

# Research on the Construction of Normalization Mechanism of Graduate Education Quality Monitoring and Evaluation under the Background of Quality-Oriented Enrollment Expansion

## Article History

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**Abstract:** since the reform and opening up, with the economic and social development and industrial demand, the scale of graduate education in China has been expanding. According to the average annual growth rate of enrollment scale, it can be divided into three stages: recovery development, rapid development and steady growth. In 2020, the executive meeting of the State Council made the decision and deployment of graduate enrollment expansion. This quality-oriented enrollment expansion further highlights the risk challenges of the monitoring and evaluation of graduate education quality, and puts forward higher requirements for the monitoring and evaluation of graduate education quality. By strengthening the construction of monitoring and evaluation system, improving the monitoring and evaluation index system, enriching the monitoring and evaluation methods, and reasonably using the monitoring and evaluation results, the normalization mechanism of graduate education quality monitoring and evaluation with Chinese characteristics, in line with international trends, adapting to the needs of the industry and ensuring the training quality, is constructed.

**Keywords:** Quality Oriented Enrollment Expansion; Quality of Graduate Education; Monitoring and Evaluation; Normalization Mechanism.

## 1. Introduction

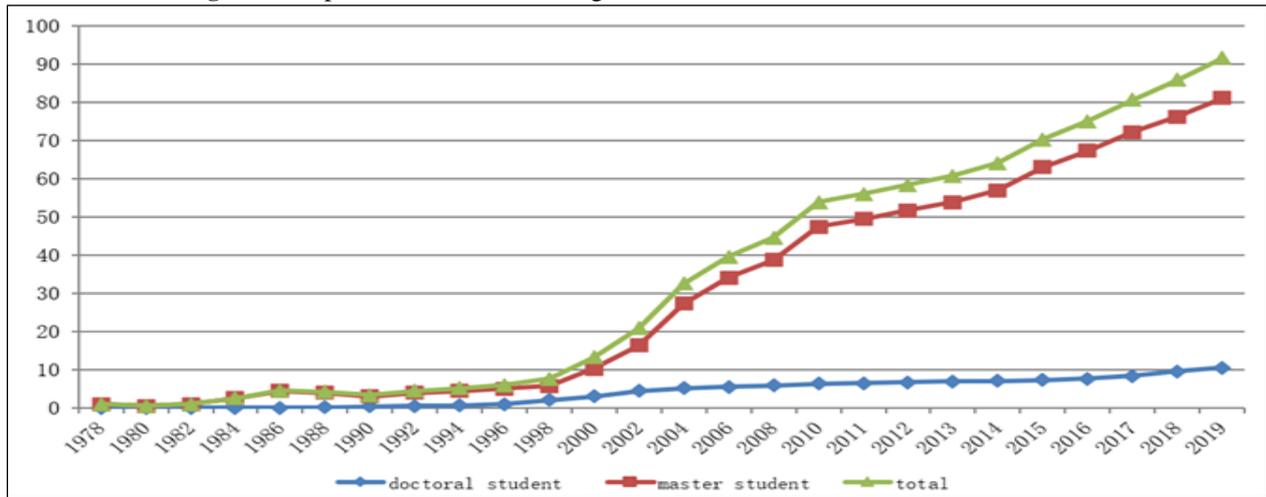
In February 2020, in novel coronavirus pneumonia epidemic situation in China, the Ministry of education made clear that the enrollment of 189 thousand graduate students in 2020 was the key period. At the same time, the enrollment plan for doctoral students has also increased significantly. The expansion of postgraduate education in China has aroused wide attention from all walks of life. This enrollment expansion is not simply to increase the enrollment plan, but to meet the needs of economic and social development, ensure the quality of graduate education, and reasonably expand the social function of graduate enrollment work. How to coordinate the relationship between scale and quality, improve the quality assurance system, and build a "lifeline" of quality, has become an urgent issue in the reform of graduate education. As an important evaluation paradigm of graduate education quality assurance system, monitoring and evaluation plays a key role in monitoring, early warning, forecasting and so on. Under the background of quality-oriented enrollment expansion, it is a key measure to speed up the construction of a normalized mechanism for monitoring and evaluating the quality of graduate education.

## 2. The Process and Function Expansion of Graduate Enrollment Expansion in China since the Reform and Opening Up

### 2.1. The Course of Postgraduate Enrollment Expansion Since the Reform and Opening Up

Scale, structure and quality are the core issues in the reform of postgraduate education at the macro level. The reform trend of "expanding the scale, adjusting the structure and ensuring the quality" runs through the development process of graduate education in China from scratch, from existing to large, from large to strong. In different historical periods, in order to meet the needs of economic and social development and industry, the focus of reform is different. From the historical dimension, the expansion of graduate education scale in China adapts to the overall economic and social development level, and shows a steady expansion trend on the whole (see [Figure 1](#) for details).

