Deep Integration of Information Technology and Higher Education in the Era of Mega Data

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Abstract: The development and application of modern IT gave birth to the era of mega data, which brought new opportunities and challenges to HE. The integration and development of mega data in the practice of HE has greatly promoted the development of HE, fully utilized and explored the valuable mass information data accumulated in the development of HE, and brought a brand-new scientific research method and thinking mode for the development of HE. It is an urgent task for the reform and development of HE to give full play to the effective support and leading role of IT in teaching and realize the deep integration of IT and education through ideological concept, system reform and system method innovation. Firstly, this paper analyzes the characteristics of the mega data era and the educational reform caused by mega data, defines the connotation of the deep integration of IT and HE in the mega data era, and points out the problems existing in the current promotion of HE informatization. So as to give the path choice for the deep integration of IT and HE in the era of mega data.

1. Introduction

For the smart management of higher education (HE), there is a widespread misunderstanding among relevant personnel at present, which leads to some cognitive biases and application problems in the specific management process [1]. In the wave of informatization and digitalization, the field of education is undergoing a revolutionary change. While the application of new IT brings development opportunities to HE, it also makes HE face severe challenges [2]. The integrated development of mega data in HE practice has effectively promoted the development of HE, made full use of and explored the valuable massive information data accumulated in the development of HE, and brought a brand-new scientific research method and thinking concept for the development of Higher Education [3]. The era of mega data has brought new development trends to HE with its massive amount of effective data, diverse data types, and rapid data analysis. Higher education informatization is a cross-combination of education and IT, a realistic context for the deep integration of IT and HE, and a strategic choice to realize education modernization [4]. This not only promotes the global sharing and flow of HE resources, and promotes the internationalization of HE, but to a large extent breaks the time and space boundaries of traditional education, promotes the rationalization of the allocation of HE resources, and promotes the development of education on a global scale. Fairness and democracy. With the development of cloud computing and mega data technology, new forms of education and teaching such as e-learning, flip classroom, massive open online course and micro-courses are constantly emerging, which indicates that education is moving towards the era of mega data. The providers of HE have gradually changed from the unitary monopoly mode to the multiple uncertain mode. The service mode of HE has gradually changed from a single campus mode to an omni-directional three-dimensional mode [5]. Student learning has gradually changed from the traditional passive acceptance model to the active acquisition model. In the current era of mega data and the background of HE informatization, how to give full play to the effective support and leading role of IT in teaching, and realize the in-depth integration of IT and education through ideological concepts, institutional changes, and institutional method innovations An urgent task facing education reform and development [6]. Due to various factors, there are still some difficulties in the integration of mega data in the development of HE. Exploring these dilemmas will help to give full play to the boosting role of mega data in the development of

HE and improve the quality of informatization development of HE.

2. The characteristics of mega data era and the educational changes it triggered

2.1. The significance of smart management to the development of HE

In the era of information data, education management should carry out educational management reforms in a timely manner, especially in HE institutions, and should carry out subversive innovations in management theory, methods and thinking. This is the main development direction and main research topic of education and management in the current information age. [7]. At present, the key to the reform of education management in HE institutions lies in how these schools use IT scientifically and reasonably to build an intelligent modern management platform for education management decision-making, so as to realize the informatization, efficiency and specialization of HE management. The core value of mega data lies not in having mega data, but in what can be found from it. Specifically, through the mining and analysis of mega data, we can make decisions on education and teaching, evaluate students, and analyze and present all kinds of situations needed by education and teaching, so as to discover the hidden associations, patterns and trends behind mega data. With the financial policy support of governments, the direct participation of social organizations, universities with strategic vision and the market demand for mega data talents, the integration of mega data and HE development has been further strengthened.

2.2. The impact of mega data on education

In the era of mega data, the way for students to acquire knowledge is not the classroom, but the online learning platform based on cloud computing technology. Online learning will become the main way for students to acquire knowledge, which will lead to major changes in the educational model. The information-based education environment under mega data is based on the high integration of data and information, which has completely changed various factors of traditional HE activities and triggered a series of deep changes in teaching tools, teaching contents and teaching methods. Higher education in the era of mega data breaks the boundaries of time and space, which is conducive to teachers' academic and professional development in the process of mobility. The requirements of collecting and processing massive data in the era of mega data also challenge teachers' data literacy. Due to the transition from the information age to the mega data age, cloud technology and mega data processing will lead the development of high-efficiency and low-cost information processing technology. The information processing process of education has also entered the era of mega data [8]. In the era of mega data, personalized education is no longer an empty slogan, but a personalized education process with reliable data sources based on mega data analysis. The traditional teaching mode is a closed classroom teaching mode, which mainly focuses on Teachers' classroom teaching, supplemented by students' homework and practice after class. Different from the traditional classroom teaching mode, flipped classroom, as a new teaching mode, changes students' thinking and learning mode by changing the teaching process, which is a mixed learning mode.

