Research on the Mechanism of Training Innovation Ability for Chinese Postgraduates

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Abstract: Training postgraduate students' innovation ability is an important task of graduate education. The article elaborates on the innovation ability of postgraduate students from three aspects: innovation awareness, innovative thinking and innovative skills. It deeply analyses the problems in the innovation training system of postgraduate students, such as insufficient innovation ability of postgraduates for themselves, insufficient guidance from postgraduate supervisors, incomplete talent training plans, and insufficient scientific research and practical abilities. Finally, a mechanism system for cultivating the innovation ability of Chinese graduate students is established from the aspects of creating a good institutional environment, highlighting the mechanism of postgraduates as the main part, improving the responsibility mechanism of postgraduate supervisors, improving the teaching mechanism of postgraduate education, constructing the evaluation mechanism of postgraduate education, and improving the innovation practice mechanism of postgraduates.

1. Introduction
Innovation is an important endogenous driving force for a country's development. Postgraduates are high-level talents in a country, and postgraduate innovation is indispensable in the country's innovation system. In the Chinese education system, postgraduate education plays an important role in inheriting knowledge, innovating knowledge, promoting technological innovation, and promoting social progress. Postgraduates in China are mainly divided into academic postgraduates and professional degree postgraduates. Academic postgraduates focus on innovation at the theoretical field, while professional postgraduates focus on innovation at the application field.

In recent years, the number of postgraduates enrolled has been continuously expanding, and the training level of postgraduates is gradually becoming undergraduate level. The training quality of graduate training, especially innovation ability, has shown a mediocre trend. Therefore, how to cultivate postgraduate innovation awareness, reshape their innovative thinking, and enhance their innovation ability has become a major issue in the face of China's postgraduate education.

2. The connotation and requirements of postgraduate innovation ability
Postgraduate innovation ability is a manifestation of innovation in the process of learning, communication, writing and practice, characterized by problem-solving, gradualism, novelty and nonlinearity. It is a manifestation of a complex innovation process. The innovation ability of postgraduates is influenced by a series of factors such as professional learning, academic motivation, academic exchange, supervisor guidance, project research and social practice. From the perspective of internal causes of innovation, efforts should be made to mobilize the self-innovation ability of postgraduates. From the perspective of external factors of innovation, it is necessary to innovate postgraduate training conditions and mechanisms. The author believes that it is important to strengthen the training of postgraduates' innovation ability in terms of innovation awareness, innovative thinking and innovative skills.

2.1 Train innovative awareness of postgraduates
Improving the innovation awareness of graduate students is the primary task of cultivating their innovation ability. The training of innovation ability focuses on improving postgraduates' ability to discover and propose problems, mainly including information collection ability, data organization ability, problem perception ability and language expression ability. The postgraduate training institution should innovate the concept of postgraduate training, improve the discipline construction, improve the level of theoretical teaching courses, change the traditional indoctrination and passive education methods, vigorously promote exploratory, case based and heuristic teaching models, and incorporate innovation awareness into the training postgraduate program. As the first responsible person for cultivating postgraduates, supervisor should incorporate innovation awareness into
professional learning and research of postgraduates, plan to guide postgraduates to discover problems for themselves, and improve their awareness of scientific research problems.

2.2 Train innovative thinking of postgraduates

Based on various courses of learning and training, postgraduates need to break away from the traditional phenomenon of fixed thinking, closed thinking and rigid thinking, and constantly use new perspectives, methods, and environments to think about problems. The key is to improve the critical thinking ability of postgraduates, mainly including the ability to use knowledge and experience, the ability to imagine assumptions and plans, the ability to evaluate and judge theories and models, and the ability to logically prove and verify empirical conclusions. In the process of training postgraduates' innovative thinking, it is necessary to build on the solid accumulation of theoretical knowledge and improve their questioning spirit and critical thinking ability. The postgraduate training institutions should improve the training concept, change the existing incentive mode focusing on the publication of papers, avoid excessive use of utilitarianism incentive mode, strengthen scientific guidance, continue to promote graduate curriculum reform, focus on guiding graduate students to form a positive learning motivation led by innovative thinking, improve comprehensive management efficiency, and enhance postgraduates' scientific research and innovation capabilities. 

2.3 Improve the innovation skills of postgraduates

The core factors of cultivating postgraduates' innovation ability are to improve their innovation skills, enhance their ability to transform abstract innovative thinking into practical results, and develop innovative thinking abilities to raise, research and solve problems. Postgraduate innovation skills mainly include the operational ability to use tools and experiments, the ability to organize, manage and solve problems, the logical proof and verification ability of empirical conclusions, and the ability to participate in social practice and application. Postgraduate training institutions should establish more scientific and technological competitions platforms, academic exchange bridges, research centers, and innovation platforms to provide more practical opportunities for postgraduates. They should increase innovation bases and joint training bases, promote postgraduates to actively participate in extracurricular social practice, and enhance their practical problem-solving abilities.

