

Optimization measures for higher education management in the era of big data

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Abstract: Under the wave of big data, the management of higher education is undergoing unprecedented changes. How to seize the opportunities and respond to the challenges brought by big data has become an urgent problem to be solved. The purpose of this discussion is to explore how to optimize management measures to make higher education management more efficient and accurate. Through in-depth analysis of the current application status of big data technology, a series of innovative optimization paths have been proposed to promote the modernization process of higher education management and contribute to the cultivation of talents in the new era.

Key words: the era of big data; universities; education management work

1 Introduction

Driven by the wave of digitization, the era of big data has quietly arrived, bringing new perspectives and opportunities for change to the management of higher education. Big data is not only a massive collection of data, but also a source of wisdom that deeply reflects the essence and development laws of things. In the field of higher education management, the application of big data can not only improve the accuracy and efficiency of management decisions [1], but also promote innovation in educational models and achieve personalized and precise educational services. Therefore, it is of great significance to deeply interpret the connotation of big data and explore its application and optimization in higher education management, in order to promote the sustainable development of higher education.

2 Opportunities for higher education management in the era of big data

2.1 Data driven decision-making to improve management efficiency

Under the wave of big data, the management of higher education has undergone unprecedented decision-making changes. The traditional experiential and intuitive decision-making methods are being replaced by data-driven scientific decision-making. Big data can reflect all aspects of education management in real-time and comprehensively, providing accurate data support for decision-makers. By deeply mining and analyzing these data, universities can more accurately grasp the development trends of education, optimize resource allocation, and improve management efficiency. Meanwhile, data-driven decision-making can also reduce subjective assumptions and human interference, ensuring the scientific and impartial nature of decision-making.

2.2 Personalized education to improve teaching quality

The arrival of the big data era has provided strong technical support for personalized education in universities. By collecting and analyzing data on student learning behavior, interests, and ability levels, universities can gain a deeper

understanding of the characteristics and needs of each student, and tailor personalized education plans for them. This educational approach can not only stimulate students' interest and enthusiasm in learning, but also improve teaching effectiveness and quality. At the same time, personalized education can also cultivate students' innovative spirit and practical abilities, laying a solid foundation for their future career development. With the help of big data, higher education is gradually moving towards a new era of greater precision, efficiency, and personalization.

3 The problems in the management of higher education in the era of big data

3.1 Education management workers lack awareness of big data

In the era of big data, some education management workers in universities still remain stuck in traditional thinking patterns and management methods, lacking a deep understanding and application awareness of big data. They failed to fully recognize the enormous potential of big data in improving educational management efficiency and optimizing educational resource allocation, and ignored the important role of big data in promoting educational innovation and improving teaching quality [2]. This lag in consciousness has led to the insufficient utilization of the value of big data in university education management, which has hindered the modernization process of university education management.

3.2 Not fully leveraging the role of big data

Although some universities have begun to attempt to use big data for educational management, in practical operations, they often only focus on simple data collection and surface analysis, failing to deeply explore the intrinsic value and patterns of data. This has led to insufficient depth and comprehensiveness in the application of big data in university education management, and its potential value has not been fully unleashed. Meanwhile, due to the lack of effective data analysis and processing tools, universities often feel powerless when facing massive amounts of data, making it difficult to transform big data into a powerful driving force for the development of educational management work.

3.3 Weak management ability of management personnel

The arrival of the big data era has put forward higher requirements for the abilities of university education management workers. However, currently, some educational management personnel in universities still have insufficient abilities in data analysis, processing, and application, making it difficult to adapt to the development needs of the big data era. They lack necessary data analysis skills and tool usage abilities, making it difficult to effectively process and analyze the collected data, and even more difficult to apply the analysis results to practical work. The shortcomings in this ability not only limit the application effect of big data in university education management, but also affect the overall quality and level of university education management.

