

Research on the Construction of Quality Control System for Postgraduate Training Based on Informatization

Junping Gao^{1, a}, Yijun Wang²

¹Graduate school of southwest petroleum university, Chengdu, 610500, China;

²Southwest petroleum university Network & Information Center, Chengdu, 610500, China.

^agjp0228@qq.com

Abstract

As the expansion of the scale of graduate students, the demand for graduate education information is increasingly urgent. The management of graduate education based on information technology is beneficial to the relationship between the scale and quality of graduate education and to the construction of the quality monitoring system of graduate education. This paper introduces the construction of the quality control system of graduate education based on informatization, and applies it to the graduate education management of the school, which not only improves the quality of graduate education, but also improves the level of graduate education management of the school.

Keywords

Informatization, Postgraduate cultivation, Quality monitoring.

1. Introduction

Postgraduate education ranks at the top of China's education system, is a major way to train high-level talents, is an important pillar of talent competition and science and technology competition between countries, is an important combination of science and technology is the first productivity, talent is the first resource, innovation is the first power [1]. According to annual data from the national bureau of statistics, the number of students enrolled in graduate programs has increased from 446,000 to 858,000 in the past decade. The number of students on campus increased from 1.283 million to 2.731 million. As the scale of postgraduate education and cultivation continues to expand, the existing educational management mode and quality control of graduate education institutions cannot meet the requirements of the new situation. Educational informatization is an effective way to promote educational reform and innovation and improve the quality [2]. Therefore, the realization of graduate education informatization is helpful to promote the modernization of graduate education management, to solve the relationship between the scale and quality of graduate education, and to guarantee and improve the quality of graduate education [3-4]. The construction of the quality control system of postgraduate education based on information is to manage the postgraduate education link by using the information management system of postgraduate education, and to provide a feasible and visual technical scheme for monitoring the quality of postgraduate education [5-8]. Taking the author's institution as an example, this paper briefly introduces the measures and achievements of this institution in the aspect of postgraduate training by using informatization, so as to provide a feasible reference for the construction of quality control system of postgraduate training based on informatization.

2. Functional Requirements of Postgraduate Training Quality Control System Construction

2.1. The Purpose of Establishing the Quality Control System for Postgraduate Education

As the highest level of education in China, the quality of postgraduate education is related to the level of postgraduate education. At present, the university has established a system for quality control of postgraduate training, in which the assessment indicators are directly related to the information and data of various archived materials. Due to the variety of paper materials, large base number and difficulty in reviewing, it is imperative to build a quality monitoring and management system for postgraduate training based on informatization in order to improve the work efficiency of postgraduate education. With the rapid development of information, the digital campus supported by information platform has become an important part of the development of modern education. The application of information technology in the graduate education, established a cross-platform, digital education resource of new education management model, forming modern information education technology and the organic combination of postgraduate education, to further standardize the graduate student information management, quality control of graduate education, providing intuitive, accurate and efficient data base. Build graduate education quality monitoring management system based on information technology, can realize multidimensional data quality of graduate education, sharing, interaction, and management and correlation analysis, not only can realize the related functional departments for graduate school to cultivate the quality of monitoring, but also for the quality of graduate education in secondary schools offer dynamic data information, convenient for secondary school in a timely manner to the carding and analysis of the quality of graduate education, constantly optimize the process of graduate education.

2.2. The Links and Functions of the Postgraduate Training Quality Control System

2.2.1. Structural Design of Postgraduate Training Quality Monitoring Platform

Graduate training quality information monitoring system to build the basic train of thought is the use of computer technology and information Web platform high concurrency, high speed, multidimensional, cross-platform features, based on the multi-dimensional of graduate student training data acquisition, tracking and records with the electronic archive, build the quality monitoring system of data model, data statistics, classification, correlation analysis, to realize the goal of cultivating process stability is strong, closing data, quality of graduate student information in digital monitoring system.

The quality information monitoring of graduate education in our university is a vertical management system with the graduate school as the main body and the secondary colleges as the individuals. The horizontal indicators are mainly composed of the objects of quality control, including postgraduate students, postgraduate supervisors and postgraduate course teachers. The system is composed of several modules, recording the basic data involved in the whole process of graduate students from admission to graduation. Specifically, there are modules such as students' basic data management, training information management, education administration management for students with academic degrees, education administration management for professional degrees, performance management, teaching evaluation management, education link management, and degree theory illiteracy audit management (as shown in figure 1).