3. The problems of training postgraduates' innovation abilities

3.1 Postgraduates lack strong innovation ability

There is a widespread lack of problem awareness among postgraduates, with many failing to identify their own interests and problems. They lack subjective thinking about research issues, are unable to discover and propose problems from literature learning, independently design research plans, have a serious dependence on teachers, and lack basic qualities of innovation. The academic goal is not clear enough, and many postgraduates have unclear goals for pursuing postgraduate degree. They only want to obtain postgraduate degree or avoid employment, which generally leads to a restless mindset and a lack of motivation for independent learning and innovation. They find it difficult to devote too much energy to academic research.

3.2 The role of the postgraduate supervisors is not sufficiently effective

Postgraduate supervisors play a crucial role in cultivating postgraduates' innovative abilities. The knowledge of a few postgraduate supervisors is severely aging, unable to provide the latest cutting-edge scientific and technological achievements, and lacking the ability to answer new problems encountered in postgraduate studies. Some postgraduate supervisors have heavy research tasks and more social activities, and fail to fulfill their mission and responsibilities effectively, neglecting the training of postgraduates' research abilities and innovative personalities. A few postgraduate supervisors undertake limited research projects and research fund, which cannot provide opportunities for postgraduates to participate in research practice. Even a very small number of postgraduate supervisors engage in academic misconduct or even academic corruption.

3.3 The talent training plan is not sound

Firstly, some universities have unreasonable curriculum settings, and postgraduate innovation education mainly focuses on classroom teaching. Theory and practice are disconnected, and there are phenomena such as valuing knowledge over methods, valuing theory over ability, valuing results over processes. Secondly, the teaching of theoretical courses is not cutting-edge. Many of postgraduate courses in colleges and universities are just the expansion and extension of undergraduate courses. The curriculum does not reflect the progressiveness of theoretical teaching, and lacks the teaching content of cutting-edge knowledge of related disciplines. Thirdly, the teaching method is relatively single, and mainly relying on traditional teaching, implementing indoctrination and passive education methods. New teaching methods such as exploratory, case based, and heuristic methods have not been widely applied. Finally, the assessment mechanism is not scientific, and the
assessment of postgraduate courses in universities mainly focuses on course papers and final paper exams, and mainly tests the basic knowledge points of professional courses, and lacks systematic and applied knowledge learning.

3.4 Research and practical abilities are insufficient

On the one hand, some universities lack off campus innovation bases and joint training bases, resulting in fewer opportunities for training graduate students to participate in scientific research and practical activities. On the other hand, some universities have severely insufficient training platforms for postgraduate, such as research projects, science and technology competitions and academic exchanges, which makes it difficult to improve the independent innovation and proactive thinking abilities of postgraduates. In addition, postgraduate supervisors may provide established research directions and specific methods to meet the graduation requirements of postgraduate supervisors, leading to students mechanically repeating the teacher's research results, lacking ability to independently find problems, and inhibiting the development of postgraduates' exploration spirit and innovation ability.

4. Construct a mechanism for training postgraduates' innovation ability

4.1 Create a good institutional environment for training innovation ability

The institutional environment is the soil for institutional innovation. To promote postgraduates' innovation abilities, postgraduate training institutions should implement national laws and regulations in the field of education, and strictly educate postgraduates according to the system. According to the strict requirements of the system, postgraduates strive to training an independent and exploratory scientific spirit. More importantly, postgraduate training institutions have introduced more policies to support postgraduate innovation, making leaders and managers aware that training postgraduate innovation ability is an important task. This will enable postgraduates to receive policy support and be more enthusiastic about trying innovation, and make postgraduate supervisors pay more attention to guiding postgraduates to continuously innovate, promoting the formation of a good innovation culture in universities or research institutions, encouraging innovation, tolerating failure, and training postgraduates' innovation ability in an innovative learning and practical institutional environment.

4.2 Build an innovation and improvement mechanism with postgraduates as the main body

The key to postgraduates' innovation ability lies in self-learning and innovation, which is an endogenous driving force. Under the guidance of the postgraduate training institution system and postgraduate supervisors, postgraduates should develop their own innovation training plan during the training period, formulate tasks, goals, and content, and implement them in stages. Postgraduates must fully exert their subjective initiative, be diligent in thinking, brave in criticism, and dare to question, actively train their awareness of scientific research problems, enhance their ability to think independently and actively explore, reshape their own way of thinking, exercise innovative thinking, and training academic literacy that is good at innovation. The postgraduate supervisor actively guides postgraduates to pay attention to the cutting-edge academic trends in their field, expand their academic horizons, and improve their abilities in self-directed learning and scientific research. Postgraduate training institutions should increase the budget for institutions research funding, provide strong support for innovative and practical research projects, encourage students to actively participate in social practice activities such as research innovation projects, academic reports, and academic exchange activities, exercise postgraduates' social practice ability, improve their ability to discover, analyse and solve problems, and enhance their research and innovation ability.

