

Analysis of Countermeasures for Teaching Management in Universities under the Background of Big Data

Yi Zhang

Binhai School of Foreign Affairs, Tianjin Foreign Studies University, Tianjin 300270, China

Abstract: With the rapid development of information technology, big data application technology has brought severe challenges to the management of higher education. In the context of continuous deepening of education reform, traditional education models are no longer able to meet the current management needs of universities. Innovative education management is an urgent problem that universities need to solve. Based on this, in order to better promote educational management work, universities should fully utilize big data technology to optimize and integrate various information and resources, in order to better manage students. This article mainly focuses on the countermeasures of teaching management in universities under the background of big data, in order to provide effective suggestions for university management work.

Keywords: Information technology; Big data; Teaching management work

Introduction: In the context of big data, modern information technology is an important carrier in university teaching. As an indispensable part of the Internet era, big data has contributed to data collection and collation in all walks of life. As an important place for cultivating high-quality talents, universities play a crucial role in the growth process of college students. Therefore, universities should exert their awareness of big data and carry out comprehensive teaching management for college students to promote their comprehensive development. Due to the large and complex management system on campus, it is difficult to carry out teaching management work in universities. Therefore, utilizing big data technology to handle student management work plays a very important role. Starting from social needs, student needs, personalized development, and other aspects, comprehensively improve the efficiency and quality of student teaching management, and then achieve innovation in teaching management work.

1. The role of big data in teaching management in universities

1.1 Transforming management models

The widespread application of big data technology has a promoting effect on the transformation of traditional teaching models in universities. Firstly, the application of big data can achieve efficient office work. Teachers can use various resources in the database to carry out various management work, and can also reuse and integrate educational resources within the school, which is conducive to achieving the openness and sharing of teaching management resources and greatly reducing the workload of teachers. Secondly, big data has the characteristics of massive data scale, rapid data flow, diverse data types, and low value density, and is a work system based on network platforms. Therefore, university teaching management needs to transform its management mode, integrate big data into daily management work, form a “closed-loop” working mechanism, and promote the steady development of university management work.

1.2 Improve the level of informatization

Due to the large number of college students and the complexity and complexity of teaching management, some work has not been carried out smoothly. But in the context of big data, university management has transformed its management mode, achieving a leap from complexity to simplicity, accurately integrating various resources, and providing convenience for teachers to carry out their work. Firstly, integrating big data into university management can help reduce information gaps and achieve effective integration of various resources on network platforms; Secondly, the large storage space of big data greatly reduces the working time of teachers and improves work efficiency. At the same time, it can also save storage space for educational resources and improve the level of informatization.

1.3 Improve the speed of teaching management

In the context of big data, university management can be carried out more efficiently and conveniently. Firstly, teachers can use big data to statistically analyze and summarize student information, and construct big data models. These big data models can help teachers understand the learning situation and various information of students, in order to better manage them. Secondly, when dealing with management work, teachers can use information technology to observe the operation of the system, analyze possible problems and areas that need improvement, and increase the rigor and standardization of the system.

2. The problems in teaching management in universities under the background of big data

2.1 Lack of awareness of big data

Nowadays, with the continuous development of society, big data technology is favored by major universities and applied to various educational management work. However, there are still some problems that cannot be ignored in the specific practical operation process. Due to the lack of big data awareness among some university administrators, various problems have arisen in their management work. On the one hand, due to the influence of traditional concepts, most university administrators use traditional management models, lack innovation in management work, and even cannot operate big data systems, which greatly affects the progress of teaching management work. On the

other hand, the management departments of universities lack attention to the application of big data, and the infrastructure such as network technology, equipment, and management platforms are relatively weak. There are certain limitations in the application process of big data systems.

2.2 Unclear teaching objectives

During the implementation of big data technology in major universities, there is a phenomenon of “imitation”, and big data applications only remain on the surface. The final teaching management effect is greatly reduced, and unclear teaching objectives are one of the reasons for this phenomenon. Some universities have vague and broad teaching objectives, which cannot provide teachers with reference standards, resulting in a lack of focus in the teaching management process and affecting the overall effectiveness of teaching. In addition, the teaching objectives of universities lack personalization and targeting, making it difficult to accurately integrate and utilize campus resources, resulting in certain deviations in student management and greatly weakening the application value of big data technology.

2.3 Lack of management professionals

Currently, due to the increasing demand for talent in society, the number of admissions in universities is also increasing year by year, which poses enormous challenges to university management. The application of big data requires professional technical personnel to manage, which poses new requirements for the abilities of management personnel. However, currently, universities have insufficient talent reserves and cannot provide professional data management equipment. On the one hand, due to the mismatch between the educational background, professional knowledge, and data management of management personnel, there is a certain deviation in management concepts and systems, resulting in some cases of improper use of information technology. On the other hand, university administrators lack professional training and understanding of the methods and concepts of big data technology, making it impossible to integrate big data into the management system.

3. Innovative Strategies for Teaching Management in Universities under the Background of Big Data

3.1 Implementing precise integration to improve management level

With the support of big data technology, universities can achieve precise integration of education and teaching management and information platform technology, and build data-driven models that are suitable for social development and the actual needs of students, timely understanding the dynamic situation of student learning, and promoting the further development of teaching management work.

Firstly, build a big data model. Big data, as a technological means of capturing, managing, and integrating various information and resources, has a high standard of information collection ability, providing technical support for universities to carry out student management work and contributing to the improvement of education and teaching management level.

