Construction of Self-Assessment Early Warning System of Degree Authorization Points From the Perspective of Intelligent Supervision

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Abstract

Graduate degree authorization audit plays an entry check role in the quality of graduate education in colleges and universities, and strengthening the evaluation of academic sites can better ensure the stability of graduate education quality. In order to improve the operability of the self-assessment activities, the indexes of the self-assessment link in the qualification assessment of degree authorization centers can be predictive tested by establishing a self-assessment early warning system. From the perspective of intelligent supervision, a set of multi-port data system is developed from the self-evaluation system and performance indicators of degree authorization points, which can diagnose problems and deficiencies in the operation and construction of degree authorization points intelligently and give early warning in time, providing reference for the adjustment and correction of degree authorization point's construction.

Key words: Intelligent supervision; Degree authorization point; Self-assessment; Early warning system

At the ninth meeting of the Academic Degrees Committee of The State Council, it was proposed to review the existing doctoral and master degree authorization sites by stages and in batches to diagnose and evaluate the quality of doctoral and master degree awarding. In the degree authorization point evaluation procedure, the unit self-evaluation is the basis of the whole evaluation work. Both the assessment by the competent authority and the peer expert communication are based on the materials reported by each authorized point during the self-assessment. [1] Therefore, it is very important to do a good job in self-assessment.

For colleges and universities, the degree authorization centers self-assessment is an important work for the graduate student education, they tend to use certain techniques and approaches for self-policing first, in the age of artificial intelligence +, intelligent supervision for college degree authorization centers self-assessment provides a new perspective, is conducive to the improvement of the degree authorization centers self-assessment and propulsion. What is intelligent supervision? Based on the understanding of "intelligence" and "supervision", intelligent supervision refers to the application of modern information technology, computer network technology and intelligent control technology to monitor, supervise and urge university's degree authorization center construction and management, and through the study of the judgment of degree authorization centers related data processing to achieve the degree authorization centers construction qualified basic goal.

1. DEFINITION AND IMPORTANCE OF DEGREE AUTHORIZATION SELF-ASSESSMENT

The self-evaluation of degree authorization centers is the beginning of the qualification evaluation of degree authorization centers, which has great influence on the whole evaluation work.

1.1 The Definition of Self-Assessment

Degree authorization point self-evaluation is a kind of self-diagnostic evaluation adopted by degree-granting units. Its purpose is to guarantee the quality of postgraduate training, strengthen the management of degree authorization points, promote the healthy development of the construction of degree authorization points, and check the construction of degree authorization points and quality assurance system of the units. It mainly includes objectives and standards, teaching staff, personnel training, basic conditions, and quality assurance.

1.2 The Significance of Self-Assessment

The self-evaluation of university degree authorization can highlight the characteristic development and sustainable development of degree authorization and improve the quality of postgraduate training.

1.2.1 Be Able to Consider the Commonness and Individuality of the Construction of Degree Authorization Points

The evaluation of academic degree authorization points in China is conducted under the unified guidance of academic Degree Regulations of the People's Republic of China, Interim Implementation Measures of Academic Degree Regulations of the People's Republic of China, Interim Provisions on Education Evaluation of Ordinary Institutions of Higher Learning, and a series of policies on academic degree and postgraduate education issued by academic Degree Committee of The State Council. However, due to regional differences, economic levels and other factors, the adoption of a "one-size-fits-all" approach to establish standards and evaluation will not achieve satisfactory results. At present, graduate education in China tends to be more and more diversified in training objectives, school-running mode, and quality standards. Only by fully considering the influence of regional development, economic level, school type, education level and other factors, can self-assessment consider both the development of commonness and individuality.

