

The Application of Big Data in the Reform of University Education Model

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Abstract: Since the beginning of the 21st century, science and technology have continuously made breakthroughs. Especially in recent years, smart terminal devices and Internet technologies have rapidly spread, and then a huge amount of electronic data has been generated. These data are collected and analyzed, and feedback is made to people's lives. Work and study have spawned the application of big data technology, which has been widely used in various fields. In the reform of college education, big data technology can analyze a large number of teaching, learning and research data of the school. The paper discusses the application of big data technology in college education, in order to improve the precision of teaching, enrich learning resources and help students' self-awareness, achieving the goal of changing the educational model of colleges and universities.

1. Introduction

With the rapid development of computer technology and Internet technology, after the 21st century, people have ushered in the era of information technology, especially in recent years, the emergence and renewal of intelligent terminals, so that everyone on the planet and computer technology have been produced. Inseparable links. The widespread use of these devices and technologies has generated a large amount of electronic data, and people are increasingly aware of the important role of these data, and continue to apply it to aerospace, military, medical, artificial intelligence and other fields, bringing to different industries [1]. A breakthrough development has helped people to see the internal laws and development characteristics of things through a large number of data representations.

In recent years, the state has stepped up the pace of education reform. Under the background that the demand for talents in the society has become increasingly complex and urgent, the reform of the training methods for talents is constantly being tried and developed. If big data technology is introduced into universities In the education reform, giving full play to the role of a large amount of data in higher education institutions, to guide teaching reform, and to promote colleges and universities to cultivate a group of composite and applied talents for the society, is not only the need of current education reform, but also the development of the trend of the times. The direction. Through the use of big data technology in higher education, the overall teaching and student learning level will be improved, and a talented team with solid professional knowledge, strong innovation ability and high problem solving level will be trained to provide motivation and support for the development of society [1].

2. Big data overview

2.1 Big data technology concept.

Big data, as its name suggests, is the meaning of large amounts of data and massive data. The word first appeared in the mid-19th century and was originally a quantitative representation of data. Until recently, with the rapid development of computer technology and Internet technology, big data once appeared in people's field of vision, this time the big data representative is the process of sorting out the massive electronic data and drawing the guiding results, called big data technology [2].

2.2 The current status of application of big data technology.

With the widespread application and enhancement of big data technology in recent years, big data

technology has been gradually applied to all aspects of people's lives, such as: people in the daily online shopping process, through the online mall to search for the desired items, or through Browse the products that are sent to us by the online store. The data generated during these search processes or browsing processes will be recorded by the mall server as electronic data. In the subsequent browsing process or push, the server will analyze the original data and push it to the approximate items we have searched for or browsed [2]. This is a process of feedback through big data analysis, when the customer browses. When the data generated by the search behavior reaches a certain amount, the server can further analyze, and people can obtain information on the trend and social development direction of a certain field in the near future.

2.3 The characteristics of big data technology.

From the generation to the development of big data technology, people have already broken through the original impression that big data is just data. It is generally accepted and considered that big data is a technology and product that can serve people. The emergence of big data technology is in keeping with the times, and it is a necessary tool for the development of computer technology and network technology to a certain stage. Big data technology analysis objects are often massive data, the amount of data is very large, often need to be quantified by FB and ZB, but in this massive data, most of the data is original, meaningless primary data, and There are many types of data, such as browsing records, pictures, social network data, etc. Analysis of these data requires screening and optimization first, but the generation of these data is not periodic and static, but continuous [2]. And the update speed is fast, in the big data technology analysis, we should always pay attention to these features.

3. The application of big data in education

Big data thinking and ideas can be used to optimize education policies, innovative education and teaching models, and change educational measurement and evaluation methods. Big data provides an objective basis for the theoretical study of education, and provides a new research perspective to better promote changes in the field of education, as shown in Fig. 1.



Fig.1 The application of big data in education

“Big data resources“ have become an important educational resource. As early as 2010, Bill Gates predicted: "After five years, you will be able to get the best courses in the world for free online, and these courses are better than any one of the courses offered by a single university." In 2009, a Bangladeshi American founded a non-profit educational organization that used online video to teach

in a variety of subjects, including physics and physics, astronomy, and history. This form was widely disseminated on the Internet. After that, similar online education has sprung up, which has formed the hot word of “Mu Class“. At present, more than 40 universities across the country have jointly formed the MOU Alliance. The emergence of new forms of education and teaching, such as micro-courses and MOOCs, relying on network technology has also become a hot spot in the field of education [3].

