

# Research on the Multi level Training Model for Graduate Students Adapting to the New Positioning of Higher Education Institutions

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**Abstract:** With the rapid development of higher education and the diversification of talent demand in society, the types and positioning of higher education institutions are becoming increasingly diverse. As an important component of higher education, graduate education also needs to adjust and optimize its training mode accordingly. From the perspective of systems science, this article regards the entire process of cultivating professional degree graduate students as a system, from overall analysis to local research, opens up the graduate student training environment, maintains effective collaboration with various educational resources outside the training subject, focuses on the demand for high-level applied specialized talents in coal mining machinery equipment design and manufacturing in the development of the coal industry in Lvliang District, innovates the training mode, and proposes a collaborative training mode for mechanical degree graduate students in Lvliang University. The aim is to explore a multi-level training model for graduate students that adapts to the new positioning of higher education institutions, analyze the problems existing in the current graduate training model, and propose corresponding optimization strategies, in order to provide reference for the reform and development of graduate education in higher education institutions.

**Keywords:** New Positioning; Graduate Student; Multi-level; Training Mode.

## 1. Introduction

In the context of globalization, informatization, and knowledge economy, the functions and positioning of higher education have undergone profound changes. Higher education institutions are no longer just places for imparting knowledge, but also important bases for cultivating high-quality talents with innovative spirit and practical ability. As the top of higher education, graduate education's training mode directly affects the quality of high-level talents and the core competitiveness of the country. Therefore, researching a multi-level training model for graduate students that adapts to the new positioning of higher education institutions is of great significance.

Local universities in non provincial capital cities, due to their unique geographical location, have encountered some special difficulties and problems in the development of graduate education. At the same time, due to their regional characteristics, they have some advantages in serving society and the local economy. As an applied undergraduate institution, Lvliang University's graduate education should also be based on the actual development of local economy and society, and enhance its ability to serve the local economy of Shanxi. Therefore, this project mainly focuses on the research of the professional degree graduate education model that adapts to the new positioning of Lvliang University.

(1) Research on the Training Model of Graduate Students Abroad

In order to meet the constantly changing demands for diverse talent cultivation, it is necessary to constantly update the concept of graduate education, improve the graduate education system, and innovate the graduate education model, which injects new vitality into graduate education research. The research on graduate education and its training mode has always received attention from foreign scholars and has been extensively studied. There are four main research

perspectives: studying from a historical perspective, studying from a comparative perspective, studying from a professional degree perspective, and studying from a reform and innovation perspective. Gray Malaney's "Graduate Education as an Area of Research in the Field of Higher Education" provides an overview of graduate education and graduate training, and further highlights the main characteristics of graduate education in different countries by comparing them. The graduate education in countries such as the United States, Japan, and Germany also provides reference for the reform of China's graduate education model. For example, Chen Xuefei's "How to Cultivate a PhD in the West" starts from the spatial dimension and selects the professional degree master's education in Germany, the United States, the United Kingdom, and France, which are the most representative countries in the West, as examples to analyze the characteristics and development trends of the professional degree master's education model, providing important reference for the reform of China's professional degree master's education model.

(2) Research on the System of Graduate Education Model in China

Domestic scholars have gone through research on graduate education models from the perspective of traditional education to the perspective of systems science. The first is the research on graduate training mode. Liu Hong's "Research on the Cultivation Model of Graduate Students in China" conducted a comprehensive study on the essence of graduate education, and believed that the essence of graduate education has three characteristics: elite, professional, and exploratory. The second is the research on the elements of graduate training mode. The dynamic, diverse, and complex characteristics of the development of graduate education models determine the variability of the elements they contain. Xu Cheng's "Research on the Training Model of Graduate Students in Sino Foreign Cooperative Education" proposed

four elements of the training model, namely training objectives, admission forms, training methods, and quality evaluation. The third is collaborative innovation research on graduate training mode. Some scholars are also considering how to reform and innovate China's graduate education model in the research process, in order to cultivate high-level talents suitable for China's economic construction and social development needs. The fourth is the research on the training mode of professional degree graduate students. Hu Linglin's "Research on the Training Model of Graduate Students in Chinese Universities: From Single to Dual Model" has compared the current two different degree training models in China through questionnaire surveys and literature analysis in terms of training objectives, curriculum design, mentor guidance, and paper evaluation.

