Advances in Vocational and Technical Education (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/avte.2025.070112
ISSN 2523-5834 Vol. 7 Num. 1

Research on the Development of Innovative and Entrepreneurial Competencies in Graduate Students at Regional Undergraduate Institutions through Scientific Research Team Collaboration

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Keywords: Graduate Students; Scientific Research Team; Innovation and Entrepreneurship

Abstract: Cultivating outstanding innovative and entrepreneurial talents is an important mission of talent training in the new century. Carrying out graduate innovation and entrepreneurship education can effectively improve China's overall innovation ability. Local undergraduate colleges are the main body of colleges and universities in China. At present, there are some problems in the innovation and entrepreneurship education of graduate students in local undergraduate colleges. This paper discusses the challenges faced by local undergraduate colleges in postgraduate innovation and entrepreneurship education, and explores the practice of relying on scientific research teams to carry out postgraduate innovation and entrepreneurship education. Taking Hunan University of Humanities, Science and Technology as an example, this paper introduces the specific practice of relying on scientific research teams in postgraduate innovation and entrepreneurship education, which provides reference experience for the cultivation of postgraduate innovation and entrepreneurship ability in local undergraduate colleges.

1. Introduction

China is vigorously advocating innovation and entrepreneurship, accelerating the implementation of innovation-driven development strategies, and cultivating outstanding innovative and entrepreneurial talents has become an important mission of colleges and universities. It is the fundamental guarantee for China to remain invincible in the fierce international competition. Postgraduate education is the most important way to cultivate innovative and entrepreneurial talents [1-2]. The importance of graduate students' innovation and entrepreneurship education is becoming more and more prominent. Graduate students have received special scientific research training, and their innovation ability and entrepreneurship awareness are stronger. The research projects studied are easier to be industrialized [3]. By the end of 2024, there are more than 1,300 undergraduate colleges and universities in China, with local undergraduate colleges and universities accounting for

the vast majority. Local undergraduate colleges and universities are undertaking the important mission of serving local economic and social development.

Foreign universities have relatively mature experience in cultivating graduate students' innovation and entrepreneurship ability. For example, Stanford University is committed to supporting and funding creative graduate students, and actively promoting the cooperation between university professors and entrepreneurial elites, encouraging them to inject venture capital into graduate students' innovative projects, and ultimately giving birth to the world-renowned Silicon Valley. The world's top universities, such as Harvard University and University of California, Berkeley, have effectively promoted the deep integration of academics and industries through various ways such as practical education programs and student research programs, and cultivated and improved the innovation and entrepreneurship ability of graduate students. Western science and technology powers such as Japan and Germany also attach great importance to the cultivation of graduate students' innovation and entrepreneurship ability. Domestic well-known universities have also made a lot of attempts in the cultivation of graduate students' innovation and entrepreneurship ability, and have achieved remarkable results.

Compared with high-level universities at home and abroad, there are very obvious gaps in resource allocation, faculty, discipline platform construction and scientific research level in local undergraduate colleges and universities in China, which poses a huge challenge to their postgraduate innovation and entrepreneurship education [4]. Some scholars have studied the reform and practice of training graduate students based on scientific research teams [5-7]. The academic organization composed of the scientific research team of colleges and universities with the main goal of teaching and scientific research shoulders the dual tasks of teaching and scientific research. It promotes teaching by teaching and research. It not only carries out innovative scientific research, but also carries out the cultivation of innovative and entrepreneurial talents [8-9]. The scientific research team has rich human resources and a good scientific research training platform, which can better solve the problems of weak postgraduate teachers and low overall scientific research ability in local undergraduate colleges and universities on the cultivation of postgraduates' innovative and entrepreneurial talents. Through specific measures such as system guarantee, incentive promotion, integration of scientific research, discipline competition and assessment methods, the cultivation of graduate students' innovation and entrepreneurship ability can be realized, so that graduate students' innovation and entrepreneurship ability can adapt to social needs.

