Application of Big Data Technology in Innovation of College Students' Education Management

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Abstract. Innovation of College Students' education management has always been an important part of university education management. Compared with the previous education management mode, now it cannot be better applied to the current new era, the management of college students is facing new challenges and opportunities, so we should actively seek innovation and breakthrough in the education management mode. Now is the era of Internet big data, teaching management work also conforms to the development of the times, actively learn big data technology, and introduce it into the management and innovation of college students. In view of the current situation of College Students' education management in China, this paper studies the application of big data technology in the innovation of College Students' education management. This paper compares the application of big data technology in different schools and different groups of users, discusses and analyzes the results, and puts forward the application and improvement strategies of big data technology in the innovation of College Students' education management, which provides technical support for the development of College Students' education management.

Keywords: Big Data Technology, College Education, Education Management, Management Innovation

1. Introduction

School management includes the management of the work of school staff, the management of students' learning and life, the management of teaching development, and the management of school teaching mode changing with the times[1-3]. Only through the joint efforts of teachers and students, can the reform and innovation of university management mode achieve good results. The good and perfect management mode of the school not only plays a positive role in students' learning, but also improves the teaching effect and reputation of the school to a certain extent. Therefore, it is necessary to reform and innovate the management mode of colleges and universities.
Today, the era of big data is an era of data explosion and an objective product of historical development[4-6]. In this era of development, great changes have taken place in people's study and life. With the support of big data, education management has also obtained new development and progress, which has played a huge role in promoting education. In the application of big data technology, there is still a gap between Chinese universities and foreign universities, and many universities do not have a deep understanding of the concept of big data technology[7-8]. Through big data technology can be more flexible and forward-looking education process, traditional education management mode, education management work is stricter and has certain limitations, and big data technology can help improve the efficiency of education management[9-10].

This paper analyzes the actual situation of using big data technology in the innovation of education management in Colleges and universities in China. The analysis shows that compared with the universities in developed countries, we still have deficiencies in the promotion and application. This paper establishes the research on the application of big data technology in the innovation of College Students' education management. In the research, according to the actual situation of College Students' education and management, the introduction of big data technology can effectively improve the quality and efficiency of school management innovation, and improve the school management innovation ability. Through the survey and analysis of the satisfaction data of various groups in Colleges and universities, this paper believes that the use of big data technology can create more achievements for the management and innovation of college students.

2. Big data technology and its application path in college students' Education Management

2.1. Big Data Technology

Big data technology refers to the application technology of big data, covering various big data platforms, big data index system and other big data application technologies. Generally speaking, big data has the characteristics of multiple types, large capacity, high application value and fast access speed. It can be used as a data set to collect, store and analyze data at the fastest speed, and mine new data values. This shows that big data technology has the characteristics of scalability, comprehensiveness and mining. The introduction of it into university management can combine the advantages of big data technology, start from the details of information management, dig out more accurate data and information, and promote university management. To be exact, the application of big data technology in the management of colleges and universities can combine the data inside and outside the university to establish an accurate database. In other words, from the aspects of education evaluation, daily management, financial expenditure, enrollment activities and so on, combined with students' campus life and learning, the database is established. Big data technology can analyze the relevant dynamic information of students, and real-time identify relevant information. Through data mining, college students' identification can promote real-time and dynamic feature recognition of college students and improve the accuracy of university management.

2.2. Application Path of Big Data Technology in College students' Management Innovation

There are still problems in the application management of big data technology, but in order to further improve the management of students, we must effectively combine the actual management of college students and the inherent requirements of big data application technology system, and establish a good
mechanism for the application of big data technology in the management of college students. First, to strengthen the construction of big data platform for college students' education management, the application of big data of student education management must be built on the big data platform where all project data should be circulated. Second, in order to eliminate the phenomenon of isolated islands, each department and unit of each university has its own strengths. The channels of data collection are different and do not interfere with each other. Data cannot be shared, which restricts the development of the University. Finally, strengthen the construction of big data technology professional team. Big data is a professional project. It needs the interaction and function of various links and systems, and more importantly, it needs the supervision, command and creation of professional and technical personnel.

3. Survey Results and Analysis of the Application of Big Data Technology in the Innovation of College Students' Education Management

Research shows that 87% of universities in the world take big data technology as the core factor of university management competitiveness. Big data technology has gradually penetrated into the education and management of college students through the Internet and other ways. Big data technology analysis, collection, tracking and other functions are widely used in student management, teaching, life, after-school and other fields. Big data technology can replace repetitive manual operation, improve the teaching efficiency of colleges and universities, improve the traditional labor inefficient production mode, and effectively ensure the timeliness and quality of student management, so as to improve the competitiveness of university management.

