Research on the application of big data in the management and service of College Students

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Abstract. The explosive growth of information and the maturity and application of cloud computing, data mining and analysis technology mark that today's society has ushered in the era of big data. College student management and service work are practical, but the traditional way of it is mostly manual and single qualitative management, which has been unable to meet the growing number of students demands, gradually revealing lots of problems like low efficiency, slow speed, and poor quality. The emergence of big data will effectively improve this problem. College students' education management workers will be able to accurately control the ideological and behavioral dynamics of students, properly carry out public opinion analysis, and promote the personalized learning and development of college students.

1. Introduction
With the development of information technology in higher education and the construction of digital campus, colleges and universities have accumulated a large amount of multi-dimensional and multi-level data in daily student management and data service. How to give full play to the value of these data, better to serve the management of colleges and universities, in a real sense, to make the data run on the road, teachers and students run less errands, which requires colleges and universities constantly update and develop the concept of information management of colleges and universities. It also need colleges and universities to establish a talented team to promote its digital management, integrate the data sources in the field of multi business systems in Colleges and universities, and in a real sense, research and improve the theory of big data Only by combining the practice and business of university information management and ensuring the information security, so we can effectively promote the gradual improvement in university information management ability in the era of big data.\textsuperscript{[1]}

The work of student management and service in Colleges and universities lies in the students. The amount of data generated by students in the process of continuous learning and growth is very large. Structural and non structural coexist. Colleges and universities can not only use big data to carry out personalized analysis on students in the enrollment stage, but also carry out personalized analysis on students in every stage after they enter the school. Through the mining and analysis of student data, we can give full play to the value of student data and improve the pertinence and efficiency of management and service.
2. The application of big data in the management and service of College Students

The continuous development of Internet and related industries has further expanded the impact on students. The variety and quantity of data generated by various kinds of data terminals which were used by students have increased significantly, \(^2\) which provides a data base of the application of big data technology in the management and service of college students. Compared with foreign countries, the number of college students in our country is huge, involving a lot of student information data, which to a certain extent increases the workload of big data application. \(^3\) Although there are many colleges and universities actively trying to use big data, after all, the huge amount of data and technical ability have become the factors restricting the application of big data in Colleges and universities. At present, the application of big data in Colleges and universities is mainly reflected in the following aspects.

2.1. Using education information platform to realize shallow big data processing

At present, many colleges and universities have used a variety of management information service platforms, and many colleges and universities have tried to use information data platforms similar to smart campus, which are used in PC and mobile terminals at the same time. Taking the educational administration management information system as an example, after inputting the data information of all students, we can obtain the grade ranking, average to score rankings, grade data analysis, etc. of all students in the class or the same major in a short time. \(^4\)

2.2. Create big data management center

When the process of data mining continues and extends, the amount of data grows explosively, and the simple management information system has been unable to deal with a large number of data. Therefore, many colleges and universities began to try to establish big data analysis center, through the combination of education and modern technology to achieve efficient big data management and application. \(^5\)

2.3. MOOC and cloud education platform to realize multi-dimensional data teaching space

After the emergence of cloud computing, online open courses are increasing day by day. Cross School and cross regional online open courses are gradually entering students' learning life. Using big data technology combined with the storage advantages of cloud computing platforms, MOOC teaching and other multimedia and digital teaching methods have gradually covered the traditional classroom. Teachers' teaching and educational administration management can be realized through the online teaching platform. The teaching data comes from the application of the network in the actual classroom. Students and teachers can use mobile phones and other terminal devices in class to interact on site, sign in, upload homework, answer questions or discuss. \(^6\)

3. Big data in the management and service of College Students

The management and service of college students is a practical work. The traditional way of work is mostly manual and single qualitative management, which can't meet the increasing number of students' needs, and gradually shows the problems of low efficiency, slow speed and poor quality. The emergence of big data will effectively improve this problem. However, as a new technology and concept, there are still some problems in the application of big data in the management and service of college students.

