Construction and Application of Smart Education Teaching Platform

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**Abstract.** With the continuous development of science and technology, my country has gradually entered the era of big data. In this case, various Internet technologies and teaching software continue to appear and are widely used in classrooms. Therefore, this article discusses how to make better use of intelligent learning platforms in terms of big data to improve the quality of education and serve platform users. This system divides teaching work into basic modules and provides a network application platform for smart classrooms. Through the connection with the education cloud platform, it can identify the sharing of high-quality educational resources, expand its implementation and promotion, and use intelligent learning. The platform is the test group, and traditional education is the control group for all research fields and research. The research results show that the intelligent learning platform is a new type of service platform that has a certain impact on the traditional education model. However, from another perspective, the technology has improved the traditional education model in an innovative way. This model can be used to realize intelligent learning through the use of Internet technology, and can solve various problems in the field of education, increase the allocation of reasonable educational resources and significantly improve the quality of education.

**Keywords:** Big Data, Smart Education, Teaching Platform, Educational Resources

**1. Introduction**

With the development of cloud information technology, there are many hidden dangers in the construction of my country's educational information system: the information systems of educational institutions such as schools and educational institutions are usually small, independent and diversified. They cannot cope with a large number of user visits. With the increase of data accessibility and data volume, the most difficult thing is that various data resources are relatively scattered, forming an information island that is not conducive to the allocation and sharing of educational resources [1].

Wisdom education [2-3] is a new type of education method that emerges as people continue to attach importance to education. This is an education model that integrates countries, schools, and regions, which can effectively improve the teaching quality of teachers and provide students with a better teaching experience. Wisdom education aims to create a better learning environment for students through key technologies such as mobile communication [4], Internet objects [5], cloud
computing [6-7] and teacher teaching purposes. Teachers and students can use various advanced learning technologies to meet the needs of students through intelligent education. Wisdom education can meet the needs of students of different backgrounds, ensure the fair development of education, and cultivate innovative talents. This has had a certain impact on the traditional education model, but on the other hand, technology combines the traditional education model with education and transforms the traditional education model into an innovative teaching model. In this context, the Smart Education Cloud Forum [8-9] can provide students with a personalized learning experience and create a positive learning environment.

Therefore, this article focuses on how to make full use of the intelligent education platform based on big data [10] to provide services for platform users. Take wisdom education as the experimental group and traditional education as the control group for comprehensive research. The research results show that with the help of Internet technology, staffing is more flexible and communication speed will be improved. Therefore, the management of educational institutions will become more intelligent and better, so it needs to be analyzed and resolved. Find problems in time; improve learning ability, organizational response ability and emergency management methods.

2. Construction of Smart Education and Teaching Platform

2.1 Principles of Smart Education Platform under Big Data

(1) Feasibility
The design of an intelligent learning platform must ensure that the design is real and feasible, so that the platform can truly function and provide an intelligent learning environment for students.

(2) Comprehensive
When providing services to teachers, an intelligent teaching platform aims to meet the needs of students and parents. Therefore, it is very important to consider multiple aspects and viewpoints in the design process to provide services to different users.

(3) Ease of operation
A modern teaching platform should be very easy to build. When teachers and students use this forum for teaching and learning, if the forum is too complicated and difficult for teachers and students to adapt, the teaching forum may not function.

(4) Security
Because the intelligent education cloud platform is mainly aimed at students, parents and teachers. In the design process, it is important to distinguish between different users so that the platform will not be attacked by hackers or viruses, which can cause unnecessary problems.

2.2 The Overall Structure of the Smart Education Platform under Big Data
The network layer, application layer, physical layer, user layer, logical layer, virtual resource layer and presentation layer are the general framework for building an intelligent learning cloud platform.

(1) The network layer establishes users between the network and the user layer so that users can use the network to access the cloud platform.

(2) The application layer mainly provides application service modules for students, parents and teachers, such as intelligent management, intelligent learning and intelligent education.

(3) Physical layering is mainly used to complete illegal connections of hardware devices, such as using computers and network devices.

(4) The user layer provides users with an access platform and allows users to access the Smart Learning Cloud platform from a PC or mobile phone.

(5) The logic layer is the cloud platform, responsible for managing the resources of the entire platform.

