Intelligent teaching integrated service platform based on Artificial Intelligence

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Abstract. Guided by the actual demand, focusing on the construction requirements of "intelligent education informatization", this paper constructs the innovative teaching mode of recording and broadcasting classroom according to the information center of colleges and universities and the teaching buildings and classrooms. The supporting environment of educational informatization can promote the great leap forward development of teaching level. Using the top-level design method, relying on the cloud platform, further integrate the educational resources and applications of the whole school, create a technologically advanced, fair and open, resource rich, safe and reliable recording and broadcasting educational resource sharing platform, and realize the balance of education.

Keywords: Intelligent education, information technology, Platform.

1 Introduction

Smart teaching enters each campus to further promote the transformation of teaching mode and the development of educational informatization. Smart learning environment is the inevitable result of the development of information technology and a new concept, new mode and new trend to promote teaching development [1]. Building a smart campus is a basic, long-term and economic work [2]. It is an important part of school construction and talent training [3]. On the basis of traditional campus, the smart campus teaching system takes smart education and teaching as the concept guidance, combines advanced teaching methods at home and abroad, and deeply integrates into smart education informatization based on advanced science and technology such as big data and artificial intelligence. Accelerate the rapid development of wisdom teaching in China.

2 Necessity of the project

Build into an intelligent, digital and information-based university with unified management [4]. Comprehensively improve the information environment of software and hardware in Colleges and universities. Increase the number of resources available on the network information platform of each school to provide decision support data for

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the balanced development of education. It provides a platform for teachers to conduct self-learning [5], evaluation and comparison, improve their teaching ability and exchange learning. Actively do a good job in Teachers' personal knowledge management [6], expert guidance and peer assistance, and improve teaching and scientific research ability. Promote the process of education and teaching informatization construction, unify the standards of high-quality teaching resources, improve the level of education informatization and improve the quality of education.

Use various teaching courseware to stimulate students' interest in learning and cultivate students' autonomous learning ability. Establish an online learning exchange platform to realize students' independent learning and fully enjoy the best active learning environment with high-quality resources. With visual teaching supervision as the center, link each classroom terminal of the whole school, and realize the management and interworking function of the teaching system through the general control. Intelligent decision-making can realize the co construction and sharing of excellent teaching resources, so as to improve the modern management and application level of education and teaching in Colleges and universities, and promote the balanced and leapfrog development of educational informatization in Colleges and universities. The intelligent perception system deeply excavates the classroom behavior data and analyzes the teaching content, so as to provide a powerful tool for the real implementation of intelligent education.

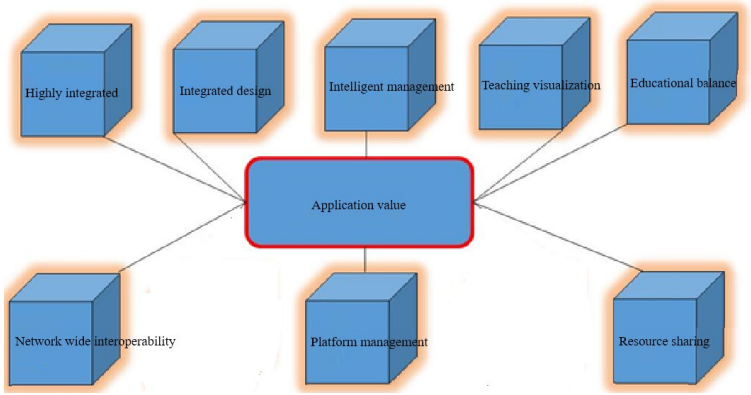

Fig. 1. Application value of intelligent teaching integrated service platform

3 System innovation

Modularization principle: it mainly refers to that various technologies are independent and can be combined arbitrarily without any connection. Various technologies used in the classroom often need to produce a variety of combination methods according to the needs of various teaching activities. In these combination methods, we need to put various technologies in different positions or organically integrate several technologies. Therefore, this requires that the technology used in recording and broadcasting should be modular, so that users can randomly split and combine, build different teaching environments and meet different teaching needs.

Ease of use principle: it mainly refers to that the user interface or operation method of various hardware and software can be well accepted by users, and users can learn it in a short time. It includes the friendliness of user interface, friendliness of operation and ease of use. The technology we use is to help teachers and students finish their main work well, rather than dispersing some of their energy to study how these technologies are used and affect their main work.

Principle of convenience: the principle of convenience mainly refers to that when various software and hardware are used, the operation steps shall be as few as possible, which is very convenient for users. The operation steps of various technologies in the teaching environment should be as few as possible, so as to avoid spending too much classroom teaching time on the operation of equipment and software and improve teaching efficiency.

Stability principle: the stability of technology and equipment is very important in the process of teaching activities. The selection of products with rationality through national testing and product scheme design should be based on the successful and smooth realization of the teaching environment pre designed by teachers under the support of technology.