**Figure 1:** Expansion trend of China's graduate enrollment scale from 1978 to 2019<sup>1</sup>



Based on the trend of scale expansion, combined with the overall situation of China's economic and social operation, through the intuitive display of the trend chart, the expansion process of China's graduate enrollment scale since the reform and opening up can be divided into three periods.

### 2.1.1. Recovery and Development Period (1978-1998)

In order to resume the postgraduate education interrupted during the Cultural Revolution as soon as possible, the Ministry of Education issued the "opinions on the arrangement of postgraduate enrollment in Colleges and universities in 1978" in January 1978, and decided to officially resume the postgraduate enrollment work in 1978, and merge the enrollment plan of 1977 with that of 1978 (Wang Zhenchuan, 1978). With the formal launch of graduate enrollment, the degree and graduate education in China began to normalize. In 1978, China's graduate enrollment exceeded 10000, reaching 10708. In 1998, the total number of graduate students in China reached 77000, of which the number of postgraduate students increased to 57000, with an average annual growth rate of 9.09% in the past 20 years. At the same time, the enrollment of doctoral students has also increased to 20000. During this period, China's graduate enrollment scale has been rapidly restored and developed, which has trained a large number of high-level talents for the socialist modernization construction, and China's economic society has also ushered in an important period of development opportunities.

### 2.2.2. Rapid Development Period (1999-2010)

At the turn of the century, affected by economic globalization and financial crisis, China urgently needs to expand the scale of higher education and speed up the process of popularization of higher education. In 1998, the total number of college students in China was 7.8 million, and the gross enrollment rate of higher education was 9.8%. There was still a certain gap from the international minimum standard of popularization of higher education of 15%. During this period, both undergraduate and graduate education ushered in a new stage of rapid development (Wang Zhanjun, 2018). In 2010, the total number of graduate enrollment in China reached 536000, including 474000 postgraduate enrollment. The average annual growth rate during this period was as high as 19.3%, far higher than the 40 year average growth rate of 11.32%. At the same time, the enrollment scale of doctoral students has also reached 64000. During this period, the scale of graduate education in China expanded rapidly, especially the new full-time professional degree graduate education in 2009, which ushered in a period of rapid development. It is worth noting that during this period, the relationship between the expansion of postgraduate enrollment and the major events of economic and social development is very obvious: in 2003, affected by the SARS epidemic, in order to promote economic and social development and ensure employment, the number of postgraduate students enrolled was 220000, an increase of 56000 over 2002, an increase of 34.15%. In 2009, affected by the international financial crisis triggered by the subprime mortgage crisis, 449000 graduate students were recruited, 63000 more than in 2008, an increase of 16.32%.

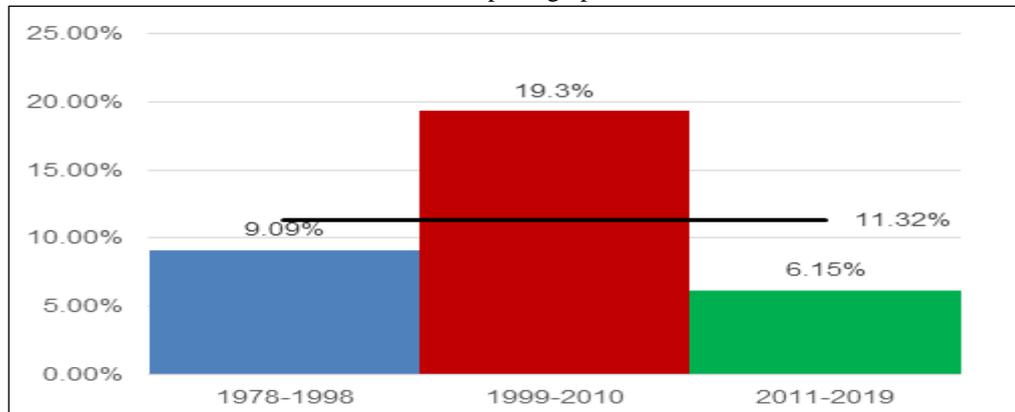
<sup>1</sup> Data source: Education Statistical Yearbook and national education development statistical bulletin published by the Ministry of education over the years.