Secondly, it is convenient to collect management information. The comprehensive development of students is the core of teaching management in universities. College students, as an important component of achieving comprehensive education in universities, bear important responsibilities for social progress and development, and hope for the future development of the country. Universities should focus on students as the center of teaching management, improve information management, build personalized data resource libraries for students, and continuously strengthen the data analysis and collection processing capabilities of teaching managers.

Thirdly, establish an information technology evaluation system. Information technology platforms have the characteristics of abundant resources and wide data distribution. Therefore, in order to establish a sound evaluation system, it is necessary to start from improving the quality of system operation and perfecting the guarantee mechanism of modern information technology. By maintaining information data and developing internal structures, universities can help improve the data application technology of teaching management departments and develop more professional evaluation systems. In addition, the teaching management departments of universities need to continuously improve the daily teaching management work of students, play a leading role in teaching management work, and promote the effective integration of big data systems.

3.2 Pay attention to student needs and carry out personalized teaching

Faced with the development of information technology, universities should fully recognize the importance of student needs in improving teaching management. Therefore, universities should focus on cultivating comprehensive development of students, continuously promote the quality of information technology teaching management, and carry out personalized teaching according to the actual needs of students. Firstly, due to the widespread application of big data technology, the accuracy of teaching management in universities is gradually improving, which enables teachers to accurately judge the learning situation and teaching effectiveness of students, and thus lays a good foundation for the development of teaching work. Secondly, the effective integration of big data and teaching management work provides favorable conditions for universities to implement personalized teaching. By integrating information technology into teaching management work, a comprehensive analysis of the teaching ability of teachers and the comprehensive quality of students can be conducted, which helps to achieve personalized development of students. In the current environment of deepening teaching reform, universities are paying more and more attention to personalized teaching, and teachers need to carry out targeted teaching management work.

For example, universities can create smart management platforms. Firstly, teachers can query the academic performance of students on the smart management platform, understand the learning situation of each student, and then analyze and design teaching plans based on the progress and effectiveness of learning through reasonable and scientific analysis; Secondly, teachers can collect data and integrate

various information through the intelligent management platform, then create situational teaching in the classroom, guide students to carry out teaching activities, and finally explain textbook knowledge based on teaching feedback. Finally, teachers assign homework on the smart management platform by understanding various data, and provide personalized guidance based on the different actual needs of students. By creating a smart management platform, teachers can clearly understand the learning situation of students and carry out targeted teaching; Students can use the platform to understand their own problems and shortcomings, in order to achieve the goal of identifying and filling in gaps.

3.3 Cultivate awareness of big data and strengthen talent reserves

With the increasing demand for high-quality talents, universities should also improve the overall level of their teaching staff and strengthen talent reserves. The sustainable development of universities mainly relies on teachers, which is crucial for cultivating high-quality and high-level teacher management teams. On the one hand, developing a scientific and reasonable selection mechanism is crucial for cultivating a teaching staff team. Universities should set clear recruitment standards and select outstanding talents with big data management abilities from aspects such as professional competence, management experience, and big data application technology. On the other hand, universities can provide training opportunities and development plans for teachers. For example, universities can regularly organize management team training, providing comprehensive training in big data application technology, management experience, theoretical knowledge, and other aspects to help teachers improve their teaching level and management ability. At the same time, schools can also encourage teachers to participate in exchange meetings, promote resource sharing among teacher teams, and stimulate innovative thinking among teachers.

3.4 Innovate teaching management models and improve service quality

The application of big data technology has brought unprecedented opportunities and challenges to teaching management in universities. Faced with the talent demand of society, universities should innovate teaching management models and gradually improve service quality with the support of big data technology. Firstly, the integration of big data technology enables more precise and efficient teaching management in universities. By collecting, analyzing, and organizing massive amounts of data, universities can have a clearer understanding of students' learning and living conditions, and provide more scientific and reasonable solutions based on data results. For example, teachers can customize and recommend more suitable courses and learning resources for students based on their learning status and interests, helping them improve their learning outcomes. At the same time, teachers can also use big data technology to evaluate and reflect on their teaching achievements, thereby further improving the quality of teaching. Secondly, the construction of a big data platform is a prerequisite for innovative teaching management models, which includes infrastructure such as data collection systems, data analysis tools, and operating systems. Only with these infrastructure can universities effectively utilize big data for innovation. Therefore, universities should increase their efforts in infrastructure construction, improve service quality, and ensure the authenticity and safety of teaching management.

In summary, big data, as a derivative platform in the new era, provides support for university teaching management. Faced with the complex and tedious task of teaching management, universities should fully utilize the advantages of big data, strengthen infrastructure construction and cultivate high-quality talents, and promote the development of education towards a more scientific and efficient direction.

Reference:

- [1] Fengzhi Wang. Analysis of Countermeasures for Teaching Management in Universities under the Background of Big Data [J] *Qin Zhi*, 2024, (04): 175-177.
- [2] Li Qin. Exploring the Problems and Countermeasures of Teaching Management in Private Universities under the Background of Big Data [J] *Research and Practice of Innovation and Entrepreneurship Theory*, 2024, 7 (05): 110-112.
- [3] Siyan Chen. Analysis of Teaching Management in Universities under the Background of Big Data [J] *Modern Vocational Education*, 2019, (16): 144-145.
- [4] Yao Wang. Analysis of New Ideas for Teaching Management in Universities under the Background of Big Data [J] *Journal of Inner Mongolia University of Finance and Economics*, 2019, 17 (02): 106-108.
- [5] Tong Zhang. Analysis of the Current Situation and Countermeasures of Higher Education and Teaching Management from the Perspective of Big Data [J] *Chinese Journal of Multimedia and Online Teaching (First Ten Days)*, 2023, (08): 10-14.