

The Practice Path of Quality Assurance in Application-Oriented Colleges and Universities Under the Background of Big Data Technology

Wenhua Zhang

Changchun Institute of Technology, Chznagchun, Jilin, 130012, China

Keywords: Big Data Technology, Applied Universities, Teaching Quality.

Abstract: Under the background of big data technology, the traditional model of education is being reformed at an accelerated pace. By using big data technology to organize and analyze teaching modules such as teaching management and research, it can effectively guide the optimization of teaching and learning, and improve teaching level and student learning efficiency. The article uses big data technology to conduct study management and research analysis, which is the booster of big data technology in the education reform of colleges and universities. Through big data technology, learning analysis, changing teaching concepts, optimizing teaching resources, rationally arranging courses, changing the original teacher-student station helps colleges and universities to cultivate application-oriented talents with more professional knowledge and higher comprehensive quality.

1 INTRODUCTION

From a macro perspective, big data technology is to analyze and apply the characteristics of data on a large scale and in depth, so as to ensure that the ontology value of data can be utilized by a large number of databases. However, from the point of view of practical application, big data technology is completed through network technology and computer equipment, which ensures that the equipment can effectively handle massive information flow, so as to meet the needs of cloud services. From a microscopic perspective, big data technology can be viewed as a single data storage and analysis tool and conduct in-depth research on it. At the same time, based on the high efficiency and high-quality computing power of big data technology, the application in different industrial fields can truly improve the efficiency of enterprises and provide new ideas for the development of the entire industry. From the perspective of future development trends, the various characteristics of big data are to provide services for computers and network systems, truly realize intelligent data transmission, to display human daily work and life in a digital way, and build a digital

economic chain to promote the development of society.

2 THE CURRENT SITUATION AND SOLUTIONS OF QUALITY ASSURANCE PRACTICE IN APPLICATION-ORIENTED COLLEGES AND UNIVERSITIES UNDER THE BACKGROUND OF BIG DATA TECHNOLOGY

2.1 Current Status of Research

The United States is the birthplace of modern educational assessment, and there are dozens of theoretical models of educational assessment in foreign countries, among which Taylor's behavioral goal model is undoubtedly the most influential one. Taylor's model is a typical assessment model of "goal-attainment-assessment" with goal as the core. In the classroom, experimental teaching is not a classroom,

* Corresponding author's email

but a series of teaching activities created by the teacher and the students in the classroom, which are truly devoted to the growth of the students. In this process, the connotation of the curriculum is constantly generated and transformed, and the connotation of the curriculum is constantly constructed and improved, so that students continue to acquire knowledge in practice. The role of the student subject is fully realized. Since then, researchers have explained assessment of teaching and learning in greater depth, and Cronbach, an American expert in curriculum assessment, clearly states in his book "Improving the Curriculum through Assessment" that "the greatest contribution that assessment can make is to find out which areas need improvement" and thereafter Scriven divides the two functions in "Assessment Methodology" as Formative assessment and summative assessment. Formative assessment focuses on improvement, while conclusive assessment focuses on judgment. In 1984, the American assessment experts E. Kuba and Lincoln published a paper entitled "The Fourth Generation of Educational Assessment", in which he pointed out that the results of assessment are not based on whether their objective reality is the same, but mainly by whether the views of the people involved in the assessment are the same, therefore, assessment should be more process-oriented and focus on unintended effects. The United States, the United Kingdom, Australia, New Zealand, Japan, and Germany, have been reforming the existing quality assurance system of higher education since the 1990s. Experimental teaching in the U.S. places more emphasis on stratification so that students can give full play to their subjective initiative in experiments, constantly update experimental content, and translate scientific research results into experimental teaching. This assessment method is flexible and can make full use of students' autonomy and creative thinking. In Japan, students are tested by teachers and given verbal tests to meet their requirements. In Germany, experimental teaching is assessed in terms of information finding, analysis and processing, comprehensive oral tests, creative ability and practical skills (Su, 2021).

2.2 Existing Problems

In recent years, there has been an increase in domestic and international research on applied undergraduate experimental teaching. In general, its main contents are: firstly, the construction of experimental teaching system in colleges and universities is discussed from several perspectives, including talent training programs, curriculum settings, teaching methods,

etc.; secondly, it is analyzed from the aspects of software, hardware investment, faculty guarantee and system guarantee. This has positive significance to promote the quality of experimental teaching and talent cultivation in higher education. However, there are still many problems in the research on the quality assessment standards of university applied undergraduate experimental teaching.

