Research on the Innovation and Development of University Education Management Information based on Big Data Environment

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Abstract: In the context of information education, college education and teaching management has new characteristics and has a new development direction. This paper puts forward the idea of carrying out the reform of education management information in colleges and universities, and proposes a new concept of building a teaching model based on information management, specifically strengthening the construction of educational management information standard system, establishing the educational management information system, promoting the effective integration of educational management information systems, improving the overall information literacy of education administrators, and promoting the construction of educational management information and new the establishment of the teaching model. The paper also points out that the focus of management innovation is to reform and improve the traditional education management mechanism, build a management environment, and strengthen the information literacy of education managers.

1. Introduction

In the context of information education, college education and teaching management has new characteristics and has a new development direction. We hope to reveal the essence of educational information through the in-depth study of the current educational management information, innovation problems and development trends, find out the role of information technology in college education management, and put forward higher education management information in colleges and universities. The requirements of college education management information system with open interaction, mutual assistance, flexibility and virtualization, found that the application of information management software in the education management of colleges and universities is not smooth, management is weak, education management the organizational structure is confusing, and the information literacy of teachers and students is not high. In order to solve these problems, it is proposed to build a new concept of teaching mode of information management; to strengthen the construction of education management information standard system, the establishment of educational management information mechanism, to promote the effective integration of education management information system, and to improve the overall management of education managers. Information literacy, promoting the construction of educational management information and the establishment of a new model of educational management information based on this.

2. The Basic Connotation of Big Data

In the information age background, the rise of new media such as digital terminals, cloud services, Weibo, WeChat, etc., information data also showed an exponential growth trend. At present, there is no uniform definition of big data, but the academic community basically believes that it mainly refers to software and hardware tools, assembly-related data for perception, acquisition, processing, management and service. It has the characteristics of low value density, diversity, scale and high speed. Can be divided into structured data, semi-structured data and unstructured data. In the

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information age, big data has become an important production factor, and human capital and physical assets will become important factors for enhancing competitiveness. The main content of big data is to use scientific, advanced technology and methods to extract more valuable information from data objects. The era of big data is not about mastering data, but more importantly, the use of data. In the field of education, distance education has developed rapidly, and the LMS algorithm has been widely applied to make larger data and wider applications. On the basis of analyzing the development of the entire education industry, big data not only helps to improve the level of information technology, but also contributes to the concept of innovative education management and education management.

3. Innovating the Ideas and Thinking of College Education Management in the Age of Big Data

The teaching materials developed in the traditional education mode are usually some teachers develop a more subjective research project through their own teaching experience materials, but also have great limitations. The response of the national education effect is not complete and true statistics, so the tradition the model is limited by development. The era of big data is revolutionizing this situation. First, in the era of big data, we can process existing materials very quickly through network surveys and statistics. In this way, we can find out the advantages and disadvantages of the textbooks, in the shortest these advantages and disadvantages are often more objective and do not have much subjective awareness. In fact, the big data written in the textbooks is only a side effect, the big data on college education management, both for the statistical errors that students often enter, or for the impact of each classroom education statistics, in thinking and fundamentally changing the entire educational management thinking.

In traditional college teaching, although most university courses are open and allow non-professional students to participate, this model is still a concentration of teaching resources. University education resources can only be concentrated in universities, and other universities and society cannot spread. However, in the era of big data, this kind of centralized teaching mode will be fundamentally changed. Teachers can upload their own courses to the Internet through the network, so that students on the network can let students listen to the impressions and grasp the key points on the other hand. On the other hand, online teaching faces a wider audience, with lectures by students and social staff at universities or other universities, so education is no longer limited to universities. Nowadays, there are already many models of online teaching. For example, the current popular MOOC quality teaching resources, so that students in general universities can also enjoy first-class university teaching resources. MOOC is a good improvement to the imbalance of teaching resources in our country. It has its own unique advantages in addition to the advantages of other online teaching. In fact, the impact of the online teaching model in the era of big data and management in higher education is far-reaching. It requires not only traditional classroom education management, but also network education to ensure good teaching results.

