

## **Research on the Construction of Quality Monitoring System with Teaching Evaluation as the Main Line in Colleges and Departments under the Background of Big Data**

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**Abstract:** Scientific and reasonable evaluation system of teaching quality is the guarantee of teaching quality in colleges and universities. Big data provides new ideas, methods and technical support for improving the existing teaching quality evaluation system in colleges and universities. As the front-line teaching units in colleges and universities, there are commonalities between departments and colleges, but more individual differences are caused by the differences of disciplines and majors. How to ensure the teaching level and quality of each department within the school has gradually been paid attention to by the school-level teaching quality monitoring system, and established a school-level teaching quality monitoring system, which is based on the most basic teaching activities. The design of the whole process monitoring system for teaching quality. It analyzes how to build a classroom teaching quality monitoring system and puts forward some thoughts.

### **1. Introduction**

With the continuous increase of the scale and enrollment of colleges and universities in recent years, China's higher education has made considerable progress. Teaching quality is the lifeline of colleges and universities, it is related to the survival and development of colleges and universities, and it is an important indicator to measure the level of education in Colleges and universities [1]. In the process of building a powerful country in higher education, local colleges and universities play a very important role. However, with the rapid increase in the number of students, the rapid development of local colleges and universities also exposes the problems of relatively inadequate supply of educational resources and unbalanced structure of disciplines and specialties [2]. For higher education, it is an inevitable trend to build a college teaching quality evaluation system with the support of big data. It is also an urgent task. Higher education developed countries and regions have gradually established a university-based teaching quality evaluation system based on big data [3]. Every industry and business function area today has been penetrated by data, and data has become an important production factor. People are also digging and using big data on the road to go further and further. Therefore, the comprehensive university department leadership evaluation model, teacher evaluation model and student evaluation model establish an evaluation system for colleges and universities, so that the evaluation of teaching quality in colleges is more scientific and objective.

### **2. Construction Principles of Teaching Quality Monitoring System in Colleges and Departments**

The construction of physical education quality evaluation system needs to establish a number of evaluation indicators, whether the evaluation system is reasonable, and the scientific needs to test the evaluation indicators. Big data affects the construction and innovation process of higher education teaching quality monitoring system, which is an important research field for the construction and innovation of higher education teaching quality monitoring system [4]. Under the background of big data era, massive data provides a variety of choices for universities to evaluate

teaching quality, but at the same time, it also adds some difficulties for universities to screen and mine the data related to education quality. But big data technology makes it possible to collect all teaching data in the whole process of teaching, and through big data statistics, analysis, mining, the whole process of evaluation is realized.

### **2.1. Principle of essentiality**

The components of the system are called the elements of the system. The so-called elements are important elements in the system. A system may have many elements, but when we artificially specify the system, only the important elements are selected. Integrating various teaching resources, taking the collection and processing of relevant teaching information as the core, constructing a scientific and reasonable monitoring model of teaching quality, and forming a set of strict, pragmatic and effective rules and regulations that can promote the development of vocational education and enhance its connotation [5]. It includes the formulation and implementation of the teaching plan, the preparation and approval of the syllabus, the examination and selection of teaching materials and reference materials, and the arrangement and use of teachers. In the semester, with the goal of ensuring the quality of teaching, a combination of routine inspection and special key examinations is carried out, and the mid-term teaching inspection of the implementation of teaching work is carried out in an all-round manner in a planned, organized and required manner. On this basis, the elements of the influence of faculty-level teaching quality should include “professional construction planning within the department”, “quality and implementation of professional training programs for departments and departments”, and “quality of classroom teaching”. “Practical teaching quality” and “quality of course examination”.

### **2.2. Goal principle**

To construct a teaching quality monitoring system at the department level is directly facing the students of each department. To implement different teaching quality monitoring standards for different disciplines, we should aim at "what kind of talents should we cultivate and how to cultivate such talents". The scientific management of big data in teaching is the technical support for the realization of the evaluation system of teaching quality in Colleges and Universities Based on big data. To ensure the effective use of collected data [6]. We are studying the faculty-level teaching quality monitoring system in colleges and universities. We cannot separate the elements that make up the system. We simply think that the system is a simple sum of all the elements. If the same teaching quality monitoring standards are implemented, it will stifle the innovation ability of a certain subject, which is not conducive to the cultivation of innovative talents [7]. By mining and analyzing big data, it reveals the potential relationship behind the data, thus providing a more scientific and rational judgment basis for management decision-making. As a faculty-level teaching quality monitoring system, it should focus on the deep monitoring of the disciplines within the department under the premise of observing the school teaching management system and the “model”.

### **2.3. Whole process principle**

Teaching quality monitoring can not only be targeted at a certain link, but throughout the semester teaching process. Through the holding of teachers and students teaching and learning sessions, student information feedback and other forms, the teaching and teaching management work since the beginning of the school inspection, summary and evaluation, find problems in a timely manner, to provide decision-making basis for the improvement of the teaching work in the latter period. Therefore, we should pay attention to the particularity of faculty-level teaching management as a subsystem within a larger system when constructing a faculty-level teaching quality monitoring system [8]. At the beginning of the semester, the quality of teaching is checked until the teacher prepares, teaches, exercises after class, usually tests, and until the final assessment, especially the practice and internships. This student-centered view of higher education quality puts students' learning outcomes and development at the root of improving the quality of higher education, returns to the origin of universities, and reshapes the primary position of higher

education personnel training.

