Development of a WEB-based Higher Education Management System

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Abstract. This system is mainly based on the current web to build an open format of higher education management system. The method is unified, open and secure. At the same time, it creates a good platform for the long-term use of the system.

Keywords: Web · Higher education · Management system

1 Introduction

In the use of the system, the reusable technology of component level is adopted, and the centralized storage of data is set up. In the constructed data center, it becomes an important technical form in the management information of high grade education. And also provides services for data. In this way, in the management of higher education, we can save, update, distribute and share data in time.

After the 1990s, information technology has made comprehensive progress, so it has been widely used in the development of various industries, and has realized the revolution of information communication technology. In such a rapid development of the technical background, but also the development of the field of education has been significantly affected. The information superhighway and satellite communication technology have been widely used in the world. Under the development of this technology, people's understanding of this technology has been greatly improved, so that people have a new understanding of the future development of the world.

The construction of educational information in our country has been developed in an all-round way after the 1990s [1]. At present, China has built educational research network, regional metropolitan area information network and campus network, and has formed a certain scale. For most campuses, they will be connected to the Internet, which can effectively provide students with a variety of high-quality teaching resources and realize the development of information education.

2 The Main Measures of Big Data Management in Colleges and Universities

2.1 The Importance and Urgency of Big Data to the Standardized Management of Colleges and Universities

In recent years, China's colleges and universities have developed rapidly and made great achievements, which has become an important part of higher education. It plays an

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important and positive role in meeting the diversified needs of the people to accept higher education, cultivating all kinds of suitable talents for the country, and deepening the reform of Higher Education system. At the same time, we must clearly see that there are many chaotic phenomena and serious problems in the enrollment, management, teaching and other aspects of some colleges and universities. In recent years, some local colleges and universities have occurred student mass incidents caused by the problems of student status, academic qualifications, fees and so on. Through the efforts of the local Party committee, the government and colleges and universities, these incidents have subsided, and the normal teaching order has been restored [2–4]. The occurrence of these events is not only the problems in the development process of colleges and universities, but also the result of the long-term accumulation of deep-seated contradictions in Colleges and universities. It mainly reflects that some colleges and universities are not well guided, the internal management system is not perfect, the property rights of legal persons are not implemented, and the school running behavior is not standardized. It also reflects that some colleges and universities are not well managed and supervised. If these problems are not paid great attention to and solved in time, it is bound to affect the healthy development of higher education and social stability. Colleges and universities should pay close attention to the management work as an important work at present.

2.2 Shortcomings and Problems in University Education Management Under Big Data

Although big data has been applied in university management for a period of time, there are still some problems to be improved in data management. First of all, there is no sufficient ideological understanding and preparation. Although the implementation of big data strategy and the public opinion atmosphere of technological innovation and application are increasingly strong, there are still some university managers who have not fully understood the beneficial side of big data to university education management. Secondly, although some universities have the conditions and resources for big data construction, they lack the platform to build big data system and apply big data technology. Third, some colleges and universities have the enthusiasm and intention to set up big data, but the investment in funds, equipment and professionals is insufficient [5]. Fourth, some colleges and universities do not conduct in-depth data mining in the process of data management, and the data mining is too simple to provide a deeper basis and decision-making for Colleges and universities. Fifth, the data communication between internal departments of colleges and universities is not smooth. The data ownership of different departments is independent, forming a physically isolated data fault. Data systems such as teaching, scientific research, administration and logistics are very difficult to connect and summarize, which is relatively common. Due to the lack of integration and connection mechanism, there are some difficulties in promoting data connection and integration. From a technical point of view, due to the inconsistency of application standards, the heterogeneity between departments and systems, and the compatibility problems of bottom layer digital entertainment library caused by technology iteration, the phenomenon of digital support fault is formed to a certain extent. All these problems restrict the deep development and application of big data in university education management.