### 2.1.3. Steady Growth Period (From 2011 to Now)

After a period of rapid development, China's graduate education has entered the ranks of major countries in graduate education. By 2017, the number of graduate students in China has reached 2.64 million, becoming the world's second largest country in graduate education after the United States. After 2011, the focus of graduate education reform in China has gradually shifted to "adjusting the structure and improving the quality", and the expansion speed of graduate education has slowed down. By 2019, China will enroll 916500 postgraduates, including 811300 postgraduates, with an average annual growth rate of 6.15%, and 105200 doctoral students, with an obvious slowdown.

The division of the expansion process of graduate enrollment scale is mainly based on the average annual growth rate of graduate students (especially master students) in different stages (see Figure 2 for details). The main purpose of division of periods is to better understand the internal relationship between graduate enrollment expansion and economic and social development, and then understand that the expansion and externalization of social functions of graduate enrollment work is derived from quality-oriented enrollment expansion. Based on this background, this paper examines how to better use monitoring and evaluation to build a quality assurance system for graduate education under the current background of quality-oriented enrollment expansion.

**Figure 2:** the average annual growth rate of China's postgraduate enrollment in different periods since the reform and opening up<sup>2</sup>



## 2.2. The Arrival of the Era Of Quality Oriented Enrollment Expansion And Its Connotative Functions

On February 28, 2020, Weng Tiehui, Vice Minister of education, said at the joint prevention and control press conference of the Information Office of the State Council that the new enrollment plan for master's degree in 2020 will focus on the fields urgently needed to serve the national strategy and the people's livelihood, such as clinical medicine, public health, integrated circuit, artificial intelligence, etc., with professional degrees as the main subjects. According to the enrollment expansion plan, China will enroll more than 1 million postgraduates in 2020, with an increase rate of 23%. At the same time, the enrollment scale of doctoral students will also be moderately expanded. As early as the second ministerial party group meeting held by the Ministry of education in 2017, it has been clear that "during the 13th Five Year Plan period, we should optimize the supply structure of high-level talents from the strategic height of building an educational power and an innovative country, moderately accelerate the development of postgraduate education, especially doctoral students. It is estimated that the total enrollment of doctoral students in China will reach 100000 by 2020". In fact, this goal has been achieved early in 2019.

It is worth noting that the expansion of the enrollment scale of graduate students in 2020 is not only a temporary study of policies to alleviate the employment situation, but also a major strategic decision made by the CPC Central Committee and the State Council, taking into account the overall situation of China's economic and social development, based on the current situation, focusing on the long-term, and planning ahead of time. The enrollment expansion of novel coronavirus pneumonia has both direct impact on the impact of the new crown pneumonia epidemic and the pressure of graduates to get employed. It is also the future direction of the long-term plan for education development planning. In the current macro

<sup>2</sup> Data source: Education Statistical Yearbook and national education development statistical bulletin published by the Ministry of education over the years.

background of deepening the reform of graduate education, "quality" has become the core proposition of graduate education reform in China.

With the early realization of the popularization stage of higher education in China, the expansion of postgraduate enrollment is not a simple quantitative expansion, but a quality-oriented expansion. Driven by the rapid economic and social development and the rapid expansion of higher education in China, the social functions of "ensuring employment, adjusting structure and promoting development" derived from graduate enrollment work should be included. Therefore, the quality-oriented enrollment expansion is far beyond the emergency needs of relieving the employment pressure of graduates, and it is an inevitable move to cultivate and reserve high-level professionals and improve the national core competitiveness.

### **2.3. The Significance of Constructing the Quality Monitoring and Evaluation System of Graduate Education under the Background of Quality-Oriented Enrollment Expansion**

Monitoring and evaluation, as an important part of the quality assurance system of graduate education, has been paid more and more attention by education authorities and graduate training units. It is also recognized and welcomed by tutors, graduate students and the public. It is one of the key measures to ensure the quality of graduate education. To carry out normal monitoring and evaluation has become an important link to improve the quality of postgraduate training. At present, the quality assurance system of any industry needs scientific and reasonable evaluation as an important basis, not to mention graduate education, the highest level of education system. Under the macro background of the current quality-oriented enrollment expansion of graduate students, we should establish and improve the monitoring and evaluation system of graduate education quality, further clarify the connotation of graduate education quality, improve the evaluation index system, enrich the evaluation methods and methods, and reasonably use the evaluation results to build a graduate education quality with Chinese characteristics, in line with international examples, to meet the needs of the industry and to ensure the quality of training. The normalization mechanism of monitoring and evaluation is of great theoretical value and practical significance.