4. Fragmentation and Asymmetry of Education Management Information

The advancement of the information age has given humans too much information, but it is also a hindrance compared to too little information. The enrichment of culture is a characteristic function brought by electronic media, but the fragmentation of the ensuing culture is indeed an obstacle for people. It is easy for people to get information in a unit of time, which is due to the transmission and processing of information technology. Educational managers have such complicated information that they are likely to be confused when they choose. Especially when the ambiguous content appears, it is like a variety of confusing information, which makes the judgment difficult, and management or decision-making is easy. The problem. This information also leads to a lack of new information when it is transmitted.

The theory of information asymmetry is different from the Nobel Prize winners James Mirleees and William Wicky, and was proposed in 1996, mainly because of participation. The information that people have on the information that is owned by both parties is not equal, the transaction relationship

under asymmetric information and the economic theory of contractual arrangements. The perspective can be used in the field of education. Therefore, in the economic activities, there is a new meaning provided by the theory of information asymmetry. In the context of the information period, in colleges and universities, the intrinsic relationship between the school as a whole and students, teachers, teachers and students, and teacher interactions also has the appearance of information asymmetry. Especially based on information asymmetry in the phenomenon of educational management. Information in teaching and management has different levels of requirements in both students and teachers. For example, the level of different requirements for computer operation skills is only in the education management department of the website information publishing school, ignoring the object itself. It is difficult to guarantee the fairness of education. For the evaluation of the quality of teachers' teaching, when collecting feedback from students online, the teachers may be too strict, so students will have more influences on the evaluation when they go to the evaluation. If the quality of the teacher's teaching depends only on the unilateral evaluation of the student, this may not promote a good teacher, and it will also make some irresponsible teachers sloppier, so that the quality of teaching will not be certain. The utility of it.

5. The Education Management System of Colleges and Universities Needs to be Reformed under the Information

The management system includes three aspects: the establishment of affiliation, the establishment of organizational structure and the division of management authority. The university education management system refers to the division of the organizational structure and power ownership of college education management. When it is divided, it should not only pay attention to the particularity of the training objectives, but also reflect the teaching level, and must follow the rules of education and teaching. This is part of the management system of the university. The traditional university education management structure is a pyramid structure, which is a vertical top-down model formed by bureaucratic organizational structure, "emphasizing the responsibility and authority of the management structure on the upper organizational structure."

It requires changing the traditional education management system and creating an education management system. In today's information age, the school's environment has become more complex and diverse, requiring schools to be managed in a variety of ways, as well as individualized. The traditional education management system is not flexible, and the response to changes in internal and external environments is not timely and too rigid. The new technology environment has broken through the rigid layout of the original educational structure, and the rigid and organized information communication has formed a flexible structure and a flat information transmission channel. Therefore, it is necessary to reform the traditional campus education management system. In the process of reform, information technology has provided strong support, injected new vitality into the reform of education management system, and is widely used in the school management organization system. Since the system is based on the implementation of a fundamentally different campus network education management system reform program, the education management of the campus network often grows from the grassroots movement of the school, which is the main user and promotion of a school faculty and staff. The majority of teachers and students are the owners of network information technology. They have the knowledge and ability to participate in the reform and are the leaders in the reform of the education management system. At the same time, the arrival of the information society has placed higher demands on the quality of education managers.

6. The Application of Big Data Technology in the Management of College Education

The main task of colleges and universities is to train more talents who are adapted to the development of society. Therefore, the teaching, teachers, research and management of the school must closely focus on the task of talent cultivation. However, the traditional education model is mainly based on prior education and does not pay attention to the cultivation of students' individuality.