3 Countermeasures of University Education Management Under Big Data

3.1 Improve the Big Data Literacy of Teachers

University management mainly depends on university teachers. After the introduction of big data, we still need to rely on teachers to work. Therefore, after the introduction of big data into university management, it is necessary for the teachers in charge of management to improve their scientific literacy in order to keep up with the pace of university big data management. In order to quickly improve the quality of teachers, first of all, the university managers need to reform the university management system, which is of great significance for universities to introduce big data [6–8]. Under the background of big data, the management team of university teachers should develop with scientific and technical talents. In the process of the development of such teachers, university managers should do a good job of guidance, so that teachers can deeply understand the awareness of big data and constantly improve their scientific and professional quality. College education management involves many aspects, including curriculum education management, student quality management, teacher evaluation management, etc. after the introduction of big data, colleges and universities should integrate the above information, analyze and centralize the integrated information, and transform the collected information into operational teaching practice, so as to do a good job in data aided teaching. Colleges and universities should do a good job in the guidance of teachers, let teachers consciously use big data, realize the reform of teaching methods, and let teachers fully realize the importance of using big data in teaching management, so as to constantly improve their own teaching work. Colleges and universities cannot ignore the professional talents of big data research. They should strengthen the cultivation of such talents, focus on the cultivation of comprehensive talents beneficial to the overall development of colleges and universities, and adopt various ways such as international exchange and training to provide a better learning environment for big data talents and strengthen the cultivation of talents.

3.2 Upgrade the Data Platform of Traditional Education

University data platform is an important carrier for university to carry out big data management, which plays a vital role in big data management. However, due to the limitation of funds and talents, the management and construction of data platform are limited, which leads to the situation that university big data platform cannot keep up with the pace of university big data management [9–12]. However, as long as colleges and universities make clear the relationship between big data development and big data platform construction, and the problems existing in the construction of their own big data platform, then colleges and universities will actively reform the original big data platform according to their own development needs under big data, so as to quickly establish a new big data platform to adapt to the background of the big data era. To integrate the data resources of the original platform more comprehensively and comprehensively, colleges and universities should understand their own development characteristics, take

the data platform construction as an opportunity, actively integrate the original information and data resources, so as to develop a more practical and convenient data operation platform, implant the original data in the updated data platform, and open the new data platform, Ensure that data resources can be updated regularly. After that, we should comprehensively strengthen cooperation with enterprises, so that colleges and universities can build larger big data R & D bases and data centers, and effectively carry out core technology, education policy, system management and other work.

4 WEB-based Higher Education Management System

For the current higher education information management, as well as for the information decision-making system construction, mainly in order to make full use of the computer network this advanced technical means, further to the present higher education management entire process, Realize the improvement of management efficiency. For example, in higher education examination, professional evaluation, quality courses and teaching reform of the numerous work, can play a certain management ability. So that colleges and universities in the future information construction, the formation of information, modernization, intelligent management work, greatly promote the management level of colleges and universities [13, 14]. In such a system, we can also set up a good higher education examination management, professional evaluation, quality courses, teaching results and many other fields of resources. In this way, we can provide more quality resources for students and teachers in daily education and management. At the same time, it is also an important way to improve the ability of higher education management, especially in the management process of some higher education work, which can provide comprehensive and reliable services and data information for important decisions.

Education management system should include the following aspects: curriculum management, student organization structure, database, cost management, as shown in Fig. 1.

Fig. 1. Framework of education management system

4.1 Technical Standards, Architecture and Platforms

In the process of system development, it is necessary to design a system platform in accordance with the national standards based on the relevant regulations of the current state, the Ministry of Education and the information industry departments, and to optimize and adjust the process and index system at any time according to the needs of business process and education process.

Secondly, in the research of this paper, the research and development of system platform is mainly based on the architecture of J2EE multi-layer B/S/S, and the reusable technology of component level is used, which can effectively act on various types of mainstream operating systems [15–18]. And support many mainstream database systems.

4.2 System Functions

4.2.1 Online Examination Management

In this system platform, we can make full use of the Internet technology to realize the application, as shown in Table 1.registration, examination and printing of English proficiency examination, computer examination, advanced examination and so on. As shown in Fig. 2. And after the completion of the examination, you can query the test results on the system platform.

Table 1. System functions

Function	1	2	3	4	5
Name of name	Online examination management	Online evaluation system management	Higher education management	Decision Support System	Information exchange platform

4.2.2 Online Evaluation System Management

In the system function, can construct the specialty, the fine course construction, the teaching reform project very well, carries on the appraisal and the management work. In the actual operation, mainly in the online declaration, evaluation and administrative examination and approval of the operation.

5 System Architecture

In the current system architecture. It is mainly based on the current technology, products and related services that can be provided, as an important basic condition of the system architecture, so that the various construction objectives can be well integrated and utilized. Secondly, we should make full use of all kinds of advanced technology, mature products and various effective services to achieve the construction task.

