Analysis of the Current Situation of Higher Education Management Models under the Background of Big Data

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Abstract: This paper analyzes the status quo of college education management mode under the background of big data. With the advent of the age of information, digitization and intelligence, big data technology has become an important trend in all walks of life. In the aspect of college education management, a large number of data are recorded, collected and analyzed, which can not only provide effective reference for college education management, but also provide better services and support for colleges and universities. This paper analyzes the current situation of college education management mode from four aspects: data resources, technology application, management mode, problems and challenges, and puts forward some measures to solve the problems and challenges in college education management through big data technology. The purpose of this paper is to provide reference for educational administrators and researchers in colleges and universities and promote the innovation and development of educational management in colleges and universities.

1. Introduction

In the current era of informatization, digitization, and intelligence, the application of big data technology has become an important trend in various industries, and university education management is no exception. Big data technology can provide more comprehensive, accurate, timely, and effective decision-making support for university education management by collecting, storing, processing, and analyzing data, while also improving the management efficiency and service quality of universities. Therefore, big data technology has become an important tool and means for university education management. Of course, with the continuous development and popularization of internet technology, more and more data is involved in the education management system of universities, including students, teachers, courses, disciplines, scientific research, campus management, and other aspects. These data not only reflect the operation of universities and the learning situation of students, but also reflect the management and service capabilities of universities. By utilizing big data technology, universities can better understand students' learning habits and needs, provide more personalized educational services, and also achieve efficient campus management, improving management and service capabilities.

Especially, in the context of big data, university education management also faces some problems and challenges. For example, the security and privacy protection of data, the quality and accuracy of data, and the analysis and mining capabilities of data all need to be further improved

and improved. Therefore, it is necessary for university managers and researchers to work together to strengthen the cultivation of data management and analysis capabilities, formulate effective data privacy protection and management measures, improve the technical level of data analysis and mining, and thus achieve innovation and improvement of university education management models. In summary, big data technology has become an important tool and means for university education management [1]. In the context of big data, building a university education management model has also become an important issue. Strengthening data privacy protection and management, improving the technical level of data analysis and mining, and improving educational management models are all urgent issues that need to be addressed. Therefore, this study aims to explore the current situation of university education management models in the context of big data, in order to provide useful references and suggestions for university education management.

2. Research Background and Significance

This article aims to analyze the current situation of university education management models under the background of big data, providing reference and reference for university managers and researchers. Firstly, this article will introduce the development and application of big data technology, and explore its role in university education management. Secondly, this article will analyze the current status of higher education management models, including the types, characteristics, advantages and disadvantages of management models [2]. Next, this article will explore the innovation and application of university education management models in the context of big data from the perspectives of talent cultivation, teaching reform, student management, and quality assurance. Finally, this article will summarize the analysis results and propose relevant suggestions, in order to provide reference for the innovation and improvement of higher education management models.

First, research background of this paper is that, with the development of information and digital technology, big data technology has penetrated into various fields, including university education management. With the continuous expansion of the scale of universities and the increase in the number of students and teachers, university education management is facing more and more challenges. How to achieve refinement and personalization of university education management through big data technology, improve teaching quality and student development effectiveness, has become an urgent problem to be solved in the current field of university education management. Second, research purpose of this paper is to explore the current situation and development trends of university education management models under the background of big data, analyze the application of big data technology in university education management, study the problems and challenges in university education management, and propose corresponding solutions and suggestions, in order to provide valuable reference and reference for the innovation and improvement of university education management. Third, research method of this paper is to adopt a combination of literature research and case analysis methods to collect and analyze relevant literature and cases, explore the application status and development trends of big data technology in university education management, analyze the problems and challenges in university education management, and propose corresponding solutions and suggestions.

This study mainly explores the following issues: (1) What is the current situation and development trend of the application of big data technology in university education management. (2) What are the problems and challenges in the management of higher education. (3) How to solve the problems and challenges in university education management through big data technology. (4) What are the development directions and strategies for future university education management in the context of big data.