First of all, from the perspective of application value, the construction of graduate education quality monitoring and evaluation system has a close internal relationship with national major development strategies such as powerful higher education, strong talent, innovation driven development, which is one of the basic guarantee measures to realize the above national strategies. Secondly, constructing the monitoring and evaluation system of graduate education quality and constantly improving the relevant theoretical basis of dynamic monitoring and evaluation of graduate education quality driven by big data are targeted policy actions to comply with the development law of graduate education in the new era and respond to the social concerns of graduate education. Third, to promote the deep combination of theoretical research and practice of graduate education quality monitoring and evaluation, and to "find out the status" based on objective facts or data is the key point to solve the deep dilemma of high-quality development of graduate education in China. Fourth, in recent years, the academic misconduct, the lack of innovation, the flooding trend of water courses, and the low employment rate in the field of graduate education have put forward new requirements for strengthening the monitoring and evaluation of graduate education quality. The monitoring and evaluation of graduate education quality helps to find and contain quality problems in time, and establish and improve the quality early warning and prediction machine. Support multiple judgment, scientific decision-making and continuous improvement.

### **3. Literature Review on the Current Situation of Graduate Education Quality Monitoring and Evaluation in China**

Quality is the lifeline of degree and postgraduate education. Strengthening quality monitoring and evaluation is the key to guarantee the quality of graduate education. In February 2020, the general office of the CPC Central Committee and the general office of the State Council issued the opinions on deepening the reform of education supervision system and mechanism in the new era, The reform measures such as "strengthening and improving education evaluation monitoring", "focusing on education and teaching quality" and "improving the evaluation and monitoring index system" are clearly put forward, which provide basic follow-up for the improvement of quality monitoring and evaluation in the field of education, and become the guiding document for the quality monitoring and evaluation of graduate education in China in the new historical period.

Graduate education in developed countries started earlier, and after a long period of development, they began to attach importance to the evaluation of quality. The United States carried out graduate education quality evaluation earlier. Carter reported the evaluation work carried out by the US Board of

education on 106 doctoral training units in 1964, including the investigation of graduate development quality, prediction of the future development trend of the discipline, and opening up a new field of graduate education quality evaluation (Carter, 1966). China's graduate education started relatively late. After experiencing the stage of scale expansion, the current graduate education has transformed into high-quality and connotative development, and the theoretical research and practical exploration of graduate education quality evaluation also began to develop rapidly. Wang Zhanjun carried out the research on postgraduate education quality evaluation earlier in China. In the process of constructing the quality evaluation system, he proposed that monitoring and evaluation is a new type of higher education quality assurance that adapts to the new normal of China's higher education development, and expounds the implementation path of monitoring and evaluation from the aspects of system construction, following principles, formulating indicators and guarantee mechanism (Wang *et al.*, 2015). He xiuchao analyzed the progress and achievements of graduate education evaluation in China from the macro level, and pointed out that innovation of postgraduate education evaluation system is an urgent work at present. We should speed up the construction of dynamic monitoring system, solidly promote the regular evaluation work system, highlight the bottom line supervision and innovation index system, so as to ensure the effectiveness of the evaluation work (He, 2018).

Wang Zhanjun also explored the construction of graduate education quality index. Referring to various social development indexes, Wang Zhanjun proposed the construction scheme of graduate education quality index, including five dimensions of input, output, structure, internationalization and satisfaction, and five basic observation indicators (Wang and Tang, 2017). Ma Yonghong, et al. Focused on the construction of professional degree graduate education quality index, and based on the process management theory, constructed a total index of professional degree graduate education quality with teaching and training index, practice training index, achievement output index, competency index, employment quality index and satisfaction index as the secondary index, and verified that the index has good applicability through the survey data Sex (Ma *et al.*, 2019).

Xia Wenjin, et al. Believe that the main body of postgraduate education quality evaluation in China is still relatively single. It is suggested to expand the evaluation subject, actively build an evaluation system with multiple participation of the government, society and universities, and elaborate the specific path of the construction of the multiple participation evaluation system from the three dimensions of government, society and universities (Xia and Guo, 2014). Chen Jing, et al. Discussed the necessity of third-party participation in postgraduate education quality evaluation from the perspective of public responsibility of colleges and universities, production and accumulation of symbolic capital, and social public participation demand. He believed that the lack of functionality and lack of system norms caused by the lagging development of the third party increased the risk of evaluation, and the information asymmetry caused the third party to participate in the evaluation was difficult. He proposed that the government should take part in the evaluation of graduate education quality In order to promote the participation of the third party in the evaluation work, we should actively cultivate and strengthen the supervision, strengthen the self construction of the third party, adhere to the publicity of information in Colleges and universities, and create a good evaluation cultural atmosphere in the society.

