

PROBLEMS AND SOLUTIONS OF EDUCATION MANAGEMENT INFORMATIZATION IN CHINESE UNIVERSITIES

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Abstract: At present, China's higher education is experiencing a profound great change, educational informatization is the only way for the further development of colleges and universities in China. All kinds of colleges and universities have invested a lot in information construction, and have made a lot of achievements, but in the process of education informatization construction. Therefore, this study aims to analyze the current situation of management informatization and propose strategies to improve the level of management informatization. Therefore, through literature analysis and comparative analysis, this paper provides an in-depth discussion of the current status and trends in university education management informatization. It also offers valuable references and lessons for colleges and universities in their informatization has been established: university informatization is developing rapidly, the national education resource cloud service system has begun to take shape, the scale of investment in education informatization. For example: strengthen the top-level design of management informatization. For example: strengthen the top-level design of management informatization and organize existing services and conduct process reengineering

Keywords: Education Management Informationization, Strategies, Colleges and Universities

Introduction

Education informatization is another great change in human society since the emergence of writing and the invention of printing, which is the only way for education in the world to cope with the challenges of knowledge economy and realize the modernization of education(Lin, 2012). At present, China's higher education is experiencing a profound great change. On the one hand, the rapidly developing modern information society has put forward higher and newer requirements for the mode of talent training and the requirements of talent quality, and it is necessary for institutions of higher learning to cultivate more talents to meet the needs of modern society. On the other hand, higher education itself needs to survive through reform, seek development through innovation, break through the shackles of



traditional education mode, and towards the modernization of education. Both of these aspects need to be supported by educational informatization (Jin, 2006). Therefore, educational informatization is the only way for the further development of colleges and universities in China.

The evaluation index system of higher education informatization is a realistic requirement to promote the development of education informatization (Ji & Li, 2019). All kinds of colleges and universities have invested a lot in information construction, and have made a lot of achievements, but in the process of education informatization construction, there are also many problems, such as waste of resources, low application level, blind pursuit of new technology, etc., in order to solve the problem, it is urgent to carry out relevant research. Therefore, how to reliably evaluate and compare the informatization level and achievements of universities, to provide an important reference for the investment decision and specific implementation of university informatization construction, and to improve the level of university informatization in China is an important topic in the research of university informatization at the present stage (Lei & Pei, 2017).

This study studies the informatization level of colleges and universities, finds out the deficiencies and advantages, and then improves the informatization level of colleges and universities, promotes the informatization education ability of the school, establishes the teaching and education environment that meets the requirements of the information age, and serves for the training of qualified talents.

Research Objective

- 1. To analysis the current situation of management informatization
- 2. To propose strategies for improving the level of management informatization

Literature Review

Education Management Informationization

The United States has consistently been at the forefront of education management informatization. Learning from its development model can be highly beneficial. As early as 1993, under the administration of President Bill Clinton, a clear strategic plan for management informatization was introduced (Morgan et al., 2012). This plan focused on establishing the Internet as its core, developing a comprehensive information service system, improving information infrastructure and resources, and promoting the application of information technology across various social sectors. In terms of policy planning, the United States has issued policies related to education informatization, proposing improvements in hardware infrastructure, the development of information resource software, advancements in teachers' information technology skills, investment in funding, and research and



evaluation of education informatization. These initiatives have laid a strong foundation for the continued development of education management informatization in the United States (Nan & Jia, 2018).

Through national data platforms such as Statistics Canada and the Education Statistics Council, the country can more accurately obtain education monitoring data, which facilitates the analysis of educational development and evaluation. Additionally, Canada has established a robust evaluation system, reducing the burden on data providers by implementing reasonable data-sharing agreements. This database supports various functions such as educational information management, scientific research, decision support, and social services (Wei, 2021).

In China, since the reform and opening up, with strong support from relevant state departments, China's education informatization has made remarkable progress. Initiatives such as the "985 Project," "211 Project," "Action Plan for the Revitalization of Education for the 21st Century," and the "Modern Distance Education Project" have driven the rapid development and strong momentum of education informatization in China (Tian & Sun, 2017).

In terms of resource construction, China has developed various types of educational resources at all levels, initially forming the framework of a modern educational resource system. Projects like the construction of digital museums and digital libraries in universities have brought significant social benefits and are leading the nation in this area (Bai, 2020). Regarding key technology research, China has resolved numerous challenges that hindered the development of modern distance education, creating a new model of networked education through east-west interaction and resource sharing. This has provided effective technical support for the comprehensive and in-depth development of modern distance education (Wen et al., 2017). In terms of standardization of educational information technology, China has initially constructed a modern distance education technology standard system and launched standardized evaluation and certification processes, making it possible for heterogeneous systems to interconnect and share resources. Additionally, major applications such as grid technology research, online enrollment, college student employment, and pilot programs for online education have begun to demonstrate the benefits of investments in basic network facilities and resource construction.