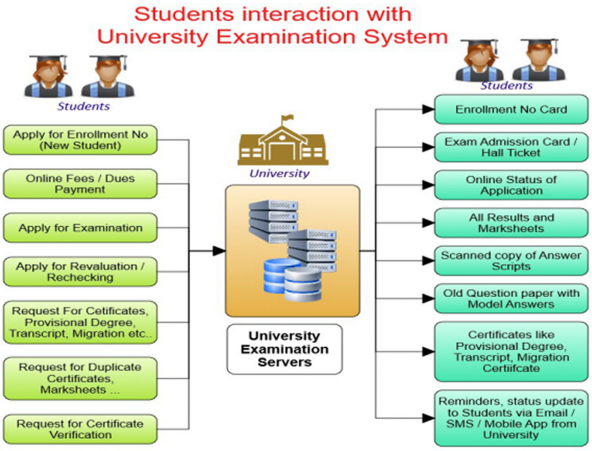

Fig. 2. Examination management

5.1 Construction of Information Integration Platform

As the core of the whole system, it has become an important design object for the construction of information integration platform. In different application systems, it is necessary to use different professional adapters to connect with the corresponding integration platform, and to realize the business interconnection between the systems by using the information mechanism.

In the current use of the integration platform, the application adapter is an important interface device with the application system. It can transfer the information between the systems in the daily use, and after the information transformation, form the execution action of the application system. The message queue is a kind of cache of new messages, which can store some messages processed by information workflow engine in the process of processing information [19, 20]. At the same time, the information policy library is built, which is the storage location of the formal description after the information flow. For message workflow engine, it mainly describes message forwarding between reference systems. This also assumes the system parameterized configuration storage function.

5.2 Application Integration Programme

In the actual interaction process, it is very easy to separate from the changing interface position, so that the data format change, interface mode and other content, are transferred to the independent middle layer, also come to the integration platform. For each external system integration platform, an adapter is needed to interact with other systems. The use of adapters in the system, mainly to achieve access protocols, data format conversion and other functions. In order to run the system, we can combine our own operation mode, make the corresponding request to the integration platform, and let the adapter be converted into the information form that the integration platform can accept.

5.3 System Reference Architecture

In the current system composition, from the point of view of application structure, it is a specific division based on business level, but also realizes the functional division. For different parts, there is often a clearer responsibility and independence. In different angles, we need to ensure the operation of the system, with independence, openness and security [21]. Therefore, the system can maintain a clear and smooth application structure type in the actual operation. In this paper, the object layer, support service layer, business logic layer and representation logic layer are designed.

In such an integrated platform, the interaction of its system will have high functionality. In the use of the design, it can help the relevant staff, realize the stable operation of the system, and realize the targeted management and operation according to the teaching contents of many aspects. In the current information construction, such a system can play a very important value, thus becoming an important part of the future information construction, the relevant staff should invest more energy, so as to realize the rational construction of the system. Improve the information management ability of higher education and expand the management category.

6 System Simulation

For the content described in the third part, we do a simulation through knowledge, experience and other content, and make a comparative experiment through five different dimensions. But through comparative experiments, we found that the neural network we used is more appropriate [22, 23]. A similar result can be seen in Fig. 3.

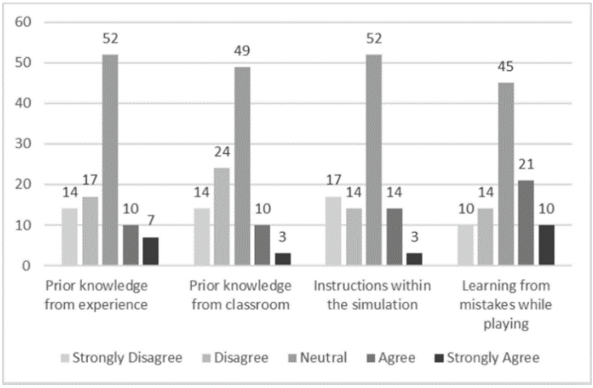

Fig. 3. The effect of simulation

7 Summary

To sum up, the information construction of education has become an important direction for the future development of education in China. Therefore, in the current information

construction, we should design and optimize rationality based on the function and stability of the system, and provide more comprehensive and specific data information for the daily management of colleges and universities.

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