1.2.2 It Is Conducive to the Healthy and Sustainable Development of Degree Authorization Sites

Judging from the history of academic degree development in China for more than 30 years, the evaluation and supervision work of academic degree authorization has influenced the construction and development of academic degree authorization to a great extent, especially the self-evaluation mechanism led by self-evaluation has played an important role in the construction and quality assurance of academic degree authorization. On the one hand, self-assessment reflects the autonomy of running a school and reflects the responsibility of self-management of colleges and universities. According to the basic requirements of the state and the construction objectives of the degree authorization center, each unit shall conduct self-inspection and evaluation on the realization of the objectives and form a self-evaluation report, thus assuming the responsibility of self-supervision. Self-assessment is to find the problem as the starting point, to solve the problem as the foothold. In the process of evaluation, all teachers, students, and staff can have an in-depth understanding of the status quo of degree authorization sites, enhance their awareness of standardized management, and promote the healthy and harmonious development of degree authorization sites. On the other hand, self-assessment helps to link up with external assessment of eligibility. The complexity of postgraduate education and the uniqueness of degree authorization in China determine that self-assessment is a highly professional work, which lays a good foundation for external qualification assessment to verify the authenticity and reliability of self-assessment. The organic coordination of external supervision and self-evaluation is conducive to the formation of a rational sharing of responsibilities and rights among different subjects, such as the government, universities and society, and the construction of a virtuous cycle of operation mechanism. This can not only change the situation of "external evaluation and internal passive acceptance", reduce the external interference to the micro situation of training units, to make "self-evaluation" become a voluntary behavior of each unit; Moreover, it is beneficial to the sustainable development of degree authorization points in the long run.

1.2.3 Self-Assessment Is Conducive to Ensuring the Quality of Postgraduate Talent Training

Degree authorization center self-evaluation is an important measure to guarantee the quality of talent training. The guarantee and improvement of graduate education quality in colleges and universities is to supervise and manage the whole training process of graduate students from enrollment to graduation, so that graduate students can reach the standards required by relevant industries when they graduate. In this process, colleges and universities should provide teaching conditions, efficient teaching management and qualified teachers to meet the requirements of degrees. It is from these aspects that the degree authorization point of self-evaluation supervises and manages postgraduate education, establishes reasonable evaluation standards of relevant indicators, guarantees the quality of postgraduate education in all aspects, and provides standard or beyond

standard teaching configuration for postgraduate students, to improve the quality of postgraduate education.

2. PROBLEMS EXISTING IN THE SELF-ASSESSMENT OF DEGREE AUTHORIZATION INSTITUTION

In recent years, colleges and universities have become more and more aware of the importance of carrying out self-evaluation of degree authorization points. [3] As colleges and universities actively advocate and strongly support self-evaluation; self-evaluation has become more and more common and routine behavior. [4] Regular self-evaluation of degree authorization sites can strengthen the sense of responsibility and quality awareness of the construction units of degree authorization sites, so that the degree authorization sites can continue to operate in a good state. However, in practice, there are still some problems in the self-evaluation of degree authorization sites.

2.1 The Evaluation Method and Index System Are Not Perfect

[5] Existing university self-assessment index system is still not perfect, there is not enough evidence to fully demonstrate the discipline development prospects, development outlook, too much emphasis on the quantitative analysis index system at the same time, ignore the qualitative analysis in the assessment of the role of subject construction, and cannot be measured target of discipline, compelling force to improve. In addition, due to the lack of attention to the characteristics of degree-granting units, the self-assessment indicator system blindly seeks for unified and consistent standards, [6] thus giving up the characteristics of degree-granting sites and losing the diversification and liveliness of development.

2.2 The Lack of Internal Quality Assessment Institutions

Internal self-assessment subjects in schools often lack the participation of stakeholders; [7] which makes the internal quality assurance system of schools full of loopholes and cannot truly guarantee the gold content and credibility of self-assessment results. When focusing on foreign countries, we find that: in the UK, colleges and universities always set up internal quality assurance system, [8] and effectively deal with external quality assessment by implementing strong measures to guarantee the internal quality of schools. In China, [9] the existing self-assessment in schools is often not operated independently, and is inevitably influenced and interfered by administrative departments in the whole process of assessment operation, which makes the assessment just to deal with, too formal, and lack of real academic freedom. Therefore, the lack of internal quality assessment

institutions in schools and the top-down administrative system in schools are, to some extent, possible factors that hinder self-assessment from playing its role.