In the research and analysis, this paper adopts two methods, namely questionnaire survey and interview survey. 204 teachers and students from 51 universities in China were selected as the sample. In the process of investigation, this paper found that both teachers and students involved in the application of big data technology in education management. In this survey, we divided all the subjects into two groups by category. One group is teachers, the other group is students. This paper analyzes the comprehensive situation of big data technology application in Colleges and universities. The results are shown in Table 1. Based on the survey results of the two groups, the application of big data technology in college students' education management innovation can enhance the core competitiveness of the University.

| Investigation items                                      | Teachers in school | Students in school |
|--------------------------------------------------------|--------------------|--------------------|
| Do you want to promote big data technology              | 95                 | 85                 |
| Actively understand and try to use                      | 69                 | 41                 |
| No intention to use                                     | 3                  | 11                 |
| It is helpful to the management of colleges and         | 90                 | 93                 |
4. Discussion

4.1. Current Situation Analysis of Big Data in Education Management

Big data technology can help colleges and universities to strengthen student management and promote the in-depth development of education and teaching. In the process of managing students, university administrators often feel that they don't know enough about students' information. It is unrealistic for a manager to know all students' information, but the era of big data makes it impossible. But to make full use of big data information, managers need to have a certain level and ability. Managers should integrate a large number of text, pictures, videos and other data, dig out the valuable information in this information, and constantly refine it, so that the processing, tracking and analysis of each student's information become a reality, so that the school can fully grasp the important information related to students. In this way, the school can more targeted management of students, so that the management level and teaching level of the school have been significantly improved. The university has introduced big data technology, but the training of professional and technical personnel needs to be strengthened, which limits the development space of big data technology in Colleges and universities. This survey mainly investigates the satisfaction of university teachers and students on the application of big data technology, and makes a comparative analysis. In the early stage of development, the application of big data technology is relatively less, which affects the operation of education management innovation. After the problem occurs, the maintenance is not timely and sufficient, which also affects the application of big data technology in the innovation of College Students' education management.

From the analysis results in Figure 1, 90% of teachers and students are satisfied with the application of big data technology. Big data technology plays a role in the innovation of education management, which can not only improve the work efficiency, but also improve the work quality of colleges and universities. The use of big data technology most universities focus on teaching and scientific research. However, leaders' ideas are more traditional and it is difficult to give up the traditional ideas. In the research of big data technology and system operation, the conference covering the application of all aspects has not been paid enough attention, and there is no big data technology that can better play the role of management.
Figure 1. Satisfaction survey of teachers and students on the application of big data technology

In order to further analyze the scope and depth of big data technology in college students' education management innovation, the results are shown in Figure 2. As can be seen from Figure 2, the depth of the traditional teaching management mode for student management is far less than the full application of big data technology. The traditional teaching management mode has less information technology content, less involved scope, more manpower cost, and the teaching management achievements are not ideal. After the introduction of big data technology, colleges and universities have improved their work efficiency, and the quality of work has also been significantly improved. They feel the convenience and efficiency brought by science and technology. They believe that the advantages of NPC data technology in the application of education management outweigh the disadvantages, and that it is necessary to promote big data technology in order to achieve good results in the innovation and reform of education management.

Figure 2. In depth investigation of traditional education management and big data technology education management

4.2. Optimization Strategy of Big Data Technology in College Students' Education Management Innovation

It can be predicted that big data technology will play a more and more important role in the education and management of college students in the future. In the future, the optimization of university management system and the evaluation of teaching quality will largely depend on the application of big data and the progress of technology. Although there are still some problems and difficulties in the application of big data technology, the solution of these problems is imminent. Therefore, it is necessary to optimize the strategy to promote the application of big data technology and solve problems.

(1) Cultivate technical personnel and form a professional team

In the competition between colleges and universities, the application of big data will become a very important link in the competition. Therefore, colleges and universities need to constantly change their
thinking, promote the research and practical application of big data technology, actively cultivate big data talents, form a professional team, and promote the application of big data technology in student education, scientific research and management. We should establish a professional talent team that not only has the practice of big data in the field of education management, but also can integrate theory with practice.

(2) Improve the platform system of big data system

The student education management system needs to be built on the basis of data circulation platform. Big data platform can provide data analysis, management and other important functions. Therefore, the construction of student education management system must be established and developed on the perfect big data system platform to avoid the occurrence of isolated island phenomenon.

(3) Strengthen data security management

Big data increases the possibility of data leakage and the risk of data theft. Data is very important in the management of College Students' education, involving students' Student ID card, ID card, family situation, etc. Therefore, the redundancy of most data inevitably leads to the possibility of data privacy disclosure. Colleges and universities should strengthen the internal management, regularly supervise and manage the key system database to ensure that the data is safe and reliable at all times, avoid data leakage, and strengthen data security management.

5. Conclusion

In the research of College Students' education and management innovation, this paper takes the introduction of big data technology into university management as the main line of research. After research, this paper believes that big data technology is an indispensable and important technical basis for college students' management innovation. Through the investigation and analysis of two groups of people in different universities, their satisfaction with big data technology in the management and innovation of college students is obtained. In addition, for colleges and universities, if they want to make full use of artificial intelligence, it is necessary to integrate big data technology and university business processes effectively. In the process of effective analysis of the application of big data technology in university management innovation, we should focus on the actual situation of colleges and universities, pay attention to scientific introduction, and effectively formulate perfect application measures in combination with the actual work content, so as to ensure the effective development of university education and improve work efficiency. This research has achieved ideal results and made a contribution to the application of big data technology in the innovation of College Students' education management.

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