3. The Application Status and Development Trends of Big Data Technology in Higher Education Management

With the rapid development of information technology and the popularization of higher education, a large amount of data has been recorded, collected, and analyzed, providing new ideas and methods for higher education management. This chapter will explore the current application status and development trends of big data technology in university education management, as well as the problems and challenges faced by university education management in this context, and explore how to solve these problems and challenges through big data technology.

3.1. Development and Application of Big Data Technology

With the continuous development and progress of computer technology, big data technology has become a hot topic of concern. Big data refers to a collection of data that exceeds the processing capacity of traditional databases. It has three characteristics: large data volume, multiple data types, and fast processing speed. And big data technology refers to the technology of data collection, storage, processing, and analysis in the big data environment. At present, big data technology has been applied in various fields, such as government, finance, healthcare, education, etc. In the management of higher education, big data technology has also been widely applied and has achieved significant results.

Firstly, big data technology can provide data support for universities. In the management of higher education, a large amount of data is recorded, collected, and analyzed, such as students' grades, course selection, attendance, and teachers' teaching and evaluation. These data can provide effective references for universities, such as providing better learning services for students, better teaching support for teachers, and more accurate data support for university managers, in order to optimize university education management.

Secondly, big data technology can provide decision-making support for universities. Through the analysis of big data, university managers can understand the teaching situation, student needs, faculty strength, and other aspects, thus making more accurate decisions. For example, through big data analysis, universities can understand students' feedback on courses and carry out targeted teaching reforms. It is possible to understand the needs of students and improve student services. In addition, big data can also provide market analysis for universities and support their enrollment work.

3.2. Analysis of the Current Situation of Higher Education Management Models

In the context of big data, the management mode of higher education is also constantly developing and innovating. At present, the management models of higher education mainly include three types: traditional management models, modern management models, and intelligent management models. The traditional management model is mainly based on administrative management, supported by human resources, finance, rules and regulations, etc. Its characteristics are simple operation, fixed process, but lack innovation and flexibility [2]. The modern management mode mainly focuses on information management, emphasizing the close integration of information technology and human resource management. Its characteristics are high level of information technology and management efficiency, but it requires high level of application of information technology and lacks flexibility [3]. The intelligent management mode is mainly based on artificial intelligence technology, achieving highly automated management. Its characteristics are strong data analysis ability, the ability to automatically identify problems and provide solutions, but it requires high technical support, and the degree of human-machine interaction between teachers and students

is relatively low.

In practical applications, there are various modes of education management in universities, each with its own characteristics. For example, traditional management models still dominate in some universities, while modern and intelligent management models are widely applied in some universities. In addition, some universities have also attempted to integrate different management models to achieve better management results.

3.3. Innovation and Application of Higher Education Management Models in the Context of Big Data

In the context of big data, university education management models are also constantly innovating and applying. This article explores the innovation and application of higher education management models in the context of big data from the perspectives of talent cultivation, teaching reform, student management, and quality assurance [4-5].

In terms of talent cultivation, universities can use big data technology for precise enrollment, education, and employment. Firstly, in terms of enrollment, universities can analyze past enrollment data to understand students' subject preferences, cultural backgrounds, regional characteristics, and other information, in order to develop more accurate enrollment plans. Secondly, in terms of education, universities can analyze students' learning situation, progress, subject selection, and other aspects to achieve personalized education and better meet their needs [6-8]. Finally, in terms of employment, universities can analyze the employment situation of graduates, understand industry trends, employment needs, and other information, in order to help graduates better carry out career planning.

In terms of teaching reform, big data technology has also provided more possibilities for higher education management. Universities can analyze teaching data to understand students' feedback on courses, learning outcomes, and other information, and then carry out targeted teaching reforms. For example, universities can analyze students' homework situation, understand their learning situation, and then targeted strengthen students' weak links in teaching [9]. By analyzing students' feedback on the teacher's teaching, we can improve teaching methods and improve teaching quality.

In terms of student management, big data technology can also provide better management results for universities. For example, universities can analyze students' attendance, academic performance, and overall quality to understand their situation, help them plan their studies, and improve their learning outcomes [10]. Meanwhile, big data technology can also provide more refined student services for universities, such as course selection and dormitory management.