(6) The virtual resource layer is located between the logical layer and the physical layer. This is the key to ensuring the normal operation of the entire cloud platform. It is mainly composed of storage pools, network resources, computer pools and data pools.
3. Experimental Thinking and Design

3.1 Experimental Ideas
This article mainly discusses how to use the intelligent learning platform to improve teaching quality and provide big data for platform users. The system divides the teaching process into basic building blocks and provides a network application platform for smart classrooms. The connection with the education cloud platform can identify the sharing of high-quality educational resources, expand its implementation and promotion, and use smart learning, and use the smart education platform as the experimental group and traditional education as the control group to conduct all-round investigation and research.

3.2 Experimental Design
With the continuous development of education, information technology is becoming an important way to understand modern education. It provides a reference for the construction of education information in the cloud era. According to the analysis and design method of this research, the cloud development technology currently used will enable them to use digital learning to build a digital ecosystem, centralize the management of cloud education resources, and enable more users to access it, so as to solve the practical problems of service and unsatisfactory learning access and sharing.

The purpose of this research is to study the construction and application of smart education teaching platform. According to the division of the experimental group and the control group, the smart education platform is used as the experimental group and traditional education is used as the control group for comparative analysis. Users can reuse the special functions required to become part of the latest cloud platform system in response to repeated calls to various sub-modules in the system. The server and workstation configuration in the system is shown in Table 1.

| Use type                  | System          |
|--------------------------|-----------------|
| Web application server   | CentOS          |
| Web application language | C++             |
| Database server          | MySQL           |
| flow media services      | Windows         |

4. Discussion

4.1 Discussion on Key Technologies of Smart Education Teaching Platform
The design of the smart education cloud platform combines information technology-based learning with teaching and learning, promoting the transformation and improvement of education and teaching, and leading the improvement of education services. Education Cloud is a system-based infrastructure for computing high-performance educational information. It provides a good cloud platform for real-time cloud computing, cloud storage and other services. The smart education cloud platform combines smart education, smart research, smart management, smart life, smart culture, smart service, and sharing, interaction and communication. Different user roles can complete different tasks on the same platform as required; the intelligent education cloud platform integrates all institutional resources and builds a pool through cloud integration. In order to achieve these goals, all resources are fully shared, connected and transferred, thereby reducing education costs and increasing efficiency. The platform can provide services for students, parents and educators to complete smart education, smart
learning and other content. Therefore, in the process of designing an intelligent education cloud platform, the five principles of high efficiency, versatility, standardization, ease of operation and safety must be followed. Therefore, the real intelligent education design provides necessary support for education to make it more Laiyue is integrated into people's daily life to provide an important guarantee for improving teaching efficiency.

Figure 1. Business modules of the experimental group teaching system

In order to achieve the goal of educating and guiding students, the school curriculum focuses on cognitive learning and testing, and combines the statistical analysis of learning process to evaluate learning outcomes. It can be seen from Figure 1 that smart education and teaching play an important role in learning management and research management, while the role of survey data is relatively small. Thus, intelligent education can organize and manage all kinds of teaching materials and educational resources. At the same time, intelligent education has a variety of educational functions. It can select, analyze and summarize all types of information from students, teachers, education managers and other users who participate in information learning activities. It can also optimize and supplement information through learning strategies to provide consistent and better services.

Figure 2. Survey of classroom learning

According to the analysis of the survey results of "whether the content of the class is what you want to hear", it can be seen from Figure 2 that the data survey results of the two groups are not much
different. The proportion of "the content in class is often what you want to hear" is higher in the experimental group than in the control group; the proportion of "the content in class is occasionally what you want to hear" and "the content in class is never what you want to hear" in the experimental group is lower than the control. It can be seen that the basic characteristics of smart education are openness, sharing, interaction and collaboration. Different from traditional education information systems, smart education can effectively organize and manage various teaching materials and educational resources, and also realize the centralized management of massive educational cloud resources, and solve the practical problems of uneven distribution of educational resources and difficulties in sharing.

