Research on the Basic State Database of University Teaching under the Big Data Environment

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Abstract

In order to realize the normal monitoring of college teaching operation, establishing the undergraduate state database is an inevitable trend of education informationization, and also an important content of the construction of higher education teaching quality guarantee system.The article studies the goal and content of the construction state database construction, and proposes to deeply analyze and mine the basic state data of colleges and universities, which can better serve the teaching management of colleges and universities.

Keywords

informationization; teaching basic state database; data mining.

1. Introduction

The era of "big data" has come to the fore, and has had a transformative impact on people's work, study, and life. Higher education is also in the midst of this revolution, in order to better monitor the quality of teaching in higher education institutions. The construction of the basic state database of colleges and universities is imperative, and it is also an important part of the construction of the teaching quality assurance system in colleges and universities. The monitoring and evaluation of higher education in colleges and universities is to use modern network and information technology, such as using big data thinking, Internet thinking, cloud computing thinking, using Internet +, big data, cloud computing technology and methods to continuously collect and in-depth analysis of relevant data, according to college teaching The basic law of work, the data closely related to the undergraduate teaching work is organized according to certain logical relationships, and is presented through reports or graphs, which intuitively presents various states of higher teaching, because the data in the basic state database of teaching is from The basic data related to teaching extracted from each business system of the school can objectively reflect the teaching work of higher education institutions, provide an objective basis for solving the problems of education quality monitoring, monitoring, early warning and prediction, and can make scientific decision making.[2]

2. Construction Goals

Edwards Deming once said: "Besides God, anyone else must use data to speak." The basic data in the teaching basics database covers a wide range of topics, such as basic school information and conditions, teacher information, subject majors, personnel development, and students. Information and teaching management and quality monitoring, etc., basically contain the main observation points in the university teaching quality monitoring system required by the Ministry of Education. On the basis of collecting a large amount of data, follow the basic rules of university teaching work, and use modern information technology to conduct data. Processing,

reflecting the running state of teaching in higher education from multiple dimensions.[1] The specific construction objectives of the teaching basic state database are as follows：

(1) Guarantee the uniformity and accuracy of teaching state data

The data in the basic state database of the teaching comes from various business departments of the school. For example, the teaching information comes from the Academic Affairs Office, the basic information of the teachers comes from the personnel department, the scientific research information comes from the scientific research department, etc. The data entry adopts the criteria of "who generates, who maintains", and the distribution is different. Permissions determine both the uniqueness of the data source and the accuracy of the data.

(2) Realize the normal monitoring of the basic state data of school teaching

All state data in the state database can be queried according to the authority. The leaders of the school leaders and related departments can query the state data in real time according to the authority, and can perform data mining in different depths and scopes, and finally intuitively report in the form of reports and graphs. Show. Schools can also customize their reports or graphical presentations according to their needs.

(3) Realize the analysis of state data combination and establish mining association between state indicators and supporting data

The data in the teaching basic state database does not exist independently, and they are related to each other. Therefore, various data analysis techniques can be used to perform various analysis operations on the data. For the user, the report is displayed in the form of a report or a graphic. School leaders or department leaders can understand and analyze all kinds of teaching data of schools or departments from multiple angles and multiple aspects to gain a deep understanding of the meaning of these state data.[4]

(4) Realizing self-evaluation of schools, establishing a long-term management mechanism for school teaching status data, and normalizing the reporting of the Ministry of Education

Through the inspection and analysis of data normalization in the basic state database of teaching, timely and effective discovery of the anomalies that appear or are about to occur in the teaching work, using information technology to provide data support for school teaching quality analysis and early warning, also for school development and school Managerial decisions provide support. After the university has established its own basic database of teaching, data collection and analysis become normalized. When the university reports the "teaching quality report" and other documents to the Ministry of Education every year, it can directly generate various statistical reports required by the Ministry of Education. It not only avoids the school's repeated data collection every year, but also helps the school to establish a long-term management mechanism and evaluation system.

3. The Construction Content

The teaching basic state database is a very important part of the information construction of colleges and universities. Its establishment provides strong and favorable data support for strengthening teaching quality management and monitoring [5], so it is also an important window to reflect the quality of college teaching. Through the construction of the basic state database of teaching, the school can grasp the current situation of undergraduate teaching work from multiple dimensions, comprehensively analyze the basic state and changing trend of undergraduate teaching, and promote the effective improvement of teaching quality monitoring level [6]. The main contents of the construction state database construction are as follows:

(1) Data collection, exchange, sharing and reporting

The data of the basic state database of teaching involves all aspects of the basic state of the university, including tangible teaching conditions, as well as intangible campus culture, discipline construction and scientific research; the main body of the teaching activities includes both the faculty and the students; The status of the state includes both the undergraduate teaching reform construction and management reflecting the state, as well as the undergraduate teaching quality reflecting the effect, covering the basic information of the school, the basic conditions of the school, the teacher information, the subject profession, the personnel training, the student information, the teaching management and the quality. Seven aspects of monitoring, including hundreds of data indicators. Due to the wide range of data, the functional departments and departments of the school are divided into the basic data, and the relevant departments at the school level are summarized and summarized as the basic state database data of the school. After the data collection and review is completed, it can provide data query, display and management functions, and can automatically generate the "Basic Undergraduate Teaching Basic Status Data Analysis Report" and "School Undergraduate Course" that can be directly submitted to the Ministry of Education according to the requirements of the Ministry of Education. Teaching basic state data analysis report.