In terms of quality assurance, big data technology also provides more accurate means of assurance for universities. Universities can analyze the quality and effectiveness of teaching, identify problems in a timely manner, and make improvements and improvements [11-12]. At the same time, big data technology can also provide evaluation and supervision tools for universities, helping them improve teaching quality and management level.

4. Problems and Challenges in Higher Education Management

In the context of big data, there are many problems and challenges in university education management, mainly including the following aspects: insufficient data management and application. A large amount of data is recorded and collected, but due to the lack of a unified data management and analysis platform, it is difficult to fully utilize this data to provide support and reference for university education management. Inaccurate evaluation of educational quality. The current evaluation of educational quality often only considers students' exam scores and ignores other important factors, such as students' interests and ways of thinking [13]. Big data technology can help

universities evaluate education quality from multiple perspectives, but there is currently no comprehensive evaluation system or method. Insufficient management of the teaching staff. The teaching staff in universities is an important guarantee for the quality of education, but there is currently no effective data management and analysis means to support the management and cultivation of the teaching staff. Student management and services are not perfect enough. University administrators need to focus on students' learning and living conditions from the perspective of students, and provide more personalized and accurate services. However, at present, big data technology has not been fully utilized in the management and service of college students.

5. Solving the Problems and Challenges in University Education Management through Big Data Technology

In the management of higher education, big data technology has great potential to help universities better solve various problems and challenges. Universities can build big data platforms to integrate data from various departments into one platform for unified management and analysis of data. Through in-depth mining and analysis of data, it can provide more comprehensive and accurate support and reference for university education management. The following are several methods to solve the problems and challenges in university education management using big data technology.

5.1. Develop Effective Enrollment Plans and Policies

Big data technology can help universities develop more effective enrollment plans and policies. By analyzing past enrollment data, exam scores, student profiles, and other data, it can help universities predict future enrollment situations and formulate more reasonable enrollment plans and policies. At the same time, big data technology can also help universities understand the enrollment situation in various provinces, providing more comprehensive information support for university enrollment work.

5.2. Optimize Student Management

Big data technology can help universities optimize student management. By analyzing students' academic performance, attendance, behavioral data, and other information, universities can help identify their problems and needs and take timely measures. For example, by analyzing students' learning behavior data, it is possible to discover their learning interests, efficiency, and habits, thereby providing support for universities to develop more personalized learning plans and counseling programs.

5.3. Improve Teaching Quality

Big data technology can help universities improve teaching quality. By analyzing data such as teacher teaching quality, student learning situation, and teaching resource utilization, universities can help evaluate teaching quality, identify problems, and take measures. For example, by analyzing the video data of teachers' lectures, problems and deficiencies in teaching can be identified and timely improvements can be made [14]. By analyzing data on students' learning situation, we can understand their learning status and needs, providing more personalized support for teaching.

5.4. Improve the efficiency of university management

Big data technology can help universities improve management efficiency. By analyzing data on the use of campus facilities, personnel mobility, and office and management processes, universities

can identify management issues and bottlenecks, and optimize management processes. For example, by analyzing the data of students entering and exiting the library, one can understand their reading habits and needs.

6. Conclusions

It can be seen that big data technology has broad application prospects and profound impact in university education management. However, the application of big data technology in university education management still faces some challenges. Firstly, universities need to strengthen their understanding and mastery of big data technology, improve the information technology capabilities of managers and teachers, in order to better utilize big data technology to achieve innovation and improvement in education management. Secondly, the application of big data technology requires reasonable data security measures to protect the privacy and information security of students and teachers. Finally, the application of big data technology needs to fully consider the humanistic and emotional aspects of education. Students and teachers should not be simply regarded as data and numbers, but should focus on their overall quality and development needs.

In short, the application of big data technology in university education management has become an irreversible trend, which is of great significance for the innovation and improvement of university education management. Universities should actively explore and apply big data technology, achieve refined and personalized education management through data analysis and mining, and improve teaching quality and student development effectiveness. At the same time, universities should also fully consider the security and privacy issues of big data technology applications, make reasonable use of big data technology, and promote the comprehensive upgrading of education management.

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