(1) The purpose of implementing education quality assessment in universities is to improve students' satisfaction. In the existing literature, many quality assessment indexes of experimental teaching are competence-oriented. Zheng Chunlong and Yu Jianchao argue that a curriculum system of experimental teaching should be established from the perspective of cultivating students' creativity. Higher education is service oriented in nature, and its teaching quality depends on the service recipients. Some scholars have focused their attention on the assessment of teaching quality and constructed a research system centered on student satisfaction. Selim et al. used student satisfaction as an indicator to assess the quality of university services. According to Gong Fang, in the evaluation system of undergraduate education quality, the two factors of "engagement" and "satisfaction" should be combined. Based on SEM, Sun Youran et al. constructed a model of factors affecting satisfaction with laboratory teaching. However, in practice teaching, the specific practice teaching quality assessment system aiming at students' satisfaction still needs further improvement.

(2) At present, most of the domestic and international researches on the quality system of experimental teaching focus on two aspects: qualitative and quantitative. Fu Xing and Cai Hongmei et al. used AHP method to establish a set of index system to assess the quality of English classroom teaching in college (Xie and Song, 2020). Shu Yu and Chen Cheng et al. conducted a systematic study on scientific research in Chinese universities. Liu Yuanlin explored the monitoring and evaluation system in experimental teaching, but they were all qualitative and did not analyze specific indicators. Liu Fucheng et al. have made some discussions on MBA experimental teaching, but it is difficult to evaluate the actual teaching in applied universities. As a whole, some existing studies have not quantitatively assessed the quality of experimental teaching in applied universities, thus affecting the scientific assessment of it, and it is also difficult to make horizontal and vertical comparisons. In addition, the current qualitative studies on university quality systems are highly arbitrary and lack a complete set of educational theories to support them,

thus making it difficult to ensure the scientificity of the final assessment results.

3 THE APPLICATION OF BIG DATA TECHNOLOGY IN APPLIED UNIVERSITIES

For the mutual benefit and protection of Authors and Publishers, it is necessary that Authors provide formal written Consent to Publish and Transfer of Copyright before publication of the Book. The signed Consent ensures that the publisher has the Author's authorization to publish the Contribution.

The copyright form is located on the authors' reserved area.

The form should be completed and signed by one author on behalf of all the other authors.

3.1 It is Beneficial for Teachers to Master the Frontier of Science and Technology

With the increasingly close communication between disciplines, the development of interdisciplinary has brought more difficulties to teachers of various disciplines. The courses taught not only cover the basic basic theories in the field of study, but also the basic theories and development trends of other related disciplines. Therefore, in the teaching process of application-oriented colleges and universities, teachers should correctly handle these intricate data and make full use of current information technology to better understand the current development of disciplines, so as to improve their teaching ability.

3.2 More Abundant Educational Resources and Higher Teaching Needs

Making full use of network resources in the era of big data can enrich classroom teaching, enhance students' listening ability, and thus improve the quality of classroom teaching. Especially for some theory students, because their theoretical experiments require more theoretical knowledge and some cutting-edge technologies, which cannot be completed in the current experimental environment, they can use big data technology to reasonably apply relevant animation demonstrations. teaching. In this way, under the circumstance that some colleges and universities save money, the teaching quality of theoretical experiments is also better.

3.3 Grasp the Mental Characteristics of Students More Quickly and Accurately

Now, with the development of information technology, teachers can use big data technology to judge students' learning status in this course based on students' classroom performance and their usual homework. Teachers can formulate corresponding teaching plans accordingly and seek ways to better mobilize students' enthusiasm for learning (Chen, 2022).

4 TYPICAL APPLICATION MODEL OF BIG DATA TECHNOLOGY IN APPLIED UNIVERSITIES

First of all, based on the learning system, a college study plan is formulated for students, so that students can clearly understand their own study plans and training methods, including practical training, internships, etc. How many credits you take, you also know how many credits you have. The second is the teaching system. Through this system, students can understand the teacher's teaching plan and teaching content at any time, so as to improve their preview and review ability. There is also a student system, which manages students' files, student status, payment, etc.; the library system provides students with convenient book borrowing and reservation locations. In the employment system, students can learn about the situation of the employer by uploading their resume, thereby establishing a good two-way selection system. The one-card service is convenient for students to travel by car, eat in the cafeteria, and see a doctor in the hospital (Yu, 2018). In addition, the psychological assessment of each semester can also be carried out through the big data model; similarly, through social platforms, students can communicate with classmates and teachers more quickly; some universities have introduced easy-to-learn courses, which can make it easier for students and more quickly learn about college events, exam information, grades, class schedules, and more; through Web pages, students can see what's going on. In short, the use of big data can make it easier for students and teachers to operate, and make students and colleges more closely connected (Liu and Zhang, 2021) as shown in Figure 1.