At the same time, there is a big gap between domestic universities and the number of students and teachers is not very harmonious. In the common classroom teaching mode, it is difficult for teachers to comprehensively and profoundly understand the actual learning state of students. In the era of big data, the application of big data technology in higher education management can greatly improve the quality of higher education. The education data mining that the US Department of Education has adopted, and the analysis of other big data technologies, found that teachers can better understand the students' learning process through big data technology, and then sum up the best teaching methods and teaching order. Find problems in a timely manner and take effective measures to effectively provide students with personalized learning services in a timely manner. School management decisions can also leverage big data technology to play an important role in stimulating and supporting decision making. Big data can be found in the association rules between data and data, rather than proof rules. The main value is the intrinsic performance data discovered by each vendor, in order to develop big data application ideas and provide some guidance for decision making.

First, the service object. Schools can establish a wide range of teacher and student service systems, and should eliminate the information island effect and establish a systematic data analysis center. Establishing a unified data center and developing an information sharing mechanism are important foundations for promoting the development of big data. Dynamic data forms should always pay attention to the daily learning of teachers and students, internal life and the management of various departments of the school, clarify the data trends, and provide scientific and reliable data for the school to formulate management policies.

Second, the campus environment. At present, colleges and universities have begun to carry out campus information construction, which can establish a cognitive terminal on the campus and realize the Internet of Things. For example, the library lending system, the campus access control system, and the campus card terminal data can provide an important basis for students to carry out school activities. In addition, we can observe and analyze the trends of data and master the overall development law.

Third, the data warehouse. In the era of big data, most of the data is uncertain in advance. Data warehouses are better able to process and analyze data to fit the needs of the times.

Fourth, cloud computing. Cloud computing combines technologies such as load balancing, virtualization, distributed computing, and network storage to better meet the requirements of big data storage and computing, and better ensure data security.

7. Using Information Technology to Reform the Management of Teaching Plans

To deepen the teaching reform, the first step is to reform the teaching plan. Only a good teaching plan can guarantee a good teaching quality. Formulating a good teaching plan is the basis for establishing a teaching system, arranging teaching tasks, and organizing teaching processes. The teaching plan is generally based on the guidance of the corresponding education department of the country, considering the overall benefits, independently formulated by educators or related personnel. The teaching plans are in line with the rules of teaching and will remain stable for a period of time. However, in the long run, they must be constantly adjusted and revised in time to be able to adapt to the new development of society, economic and scientific and technological progress.

Education administrators must also change traditional teaching concepts and modify and adjust teaching plans in a timely manner. The reasons are as follows: First, from the requirements of the society for talents, it is because the requirements of the development of science and technology and social talents are getting closer and closer, the social requirements for talents should be integrated to formulate teaching plans; the second is the growth of talents. In view of the fact, the university is only a stage of learning and an important part of lifelong learning, not the end of learning. Therefore, in the university stage, we must learn professional knowledge, learn to learn, learn to live, learn to live together, learn to do things, and pay attention to the cultivation of innovative ability and creative ability. Third, from the perspective of the whole world, China has joined WTO, the trend of economic globalization is developing rapidly. Chinese talents must go to the world and compete in the whole

world. Chinese education should also pay attention to the cultivation of international talents. The information age requires us to keep up with the trend of the times, accurately predict the changes in the society's requirements for talents, and cultivate talents that meet the requirements of the state. To achieve this goal, we should make full use of information technology, develop teaching plans, and monitor and timely feedback in real time, and set parity standards for teaching programs so that college graduates can meet the social requirements as much as possible.