4 Optimization path for higher education management in the era of big data

4.1 Transform work philosophy and establish work awareness

In the wave of the big data era, university education managers must abandon traditional thinking patterns and actively embrace the changes brought about by big data. To establish a data-driven management philosophy and recognize that data is an important basis and support for decision-making [3]. To cultivate data awareness, be good at discovering, analyzing, and solving problems from data. At the same time, we should also strengthen our awareness of innovation and continuously explore new applications and models of big data in the field of education management. By changing their work philosophy, university education management workers can better grasp the opportunities of the big data era and promote innovation and development in education management work.

For example, taking a university as an example, in the past, the educational management decisions of the university mainly relied on experience and intuition, resulting in uneven resource allocation and uneven teaching quality. However, with the advent of the big data era, the school has begun to transform its work philosophy and actively introduce data

analysis techniques to assist decision-making. By collecting data on student academic performance, attendance rates, extracurricular activities, and combining it with teacher teaching evaluations, the school can more accurately grasp the current teaching situation, optimize curriculum design and teaching methods. This transformation not only improves the efficiency of teaching management, but also promotes a significant improvement in teaching quality. This real example fully demonstrates the important role of transforming work concepts and establishing data awareness in promoting innovation and development in higher education management.

4.2 Improve management mechanisms and focus on safety construction

In the era of big data, the optimization of university education management cannot be achieved without sound management mechanisms and security guarantees. We should establish and improve standardized processes for data collection, storage, analysis, and application to ensure the accuracy and effectiveness of the data. To strengthen data security protection, necessary technical means and management measures should be taken to prevent data leakage and abuse. At the same time, a data usage responsibility system should be established to clarify the authority and scope of data usage, ensuring the compliant use of data. By improving management mechanisms and security construction, universities can provide solid institutional guarantees for the application of big data in the field of education management.

For example, universities pay special attention to management mechanisms and safety construction when promoting educational management work. We have established a strict data management system, and clarified the standardized processes for data collection, storage, use, and sharing, ensuring the accuracy and completeness of data. We have strengthened data security protection and adopted advanced data encryption technology and access control mechanisms to prevent data leakage and abuse. In addition, the school regularly conducts data security checks and drills, improving its ability to respond to data security risks. These measures not only ensure the application effect of big data in education management, but also lay a solid foundation for the long-term development of schools.

4.3 Building a scientific platform to improve personnel work literacy

In the era of big data, the optimization of university education management still requires the establishment of a scientific data analysis platform and the improvement of the work quality of management personnel. Resources should be invested in building an efficient and stable data analysis platform to provide strong technical support for educational management work. We need to strengthen the training and education of management personnel, and enhance their data analysis ability and technical application level. At the same time, management personnel should be encouraged to actively participate in academic research and practical activities related to big data, constantly broaden their horizons and update their knowledge. By building a scientific platform and improving the work quality of personnel, universities can fully leverage the role of big data in education management and promote the modernization process of education management.

For example, universities have established advanced platforms that integrate data collection, processing, analysis, and visualization by investing resources, providing strong technical support for management personnel. At the same time, the school organizes regular training and seminars to enhance the data analysis ability and technical application level of management personnel, enabling them to better utilize the platform for decision-making. This measure has significantly improved the efficiency and level of educational management work, laying a solid foundation for the sustainable development of the school.

5 Conclusion

Through in-depth exploration of higher education management in the era of big data, data has become a key force in promoting educational innovation and management optimization. Faced with the challenges and opportunities of the new era, universities need to actively embrace big data, transform traditional management thinking, and establish a data-driven

management concept. At the same time, improving management mechanisms and strengthening security construction provide strong guarantees for the application of big data in the field of education. Building a scientific data analysis platform and improving the work quality of management personnel is the only way to achieve modernization of educational management work. Looking ahead to the future, we believe that with the empowerment of big data, the management of higher education will move towards a new level of precision, efficiency, and intelligence, contributing more to the cultivation of outstanding talents in the new era.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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