In the era of digital, information, and networked big data, educational resources are increasingly becoming shared resources. Online teaching and research system, network preparation system, teacher learning center system, teacher evaluation system, resource management and application system, video on demand system, remote network teaching system, etc., realize a one-stop teaching information platform [3]. On the learning public service platform, students realize distance learning and mobile learning through online classrooms, independent learning systems, and interactive communication systems.

Big data allows independent individuals to show up. Compared to other areas of data, educational data has a number of different characteristics, and educational data is hierarchical. The Office of Educational Technology of the US Department of Education wrote in "Promoting Teaching and Learning through Educational Data Mining and Learning Analysis": "Educational data is...stratified. There are keystrokes, answering layers, semester levels, student layers, and classroom layers. At the teacher level and the school level, the data resides in these different layers. "Excavating the data in these layers for analysis can be of great help to teaching.

4. Problems in the process of teaching and promotion of big data in colleges and universities

4.1 Students are generally tired of learning.

Over the past 30 years of reform and opening up, people's material living standards have been continuously improved. According to Maslow's hierarchical demand theory, we have transitioned from the level of physiological needs to the level of social needs [2]. Education needs have become the necessity of every family. Demand. This is like a market economy. When there is less than demand, there will be too many “Pheasant University“, which will cause the degree to shrink, so that the really skilled students will encounter great resistance when they are looking for a job.

4.2 University teachers are not skilled enough to understand big data.

Most of our university teachers are taking lectures, and they rarely take into account the skills that our students need to integrate into society in the future. In many cases, the update of knowledge will not keep pace with the times. As mentioned before, once abandoned by this era, it will really be crushed by the giants of the times, and it is a fantasy to want to catch up with the queue [3].

4.3 Our school is not aware of the importance of big data to children.

Our school often thinks about the parents of our students. It is only responsible for the safety of our students. We rarely care about the situation of our students, the quality of our teachers, the trend of social development and the matching of current curriculum design. . Just blindly trying to sharpen your head for the school's popularity. After all, the popularity of the school is a guarantee for the enrollment of the school. It is like a strange circle. A well-known school can recruit students with better grades. Of course, there are relatively few efforts in management [4]. These schools have more energy. To do research and research, to indirectly enhance the visibility of the school; but for a general school, in this competition itself is in a disadvantaged position, it is more difficult to turn over, so it will only cater to the market. Will not be safe to educate.

4.4 The school has increased investment and attention.

Our school can provide a good teaching environment for our classmates, and can also get in touch with the community to build a platform for our students to conduct internships in big data related companies, and to invite big data related practitioners and Student representatives conduct symposiums to help our students get in touch with society more quickly [4]. Breaking this barrier requires the joint efforts of the school and the community. At the same time, our school can organize

big data-related competitions within the school, so that our students can participate and expand the promotion of big data, thus creating a very good atmosphere for our teachers' class. On the other hand, our school can unite student organizations to issue relevant documents, strengthen publicity, and apply big data to daily university life, so that our students can experience the convenience brought by big data. The school can also encourage our students to develop APP related to big data, so that our students can participate in the wave of big data, and strive to prevent one from falling behind. Our school can also innovate in the system, link the students' school performance and participation in social practice activities, and show the achievements of social practice activities in the students' achievements. Let our big data promotion work go on smoothly.

4.5 University students should actively participate in the construction of big data.

Our university students must recognize their strengths and weaknesses, actively respond to the school's call, and actively participate in the collection, application, and development of big data. In this process, we need to play the role of our student cadres and student organizations. Let our students get rid of their bad habits more quickly, and at the same time let them learn practical skills and find a way out for their future career planning [5]. Our students can participate in the relevant work of Big Data as an intern. They can develop their other abilities while learning skills and lay a good foundation for better integration into society in the future.

4.6 University teachers should innovate in the classroom mode and constantly enrich themselves.

University teachers are the key to the quality of university teaching. University teachers are in the stage of accumulation of life, and they need to learn knowledge like sponges. The majority of young people are learning, and they must not hesitate to be as golden as gold and tireless [5]. For the big data into the classroom to put a good quality, do a good guide for students on the road.