2. At Present, the Main Problems Existing in the Innovation and Entrepreneurship Education of Postgraduates in Local Universities in China are As Follows

In recent years, China's postgraduate enrollment has been greatly expanded, and the number of local undergraduate colleges and universities with postgraduate enrollment qualifications has increased dramatically. Through investigation and visits, it is found that local undergraduate colleges and universities are subject to many factors in postgraduate innovation and entrepreneurship education. There are the following problems.

2.1 Lack of Understanding of Postgraduate Innovation and Entrepreneurship Education

According to the national requirements, local undergraduate colleges and universities have set up undergraduate innovation and entrepreneurship courses, which do not pay enough attention to the innovation and entrepreneurship education of graduate students, or train graduate students' innovation and entrepreneurship ability with reference to undergraduate innovation and entrepreneurship education. The course content is relatively old, the concept of innovation and entrepreneurship does not keep pace with the times, and it can not reflect the current innovation and

entrepreneurship. The latest developments; and the lack of practice in the course, it is difficult to test in practice.

2.2 There is a Lack of Teachers for Graduate Students' Innovation and Entrepreneurship, and the Construction of Research Practice Platform Is Insufficient

Compared with well-known universities in China, there is a big gap between local undergraduate colleges and universities in terms of subject platform and faculty. The vast majority of teachers in local undergraduate universities lack high-level scientific research experience or entrepreneurial experience, and the level of innovation and entrepreneurship is not enough to provide high-quality guidance for graduate students. There are few high-level practice platforms in local undergraduate colleges, which are not enough to provide strong support for graduate students' innovation and entrepreneurship ability.

2.3 Graduate Students Lack of Innovation and Entrepreneurship Ability

The foundation of graduate students in local undergraduate colleges is relatively weak, the awareness of innovation and entrepreneurship is not strong, and the level of innovation and entrepreneurship is not high. Under the dual pressure of graduation and employment, most of them are eager for quick success and instant benefits, and it is difficult to sink their hearts to carry out innovation and entrepreneurship.

2.4 Insufficient Resource Allocation

Local undergraduate colleges and universities have limited funding, lack of advanced experimental equipment and teaching software, which seriously restricts the cultivation of graduate students' innovative ability. Due to the shortage of funds, it is difficult to have sufficient funds to support graduate students' entrepreneurship.

3. Local Undergraduate Colleges and Universities Rely on the Scientific Research Team to Explore the Innovation and Entrepreneurship Education of Graduate Students

The scientific research team is generally led by senior scholars or experts. The team generally has old, middle and young teachers with high theoretical level, rich practical experience and high level of thesis writing. They can give full play to the overall advantages of the team. The level of guidance is much higher than that of a single master's supervisor, especially far stronger than that of an inexperienced master's supervisor. Graduate students can easily contact more cutting-edge and more innovative professional knowledge, and it is easier to achieve innovation and entrepreneurship. Compared with the single tutor guidance, the opportunities for frequent academic exchanges will increase, and the number of times that outstanding entrepreneurs and outstanding scholars are invited to make reports through the team will also increase greatly. Then how much knowledge the students have expanded, and how much the probability of generating ideas for innovation and entrepreneurship will increase. In particular, whether the guiding role of outstanding teachers in the scientific research team in academic exchanges will benefit all graduate students brought by the entire scientific research team. The scientific research team usually guides more students. Excellent graduate students play an exemplary role and play a guiding role in the teachers.

3.1 Formulate Assessment Rules and Incentive Mechanism to Encourage Scientific Research Team Tutors to Participate In Postgraduate Innovation and Entrepreneurship Education

The key to participate in postgraduate innovation and entrepreneurship education based on scientific research team is to mobilize the enthusiasm of team teachers. Most of the team teachers master the advanced technology of the industry, have a better understanding of the market demand of the industry, have a higher level of innovation and entrepreneurship education, and a reasonable incentive mechanism can encourage tutors to participate in the cultivation of postgraduate innovation and entrepreneurship ability.