From the perspective of improving the evaluation method, Li Fen, et al. Proposed that carrying out graduate education evaluation based on big data technology can increase the accuracy, immediacy and openness of the evaluation, and strengthen the early warning and prediction function of the evaluation (Li and Wang, 2016). Qiao Gang, et al. Studied the construction of quality monitoring platform, and proposed to explore the platform construction path from five aspects: further improving the information disclosure system, establishing the goal of multi subject sharing, continuously expanding the way of data collection, constantly improving the feedback mechanism, and Comprehensively Strengthening the cultural construction (Qiao and Zhou, 2017).

At present, the theoretical research and practice of graduate education quality monitoring and evaluation in China is still in the stage of exploration and improvement, and the monitoring and evaluation system, index system, evaluation methods and results application still need to be improved. Affected by the current single evaluation system, there are some deep-seated dilemmas in the field of graduate education quality monitoring and evaluation in China: the differentiation of evaluation indicators is not strong, the pertinence, sustainability and effectiveness are insufficient, the evaluation methods are not updated in time, the use of modern information technology is not sufficient, and the application of evaluation results is unreasonable, so there is a large space for expansion in this field.

## **4. The Main Difficulties Faced By the Construction of the Normalization Mechanism of Graduate Education Quality Monitoring and Evaluation Under the Background of Quality-Oriented Enrollment Expansion**

Although China's graduate education started late, it has developed rapidly. After several rapid expansion, the scale of academic degree doctoral students in China has surpassed that of the United States, ranking the first in the world; the total scale of full caliber doctoral students has leapt to the second in the world. With the expansion of graduate education quality-oriented enrollment and the expansion of social functions of graduate enrollment, China's graduate education has stepped into the path of quality-oriented connotation development, and monitoring and evaluation will become the key link of the quality assurance system of graduate education. Under the macro background of the quality-oriented enrollment expansion of graduate education in China, the monitoring and evaluation of graduate education quality is still facing great challenges.

### **4.1. The Monitoring and Evaluation System Is Not Perfect**

At present, the only normative document on higher education evaluation in China is the "Interim Provisions on the education evaluation of ordinary colleges and universities" issued by the former State Education Commission in 1990, which has been unable to adapt to the rapid development of graduate education and the call of the times. Under the influence of long-term planned economy regulation mode, there is still a strong administrative color in the field of higher education, and the regulation mode of educational resources is still single. Under this macro background, the monitoring and evaluation of graduate education quality is mainly organized and implemented by government agencies, forming a relatively single monitoring and evaluation system dominated by government agencies (Xia and Guo, 2014). The government agencies mainly carry out the monitoring and evaluation of graduate education quality through various administrative means, which ensures the authority and fairness of the monitoring and evaluation activities in a certain period of time, which is conducive to ensuring that the monitoring and evaluation activities serve the development direction of national graduate education. However, from a long-term perspective, the evaluation criteria constructed by the monitoring and evaluation system led by government agencies are relatively single, which affects the pertinence of evaluation, the diversity of means, and the multiple application of results. The monitoring and evaluation can not effectively meet the connotative development needs of different universities, which is not conducive to the democracy and scientificity of graduate education quality monitoring and evaluation. Under the current traditional single monitoring and evaluation system, the self-evaluation and social evaluation of graduate education in China are still relatively weak. The self-monitoring and evaluation mechanism of colleges and universities is not perfect, the status is not prominent, the role is not obvious, and the needs are not taken seriously. The strength of social monitoring and evaluation institutions is weak, the evaluation results lack of authority, and the use value is not very large. The problems in the above-mentioned systems and mechanisms have brought a series of adverse effects on the monitoring and evaluation of graduate education quality in China.

### **4.2. The Monitoring and Evaluation Indicators are Not Precise**

The monitoring and evaluation of graduate education quality is mainly a process of research and development of evaluation index system, collection of education quality data, analysis and application of evaluation results. Therefore, a scientific and reasonable index system is the basis and premise for the quality monitoring and evaluation of graduate education. The research and development of the evaluation index system has become a research hotspot in the field of graduate education, and various evaluation index systems emerge in endlessly. At present, the quality monitoring and evaluation index system of graduate education in China still has the problems of single standard, not prominent pertinence, unreasonable design, and difficult to reflect the connotative development needs, and can not well adapt to the personalized development of graduate education and the needs of independent running schools in Colleges and universities (Wang and Tang, 2017). At present, there are two kinds of problems in the research and development of the index system: one is that the design of the index system is lack of pertinence and the differentiation is not enough. As for the current evaluation system, the quality of the evaluation team is not limited by the overall situation, and the quality evaluation system is not limited by the overall situation and the quality of the evaluation system. However, it is difficult to distinguish the reality and characteristics of graduate education in different universities, industries and disciplines, which affects the actual effect of evaluation. Colleges and universities with different school orientations will even formulate the development strategy according to the indicators in order to improve the evaluation