4.3 Play the role of postgraduate supervisors as the first responsible person for training postgraduates

According to the code of conduct for postgraduate supervisors issued by the Ministry of Education, strict implementation of the requirement that postgraduate supervisors are the first responsible person for training postgraduates. As a guide for postgraduate education, postgraduate supervisors' academic research level directly affects the level of postgraduates. Therefore, it is necessary to strengthen the construction of postgraduate supervisor team. Firstly, strict postgraduate supervisors' selection and assessment system should be implemented to ensure the quality of postgraduate supervisors. The scientific research level and guidance ability of postgraduate supervisors are key factors in training postgraduates' innovation ability. Postgraduate supervisors must always focus on the frontiers of disciplines, grasp the dynamics of academic frontiers, pay attention to the integration and intersection of disciplines, inspire postgraduates' academic thinking, and train high-quality talents with innovation awareness and practical ability. Secondly, postgraduate training institutions should optimize the structure of the supervisor team, adhere to the principle of combining the supervisor responsibility system and the supervisor group collective guidance system, exert the overall advantages and team spirit of the academic echelon, and fully explore and utilize academic resources both inside
and outside the school. Finally, postgraduate training institutions create a harmonious teacher-student relationship. Postgraduate supervisors should strengthen communication and exchange with postgraduates through academic discussions, coordinate the relationship between research topics and students' self-development, fully encourage innovative thinking among postgraduates, and create a relaxed academic environment for postgraduates.

4.4 Improve the teaching mechanism for training innovative abilities of postgraduates

On the one hand, postgraduate training institutions should improve their curriculum system, increase the proportion of basic courses, consolidate the theoretical foundation of postgraduates, and enhance their ability to apply professional knowledge. Postgraduate training institutions should pay attention to the setting of cutting-edge courses in the discipline, and expand the academic perspective and pattern of graduate students. They should increase the interdisciplinary curriculum, enhance the interdisciplinary nature of postgraduate courses, integrate and optimize the knowledge structure of postgraduates, increase specialized innovative research courses and social practice courses to enhance postgraduates' social practice abilities, standardize the guidance and management of course thesis and degree thesis, and enhance the innovation of postgraduate thesis. On the other hand, postgraduate training institutions should innovate teaching methods and implement diversified educational methods, such as case based teaching, heuristic teaching, simulation practice teaching. They focus on teaching content, combine cutting-edge academic research topics, encourage postgraduates to actively participate in discussions and social practice, create a learning atmosphere conducive to training innovation ability, train postgraduates' ability to learn independently and think independently, and cultivate postgraduates' enthusiasm and motivation for scientific research innovation.

4.5 Establish an evaluation system for postgraduate innovation education

Firstly, postgraduate training institutions establish a quality evaluation system for supervisor innovation education. They should incorporate research topics, papers and works related to innovation education and student evaluations into the evaluation system based on the curriculum, standardize the teaching system, strictly prohibit teachers from suspending classes at will, and combine the promotion and employment of teachers' professional titles with the effectiveness of innovation education. Secondly, postgraduate training institutions should establish an evaluation system for the effectiveness of graduate innovative learning, establish a comprehensive evaluation mechanism of elimination, and combine knowledge assessment with ability assessment. This not only assesses postgraduates' course papers and final exam scores, but also quantifies their classroom performance, paper publication, and social practice, fully stimulating their research and innovation vitality. Finally, postgraduate training institutions should improve the evaluation system for their graduation thesis, strictly control the selection and opening of thesis topics, encourage graduate students to choose innovative topics, strengthen mid-term inspections of the progress of the thesis, promptly correct and rectify problems in the thesis, and actively promote a blind evaluation system for the thesis to ensure the objective authenticity of the thesis evaluation and improve the quality of the thesis.

4.6 Improve the innovation practice mechanism for postgraduates

Postgraduates training institutions should support postgraduates to actively participate in innovative social practice and actively build a mechanism for postgraduate innovation practice. Firstly, they should establish a sound innovation competition mechanism for postgraduates, encourage them to actively participate in practical application and technological innovation disciplines, guide them to apply the knowledge and theory to practice, train their awareness of scientific research problems, and improve their ability to discover and solve problems. Secondly, they should establish a sound academic collective activity mechanism for postgraduates to participate in, encourage them to actively participate in various forms of academic exchange activities such as academic seminars, academic salons, and short-term visits, integrate into the atmosphere of academic activities, understand the cutting-edge dynamics of the discipline, broaden academic horizons, and train academic innovative thinking and spirit. Finally, they should establish a sound research practice mechanism for postgraduates. Postgraduates training units and supervisors should encourage postgraduates to participate in research activities such as laboratories, innovation platforms, or supervisors' research projects, directly promoting postgraduates' scientific research activities, enhancing their professional cognition, and training their interest in innovative research. Practical training through research and innovation bases can enhance postgraduate' abilities in independent innovation and active thinking, exercise their innovative practical abilities, and train their practical problem-solving abilities.

Acknowledgement


Reference

1. Yuting Wang, Fan Wang. Constructing a Training Program That Adapts to Needs to Enhance