4.2 Application Advantages of Smart Education in the Field of Education

Education cloud is the practical application of cloud computing technology in the education field, which is expected to solve many problems such as "education gap" and "resource waste". The main advantages are as follows:

(1) Flexible allocation and sharing of educational resources

In the past, in the construction of educational information, schools, educational institutions and other departments established independent service clusters, data centers, etc. Without a single database and open interface, it was difficult to establish and share resources. The education cloud platform integrates various software and hardware resources, builds a resource-based resource pool, has a well-organized storage form for large-scale educational resources, and recognizes the efficiency, flexibility and balance of resource allocation and sharing.

(2) Rich and diverse forms of education

The traditional education information system has single service content and limitations. The focus of the Education Cloud Forum is the development of basic services in the education field, such as online learning services and teaching management services. In addition, with the help of the forum's open service interface, customized educational applications can be quickly deployed to expand the platform's service capabilities.

(3) Provide education services on demand, safe and reliable

The education cloud platform provides dynamic content. Users can rent the required service resources as needed and configure accordingly. The forum charges according to user customization. This mode greatly saves the purchase price of various software and hardware resources. At the same time, by eliminating waste of resources, consumers can continue to expand their demand when service capabilities are insufficient. The platform's services are integrated in the cloud, and users do not need to worry about service upgrades and maintenance. The cloud environment provides a comprehensive service management, permission control and information risk tolerance system to fully ensure higher education services.

5. Conclusions

In the research on the construction and implementation of a learning platform based on smart education, this paper divides the system teaching work into basic building blocks, completes a network implementation platform to teach smart classrooms, and completes the smart education platform as an experimental group. Traditional education conducts all-round investigation and research for the control group. According to research, the smart education platform is a new type of service platform, which has a certain impact on the traditional education model, but from another perspective, the technology has improved the traditional education model in an innovative way. Intelligent education provides a reference for the construction of educational information in the cloud era. The services of the platform are integrated in the cloud, and users do not need to worry about service upgrades and maintenance. The cloud environment provides a comprehensive service management, permission control and information risk tolerance system to fully ensure higher education services. Based on this research, analysis and design method using existing cloud development technology, it is possible to build a resource-sharing intelligent education digital ecosystem, and to centrally manage huge cloud
resources, so many users can clearly access the required education cloud Service, and unparalleled solution to the distribution and sharing of educational resources.

References

[1] Milena Róycka, & Piotr Migoń. (2018). Customer-oriented evaluation of geoheritage—on the example of volcanic geosites in the west sudetes, sw poland. Geoheritage, 10(1), 23-37.

[2] Ardhana, I. K. . (2020). Local wisdom, hinduism, and religious education in the present day indonesia: challenge and opportunity. American Chinese Foreign Language, 018(002), P.51-55.

[3] Abubakar, I. . (2018). Strengthening core values pesantren as a local wisdom of islamic higher education through ma'had jam'i'ah. Iop Conference, 175(1), 144-146.

[4] Wang, H. , Zhang, P. , Li, J. , & You, X. . (2019). Radio propagation and wireless coverage of lsaa-based 5g millimeter-wave mobile communication systems. China Communications, 016(005), 1-18.

[5] Pikul, J. H. , & Hailong, N. . (2018). Powering the internet of things. Joule, 2(6), 1036-1038.

[6] Bounagui, Y. , Mezrioui, A. , & Hafiddi, H. . (2019). Toward a unified framework for cloud computing governance: an approach for evaluating and integrating it management and governance models. Computer standards & interfaces, 62(2), 98-118.

[7] Lan, L. , Xiaoyong, Z. , Kaiyang, L. , Fu, J. , & Jun, P. . (2018). An energy-aware task offloading mechanism in multiuser mobile-edge cloud computing. Mobile Information Systems, 21(4), 1-12.

[8] Bajaj, R. , & Sharma, V. . (2018). Smart education with artificial intelligence based determination of learning styles. Procedia Computer ence, 132(1), 834-842.

[9] Cornetta, G. , Mateos, J. , Touhafi, A. , & Muntean, G. M. . (2019). Design, simulation and testing of a cloud platform for sharing digital fabrication resources for education. Journal of Cloud Computing, 8(1), 1-22.

[10] Baun, & Christian. (2016). Mobile clusters of single board computers: an option for providing resources to student projects and researchers. Springerplus, 5(1), 360-361.