ranking, which is against the original intention of the evaluation work. Second, the evaluation index system is not perfect. The assessment work led by the government has a wide range, heavy tasks and tight time. In order to successfully complete the evaluation work and reduce the disputes of the evaluation results, the design of evaluation indicators should focus on the accessibility of data collection. Therefore, the current evaluation index mainly uses the quantitative data which is easy to obtain and open, and there is a big lack in the design and use of qualitative indicators, which leads to the current evaluation index system has a bad tendency of paying attention to the total amount of resources input, ignoring the efficiency of resource utilization, paying attention to the scale benefit and the per capita benefit, paying attention to the teaching and scientific research infrastructure, neglecting the cultivation of talents and the cultivation of learning style and morality.

### **4.3. The Monitoring and Evaluation Methods are Not Perfect**

With China's graduate education entering the stage of quality-oriented connotative development, the research on the quality monitoring and evaluation of graduate education has developed rapidly, and the methods of quality monitoring and evaluation have also been greatly improved. Some advanced evaluation concepts have been continuously introduced. In the past, the rarely used evaluation methods such as graduates, employer satisfaction survey and overseas peer reputation evaluation are gradually used. However, on the whole, the update and improvement of evaluation methods are still relatively lagging behind. There are still some problems, such as unclear definition of index connotation, single traditional data collection method, thin sample size, incomplete analysis method, and inadequate application of Internet, big data, cloud computing and other modern information technologies. Due to the untimely updating of evaluation methods and the lack of standardized and effective information collection methods, it is difficult to effectively control the quality of data collection at present (Li and Wang, 2016). With the increasing importance of graduate education monitoring and evaluation, the results even determine the allocation of educational resources to a certain extent, so colleges and universities attach great importance to the evaluation results. At present, part of the data collection is mainly provided by the school itself, which will cause human interference. In order to achieve its own purpose, in order to improve the evaluation ranking and compete for educational resources, colleges and universities use the information asymmetry in the evaluation work to piece together and tamper with the data in the evaluation work, which brings great challenges to the fair and just evaluation work. In order to improve the evaluation ranking, some colleges and universities do not pay attention to the long-term connotation development, but focus on the short-term data quality and concentrate resources to gather data, which leads to the alienation of connotation development into data development.

### **4.4. Unreasonable Use of Monitoring and Evaluation Results**

The ultimate purpose of the evaluation is to use the evaluation results reasonably, form a kind of policy guidance, and promote the connotation development of Graduate Education (Wang *et al.*, 2015). At present, there are still some deficiencies in the application of the evaluation results, which are reflected in two opposite aspects: on the one hand, from the perspective of the direct utility of the evaluation results, the evaluation results are likely to be overused. The evaluation result itself is a kind of reference material, and its reasonable value lies in providing information reference and forming policy reserve for the competent education departments and colleges and universities. This purpose has been clearly stated in the evaluation report issued by government agencies. However, in practical work, local education authorities often use the evaluation results as the main basis for the allocation of educational resources in a simple and direct way. This situation has a great impact on the evaluation work, and even distorts the nature of the evaluation work. On the other hand, from the value orientation of the evaluation results guiding the connotation development, the evaluation results are not fully used. After the evaluation work organized by the government departments, the evaluation results have become an established fact. Colleges and universities often aim at the lack of data reflected in the evaluation results, and simply formulate the data development requirements, so as to quickly fill in the short board and improve the evaluation ranking before the next round of evaluation work. The "short and fast" method is often used. On the contrary, the quality connotation reflected by the evaluation results has not been paid attention to, and some colleges and universities seldom think about improvement from a deeper level. In addition, the use of evaluation results by the public is also very limited. The evaluation results published by government agencies are often only a ranking, and it is difficult for the outside world to obtain specific quality data. The lack of accessibility of a large number of data reflecting the quality of graduate education development results in the flow of evaluation results between government agencies and

universities, which is not sufficient for the public to use the evaluation results and form value judgment. The unreasonable use of the evaluation results leads to the distortion of the evaluation results and the policy guidance function of the evaluation work is greatly reduced.