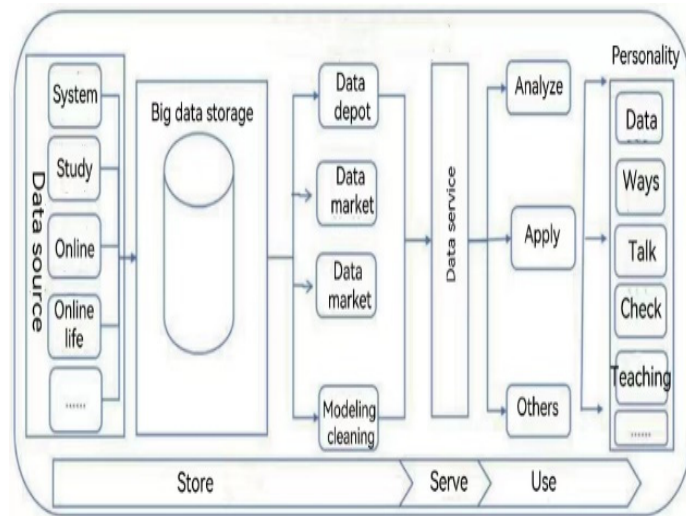


Figure 1: Application model of big data teaching in universities OWNER-DRAW.

5 THE PRACTICAL PATH OF BIG DATA IN APPLICATION-ORIENTED COLLEGES AND UNIVERSITIES

5.1 Formulation of a Learning Plan Based on the Guidance of Big Data

Big data can also be used to formulate students' study plans, thereby improving the science of making study plans. For example, using big data technology to analyze students' training content, compulsory content, elective content and completed content, and implement hierarchical management of students' overall learning plan, which can not only improve the overall level of learning plan formulation, but also ensure the formulation of Efficiency of study programs. In the process of learning, students can clearly understand their current learning tasks and the learning tasks that need to be focused on, so that the function of the learning plan can be maximized.

5.2 Constructing a Teaching Quality Improvement System to Ensure Students' Main Position in Learning

With the goal of cultivating talents with all-round development of morality, intelligence, physique, beauty and labor, it guides students to learn the theory and technology of data science, from business understanding, data acquisition, data display, big data

analysis theory and technology, artificial intelligence, etc., comprehensively train students in the whole process of data analysis. At the same time, the actual enterprise projects in the industry-university cooperation are transformed into comprehensive training courses to simulate the real situation of enterprises and cultivate students' ability to use data thinking and technology to solve practical problems, respect the subjectivity of students so that they can play a leading role in the classroom

5.3 Build a Teaching Quality Evaluation System and Carry out Evaluation and Certification of Undergraduate Majors

The teaching quality evaluation system of colleges and universities should be based on the campus network, and use computer information technology to implement scientific collection, distribution, management, data and information resource sharing, etc. integrated development. First of all, because it is a computer application system, it must introduce some basic content of college quality assessment into computer management to reduce human factors and make full use of network environment. The functions of data mining for evaluation, output of evaluation results and good user interface are realized. At the same time, it is also the more advanced evaluation system in my country's education evaluation work. In the evaluation process, in order to ensure the fairness and impartiality of the evaluation, more scientific and

reasonable evaluation methods must be adopted to promote the effect of evaluation (Smith, 1998).

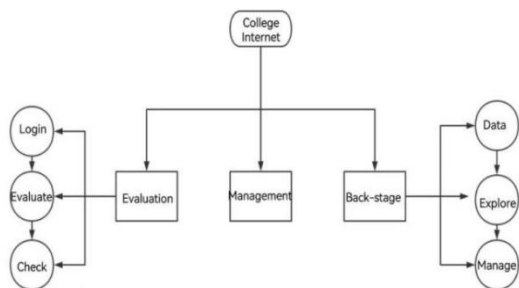


Figure 2: Structure diagram of the teaching quality evaluation system

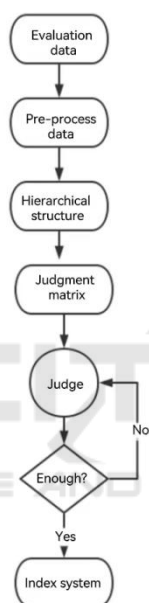


Figure 3: Flowchart of the teaching quality evaluation system.