8. Campus Network Promotes the importance of Education Management

The environment is the foundation, and the foundation of education management is the construction of the platform of the campus network. Today's teaching is inseparable from this information platform. Therefore, we must pay special attention to the role of the campus network, especially considering the overall development and rational planning. The two aspects of the network should be clear about its deep meaning and application. What is online, this is a step in investment, this is Hierarchical advancement, how to integrate campus features and detect and manage all campus network files. Think about the standardization of network construction. The second is the overall planning. Fully consider and implement the development of the network, the application of software development and campus network construction. It must be very rational in construction, do a good job of network interface, and build limited funds in stages to maximize benefits. Third, the action is tough and soft. Generally, software and hardware should be combined and built together. Because the design software takes a long time, it takes more time to make network improvements. An information system of education management is composed of many aspects, with the stages of the teaching process, from management to implementation, and then to the results of the query and feedback. However, the system can be designed by itself, or it can be bought and used. It is especially concerned that the software is suitable and can be shared. The fourth is a special application, three-point technology, seven management, in order to achieve the best results. Due to the lack of management of the current network, the application of the network is problematic and even difficult to use. In terms of schools, we should arrange serious and responsible teachers with excellent skills to manage the campus network and promote the use of the Internet. Five is more advanced training. The campus network identifies all teachers, students, and administrators, teachers, and students, as well as campus education management and applications.

The training methods for reform students in the big data environment are mainly reflected in the following three aspects: First, the teaching methods of promoting “participatory” (also called cooperative teaching or cooperative learning) in teaching. This teaching method is characterized by question-based teaching and open content. There are no standard answers to the questions, and there are few or no assignments and papers, which can bring enough time and space for students to think freely. Use network technology and computer technology to collect relevant information to solve problems, and complete the learning process through the process of answering questions. Because of the information, and to identify key absorptions, process and produce their opinions, transfer their ideas to others. In this process, students not only mastered the ability to solve various problems through the network, but also learned the knowledge related to the "problem". At the same time, for different students, basic and comprehensive research and promotion, three levels of learning and training, teaching students in accordance with their aptitude, establishing appropriate training objectives for students' own characteristics, designing and rigorous student learning plans, as much as possible for everyone to get Very good development.

The second is to strive to cultivate students' social practice ability and strengthen practical teaching. In many cases, the lack of practical and experimental resources will affect the level of practical teaching. So what should we do in the absence of resources? We can use computers and networks to compile software that has the functionality of a virtual lab where students can simulate operations. For example, using computer software to dissect frogs (digital frogs) and the like in a virtual laboratory. The advantage of the virtual laboratory is that the cost is low, and the experiment fails. It is convenient to return. The students can practice repeatedly until they are proficient. It can

also simulate the situation where the naked eye is invisible or the experimental process is very dangerous or the experimental environment is difficult to establish. Meet the requirements of the experiment.

The third is to encourage students to study across disciplines and develop comprehensive talents. In today's society, with the development of information technology, new disciplines are constantly emerging. Most of these disciplines are formed by the intersection of disciplines. Establish an interdisciplinary training mechanism to cultivate students' interdisciplinary background. In the universities with harmonious basic disciplines, to break the barriers of different professional education, to create an interdisciplinary teaching training mechanism, we can learn from the experience of successful interdisciplinary teaching abroad. The specific implementation process is as follows. Based on the training plan, students are selected for compulsory courses. These courses are interdisciplinary, including literature, science, engineering, etc., in order to cultivate students' comprehensive analytical ability and stimulate students' innovation. Ability. It is necessary to provide a variety of professional, multi-disciplinary courses, and multiple teachers for students to choose, so that students can develop their own training goals according to their personal interests and conduct independent learning. Let student’s cross-department, cross-professional, and cross-class. Colleges and universities should improve relevant courses, grasp the new growth points of interdisciplinary disciplines, and organize multidisciplinary forces to carry out teaching, equip with necessary teachers, form an interdisciplinary teaching model, cultivate students' sense of innovation, and guide students to explore new fields. , develop yourself in all aspects.

9. Summary

The means of education management information and high-tech automation in colleges and universities, education management, and the requirements of the development of the times are realized by the popular technology such as computers and multimedia. Today, education management relies more on information networks and online decision-making. This is a kind of support and an improvement. Computer information systems have been systematically used today, and more of them are the role of a tool, which plays an important role in the use of information and support for decision-making. In the era of information management, under the influence of developed information, there is a higher demand for human capabilities. The high comprehensive and comprehensive quality requirements have also changed the personnel structure. Therefore, to achieve innovation to meet the requirements of the information age, it is more urgent to make education management a higher level.

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