2.3 Self-Assessment Results Do not Play a Long-Term Role

The construction units of degree authorization sites often only pay attention to the results of self-evaluation, but ignore the full excavation and use of the evaluation results, so all the work is ended with the completion of the evaluation, and there is no follow-up reflection and transformation of the construction of degree authorization sites. Often, now, the external evaluation and the fund transfer, resources to plan, such as link, most colleges and universities put more thoughts on the external evaluation, so even though there are self-assessment subject construction, in the short term can spur major disciplines reflection and assessment of their own problems in the process of discipline construction, but in the long run, self-assessment is often unable to play its real effect, Put aside. Not only is discipline self-assessment a transient behavior, but also, to some extent, the evaluation results, evaluation indicators and evaluation process have not been effectively utilized in the current evaluation. Therefore, there is a common problem in the process of discipline selection, that is, the guidance of discipline construction is ignored, and there is no long-term mechanism to guarantee the follow-up use of self-assessment results.

2.4 Delayed construction of qualification assessment early warning system of degree Authorization centers

At present, the academic circle has just started the research on the early warning system of qualification assessment of degree authorization points. The existing early warning analysis is largely empirical analysis, and it is difficult to grasp the sensitivity index and random fluctuation of higher education. At the same time, due to the selection and screening of sensitivity indicators, the determination and adjustment of early warning limits, subjective evaluation factors in the evaluation index system and other problems, it has increased the difficulty of applying the early warning system of qualification assessment of degree authorization points.

3. CONSTRUCTION OF EARLY WARNING SYSTEM MODEL FROM THE PERSPECTIVE OF INTELLIGENT SUPERVISION

There are some problems in the self-evaluation practice of degree authorization centers, such as imperfect self-evaluation system, restriction of administrative power in the university, and lack of long-term application mechanism of self-evaluation results, which need to

be solved seriously. In view of the characteristics of artificial intelligence such as self-diagnosis, less human intervention, and long-term control mechanism, we plan to build a self-assessment early warning system for degree authorization points based on intelligent supervision to provide technical support for scientific and fair self-assessment.

3.1 The Connotation of Early Warning

Early warning refers to the prediction and alarm of a crisis before it happens. Specifically, the system uses a certain early warning model or decision model to describe the changing trend of the alarm source and its security state through the automatic input processing of the alarm source information data, [10]to obtain the dynamic change information of the danger situation of the alarm source and monitor the process of the transformation from the alarm source to the critical state of the crisis.

3.2 Principle of Early Warning

As a mechanism, early warning is based on certain principles. The following is an analysis of these principles and applications based on the self-assessment of degree authorization points

3.2.1 Relevance Principle

In the process of the emergence of the degree authorization point crisis, there is an interdependent relationship between the warning indicators and the final occurrence of degree authorization point. The change of one aspect can cause the related change of other aspects. Through correlation analysis, the regularity of crisis can be found. According to the changes of some factors, crisis early warning management personnel can infer the changes of relevant factors and evaluate some important antecedent variables, to grasp reliable data, predict the probability of crisis occurrence, and estimate the nature and possible consequences of crisis.

3.2.2 Similarity Principle

Crises of the same nature, in the process of formation, change and development of crises, appear in different times and different places have extremely similar laws. Based on the similarity principle of early warning, we can summarize the phenomenon rule of crisis from the self-assessment of the past and the current reality, to predict and judge the possible crisis signs and development trend of degree authorization sites in the future, to control the different environments and conditions of crisis.

3.2.3 Principle of Statistical Regularity

Crisis has strong randomness and uncertainty, but through the analysis of a lot of useful information about the history and reality, it is concluded that the crisis event has some statistical regularity of conclusion, for the degree authorization centers crisis early warning management using the theory of probability and mathematical statistics theory, the method to predict the crisis offer direct reference basis.

3.2.4 The Principle of Continuous Tracking

Due to the uncertainty of the crisis, the accuracy of crisis warning cannot be very high. In order to reach the goal of early warning and forecasting personnel in addition to the evaluation index, according to the degree authorization centers warning of a possible crisis to make long-term and macroscopic prediction, a main mission is to provide medium and short-term forecast result, still need to continuously track forecast object development dynamic, timely discover new industry, [11]the crisis management plan to make the corresponding adjustment.