5.4 Build a Teaching Quality Data Warehouse and Analyze the Achievement of Students' Professional Ability Requirements

At present, various education departments and colleges and universities have carried out a lot of research on the various professional abilities of college students, and formed a corresponding evaluation system. This assessment system is based on absolute data obtained from surveys, and thus the applicability of the assessment system is limited. Based on the differences in survey results in different regions, different levels, different majors, and different years, the evaluation indicators obtained are not precise enough. Through the analysis of the

degree of correlation between professional ability and occupation.

When obtaining employment feedback information of graduates, the first thing to do is to screen useful data and try to avoid unnecessary data interference in order to improve the accuracy of analysis. The data can be preliminarily processed by using the multiprocessing stage pattern in data mining. The processing process is shown in Figure 4.

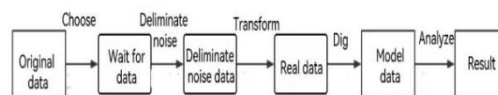


Figure 4: Processes the survey data using a multiprocessing phase model OWNER-DRAW.

6 THE EFFECT OF BIG DATA IN THE APPLICATION OF QUALITY ASSURANCE IN APPLICATION-ORIENTED COLLEGES AND UNIVERSITIES

6.1 Perform Supervisory Functions

The key point is to optimize the allocation of resources and improve the school environment by supervising the education system. It is necessary to start from strengthening the management system, enhancing the efficiency of the school, strengthening the ideological awareness, and strengthening the team building, etc., to establish a continuous supervision function. It has laid a solid foundation for improving the quality of teaching, and achieved effective supervision and management of students. The fast and effective feedback monitoring level plays a guarantee role in teaching management, makes decision-making scientific, and exerts the functions of adjustment and feedback on the macro level. In the operation of education quality, timely and accurately obtain information, feedback education quality status, conduct quality assessment, improve teaching quality, and strengthen the purpose of education and teaching.

6.2 Improve the Quality of Education

To correctly evaluate the quality of education in our country, we must start from improving the quality of teachers, ensure their dominant position in various ways, stimulate their subjective initiative, give full

play to the functions of teachers, directly promote the optimal allocation of educational resources, and continue to promote education. For quality development, the evaluation of teachers' professional titles should be divided into "gold medal teachers", "backbone teachers", etc., and there is a more scientific evaluation and assessment mechanism. At the same time, it is necessary to strengthen the training of teachers, strengthen the training of teaching methods, develop teaching models, and apply technical training to enhance the quality of education. At the same time, it is necessary to improve the management system and working mechanism, and strengthen the management of the education evaluation system.

7 CONCLUSIONS

The advent of the era of big data has brought great changes in our daily life, work, reading, shopping and other aspects, which is both an opportunity and a challenge for higher education. The application of big data technology in the education and teaching of application-oriented colleges and universities has changed the original teaching mode and broke the limitations of the previous teaching mode. In the era of big data, teachers can use the online learning platform to obtain the latest information on current teaching behaviors. Through big data technology, the refined management and services of colleges and universities can be greatly improved, and the informatization degree of higher education can be greatly improved. The intelligence of educational services. At present, some application-oriented colleges and universities in my country have used big data technology to improve the teaching management service model, and have received some results in practice. As an educator, we must seize the opportunity, keep up with the trend of the times, and make full use of big data. Technology, serving education reform, and providing strong support for cultivating high-quality, high-skilled compound application-oriented talents.

REFERENCES

- Chen Juan. Application and exploration of big data thinking in college teaching management [J]. Science Consulting, 2022(1):21-23.
- Liu Yanhui, Zhang Yuxia. Research on the application of big data analysis in the teaching quality assurance

- platform of local colleges and universities [J]. Journal of Handan University, 2021, 31(3): 88-90.
- Smith, J., 1998. *The book*, The publishing company. London, 2nd edition.
- Su Qingfang. Research on the Construction of Internal Quality Assurance System in Applied Undergraduate Universities [J]. Continuing Education, 2021 (2): 143-145.
- Moore, R., Lopes, J., 1999. Paper templates. In *TEMPLATE'06, 1st International Conference on Template Production*. SCITEPRESS.
- Xie Yuhui, Song Kai. The application of big data technology in college teaching: A review of the principle and application of big data technology (2nd edition) [J]. China Science and Technology Papers, 2020, 15(1): post-insert 14.
- Yu Kun. Research on the application of big data technology in college education and teaching [J]. Invention and Innovation Vocational Education, 2018(5):24