From existing research, there are studies on the macro level professional degree training model system at the national level, as well as studies on specific professional backgrounds; From a research perspective, the study of the professional degree training model is shifting from focusing on the external level to the internal level of universities, and gradually forming a training model with university autonomy as the mainstay and government and society as supplements; From the perspective of research content, there are both conceptual aspects such as goal positioning, admission systems for enrollment, and teaching management systems, as well as specific practical processes such as curriculum design, teaching methods, faculty development, thesis management, and teaching evaluation; From the perspective of research methods, there are literature summary, comparative analysis, field investigation or investigation, etc; From a theoretical perspective of research, there is also a trend towards interdisciplinary integration, using theories from other disciplines to study the professional master's training model.

However, there are still some shortcomings in the research on the training mode of professional degree graduate students both domestically and internationally. Firstly, there are relatively few research results on the training mode of professional degree graduate students in local universities; Secondly, from a research perspective and methodology perspective, there are macro level practices and experiences in mechanical transplantation of higher education training models, which overlook the unique characteristics of local university institutions; Thirdly, there are relatively few achievements in the combination of theoretical and practical exploration regarding the research strategies for the training mode of professional degree graduate students in local universities. The main focus is on the research and exploration of the "industry university research integration" professional master's training mode, and the research objects and perspectives still need further innovation. Based on the existing problems mentioned above, this project conducts in-depth research on the graduate education model from the perspective of systems science, starting from core fundamental issues such as elements, structure, and operational mechanisms, and from essence to application.

## **2. The Problems in the Current Graduate Education Model**

With the continuous deepening of education reform and the popularization of higher education, the types of higher education institutions are gradually showing a trend of

diversification. In addition to traditional comprehensive universities, various types of universities have emerged, such as research-oriented universities, applied universities, and vocational colleges. These different types of higher education institutions have their own characteristics in terms of training objectives, major settings, curriculum settings, and teaching modes, providing diverse talent choices for society.

Faced with the new positioning of higher education institutions, graduate education also faces many challenges. On the one hand, the traditional graduate education model often focuses on imparting theoretical knowledge and cultivating academic research abilities, while neglecting the cultivation of practical skills and professional ethics; On the other hand, society's demand for talent is becoming increasingly diverse, requiring both high-level academic researchers and applied talents with practical experience and innovative abilities. Therefore, how to construct a multi-level training model for graduate students that adapts to the new positioning of higher education institutions has become an urgent problem to be solved.

### **2.1. Single Cultivation Objective**

Currently, many universities still adhere to the traditional academic training model for graduate students, overly emphasizing the cultivation of academic research abilities while neglecting the cultivation of practical skills and professional ethics. This single training objective is no longer sufficient to meet society's demand for diverse talents.

### **2.2. Unreasonable Course Design**

Curriculum design is one of the important aspects of graduate education. However, there are unreasonable aspects in the current graduate curriculum of some universities. On the one hand, the course content is too outdated and single, lacking cutting-edge and innovative ideas; On the other hand, the curriculum design did not fully consider students' interests and needs, as well as the changing demand for talent in society.

### **2.3. Weak Practical Teaching**

Practical teaching is an indispensable part of graduate education. However, some universities currently overlook the importance of practical teaching in the process of graduate education, resulting in students lacking necessary practical experience and abilities in their actual work. In addition, insufficient practical teaching resources and non-standard management are also important factors that constrain the effective implementation of practical teaching.

### **2.4. Insufficient Mentor Guidance Ability**

Mentors play a crucial role in graduate education. However, there is currently a problem of insufficient guidance ability among the mentor teams in some universities. Some mentors lack rich practical and teaching experience, making it difficult to provide effective guidance and assistance to students; At the same time, some mentors are busy with scientific research and administrative affairs, and cannot fully devote themselves to the training of graduate students.

### **3. Construction of a Multi-level Training Model for Graduate Students to Adapt to the New Positioning of Higher Education Institutions**

#### **3.1. Clarify Multi-level Training Objectives**

Multi level training objectives should be clearly defined for different types of higher education institutions and different groups of graduate students. For research-oriented universities, emphasis should be placed on cultivating high-level academic researchers; For applied universities, emphasis should be placed on cultivating applied talents with practical experience and innovative abilities. At the same time, it is also necessary to fully consider students' interests and needs, as well as the changing demand for talent in society, and develop personalized training plans.

#### **3.2. Optimizing Course Settings**

The curriculum should be optimized and adjusted according to the training objectives. On the one hand, cutting-edge and innovative course content should be added to guide students to pay attention to the forefront and development trends of the discipline; On the other hand, students' interests and needs, as well as the changing demand for talent in society, should be fully considered, and diversified elective and practical courses should be set up. In addition, it is necessary to strengthen the design of interdisciplinary courses and interdisciplinary teaching cooperation, and cultivate students' interdisciplinary awareness and abilities.