3.3 Self-Assessment Early Warning System of Degree Authorization Centers

Based on the principle of early warning, we developed a set of multi-port data system from the evaluation system and performance indicators of degree authorization points to construct the self-evaluation early warning system of degree authorization points (see Figure 1 for details). The early warning system mainly consists of monitoring and early warning system, evaluation index system and user management system. The process of monitoring and warning mainly includes information acquisition (digital collection), data analysis (numerical analysis) and data application and service (intelligent service of data results).

3.3.1 Login Interface

After starting the system, the system login home page is entered first. After the operator enters the account and password, it can enter the main interface of the self-assessment early warning system of university degree Authorization points.

3.3.2 Information Collection

The early warning information of degree authorization points is collected through the information collection system, and then the information input. Information input can be divided into manual input and automatic input. The system provides manual input of academic leader information, academic team information, scientific research information, teaching and talent training information, material conditions and management information, characteristic projects, etc. The basic information inputted into the system is the basis and reference for self-evaluation of the degree authorization center. First, establish a database of data information. The development information of each indicator is collected and reflected in the data to form a database of data information for easy inquiry and retrieval. Second, strengthen the popularization and construction of the evaluation index system information system. To begin construction of sustainable development of graduate education management information system, determine the strategic early warning index system for the sustainable development of graduate education data information, establish a corresponding database, based on the comprehensive analysis of these indicators, to judge the trend of the development of the school of graduate

education, especially to the alert to make forecast ahead of his time.
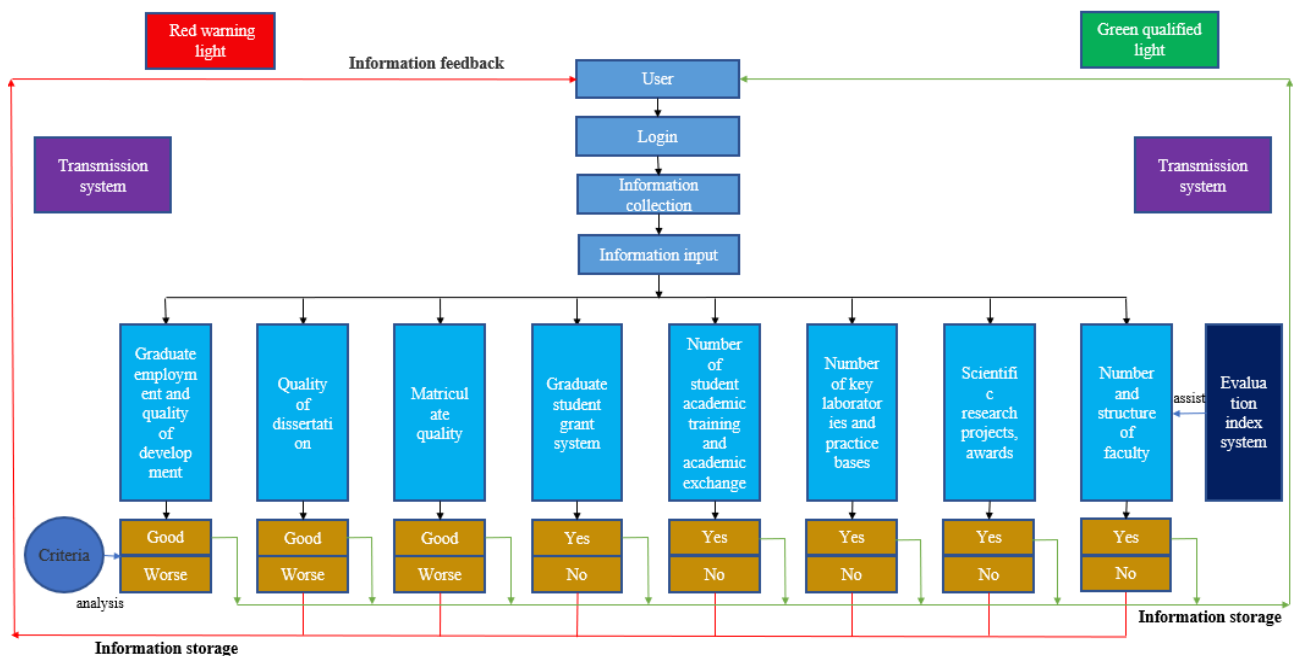
3.3.3 Early Warning Signal System

The early warning system provides a dynamic weight maintenance interface. By inputting the judgment matrix given by experts, the weight of indicators at all levels can be calculated and saved. Is through the system related to reflect on the sensitivity of the development of qualified indicators and handling of relevant data, through the study of the data analysis of each index, in a sign of a group of similar to the traffic lights, each index and comprehensive index under the current state of the represented visually, is used to determine the condition of the development degree authorization centers, degree authorization centers is qualified or crisis, and through the signal light for early warning display.