In view of the actual situation of funds and teachers in local undergraduate colleges and universities and the actual situation of the school, we should strengthen the construction of the teaching staff of the scientific research team, revise the management methods of graduate tutors, formulate the assessment rules and incentive mechanism to encourage the tutors of the scientific research team to participate in the innovation and entrepreneurship education of graduate students, and incorporate the achievements of innovation and entrepreneurship education into the assessment scope of the teachers of the scientific research team. It is required that the teachers of the scientific research team should not only grasp the scientific research innovation of graduate students, guide the writing of papers, but also encourage team members to participate in the guidance of graduate students' academic competition, academic discussion and social practice. For the scientific research team with remarkable achievements in innovation and entrepreneurship education and outstanding results in student training, the school appropriately tilts in terms of funding investment, postgraduate quotas, and project application thresholds, so as to mobilize the enthusiasm of the scientific research team in innovation and entrepreneurship training.

At the same time, it is necessary to mobilize the enthusiasm of off-campus cooperation tutors in the scientific research team, give full play to the role of off-campus industry and enterprise joint training bases, formulate reasonable policies to guide graduate students to exercise in off-campus practice bases, understand product needs, participate in program discussions, and be responsible for technical communication, so as to cultivate the communication expression, organization and coordination, and teamwork ability required for graduate students' innovation and entrepreneurship, and provide a practical platform for the cultivation of graduate students' innovation and entrepreneurship ability. Formulate behavioral norms to promote graduate students to participate in innovation and entrepreneurship, and form a benign two-way interaction between tutors and graduate students in the scientific research team.

3.2 Strengthen the Faculty of the Scientific Research Team and Increase the Construction of the Research Practice Platform

To improve the scientific research level of the tutor team of the scientific research team, we should pay attention to the matching of the research direction when the tutor team is formed. The tutor team should break the barriers of scientific research, promote the interdisciplinary integration, pay attention to the combination of the old, the middle and the young, and the combination of theoretical research experts, practical research experts and industry experts, so as to guide the graduate students in an all-round way in the academic exchange every week or every half month. We should make every effort to establish first-class disciplines and key laboratories at the provincial level. Schools should formulate reasonable systems to facilitate the use of these experimental equipment and scientific research funds by scientific research teams. Schools should provide policy and financial support and build a performance-based reward mechanism.

3.3 Taking Scientific Research Activities and Competitions as the Starting Point, We Will Improve the Level of Innovation and Entrepreneurship of Graduate Students

It is an important starting point to promote students' exploration and innovation to let graduate students deeply participate in the declaration and research of scientific research projects. In this process, it can also exercise the innovation ability of graduate students, and exercise the collaborative ability of graduate students and team members, and lay a solid foundation for their future entrepreneurship.

Guide graduate students to participate in scientific research teams and off-campus academic activities, contact cutting-edge ideas, understand diversified research methods and ideas, break the mindset, and stimulate internal innovative thinking.

Encourage graduate students to participate in various innovation and entrepreneurship competitions. Students get the opportunity to practice in the competition. Through the competition, they can show their innovative achievements and entrepreneurial projects, so that the outside world can fully understand their research results and transformable projects, which is also conducive to the transformation of graduate students' innovative achievements.

3.4 Play the Exemplary Role of Outstanding Members of the Team

Through experience sharing, innovation and entrepreneurship lectures, outstanding teachers and excellent graduate students in the team encourage and lead graduate students to actively participate in scientific research and innovation and entrepreneurship practice, forming an atmosphere of innovation and entrepreneurship.

4. Based on the Scientific Research Team, This Paper Puts Forward the Concrete Practice of Improving the Innovation and Entrepreneurship Ability of Postgraduates in Local Undergraduate Colleges and Universities -- Taking Hunan University of Humanities, Science and Technology as an Example

Based on the research team of "Fluid Machinery and Its Application in Agriculture" of Hunan University of Humanities, Science and Technology, the practice of innovation and entrepreneurship education for postgraduates is carried out. Led by Professor Dong Hu and Professor Chuanlin Tang, the team focuses on marine mining technology closely around the major strategic needs of the country and the' 4 × 4' modern industrial system of Hunan Province. Its research and development results have been paid attention to and instructed by the Chinese Academy of Engineering and the Hunan Provincial Party Committee and Provincial Government. The team also won two first-class prizes and five second-class prizes in the provincial teaching competition. There are three provincial innovation and entrepreneurship education centers and provincial innovation and entrepreneurship education bases, one provincial excellent teaching team, and five monographs and textbooks, which have played a good leading and exemplary role.