## **5. Countermeasures for Constructing the Normalization Mechanism of Graduate Education Quality Monitoring and Evaluation Under the Background of Quality-Oriented Enrollment Expansion**

### **5.1. Strengthening the Construction of Monitoring and Evaluation System**

At present, there are many problems in the monitoring and evaluation of graduate education quality in China, and the main reason is that the system mechanism is not perfect. Therefore, strengthening the system construction and improving the evaluation system is the basis and premise of the quality monitoring and evaluation of graduate education. Under the background of the current quality-oriented enrollment expansion of graduate education, the primary task is to strengthen the construction of the monitoring and evaluation system of graduate education quality and improve the quality assurance system of graduate education.

First of all, the construction of postgraduate education quality monitoring and evaluation system should be based on China's economic, social and industrial development needs, focus on the long-term development plan of graduate education, refer to the advanced concepts of monitoring and evaluation in developed countries, and accurately grasp the current situation and development trend of graduate education quality in China, establish a systematic thinking, pay attention to top-level design, and establish a long-term mechanism. Secondly, the system design should clarify the relationship between the government, universities and the third-party evaluation organizations, clarify their respective positions and roles, and clarify the responsibilities and rights of all parties. Gradually realize the diversification of evaluation subjects and establish a trinity evaluation system of government, universities and third-party evaluation organizations. The government should focus on the legalization, institutionalization and standardization of evaluation work, and cultivate a number of high-level evaluation institutions. Colleges and universities should strengthen self-monitoring and evaluation, and form a normalized self-monitoring and evaluation mechanism to guide their own direction of running schools. Third party organizations should strengthen their professional training, pay attention to the scientificity and impartiality of monitoring and evaluation, form a good social reputation, and ensure the quality of monitoring and evaluation. Third, form the situation of multi subject participation. The monitoring and evaluation of graduate education quality includes government agencies, universities, evaluation institutions, students, tutors, parents, employers and other stakeholders. The monitoring and evaluation should meet the requirements of modern education, reflect democracy and scientificity, require all stakeholders to conduct dialogue and communication on the basis of equality, and all stakeholders should be able to meet their own actual needs, Put forward suggestions and requirements for monitoring and evaluation work, and evaluate its own value (Xia and Guo, 2014).

### **5.2. Establish A Reasonable Monitoring and Evaluation Index System**

The quality of graduate education quality monitoring and evaluation index system is related to the quality of the whole monitoring and evaluation work. The design of the index system should follow the basic principles of guidance, pertinence, systematicness, operability, dynamics and effectiveness. The design of indicators at all levels should cover the core elements of graduate education quality, and also meet the characteristics of graduate education and personalized development needs of different levels and types of universities, especially the value needs of various stakeholders. In the design of specific indicators, we should take the monitoring and evaluation objectives as the guidance, highlight the key points, reasonably design the monitoring and evaluation indicators, attach importance to the combination of qualitative indicators and quantitative indicators, and attach importance to the combination of development process indicators and outcome indicators, index integrity and operability.

First of all, we should form a correct view of the quality of graduate education. At present, China is in a critical period of postgraduate education development and reform. The main purpose of monitoring and evaluation is to ensure the quality of graduate education. It is necessary to form a scientific and reasonable quality concept and accurately define the quality connotation, so as to build a quality monitoring and evaluation index system with positive guiding effect (He, 2018). The index system should be able to adapt to the trend of graduate education development and reform, and be conducive to the construction of a dynamic and normalized monitoring and evaluation mechanism. Secondly, the construction of the index system should highlight the benefit index. The optimization and perfection of the

index system should be changed to micro index, quality benefit index and development dynamic index. Compared with scale index, benefit index can reflect the connotation of graduate education quality more accurately. Third, the monitoring and evaluation index system should be more targeted and effective. There are 13 subjects in graduate education in China. There is a big gap between the goal and quality of graduate education in each subject, so it is difficult to evaluate it with a set of standards. In the construction of the index system, we should fully consider the specific differences of different disciplines, and improve the pertinence and effectiveness of the index system. Fourth, the index system should have an international perspective, with Chinese characteristics and international practices. It should gradually and effectively cover the evaluation index of graduate education quality in developed countries, and form an index system with longitudinal traceability and horizontal comparability, so as to provide evaluation basis for strengthening the internationalization of graduate education in China.

### **5.3. Enrich Monitoring and Evaluation Methods**

With the progress of science and technology, especially the rapid development of information technology and big data technology, colleges and universities are constantly building their own data information system, which provides convenient conditions for the monitoring and evaluation of graduate education quality. In the field of graduate education quality monitoring and evaluation, modern information technology is facing a large development and application space.