Green light: The objective index of degree authorization has reached the qualified status.

Red light: at least one objective indicator is not qualified.

3.3.4 Information Analysis, Transmission, and Feedback System

The early-warning evaluation function is the core function to realize the early-warning of self-evaluation of degree authorization centers. Through the evaluation and analysis of the index data of degree authorization centers, the decision-making is provided for the construction and development of self-evaluation of degree authorization centers. The function of early warning evaluation must be realized by means of information analysis system, transmission system and feedback system:

Figure 1
Early warning system diagram

(1) Information analysis system. The information analysis system is one of the two main auxiliary systems of the self-assessment early warning system of degree authorization. Complete and timely collection of original information and accurate and sensitive information analysis play a fundamental and decisive role in the effective operation of early warning system. We should not only collect the information of the hard index data of the school, but also comprehensively obtain the external information related to the society, the country, and the economy. Information analysis should be rational and objective, and be able to accurately grasp the sensitivity indicators and random fluctuations within higher education. When the indicators exceed the safety range, alarms will be activated and early warning information will be issued, and management personnel will be notified in time.

(2) Information transmission and feedback system. The early warning information is quickly fed back to the decision maker through the transmission center server for intelligent early warning, so that it can take corresponding countermeasures in time. If the early warning system cannot be smoothly conveyed to decision makers and decision makers cannot respond in time, the early warning system cannot play its role. Therefore, the feedback of early warning information needs to be seamlessly connected with mobile terminal APP, tablet PC and PC, so that the administrators of degree authorization sites can monitor and remotely manage it at any time. When a warning appears in the degree Authorization self-assessment early warning system, they should take timely measures to remedy it.

3.3.5 User Management System

Degree authorization centers self-assessment system is oriented degree authorization centers construction unit development system, different in charge of the hierarchy can be used to view and manage system in accordance with the authority and degree authorization centers management unit can inspect degree authorization centers through management platform construction, intelligent diagnosis problem and deficiency in the course of the construction of degree authorization centers and operation. In order to take corresponding measures in time, we should understand the educational quality and running situation of graduate education in the degree authorization centers in advance and analyze the causes of these problems.

4. FUNCTIONS OF THE SELF-ASSESSMENT EARLY WARNING SYSTEM OF DEGREE AUTHORIZATION CENTERS

The construction of self-assessment early warning system plays an important role in improving the decision-making efficiency and scientificity of managers and improving the training quality of graduate students. The proposal and implementation of the early warning system from the perspective of intelligent supervision has played a good role in promoting the self-assessment of degree authorization points in colleges and universities. The early warning system has three main functions.

4.1 Data Collection and Monitoring

The process of early warning is also a process of information collection. It plays a monitoring function on the objective indicators, such as the number of full-time teachers, key laboratories, base centers, students' international exchanges, and the quality of dissertations, by sorting out and collecting advanced data before evaluating them.

4.2 Prediction Function

Through the monitoring and foreseeing function of the early warning system, the person in charge of degree authorization points can predict to a certain extent where the problems occur, and timely modify and prevent the problems. When certain of degree authorization centers self-assessment indicators appear crisis early warning system can advance warning, remind policy-makers to prepare early or take countermeasures, have the effect of save for a rainy day, nip in the bud, so as to develop prevention countermeasures as early as possible, to eliminate the root of the problem, avoid some problems continue to malignant development, and guide the healthy development of the degree authorization centers self-assessment work.

4.3 Monitoring Function

When some index systems of degree authorization points' self-evaluation do not reach the standard data, the intelligent supervision and early warning system can not only warn, but also find the source of warning information in time, so that the decision makers can formulate effective measures in time and prevent mistakes in the process of self-evaluation.