There are also many problems in the process of information construction in China. Regional differences in informatization construction still exist, and the informatization construction of universities in relatively developed cities in the eastern coastal areas is better than that in the western inland areas. Some leaders of colleges and universities have weak concept of informatization education and low ability of information technology, which seriously restricts the promotion of informatization in colleges and universities. Some teachers' information ideology is not strong, the lack of necessary means of information education, and the teaching mode is still a single multimedia teaching method (Xaio, 2012). The information environment construction of some colleges and universities lacks long-term capital investment, attaches great importance to the construction of hardware facilities but ignores the



construction of software facilities, and the hardware and software construction are not coordinated. Almost all colleges and universities in China lack unified standards and strict rules and regulations, resulting in the difficulty of sharing information resources in colleges and universities and the repeated construction of some projects. For the lack of systematic evaluation system of university information system, only a few schools have established information evaluation system, but it is also in the initial stage of trial operation (Yan et al., 2021).

Big Data

Big data has a profound impact on the educational management mode, and provides innovative technical means for the construction of the educational management mode.

First of all, big data creates an open environment for education management. Based on its openness, the information asymmetry corresponding to the structure of traditional education management will be replaced by the flattened education big data supply relationship, which has a profound and huge impact on the decision environment (You et al., 2018). Based on the overall environment, the top-level design of education management will not only use the underlying data of education such as the original data of students' growth and teacher development, but also a large number of, changeable and generative social resources and data outside the education system, which may have a certain degree of influence on education management (Zhao & Wen, 2016). Third, the value density of big data is inversely proportional to the size of the total amount of data, and the value is the core feature of big data. The biggest value of big data lies in mining valuable data for the prediction and analysis of future trends and patterns from a large number of unrelated and various types of data. In other words, its characteristics require the simplicity and specialization of educational management (Zhong, 2016).

Methodology

Literature analysis is commonly used by scholars and serves as a fundamental prerequisite for all studies. This study has made full use of resources such as online databases, libraries, and academic journals to consult a large body of research literature related to information technology both domestically and internationally. It explores cutting-edge information technology and its applications across various fields, while also reviewing existing achievements in informatization and the latest research developments. In addition, efforts were made to collect detailed first-hand materials to analyze the problems and challenges in the construction of university teaching management informatization under



new circumstances. The study seeks to propose strategies for improving the informatization of university teaching management. The literature analysis lays a solid foundation for this research.

And then, this study used comparative analysis method, comparing with the advantages and disadvantages of big data education management in domestic universities and big data education management in foreign universities, their respective advantages and disadvantages are studied in comparison, so as to provide reference for the development of big data education management in Chinese universities.

Results

Reviewing and discussing the existing research on the development of university education management informatization both domestically and internationally reveals that, currently, the pursuit of university education management informatization follows a trend that evolves from foundational to applied stages, and from micro to macro levels. Over time, the focus has shifted from earlier research on infrastructure construction and system application to more recent studies on reform pathways and top-level design of university education management informatization in China. This indicates that the scope of research has become more comprehensive.

However, due to differing perspectives, past studies have not fully considered both the historical development and the current challenges of university informatization, leading to research gaps and the emergence of new issues. For example, while there is a focus on the development trends of university informatization, specific analyses of the problems in China's teaching management informatization are often overlooked, and the proposed countermeasures are insufficient.

Therefore, this study believes that there are still unresolved issues and areas for improvement in the current state of college education management informatization in China. Additionally, there is a lack of effective strategies to address some of the practical problems, making further exploration necessary.

Discussion

The strategic importance of educational informatization has been established. In 2012, the Chinese government issued the Decade-long Development Plan for Education Informatization (2011-2020), which emphasized that "education informatization is an essential force and support for achieving the goal of modernizing education." Since then, education informatization has been established as a national strategy, greatly advancing the construction of informatization in higher education. These policies are not incidental but are the inevitable result of emerging technologies such as the Internet, big data, and cloud computing. Provinces, cities, and educational institutions at all levels have also begun to formulate development strategies related to education informatization. As the incubators of national talent, colleges and universities have started to develop medium- and long-term plans aligned with the



trends in university informatization (Shao, 2019). To propose strategies for improving the level of management informatization.

University informatization is developing rapidly. At present, Chinese universities have largely completed the first two phases of informatization (basic campus network construction and comprehensive information system development). Most campus networks now operate on Gigabit Ethernet, a relatively mature technology. The construction of digital campuses has become a priority for many universities, focusing on expanding and upgrading existing networks to meet the goals of a digital campus. However, some universities have already begun exploring the third stage of informatization: the construction of digital campuses. Despite these efforts, there are still several challenges in the development process.