5. The application of big data technology in the reform of university education

In 2015, the State Council of China issued the “Outline for the Promotion of Big Data Development“, clearly proposing the construction of educational and cultural big data, that is, improving the public service platform for education management, promoting the accompanying collection of basic education data and sharing across the country [6]. In the context of big data technology, the traditional model of education is accelerating reforms, using the use of big data technology for teaching, learning, management, research and other teaching modules to analyze and analyze, effectively guide the optimization of teaching and learning, improve the teaching level and students Learning efficiency.

5.1 Use big data technology for learning analysis.

Using big data technology to analyze students' learning is a booster of big data technology in the reform of higher education. Through big data technology for learning and analysis, we can change teaching concepts, optimize teaching resources, arrange courses rationally, and change original teachers. Students stand to help colleges and universities to develop application-oriented talents with more professional knowledge and higher comprehensive quality. Learning analysis mainly collects students' learning data, then integrates and analyzes students' learning profiles, and fully grasps the learning rules. For learning analysis, there are still different concepts in academic circles. Some scholars believe that learning analysis is “predicting and collecting“. Evaluate and report the data generated in a series of learning scenarios in order to master and improve the learner's learning process, while some scholars believe that learning analysis is to collect the vast amounts of data generated during the student's learning process, and then analyze the information contained in it [6]. Finally, the process of analyzing the results will be analyzed. Nowadays, many colleges and universities have begun to use big data technology for learning analysis, such as: performance evaluation, learning direction prediction and learning situation supervision.

5.2 Enrich teaching resources with big data technology.

With the wide application of big data technology, more and more teaching resources are transformed into electronic data forms, which improves the accessibility and easy dissemination of teaching resources, and provides a large amount of teaching resources for college teaching and student learning [7].

5.3 These educational resources are used in teaching.

In the extracurricular learning, students can also access a large amount of teaching resources through the network to help them consolidate classroom knowledge and expand their knowledge [7]. However, in the face of massive teaching resource data, we must also improve our ability to distinguish and screen high-value, benign teaching resources, and not be misled by false and low-level resources. In addition, the school can build a school's own network data platform with the help of big data storage space and efficient information processing methods, and put the high-quality teaching resources collected by professional teachers on the platform for students to download and learn.

5.4 Use big data technology to reform teaching methods.

The emergence and rapid development of big data technology is inseparable from the emergence and update of smart terminal equipment. Especially in recent years, the rapid popularization of smart phones has provided a data foundation for the development of big data technology, and the reform of college teaching should also adapt to the trend of the times. Advance with the times, change the teaching method, from the traditional classroom teaching to the development of classroom teaching and extracurricular network teaching, students outside the classroom can learn and communicate with teachers through laptops, smart phones, Tablets and other equipment [7].

6. Summary

The arrival of the era of big data has changed all aspects of people's life, work, shopping, reading, and learning. For higher education, it is also an opportunity and a challenge. As an educator, colleges and universities must seize the opportunity, keep pace with the times, keep up with the pace of the times, make full use of big data technology, serve the education reform, and cultivate a professional application-oriented talent with strong professionalism and comprehensive quality.

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References

- [1] W.Y. Liu, Big Data Knowledge Discovery, Journal of Yanshan University, 2017, vol.5. pp.32-36.
- [2] W.B. Chu, Application and Research of Big Data Technology in the Field of Higher Vocational Education, Information and Computer, 2015, vol.12, pp.111-113.
- [3] C. R. Lang and J.X. Xing, Service Orientation of Higher Vocational Education in the Age of Big Data, Computer CD Software and Applications, 2014, vol.22, pp.87-89.
- [4] R.T. Zhai and M.D. Xi, Reflections on the Educational Reform of Educational Technology in Colleges and Universities in the Age of Big Data, Heilongjiang Education. 2016, vol.1, pp.79-80
- [5] Y.Ch. Hu and Z.L. Wang, A review of the latest research progress in educational reform in the era of big data, Modern University Education. 2015, vol.7, pp.98-104
- [6] L.N. An, Performance Evaluation and Analysis of University Education Technology Talents Based on Big Data Technology, Automation and Instrumentation. 2016, vol.6, pp.144-145
- [7] Z.L. Wang, Campus Big Data Planning First, China Education Network, 2018, vol.1, pp.54-57.