)Build a virtual simulation experiment teaching resource platform that is interactive and integrated

Under the traditional mode, different majors lead to very isolated resources, let alone shared resources. The construction of virtual simulation experiment teaching resource sharing platform can effectively solve this problem and realize the integration of teaching resources. In this way, teaching resources are highly compatible, can be shared, and the transfer rate of resources is higher.

(2)With the help of virtual simulation experiment teaching resource platform to reduce the construction cost

To build virtual simulation experiment teaching resource sharing platform, a large amount of hardware resources is not a small expense. Add the aforementioned duplication of construction, and the cost of hardware will be a bottomless pit. The establishment of a resource-sharing platform with the help of cloud computing technology does not require a large amount of hardware investment, which can effectively prevent the repeated construction of teaching equipment and greatly reduce the cost of hardware construction.

(3) Learning evaluation is carried out by using quasi-simulation experiment teaching resource sharing platform

With the help of cloud computing technology, resource sharing platform has strong expansibility. In the teaching process, some trace data will be generated, including students' correct rate and time consuming of a certain step in the practical learning process. By analyzing these data, the whole process of experimental teaching is monitored and analyzed. Under the traditional model, teachers evaluate students' learning based on limited information and even their own subjective judgment. By using cloud technology and using data, the evaluation index is more comprehensive and the evaluation process is more reasonable.

3.3 Personalized Learning Platform for Simulation Experiments Based on Big Data

(1) The role of students

Collect personal data of each student through big data technology, and master the behavior habits of each student. Students can also freely arrange learning content and time according to their own situation, such as time arrangement, work and rest habits, etc., to achieve personalized learning. The platform can not only be accessed at any time and any place, but also be shared by teachers and students from all over the country at any time, effectively solving the problem of unequal distribution of educational resources. Students can also learn about their mastery of basic professional knowledge and ability in real time, and then make further learning plans independently or under the guidance of teachers. Since the access to the cloud platform is not limited by time and region, students can not only arrange the learning content and time according to their own needs, realize personalized learning, but also share high-quality learning resources.

(2) The role of teachers

By mining, analyzing and storing the data of the virtual simulation experiment teaching platform, teachers can further explore and find the teaching rules through real data. Based on the analysis results, teachers can think about how to improve the teaching method, how to innovate the teaching mode, and how to carry out personalized teaching according to students' learning data. In addition, teachers' utilization of teaching resources is timely evaluated, and the development trend and hot trend of related fields are studied, so as to realize the active renewal of educational resources.

(3) The role of the enterprise

Different enterprise data can be crawled through web crawlers to build more case databases and provide different operating environments for students to adapt to different operating environments. Through the data in the platform, enterprises can choose the talents they need to employ among students according to their own employment needs and development strategies. For enterprises, colleges and universities are a gathering place of talent resources. Therefore, it is necessary to select the talents most suitable for enterprises' own development among thousands of talents. Therefore, the virtual simulation experiment teaching platform and the data generated by it have a very positive significance for the development of enterprises.

3.4. Intelligent Laboratory Management System and Teacher Research Platform

(1) Realize one-stop management of all organizations

Using cloud computing and big data technology, one-stop intelligent laboratory management can be achieved, integrating the resources of schools, teachers, students, families, enterprises, institutions, government and other aspects together to create a new open education management system without school gate.

(2) Real-time supervised learning

Through the cloud service platform, teachers directly assign learning tasks to students, monitor their learning, and guide their learning. Once there are anomalies in the data, teachers can quickly locate students with abnormal data, and then carry out corresponding guidance work according to the detailed data of students. Backed up by data, teachers can ensure that no student is left behind.

(3) To build a platform for scientific research cooperation

The platform can also serve as a platform for scientific research collaboration. Experimental big data is a reliable basis for exploring the law of experimental teaching and improving the methods of experimental teaching. The analysis and mining of big data will inevitably produce new content that is difficult to find in the traditional mode. On this platform, teachers can carry out inter-school academic cooperation and share research results, which provides great convenience for academic activities.

4. Conclusion

With the outbreak of the epidemic, agglomeration activities are limited. If students can visit the teaching resources of the school at any time without the restriction of time and place, it will play a good role in promoting teaching and learning. Therefore, it will be a long-term and arduous task to further develop the virtual simulation teaching experiment platform. The ancients said: "paper to come jue Shallow, must know this matter to practice" "read ten thousand books, travel ten thousand miles". These old sayings emphasize the importance of practice. For students majoring in economic management, the theoretical knowledge related to economics and management is abstract, while the practical ability to work after graduation needs to be matched with the post. Therefore, for cultivating students' practical ability, virtual simulation laboratory is a low-cost and high-benefit teaching means. Once developed and mature, it will play a very important and positive role in cultivating graduates who meet the needs of social development.

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