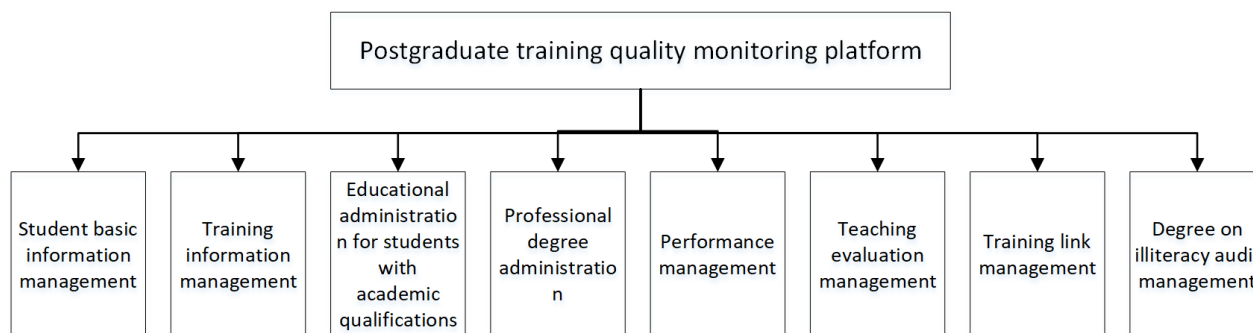


Fig 1. Structure diagram of postgraduate training quality monitoring platform

(1) student basic data management refers to the management module of postgraduate personal basic information, which is mainly used for students' basic information maintenance, course information inquiry, tutor management association, semester information, etc. The student basic data management module is the data foundation of the graduate student quality training system.

(2) cultivation information management refers to the management module of the postgraduate training program, which is mainly used for the planning, updating and management of the postgraduate training program. Concrete, has a degree of master training plan maintenance, maintenance, education PhD graduates Thurber even reading training plan maintenance, maintenance, professional degree equivalent master plan maintenance, maintenance, Dr Equivalent normal training plan query printing and transfer into, cultivating education master's degree program modification, Dr Program modification, professional degree program modification, Thurber liaison program modification, submit professional degree program DengZi module. Training information management is the management module of the core data of postgraduate training content.

(3) educational administration management of academic degree students refers to the educational administration information management module of academic degree graduate students. Specifically, there are sub-modules such as course opening management, course opening directory management, public course arrangement, specialized course arrangement, course selection statistics, course elective list, classroom schedule inquiry, and department total schedule inquiry. Educational administration management is a management module for graduate students.

(4) educational administration management of professional degree refers to the management module of educational administration information of graduate students of professional degree. Specifically, there are sub-modules such as course opening management, course opening directory management, public course arrangement, specialized course arrangement, course selection statistics, course elective list, classroom schedule inquiry, and department total schedule inquiry. The management of academic administration of professional degree is a management module for graduate course plan of professional degree.

(5) score management refers to the management module of the score information of postgraduate courses. Specific, set achievement information management, achievement import and export, examinee score query, lack of disciplinary information entry and other sub-modules. The result management is to the graduate student each course result data, the examination condition conformity archives, is one of the important indexes which evaluates the student to cultivate the quality.

(6) teaching evaluation management refers to the teaching quality evaluation of teaching teachers by postgraduates, and it is one of the indicators that feedback students' learning

gains. Specifically, there are sub-modules such as the definition of teaching evaluation, the setting of teacher teaching evaluation and the statistics of teacher teaching evaluation.

(7) cultivation management refers to the cultivation and management of various scientific research, academic and practical activities during the postgraduate period. Specifically, there are social practice audit, teaching practice audit, student academic report audit, literature reading report audit, papers and research results audit, student mid-term assessment audit sub-modules. The results obtained from the management of the training link are also the reference index for the quality of postgraduate training.

