



New ideas on the management model of college student education in the era of big data

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Abstract: In the context of the big data era, the management of higher education needs to keep up with the times, fully utilize big data technology to optimize management processes and improve work efficiency. Based on this, the article analyzes the current situation and existing problems of the application of big data in higher education management, and proposes targeted optimization strategies aimed at improving the quality of higher education and cultivating more outstanding talents.

Keywords: big data; Higher education; Management work

Big data is an important feature of today's development, and its application has penetrated into various fields, especially the education sector. As an important base for talent cultivation, universities use big data to carry out educational management work, which is of great significance for improving the quality of education and cultivating outstanding talents. There are problems in current university education management, such as low management efficiency, unreasonable resource allocation, and low education quality. Therefore, how to effectively integrate the two has become an urgent problem for universities to solve.

1. The problems in the management of higher education in the era of big data

(1) Insufficient awareness of big data application among university teachers and students

At present, the application of big data technology in university education management is still in the initial exploration stage. University teachers and students have not yet formed a clear, comprehensive, and objective understanding of big data technology. The awareness of big data application among university teachers and students is insufficient, and their understanding of the application significance and value of big data technology is insufficient. In specific management practices, some universities have not yet fully established their data management models, and problems such as insufficient popularization of technical equipment and information data security risks still exist, resulting in the insufficient application of big data technology in university education management. Some universities lack experience in big data management, and there are problems such as lack of standardization in management and failure to form a unified standard for the application of big data technology, which makes the value of big data technology not fully reflected. How to effectively apply big data technology in university education management has become a current problem that needs to be solved.

(2) Universities face certain difficulties in collecting and summarizing big data

In the era of big data, various types of education related data that universities need to collect and summarize continue to increase, especially student learning and daily life data. How to collect and summarize massive information resources has become a challenge for university education management personnel. If all relevant data is included in the collection scope, it will generate massive data, greatly increasing work burden and difficulty. At present, the application of big data technology in major universities is still in its early stages and has not yet formed a unified data standard. There are problems such as different data formats, inconsistent data standards, and complex data content. The collection and aggregation of big data in universities usually involve multiple departments. Unreasonable division of labor, improper cooperation, and loose connections among departments can affect the effectiveness of information management, which is not conducive to the collection, analysis, and processing of massive information.

(3) There is a phenomenon of decentralization in the resources related to big data in universities

The implementation of higher education management involves multiple departments, each of which bears different responsibilities in

education management. The ways in which different departments obtain information resources are different, and the data resources formed also vary. The massive data collected by each department cannot be effectively integrated, making it difficult to achieve data sharing and exchange. There is a phenomenon of decentralization in the resources related to big data in universities. Different universities have their own management methods, and different types of databases have different regulatory requirements. There are overlapping situations in big data construction among universities, which is not conducive to the effective integration and accurate analysis of information resources.

2. The Path of Higher Education Management Reform in the Era of Big Data

(1) Establishing awareness of big data

In the context of big data, the management of higher education urgently needs to comply with the requirements of the times, effectively apply big data technology to various aspects of teaching management, and make it a key direction for educational management reform breakthroughs. Firstly, universities should actively organize and carry out educational management training activities, leading education management personnel to correctly understand the impact and important value of big data technology on university education management work, and establish a correct awareness of big data in combination with the actual development of education and the actual situation of the school. Secondly, universities carry out specific case studies and practical application activities of big data applications to enable faculty and staff to have a deeper understanding of the application value of big data in university education management, and further strengthen their awareness of big data. Thirdly, university education management personnel should actively learn big data technology and promote its application in their work, actively participate in relevant learning and training, lectures and exchange activities, continuously improve their ability to collect, analyze, organize and utilize big data, and provide effective support for the development of university education management work. Fourthly, the rapid development of big data technology has brought opportunities and challenges to the growth and development of students. At present, some students do not know how to cope with the challenges of the big data era. Universities need to actively strengthen and improve education management work, helping students quickly master the knowledge and skills to meet future development needs.

(2) Improve the management system of higher education

The application of big data technology in higher education management can effectively improve the quality and efficiency of education management, but it may also increase the risk of information leakage and loss, leading to the leakage of teacher and student privacy, and even threatening the security of higher education, which is not conducive to the high-quality development of higher education. Firstly, universities should establish a more comprehensive education management system based on their actual situation, effectively regulate education management work, effectively reduce the risk of data loss, damage, and leakage, improve the integrity and reliability of data, and protect the personal privacy of teachers and students. Secondly, universities can establish specialized data management departments, mainly responsible for collecting, analyzing, and organizing various types of data in universities, improving the reliability and accuracy of data, and fully ensuring data security. Finally, universities should establish database firewalls, regularly upgrade technology, conduct information system risk assessments, clarify employee data access and usage permissions, establish a complete confidentiality system, and avoid information leakage.

(3) Building a university education management platform

In the process of carrying out higher education management work, universities need to cooperate with professional technical teams and build an education management platform supported by big data based on the actual situation of the university. The management platform needs to have functions such as information sharing, educational guidance, etc., to meet the application needs of teachers and students for “teaching” and “learning”, and effectively provide services for the management of higher education. The university education management platform supported by big data mainly covers the following five functions: first, data collection and integration functions, such as collecting and integrating student information, course arrangements, teaching resources, etc; The second is data analysis and application functions, such as learning situation analysis, student learning needs analysis, curriculum design analysis, etc; The third is good user interaction functions, such as ensuring that the platform can provide corresponding data information for faculty and students; The fourth is the security and privacy

protection function, which adopts encryption technology, access control and other measures to prevent data leakage and abuse; The fifth is other functions, such as continuous optimization and update. Teachers can also use management platforms to timely understand the learning situation of students, including their platform usage frequency, online time, learning progress, etc., and then use big data technology to analyze students' learning needs and interests, continuously optimize and improve teaching modes.

(4) Build a high-level management team

The rapid development of information technology and the widespread application of big data technology have put forward higher requirements for the professional competence of educational management personnel in universities. The information literacy of educational management personnel is directly related to the smooth implementation of educational management work. Education management work involves vast and complex data, and education management personnel with strong information literacy are able to cope with various challenges in education management work. At present, there is still a significant gap in the reserve of big data talents in some universities. Universities need to actively introduce composite excellent talents with the ability to develop, apply, and manage big data technology, and form a high-level management team. Team members need to have strong data analysis skills, as well as professional knowledge in computer science and other fields. They need to be able to successfully complete big data collection, analysis, processing and other tasks, obtain useful information from massive data, provide continuous management services according to the actual development of the school, and lead the scientific and intelligent development of higher education management.

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