The research team actively cooperates with enterprises to carry out industry-university-research projects. The scientific research team actively cooperates with enterprises at home and abroad, creatively solves many key technologies, and cultivates some excellent graduate students. As shown in Figure 1, Professor Dong Hu and his team are carrying out research projects.

The research team strengthens the curriculum system construction of graduate students' innovation and entrepreneurship ability. The scientific research team is deeply involved in the formulation of postgraduate training objectives and curriculum system, and cultivates postgraduates in subject competitions, scientific research papers and patent writing, academic exchanges, off-campus practice and innovation and entrepreneurship exchanges. This study fully mobilizes the

enthusiasm of the off-campus cooperative tutors of the scientific research team and plays the role of off-campus joint training base of industry and enterprise. This study establishes a training model of graduate students' innovation and entrepreneurship ability based on scientific research team, and comprehensively cultivates graduate students' innovation and entrepreneurship ability.

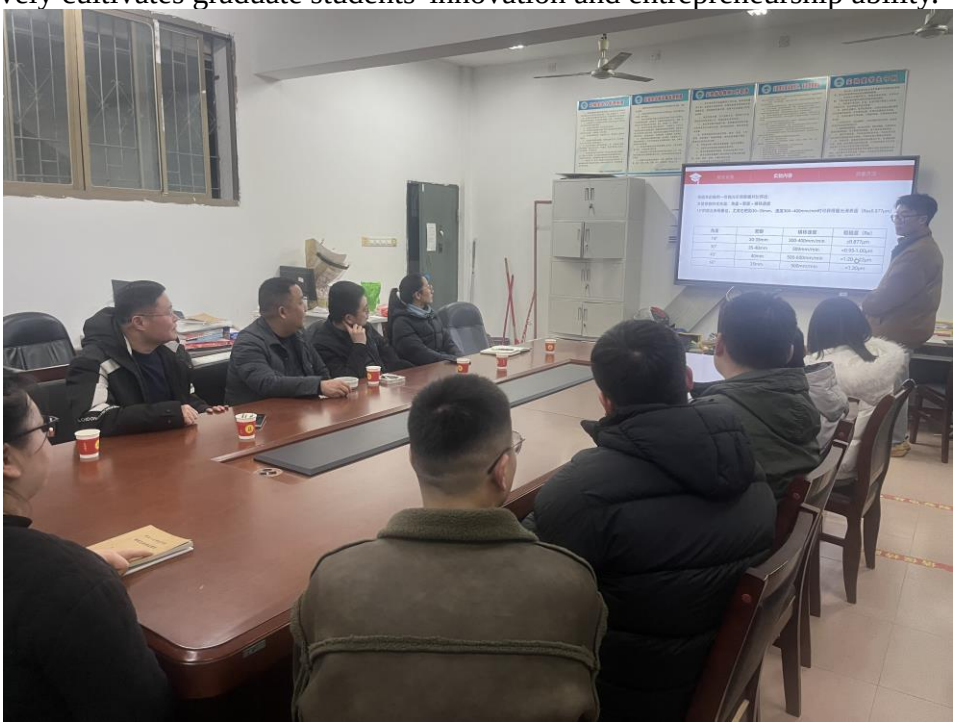

Figure 1: Professor Dong Hu and his team are carrying out research projects.

5. Conclusion

Cultivating outstanding innovative and entrepreneurial talents is an important mission of colleges and universities. Local undergraduate colleges and universities undertake the important task of cultivating innovative and entrepreneurial talents for the region. Relying on scientific research teams to carry out postgraduate innovation and entrepreneurship education can effectively improve the innovation and entrepreneurship ability of postgraduates in local undergraduate colleges and universities, and promote local economic and social development.

Acknowledgement

Ministry of Education Industry-University Research Program (202102211138, 202101142043, 201902120028);Funded by Hunan Teaching Reform Project (HNJG-20231172);The key project of degree and postgraduate teaching reform research in Hunan University of Humanities, Science and Technology (ZSJG2022Z0);Teaching Reform Project of Hunan University of Humanities, Science and Technology (RKJGY2118)

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