First of all, improve the data collection mechanism. The Ministry of education and provincial education authorities should continue to improve the database construction of degree and postgraduate education data center and information platform, and universities should accelerate the construction of postgraduate education informatization. Through the construction of infrastructure, the standardization, accessibility, convenience, accuracy, sustainability, stability and timeliness of data collection can be realized. At the same time, the use of modern information technology, optimize the questionnaire survey and other data collection means, to achieve data collection information, comprehensive, diversified. Secondly, expand the way of data collection. In addition to collecting the regular statistical data of graduate education, the monitoring and evaluation work should also integrate and collect all kinds of data actively disclosed by colleges and universities, survey data carried out by third-party organizations, and various statistical data of national economic and social development. In the process of data collection, we should pay attention to screening and screening to reduce the influence and interference of duplicate data and meaningless data. Third, make full use of modern information technology. Information collection institutions should integrate the advantages of "Internet +" and "big data", establish monitoring and evaluation data network by using cloud computing, big data, Internet of things and other modern information technologies, and at the same time, build evaluation expert network, realize the organic combination of artificial intelligence and expert wisdom, avoid information discrimination brought by pure information technology, and conduct comprehensive application through expert analysis and evaluation, Improve data quality. At the same time, we should pay attention to tracking the cutting-edge technologies such as 3D printing, artificial intelligence, cloud computing, virtual technology, future learning, and carry out data collection work for the future, integrate data of various stages and regions, and form data exchange and interaction (Li and Wang, 2016).

### **5.4. Efficient Use of Monitoring and Evaluation Results**

Monitoring and evaluation is a basic function in the field of graduate education. It needs to invest more human, material and financial resources, and also expects to produce the corresponding use value. The key to the output lies in the rational use of the evaluation results. Therefore, how to use the evaluation results reasonably and realize the maximization of the output value is very important for the construction of the normalization mechanism of graduate education quality monitoring and evaluation.

First of all, it is necessary to improve the release mechanism of monitoring and evaluation results. Education authorities should constantly improve the monitoring and evaluation report of graduate education quality. The core data should be accurate, and the scope, form and content of the report should be more extensive and perfect, so that the public can accurately grasp the quality of graduate education, strengthen the supervision function of information release, ensure the accuracy of data, and protect the public's right to know and supervise. Colleges and universities should actively do a good job in the publicity of information according to the provisions of the relevant documents of the competent departments, further expand the scope of disclosure, and ensure the quality of information. The monitoring and evaluation work carried out by the third party organization should balance the relationship between social effect and economic effect and form a perfect information release channel. Secondly,

strengthen the construction of information release platform. Platform construction is an important way to build a normalized mechanism for graduate education quality monitoring and evaluation. The platform not only plays an important role in data collection, data analysis and data release, but also plays a greater role in the use of data. The platform construction should continuously improve the feedback mechanism of evaluation results, make good use of modern information technology, update and release the regular data of graduate education quality in real time, and provide an effective channel for the public to grasp the quality information (Qiao and Zhou, 2017). Third, reasonable use of the evaluation results. At present, the results of monitoring and evaluation have been gradually used in the field of graduate education in macro policy control and resource allocation, but the application is still not reasonable. The education authorities should put an end to the simple use of evaluation results to allocate educational resources, and fully consider the characteristics and reality of graduate education in different universities. On the other hand, colleges and universities should make full use of the evaluation results, find problems through the results, strengthen the construction of quality connotation, and effectively improve the quality of graduate education, rather than simply chasing data ranking. Fourth, establish and improve the quality early warning mechanism. The early warning and prediction mechanism is the key to ensure the high-quality development of graduate education. Through the long-term dynamic monitoring of graduate education quality data, it can effectively predict the quality of graduate education development, timely warn the risk of quality decline, and provide an important reference for scientific decision-making and macro-control. Education institutions at all levels should build a responsibility list for the problems, and have an accountability mechanism for the units and majors with declining quality, so as to effectively maintain the quality assurance system of graduate education.

## 6. Conclusion

Since the reform and opening up, China's graduate education has experienced three major development periods from the perspective of training scale. At present, China's graduate education is still in the stage of rapid development, quality-oriented enrollment expansion makes the social function of graduate education further expand. Monitoring and evaluation is the key link to guarantee the quality of graduate education. In view of the main difficulties existing in the current monitoring and evaluation of graduate education quality, we should strengthen the construction of monitoring and evaluation system, improve the monitoring and evaluation index system, enrich the monitoring and evaluation methods, and reasonably use the monitoring and evaluation results, so as to build a system with Chinese characteristics, meet the international trend and meet the needs of the industry To ensure the training quality of graduate education quality monitoring and evaluation of the normalization mechanism.

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