### **3. Establishment of Teaching Quality Monitoring System in Colleges and Departments**

In the process of teaching quality management, the monitoring system of teaching quality at the college (department) level can produce such functions as planning, organization, command, coordination and control. Through listening to classes at all levels, we can master teachers' teaching attitude, professional level and students' learning atmosphere, and evaluate them from teaching attitude, teaching content, teaching methods and means, teaching quality, ability training, teaching effect and other indicators. The usual practice of teaching quality evaluation in colleges and universities is that before the final exam of each semester, students enter their own educational administration system, and a number of teaching quality evaluation indicators are given in the system.

#### **3.1. Teaching quality monitoring organization of colleges and departments**

The monitoring organization is divided into three parts: the first level monitoring organization is composed of the college (department) leadership, the teaching and research office, the teaching and research department and the expert group, which is in charge of the teaching inspection of the whole college (department). The whole process of teaching quality management at the faculty level should include the whole loop from the students' entering school to the students' employment. It is not only the executive center of teaching work, but also the core of talent training at the grass-roots level. It is the main unit for the specific implementation of teaching work. It plays a direct and basic role and has the characteristics of facing the educational object directly. Big data can provide more data support for student quality learning for teaching quality evaluation, which will ultimately change the way students learn and improve their learning efficiency. Moreover, it is convenient to communicate with the frontline teachers, and it is possible to timely discover and feedback the problems existing in the teaching, which can play a very important role in teaching monitoring.

#### **3.2. Contents of teaching quality monitoring in colleges and departments**

According to the characteristics of practical teaching process and the cultivation of students' innovation and entrepreneurship ability in applied universities, the contents of teaching quality monitoring in the three-level colleges and departments established above mainly include: talent training program, teaching document management, classroom teaching monitoring, practical teaching process monitoring, teaching research group, etc. Teachers in departments are not only professionals, but also researchers. They are familiar with the development structure and laws of specialties, and they are also closely related to employers. Based on the feedback information of the evaluation, by diversifying the application of big data, such as the early warning of students' learning conditions, teachers and students can communicate in real time, so teachers can improve their teaching design and students can manage their learning process. The enthusiasm of the relevant parties to participate in the evaluation will ultimately improve the effectiveness of the evaluation. It is convenient for the first-level monitoring organization to adjust the training plan according to actual needs, and improve the teaching quality of the hospital (system) while meeting the training objectives.

#### **3.3. Implementation method of teaching quality monitoring in colleges and departments**

In addition to providing counselors for students in each class, front-line teachers of teaching and scientific research are also employed as tutors for students. Students evaluate teaching through online evaluation activities, survey activities of teachers' curriculum satisfaction, student questionnaires and so on. Students are the main body of learning and evaluation. They are organized to make full use of the main role of students in evaluation in the form of questionnaire survey or online evaluation. Through the high-tech equipment such as the Internet and smart terminals, continuous and concomitant collection of all teaching-related data between teachers and students can be realized, including students' classroom performance, stage testing, and group

discussions. Explore effective learning methods, form a sense of lifelong learning, and encourage students to participate in the research work of teachers, and make every effort to improve students' interest in learning. Big data can extend and extend the teaching quality evaluation system to multiple levels, so that all relevant parties can make more scientific decisions based on rational evidence rather than just experience and intuition.

#### 4. Conclusions

In short, the introduction of big data into the evaluation system of college teaching quality, using the rational evidence and scientific decision-making provided by it, can realize the whole process of teaching quality, multi-level, multi-channel and multi-functional evaluation of colleges and universities, and then make the evaluation system of teaching quality more scientific. Comprehensive, accurate and objective. The process of constructing a perfect teaching quality monitoring system is a process of strengthening teaching quality awareness and gradually transforming educational thoughts and educational concepts. Based on the theories and methods of quality management and cybernetics, this paper constructs the quality control system of undergraduate teaching in Colleges and departments of colleges and universities, demonstrates the principles of the system construction and several components of the monitoring system, and puts forward some suggestions on the strategies for the operation of the monitoring system.

#### References

- [1] Wolbring T, Treischl E. Selection Bias in Students' Evaluation of Teaching. *Research in Higher Education*, 2016, 57(1):51-71.
- [2] Lino A, Álvaro Rocha, Sizo A. Virtual teaching and learning environments: automatic evaluation with artificial neural networks. *Cluster Computing*, 2017(4):1-11.
- [3] Fouskakis D, Petrakos G, Vavouras I. A Bayesian hierarchical model for comparative evaluation of teaching quality indicators in higher education. *Journal of Applied Statistics*, 2015, 43(1):1-17.
- [4] Jiang Y, Wang Y. Evaluation of Teaching Quality of Public Physical Education in Colleges Based on the Fuzzy Evaluation Theory. *Journal of Computational & Theoretical Nanoscience*, 2016, 13(12):9848-9851.
- [5] Martin-Gonzalez A, Chi-Poot A, Uc-Cetina V. Usability evaluation of an augmented reality system for teaching Euclidean vectors. *Innovations in Education and Teaching International*, 2015, 53:1-10.
- [6] Deng X, Zhou G, Xiao B. Effectiveness evaluation of digital virtual simulation application in teaching of gross anatomy.. *Annals of Anatomy - Anatomischer Anzeiger*, 2018, 218.
- [7] Pan W T, Huang C E, Chiu C L. Study on the performance evaluation of online teaching using the quantile regression analysis and artificial neural network. *The Journal of Supercomputing*, 2016, 72(3):789-803.
- [8] Oon P T, Spencer B, Kam C C S. Psychometric quality of a student evaluation of teaching survey in higher education. *Assessment & Evaluation in Higher Education*, 2016:1-13.