3. Problems in wisdom management of HE

The standardization and standardization of information management can effectively enhance the rigor of various management in universities, can improve the orderly operation of various management tasks, and further affect the development of education business and the improvement of management efficiency. In theory, the talent training model of universities can be scientifically adjusted by collecting social feedback information through mega data technology, but in fact, universities do not pay enough attention to relevant mega data resources, and they are not scientific enough in understanding and grasping the actual needs of social talents. . Most college teachers apply IT to the teaching management of students in universities equivalent to smart management. Therefore, the intelligent management of many universities is still data-centered, and the application of intelligent management system is limited to the shallow operation and application of IT, such as

collecting a large amount of data information, inputting and outputting a large amount of data related to management work, simply counting the information of some students, and making some summary reports. Generally speaking, the concept and level of informatization in universities need to be further improved, and the impetus and mechanism of informatization need to be further improved. The construction of organizational team is the basic guarantee of informatization construction, and it is necessary to strengthen the informatization training for teachers, management team and operation and maintenance team, so as to enhance the information literacy of informatization team in universities.

4. Integration strategy of IT and HE in mega data era

4.1. The path of mega data integration in the development of HE

As a major innovation of IT, mega data technology is hailed as an important technology of the third industrial revolution. Therefore, in the development of HE, we should fully realize the important role of mega data technology in the development of HE with a broad mind and strategic vision, promote the construction of HE informatization, accelerate the transformation of traditional teaching models and educational concepts, and achieve education Fairness and educational fairness create a good learning environment and promote the benign interaction and circulation between technology, society and education. There should be differences and choices in the application of mega data in different fields, instead of adopting a simple one-size-fits-all approach, and truly play the role of mega data in promoting the development of HE. The core elements and relationships of the education resource co-creation and sharing model based on mega data are shown in Figure 1.
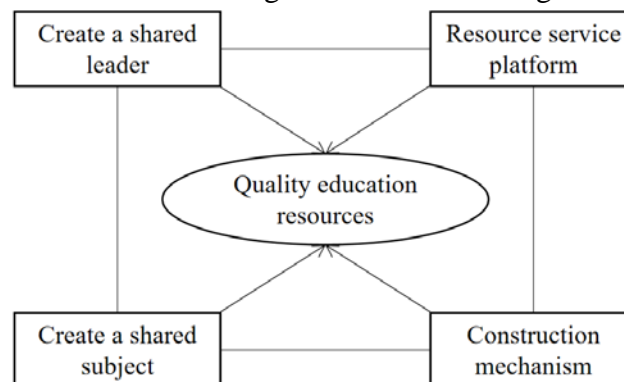

Figure 1 Educational resource co-creation and sharing model

In the intelligent management of HE, managers should use all kinds of intelligent information collection systems and information collation systems based on mega data to collect all kinds of valuable information and data about teaching management in universities as comprehensively as possible. In addition, it is necessary to make deep mining, comprehensive statistics, systematic arrangement and in-depth analysis of these information to form accurate management data [9]. Using the powerful data collection, analysis and processing capabilities of the integration platform, we can provide data support for university management and decision-making, promote the optimization of university resource allocation, and give full play to the promotion role of mega data in scientific research, personnel training, teacher-student management, social service and cultural inheritance.

4.2. Optimize the allocation of university resources and improve the utilization efficiency of mega data

Comprehensively improve the hardware and software configuration of the university's mega data application platform. In view of the current lack of process-oriented data collection capabilities in universities, we can consider introducing IoT technology into the transformation and upgrading of university data platforms, fully introducing radio frequency identification technology, sensor technology, embedded technology and laser scanning technology, and greatly improving university

mega data The data collection and data processing capabilities of the application platform [10]. universities can use database analysis technology to compare the development of various types of colleges, departments and teachers in the same university in the same year, evaluate the advantages and disadvantages of individual teachers, departments and universities, in order to strengthen advantages, make up for deficiencies, and reflect on education. Decisions on resource input ratios and other aspects provide a scientific basis. As a tool, the application of mega data must be controlled by human beings and controlled by human value rationality. As the inheritors of culture, universities should build a mega data application culture integrating instrumental rationality and value rationality in the application and dissemination of mega data, so as to solve the problem of lack of rationality in the application of mega data in HE.

5. Conclusions

Today's society has entered the information age, and cloud computing, the Internet of Things, and mega data technologies based on the two are driving profound changes in education. Smart management has become an inevitable trend in the current and future development of universities. With the support of mega data technology, HE will be more individualized and humanized, and the teaching form will be changed from closed to open, which makes the boundary between formal university education and social education disappear. The deep integration of IT and HE requires the reconstruction of micro-and macro-teaching ecological environment in universities, and it is necessary to constantly explore the path and mechanism of deep integration from the aspects of teaching philosophy, teaching environment, teaching resources, teaching application, team organization and system construction. Therefore, it is necessary to actively innovate the management system and optimize the structure of the organization team, and intensify efforts to expand the integration boundary between IT and education and teaching, so as to effectively ensure the organic integration of IT and standardized management of HE, innovate the development mode of education and teaching, and integrate resources to strengthen the construction of information-based education.

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