3.1. Lack of data understanding and backward thinking concept

As a new technology and new concept, big data has not been paid enough attention in many colleges and universities, and the innovative role of big data in the management and service of college students has not been recognized. At the same time, university staff lack of understanding of big data, backward concept, traditional thinking mode, and low acceptance of big data.
3.2. Lack of professionals and backward technical facilities
Some colleges and universities set up big data center to try big data application, but most of the staff are transferred from various departments, which makes the application of big data lack of professional technical personnel. At the same time, most colleges and universities do not invest enough in the application of big data, the existing hardware facilities and equipment is relatively backward, unable to support the use of big data technology.

3.3. Difficult data integration and slow progress
In the statistical data information of colleges and universities, the data sources are mostly collected by different management systems. Due to the different data information required by different management departments, the application rules are not uniform, often resulting in a lot of data redundancy and repetition, which will make the work of data integration more difficult, thus reducing the efficiency of data integration.

3.4. Data information involves privacy and security risks increase
The number of college students is increasing year by year, and the amount of big data information is also showing a sharp growth trend. The data information contains a large number of student privacy information, and security risks such as information leakage and hacker attack are correspondingly increasing.

3.5. Single application environment, lack of attempts
At present, the application of big data in Colleges and universities only stays in some simple data extraction and display. The analysis and management of data is at a shallow level, lacking in-depth research and mining of data, single application environment, and lack of attempts on various working environments of university student management and service.

4. The application strategy of big data in the management and service of College Students

4.1. Building a data platform for student education management
The basis of applying big data to college students' education management lies in data. Without data collection and integration, we can't talk about the application of big data and its related technologies. At present, many colleges and universities have initially established a certain scale of education management related information system, but most of them are relatively isolated, limited to the internal management of the Department, and fail to truly realize the sharing and integration of data. At the same time, in the aspect of data collection and collation, there is often a lack of standardization, and the data is complex, which is not conducive to further analysis and processing. Therefore, it is necessary for colleges and universities to set up a special organization or department to coordinate and integrate the information platforms of the departments closely related to students, such as the library, logistics management department, academic affairs office and scientific research office, integrate all the information related to students, build a systematic data collection platform for education management, and form a university wide database for student education management. In order to ensure the timely and comprehensive collection, update and sharing of all data of all students, fully tap the value of data, and more comprehensively grasp the situation of students.

4.2. Building a professional management team with big data analysis ability
In the era of big data, in all walks of life, it is not so much big data that creates value as big data thinking that triggers new value growth. The key to the application of big data and its related technologies in the management of College Students' education lies in the people who have big data thinking and big data analysis ability. However, there are few teachers who has the ability of big data analysis and student education management. Therefore, to give full play to the role of big data technology in student education management, it is necessary to establish a professional management
team with big data analysis ability. In the team, through the introduction of specific training projects related to big data, help members of the team to establish big data awareness, make them fully realize the important value and significance of big data and its related technologies for students' education management, pay attention to the collection, sorting and mining of students' relevant data from the ideological level, and master the data platform of students' education management from the ability level The theory, method and tool of data analysis.

4.3. Improve big data management and use specifications
The premise of the application of big data and its related technologies in college students' education management lies in the collection of basic data. At present, the amount of basic data related to students is huge, various, and scattered in different institutions and departments. In the process of decentralized collection, due to the disunity of data standards, the final data will inevitably be disordered, which is not conducive to further summary and analysis, and thus unable to maximize the value of data. In addition, the widespread use of big data may also lead to the leakage of students' privacy information, threaten the safety of students' personal information, and make students suffer from different degrees of harm. Therefore, in the application process of big data and its related technologies, colleges and universities should establish and improve the corresponding management and use specifications, unify the data standards, ensure the seamless connection of the data of all departments, so as to facilitate the integration and sharing of data, standardize the process of data collection and the scope and authority of use, and ensure the safety of data collection and use from the system.

5. Conclusion
The management of students in Colleges and universities is a huge, abstract work, which cannot be measured by specific indicators. The information age has given many new methods and means to the management of college students. Using big data to manage students can not only save a lot of human and material resources, but also have a more accurate and scientific evaluation of the effectiveness of management, problems and deficiencies of management, and help managers to make more scientific and correct decisions. In addition, according to the strong analysis and prediction ability of big data technology, giving full play to the role of big data in student management and service, it is bound to make the management and service of students become not only scientific, but also conducive to the development of students, and truly cultivate more excellent talents for the country.

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