#### **3.3. Strengthen Practical Teaching**

Practical teaching is an indispensable part of graduate education. We should strengthen the proportion and quality of practical teaching. On the one hand, stable practical teaching bases and school enterprise cooperation platforms should be established to provide students with rich practical opportunities; On the other hand, it is necessary to strengthen the management and evaluation of practical teaching to ensure the effectiveness and quality of practical teaching. In addition, students should be encouraged to participate in scientific research projects and innovation and entrepreneurship activities to cultivate their practical abilities and innovative spirit.

#### **3.4. Enhance the Mentor's Guidance Ability**

Mentors play a crucial role in graduate education. We should strengthen the construction and management of the mentor team. On the one hand, a strict mentor selection and assessment mechanism should be established to select outstanding mentors with rich practical and teaching experience; On the other hand, it is necessary to strengthen the training and guidance of mentors, improve their guidance ability and teaching level. At the same time, it is also necessary to encourage in-depth communication and interaction between mentors and students, and establish a good teacher-student relationship and academic atmosphere.

#### **3.5. Improve the Evaluation System**

The evaluation system is an important guarantee for the quality of graduate education. A comprehensive evaluation system and mechanism should be established. On the one hand, diversified evaluation indicators and standards should

be established, including academic achievements, practical abilities, professional ethics, and other aspects; On the other hand, it is necessary to strengthen the supervision and management of the evaluation process to ensure the fairness and objectivity of the evaluation results. At the same time, students should be encouraged to engage in self-evaluation and peer evaluation, cultivating their self reflection and critical thinking abilities.

### **4. Case Analysis**

#### **4.1. Case Study of Graduate Education Model in a Research University**

A certain research university focuses on cultivating high-level academic researchers. The research-oriented training model adopted by the school emphasizes the cultivation of scientific research abilities and the improvement of academic literacy. Cultivate students' independent thinking and problem-solving abilities through participating in scientific research projects, publishing high-level papers, and other means; At the same time, strengthen interdisciplinary teaching cooperation and academic exchange activities, broaden students' academic horizons and knowledge structures. In addition, the school has established strict mentor selection and assessment mechanisms to ensure the high level and quality of the mentor team.

#### **4.2. Case Study of Graduate Education Model in an Applied University**

A certain applied university focuses on cultivating applied talents with practical experience and innovative abilities. The applied training model adopted by the school focuses on practical teaching and the cultivation of professional ethics. By collaborating with enterprises to establish practical teaching bases and school enterprise cooperation platforms, we provide students with rich practical opportunities; At the same time, strengthen the management and evaluation of practical teaching to ensure the effectiveness and quality of practical teaching. In addition, the school also focuses on cultivating students' innovative spirit and entrepreneurial ability, encouraging them to participate in innovation and entrepreneurship activities and scientific research projects to enhance their practical and innovative abilities.

### **5. Conclusion**

The research on the multi-level training mode of graduate students that adapts to the new positioning of higher education institutions is one of the important issues in current higher education reform. By clarifying multi-level training objectives, optimizing curriculum settings, strengthening practical teaching, enhancing mentor guidance abilities, and improving evaluation systems, a high-level talent training system that meets social needs can be constructed. This can not only improve the quality and level of graduate education, but also provide more diverse talent choices for society.

(1) Combining management theory with the professional master's training model from an interdisciplinary perspective, improving the professional master's training model based on local university autonomy, enriching the research perspective of professional master's talent training models, and providing scientific theoretical guidance for local universities to improve the quality of professional master's education.

(2) Propose a collaborative training model for graduate

students majoring in mechanical engineering at our university. Starting from the practical problems existing in the process of graduate education, applying research results to practice has certain practical significance for the study of the training mode of professional degree graduate students in our university.

(3) Accelerate the self construction of local universities and achieve the educational purpose of application-oriented universities. Improving the training mode of professional master's degree programs can help highlight the regional characteristics of local universities in their own construction. If these characteristics continue to circulate well, it will play an important role in promoting the long-term development of local universities.

(4) In the future, with the continuous deepening of higher education reform and the changing demand for talent in society, graduate education will face more challenges and opportunities. Therefore, we need to continue to deepen the research and exploration of the multi-level training mode for graduate students, constantly summarize experiences and lessons, and improve relevant systems and mechanisms to adapt to the new positioning of higher education institutions and the new needs of social development. At the same time, we also need to strengthen exchanges and cooperation with international advanced levels, draw on international advanced experience, promote the internationalization process of China's graduate education, and enhance the overall level and international competitiveness of China's higher education.

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