Compatibility principle: the project construction considers the needs of later maintenance and expansion, and the equipment needs to adopt unified standards and specifications. All equipment and software that meet the standards and specifications can be accommodated, no matter what platform they are based on. Compatibility includes two aspects: Hardware Compatibility and software compatibility. The equipment in the recording and broadcasting classroom shall comply with international and national standards, and the software shall be compatible with various platforms.

The principle of advanced nature: the technology adopted should be the cutting-edge technology in current technology, representing the development trend of such technology. The recording and broadcasting classroom represents a learning method in the future and a teaching method promoted by the state. Therefore, we track the current most advanced technology and select new and advanced technology as much as possible on the basis of ensuring the above principles.

4 System composition

50 normalized centralized control cloud recording and broadcasting multimedia classrooms and 15 smart classrooms realize unified management based on the platform.

The 50 normalized centralized control cloud recording and broadcasting rooms can be managed separately, with 24-hour teaching monitoring, examination supervision, recording of high-quality teaching resources, online course patrol and online supervision.

Normalize classroom multimedia teaching system, intelligent teaching visual operation platform, teaching courseware, centralized control cloud recording and broadcasting system, timetable system and resource storage system of educational administration system to realize unified management of the platform.

Each system is interconnected to realize the sharing of teaching resources and unified management.

Taking the deep integration of information technology and education and teaching as the core concept, focusing on promoting the balanced and modern development of compulsory education, and aiming at the construction, application and sharing of high-quality digital education resources, through optimizing top-level design, clarifying construction standards, refining construction tasks, centralized construction of infrastructure and improving operation and maintenance management ability, Realize the overall improvement of informatization level in the field of basic education.

Through the implementation of educational informatization construction, innovate new teaching modes, cultivate new teaching ideas, build new teacher roles, improve new learning tools and develop new school running modes. Through the four stages of educational informatization start, application, integration and innovation, use information technology to drive educational and teaching innovation.

The system platform adopts the principle of open interface and modularization, which can connect the original school recording and broadcasting classroom, video conference room and school educational administration system to the platform at the same time, so as to realize the unified teaching management of the whole region.

It adopts the world's most advanced artificial intelligence system, platform big data collection, real-time analysis of teaching effect, behavior data collection and learning feedback of smart classroom. Better assist teachers in self-learning and educational supervision, evaluate teaching quality, and adjust teaching methods and teaching contents in real time according to the analysis conclusions.

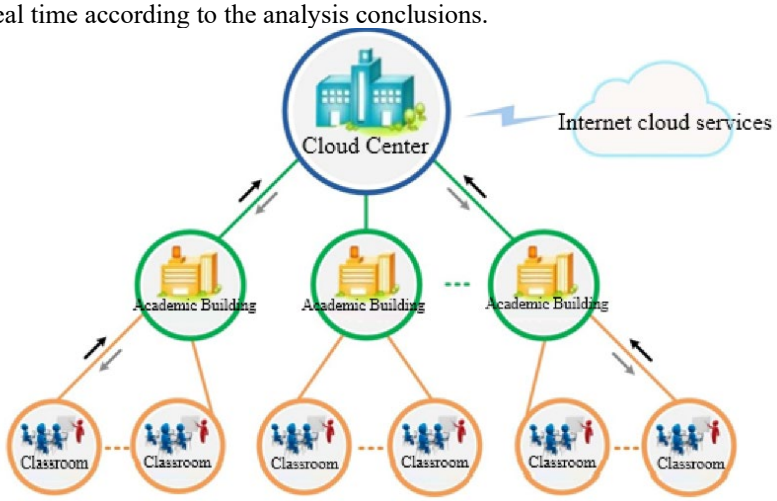

Fig. 2. Composition scheme design of intelligent teaching integrated service platform

5 Project innovation

Business support: This module provides the hardware equipment, network equipment and display equipment required for system operation. By networking, clustering and interconnection, it builds a set of basic computing resource platform integrating cloud computing capability, high-performance distributed processing and visual display.

Application support: in terms of basic support module technology, this module deploys system background services supporting business applications such as data management, data mining, IOT control and business management driver, and supports the last business application through standard business exchange protocol and powerful computing power.

Business application: the module of this part is the core component of the project. According to the actual teaching needs and discipline construction needs of Chongqing Vocational and technical college for Industry and commerce, an application platform supporting teaching, teaching and research, equipment management and control and educational administration management is established to support the teaching supervision, curriculum management, smart classroom perception, teaching evaluation Learning situation analysis and other teaching business needs.

User service: This module is an abstract service for the system construction of the project. It is a service platform integrating teaching, learning, research and management for students, teachers and managers through data mining, statistical analysis, content retrieval, business management and other modules based on the actual use of business application and other support modules.

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6 Conclusion

Smart campus is based on the existing school network in Futian District and aims to serve the teaching, scientific research and life of all teachers and students. It is based on the unified database platform of the school and applies advanced computer network technology to integrate the existing teaching, scientific research, management, life, service and other relevant resources of the school, so as to realize unified user management Resource management and authority control; Realize the effective allocation and full utilization of resources, and realize the optimization and coordination of school management and life service process, so as to create the education and work mode based on network service and achieve the goal that is difficult to achieve by the traditional education mode.

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