(2) Visual statistical analysis module

In the teaching basic state database system, the data analysis and mining technology commonly used in "Big Data" is introduced, and the teaching related data of the university can be browsed, analyzed and mined in multiple dimensions, which can generate flexible reports and graphics. Conduct trend forecasting.

(3) Horizontal comparison between schools and schools

The teaching basic state database can not only provide the school's macro data, but also classify and count according to the department. It can also provide various reports and statistical graphs, and users can customize the conditions and patterns for combined query, so that the department leaders can Knowing the location through various data can also give school administrators a deeper understanding of the current status of education and teaching in the school, and find advantages and disadvantages.

(4) Threshold setting and warning

In the basic state database of teaching, according to the "Basic Running Conditions for Regular Colleges and Universities (Trial)" issued by the Ministry of Education, thresholds can be set for various indicators, so that real-time monitoring and early warning of school conditions can be carried out. The specific indicators of the department are evaluated in a comprehensive level, so that the advantages and shortcomings can be found in time, and the data basis for the rectification and construction of the relevant functional departments of the school is provided.

(5) Set change trend and predictive analysis module to provide assistant decision

With the application of information technology such as big data to the information management of colleges and universities, the decision support system is also applied to the research of teaching and research in universities. After the establishment of the basic state database of teaching, on the basis of this, the paper analyzes various topics to find out the changing rules of the school teaching work, objectively analyze the internal relationship between the data, find out the internal causes behind the appearance, and find out the development process of the school. Faced or impending problems, the characteristics and differences of individual indicators in colleges and universities are found to reveal the long-term development trend of colleges and universities, to make predictions, and to provide evidence for decision-making analysis of school leaders and department leaders.

4. The Construction Effect

By establishing a unified and reliable data source and flexible statistical analysis and display, the university's basic state database system enables university decision-makers to grasp the current development status and future development trends of the school in real time, provide sufficient data support for decision-making, and effectively play educational decisions. The function of the system has promoted the scientific and institutionalization of educational decision-making. Specifically in the following aspects.

 (1) Promote self-assessment in colleges and universities

The teaching basic state database utilizes advanced network and information technology to present the undergraduate teaching status of the school in a digital way in the context of "big data", just like 3D printing, presenting a stereoscopic image of school running, especially undergraduate teaching. The main observation points in quality monitoring provide sufficient data support for the school to conduct self-assessment, enriching the means and methods of school self-assessment. At the same time, it also provides real and effective data for all kinds of statistical analysis and prediction of schools, helping schools to diagnose, diagnose and accurately judge, so as to effectively promote education and teaching reform and improve the quality of education and teaching.

 (2) Promote the refinement of teaching management in colleges and universities

The data is the basis of the informatization construction of colleges and universities. The basic state database of teaching upgrades the quantitative data to the quality status for examination and analysis, and changes the traditional thinking mode of university management, from sensibility to rationality, from fragmentation to systemization, by zipper. To the synergy, which greatly improves the level of refinement, systematization and informatization of teaching management in colleges and universities. Since the data of the basic state database system of the teaching comes from the secondary departments of the school, the grading collection and management of professional indicators and faculty indicators are realized, and the characteristics of undergraduate teaching in each department and each major can be analyzed and compared in a multi-dimensional manner, thereby correcting management decisions. The true teaching-centered service for the first line of teaching can not only promote the renewal of the teaching management concept of colleges and universities, but also improve the standardization of management.

 (3) Promoting quality monitoring in colleges and universities

The data and feedback information provided by the teaching state database can reflect the key factors of teaching quality work and help schools to set up teaching quality monitoring points. This will enable university decision-makers to grasp the current development status of higher education and future development trends, and increase school running. The transparency can also promote the improvement of the school quality monitoring system.

5. The Conclusion

The profound changes brought about by new technologies such as big data, cloud computing and the Internet have penetrated into every industry. The construction of information technology in colleges and universities is also a force that cannot be ignored in this trend. The collection and analysis of the basic state data of colleges and universities The school's teaching quality monitoring system has been improved, and the rights of teachers, students and the public to understand, participate and supervise colleges and universities have been strengthened to a large extent. Because the data in the basic state database of the teaching involves a wide range of fields, there are mutual dependencies and associations between the tables, and the collection requirements are high. Therefore, data collection and maintenance is

a very complicated system engineering, which requires the cooperation of various departments of the school, and With the deep research and exploration of the basic state data of teaching, it is necessary to improve the database.

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