The early warning system of degree authorization points is the supplement and perfection of graduate student quality assurance and supervision system. The graduate education administration department of university can make accurate judgment on the development and operation state of degree authorization points in advance.

5. THE ENLIGHTENMENT OF THE SELF-ASSESSMENT EARLY WARNING SYSTEM FOR DEGREE AUTHORIZATION CENTERS

The design and operation of the self-evaluation early warning system for degree authorization centers can monitor the development of degree authorization centers intelligently, predict the self-evaluation situation of degree authorization centers in advance, and help the principals of degree authorization centers make plans for the construction of degree authorization centers.

5.1 Selection of Outstanding Graduate Students

The quality of graduate students determines the quality of graduate education and training. Therefore, the university should strengthen the recruitment publicity, broaden the way of students, and select excellent students. Strengthen the management of the recruitment process.

5.2 Strengthening Academic Team Building

(1) Cultivate and introduce academic leaders and backbones. Academic leaders are the leaders of the academic team and affect the construction of the academic team. The university should cultivate and introduce more academic leaders and academic backbone, create good academic conditions for academic leaders, encourage academic leaders to drive academic research, and promote the construction and development of degree authorization sites.

(2) Pay attention to the principle of combining the use and training of tutors. First, graduate education needs a high-level team of tutors, so universities should strengthen the training of tutors. Mentor training includes not only the training of new mentors, but also the phased training of mentors. Through the tutor training, the graduate training process is more standardized, the quality of graduate training and degree awarding is improved, and the innovation ability and social competitiveness of graduate students are enhanced. Secondly, a perfect

selection system and assessment system for the tutor team should be established, and a mechanism for the postgraduate tutor to be able to rise and fall should be established, to mobilize the enthusiasm of the tutor team and support the tutor to strengthen the practice and energy investment in postgraduate training and guidance. Finally, support the academic exchange and further study activities of the tutor, improve the overall innovation ability and academic level of the faculty; we will increase funding for degree authorization centers and encourage tutors to apply for projects at or above provincial or ministerial level.

5.3 Strengthening the Development of Postgraduate Courses

The curriculum arrangement of graduate students should consider the coherence, hierarchy and systematicness of the curriculum system between undergraduates and postgraduates. Strengthening the effect of curriculum setting, emphasizing the principle of combining the in-class and out-of-class, theory and practice, knowledge, and ability of professional courses. It emphasizes the cross and integration between disciplines, highlights the role of special courses in cultivating the innovation ability of graduate students, and establishes a curriculum system combining professional courses, public courses and humanistic quality courses. To broaden the scope of knowledge of postgraduates, strengthen the setting of basic theory and interdisciplinary knowledge courses, pay attention to the training of basic research skills of postgraduates, and enhance postgraduates' scientific research ability is mainly the training link of innovation ability and scientific research practice ability. To encourage graduate students to participate in the research of the supervisor, improve the ability of analyzing and solving problems.

5.4 Improving the Postgraduate Education Management System

Equipped with high-level management workers, conscientiously carry out postgraduate management work, to ensure the effective implementation of postgraduate training programs and training plans and the completion of all links of postgraduate training. The postgraduate training program should carry out the policy of wide entry and strict exit and strict entry and strict exit with certain elimination rate. Be strict about degree management. For graduate degree management, the evaluation and defense of thesis should be strengthened, and it is suggested to adopt three-person evaluation and blind evaluation. In order to meet the requirements of dissertation evaluation, regular dissertation sampling mechanism can be established to promote the improvement of dissertation quality, to improve the quality and level of postgraduate education.

5.5 Improve the Construction of Academic Atmosphere and Environment in Colleges and Universities

It pays attention to cultivating graduate students' ability of self-organization, self-management, and self-restraint in academic exchange, so that graduate students can develop better academic exchange innovation ability and independent thinking ability through establishing and participating in various academic groups under the encouragement and guidance of the school and the tutor.

The construction of self-assessment early warning system of degree authorization can promote the sustainable development of graduate education. It can not only avoid the crisis and reduce the harm caused by the crisis, but also play an important role in improving the quality of talent training and building a country with human resources.

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