The national education resource cloud service system has begun to take shape. Today, learning resources and access methods have expanded through various media, including social networks, news, videos, e-books, music, and films, all made easily available through the internet (Li & Xiao, 2015). This allows individuals to access information and knowledge from the comfort of their homes, making education more intelligent and efficient while enhancing entertainment and work efficiency. Public learning platforms, including search engines, web portals, forums, and social media platforms, are becoming increasingly popular for education. Emerging forms of learning and entertainment, such as microblogging, live streaming, online sharing, and cloud storage, are gradually becoming mainstream in people's lives, entertainment, communication, and education.

The scale of investment in education informatization has been continuously growing. With continuous investment from both the government and society, a variety of computer-based web portals and mobile software platforms have been established, alongside national library databases and professional teaching audio-visual libraries. They are readily available for convenient searching, querying, and reading. Moreover, many schools leverage school-enterprise cooperation as another major source of funding for building digital campuses.

The development of education informatization has basically taken shape. In terms of comprehensive information services, universities have implemented web servers, FTP servers, BBS forums, and other services to facilitate information dissemination and user communication. Regarding the development of educational and teaching resources, schools, particularly the pilot units of online education colleges, have invested substantial manpower and resources in developing online courses. (Lu, 2020). In the area of educational information management software, universities and various departments within them have organized teams to develop their own education and office management software, enabling education management informatization to a certain extent. As for information-based education, many multimedia classrooms have been established to support information-driven teaching. Some schools have also set up electronic lesson preparation rooms for teachers, providing the necessary hardware for implementing information-based teaching.



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(1) Strengthen the Top-Level Design of Management Informatization

Firstly, it is crucial to unify thinking, update concepts, and deepen understanding by always positioning informatization as a strategic component of school development. This issue must be viewed from a strategic perspective. Secondly, through restructuring and process reengineering, universities should clearly define the boundaries of their information-related work, clarify the functional role of university information departments, and delineate responsibilities and authorities in the information construction process.

Furthermore, it is essential to recognize the critical role that educational management informatization plays in realizing the "modernization of university governance systems and governance capabilities." Universities should enhance their top-level design for education management informatization, develop specific plans for education informatization, and implement action plans aimed at deepening education and teaching innovation through information technology. These plans should outline measures to improve school governance capacities through the integration of education management informatization.

(2) Organize Existing Services and Conduct Process Reengineering

Universities need to innovate their administrative service models, enhance interdepartmental coordination and guidance, strengthen a "service" mindset over a "management" mindset, and streamline business processes. This involves simplifying and reorganizing these processes to enable effective business reengineering, optimizing management, and promoting a transition from a function-based organization to a process-oriented one (Fang et al., 2021).

Thus, the development of education management informatization in universities should be guided by integration and application, with the core focus on serving teachers and students. Optimizing business processes will maximize the impact of informatization on university governance systems, drive business restructuring and institutional reform, and support the deepening of comprehensive reforms within universities.

(3) Strengthen Management Information Security

First, students' data rights should be recognized and respected at a legal level. Data collection, sharing, and usage must be conducted in lawful and ethical ways, with clear notification, permission, and security obligations in place.

Second, educational data management policies and systems should be developed and improved promptly. This includes defining the storage period and usage limits for different types of data, establishing dedicated data review agencies to oversee the entire data application process, and promoting transparency in data use.

Third, universities should continuously upgrade traditional data protection technologies (such as identity authentication, information encryption, firewalls, virus detection, access controls, anonymity,



and fuzzy processing) and actively research and develop emerging technologies (such as blockchain and data desensitization) to ensure the security of educational data from a technical standpoint.

Finally, penalties for data theft and information disclosure should be reinforced. Individuals and organizations involved in the illegal sale or resale of educational data for improper gain should be prosecuted according to the law.

Conclusion

With the application of modern information technology in teaching management in colleges and universities, the informatization of teaching management has gained significant emphasis. The informatization of teaching management aims to align management practices with contemporary requirements and developments by leveraging advanced technologies such as computers and multimedia. In the information age, teaching management, which supports and facilitates educational activities, is evolving towards integrated information network systems and online decision support.

Computer information systems are no longer merely isolated units or tools for storing, processing, and transmitting information. Instead, they are becoming integrated networks that provide online decision support, leading to more accurate and timely decision-making. These systems play a crucial role in strategic planning and management activities related to educational development.

In the information age, management involves information exchange and goal-oriented management. It requires a seamless integration of management systems and technology, setting new standards for the quality of managers and prompting changes in the structure of management personnel. Consequently, there is an urgent need to innovate management systems, fully engage management personnel, and adapt to the demands of informatization to effectively enhance teaching management.

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