(8) degree on illiteracy audit management refers to the graduate degree on the process of illiteracy audit, review information, review results of the management of the module. Concrete, is equipped with a graduate degree thesis review, is pumped judge dissertation theory of inquiry, students pay the illiterate judge registration, paper secondary review, blind review external unit entry and the maintenance, the theory of illiteracy whose achievements recorded, students blind review results, modify, theory of illiteracy judge remittance charge list table, degree of illiteracy judge fee schedule, degree of illiterate judge to submit the table, degree of illiterate judge statistics DengZi module. The result of the examination of degree on illiteracy is one of the important indexes to reflect the quality of postgraduate education.

2.2.2. Functional Requirements of Postgraduate Training Quality Monitoring Platform

Graduate education quality monitoring system is a cross - platform, Web - based application system. To realize the data integration and sharing of graduate education resource management and realize the overall management and unified scheduling of information resources.

The postgraduate training quality monitoring platform adopts MVC architecture for hierarchical implementation, and the system interface layer adopts Web front-end technology for platform content presentation. The business layer adopts SSM framework to realize the processing flow of subsystem. Data interaction based on MySQL database; Use Nginx to separate front and rear ends to ensure load balancing and reduce coupling. The separation of the front and rear ends of the system architecture ensures the security of the data at the back end of the system.

The platform is equipped with the function of data import and export to ensure that the basic data of graduate students can be imported according to the template, and the statistical information to be submitted can be exported quickly. The system adopts the standard data interface stipulated by the ministry of education to facilitate the push and sharing of data with other systems in the school.

System platform authority hierarchy setting. Super system administrator as the overall operation and maintenance manager of the system, to obtain super rights; The graduate school, as the main administrative department, obtains the first-level authority; Each second-level college, as a second-level management unit, obtains the second-level management authority of each unit. Among them, the second-level colleges can only view the data related to the management of the school's graduate training quality.

3. Achievements in the Construction of Quality Control System for Postgraduate Students

Information management system for quality control of graduate education after officially launches since 2016, through nearly four years of constantly update perfect, realize the whole process from new graduate admission to the dissertation each link information tracking, such as training plan, opening report, academic activities and defense application materials such as upload, tutor finish review graduate program in the system, management personnel to develop curriculum, defense arrangement, etc. Through the information construction, it has improved

the monitoring, management and statistics of the training process data of more than 5,000 postgraduate students in the university. It can check the task progress of the school, the tutor and the postgraduate individual training link at any time to provide a basis for performance appraisal. Initially realized paperless office, optimized the cumbersome procedures of collecting and reviewing paper archives, greatly reduced the space occupied by archives storage; The curriculum arrangement, proposal, mid-term and degree awarding of postgraduates are published on the Internet, which enhances the quality awareness of postgraduates and tutors, and promotes the construction of teaching atmosphere and learning atmosphere of the university.

The quality of postgraduate training has been significantly improved: the doctoral dissertation has no "existing problem dissertation" in the sampling inspection of higher educational administrative departments in the past three years; Students participated in the China petroleum engineering design competition, known as the "petroleum engineering Olympic Games", and won the first prize twice in a row, accounting for 50% of the total. The university ranks the 73rd in the quality ranking of talent cultivation in "double first-class" construction universities released by the graduate education research center of Beijing institute of technology in 2018, and the 34th in the ranking of 95 first-class discipline construction universities. One graduate education reform achievement was selected as "a typical case of educational reform, innovation and development in sichuan province". The university ranks 43rd in the "double first-class" university education quality ranking in 2019. Petroleum and natural gas engineering degree graduate education through the master of engineering degree graduate education certification.

4. Conclusion

In addition to the top-level design and complete rules and regulations, the postgraduate training quality monitoring system also needs to assist the monitoring of postgraduate training quality by means of information technology. After nearly 4 years of practice and operation, certain results have been achieved through the construction of an information-based management system for the monitoring of postgraduate training quality. The visualization of the whole data of postgraduate training process has been realized, which has provided data accumulation for the quality assurance of postgraduate training, the management department and the performance appraisal of the supervisor. In graduate student education administration work for the future, you can also explore the use of the cultivation of the graduate student information management system has accumulated to graduate training quality data mining process data, conduct the thorough research to the graduate student learning behavior analysis, etc, in order to further improve the system of graduate education quality monitoring system construction provides the basis.

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