

The construction and practice of the training mode of fusion of professional and entrepreneurial in electronic information master degree

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Abstract: Graduate education shoulders the important mission of high-level personnel training and innovation and creation. It is an important cornerstone of national development and social progress, and the basic layout of the global talent competition. In the background of new engineering and engineering degree adjustment, this paper concluded that the lack of awareness of innovation and entrepreneurship, not high enough enterprise service ability and imperfect evaluation system in the process of professional degree master graduate student training. And the necessity of specialized innovation and integration education is further analyzed. Finally, the integrated training mode of major and entrepreneurship suitable for the graduate students of electronic information major in our university is constructed, and the practice is conducted. The training mode range from the course system guarantee, teaching staff construction, collaborative education, competition, discusses the electronic information professional master research production teaching fusion training mode. Through the exploration and practice, the innovation ability and the enterprise service ability of the electronic information professional degree graduate students have been effectively improved.

1. Introduction

Graduate education shoulders the important mission of high-level personnel training and innovation and creation. It is an important cornerstone of national development and social progress, and is the basic layout of the global talent competition. The essence of postgraduate education is completely different from that of undergraduates, which mainly focuses on the cultivation of practical operation, independent inquiry and practical innovation ability. Therefore, in order to enhance the international competition of talents and train graduate students who meet the needs of the construction of the national innovation system, we should accurately grasp the key point and key of graduate education, and pay equal attention to the scientific research ability and innovation ability in the construction of the student education system. In recent years, China has put forward innovation-driven strategies such as "Made in China 2025", "Internet +", "Artificial Intelligence +" and "new infrastructure", which presents a blowout demand for innovative and entrepreneurial talents of electronic information graduate students, thus putting forward higher requirements for the training

quality of electronic information graduate students in universities. As the main force of innovation and entrepreneurship, the graduate students of electronic information do not perform well in the statistical results of independent innovation and entrepreneurship under the dual support of the internal conditions of professional advantages and the external environment of the large gap of social labor force.

Innovation and entrepreneurship education in foreign universities started early, and has accumulated rich experience in the guiding concept, operation mode, curriculum system and multi-subject cooperation of innovation and entrepreneurship education, which has distinct characteristics [1]. Harvard University adopts the teaching mode of concentrated innovation and entrepreneurship, focusing on college education, and providing targeted professional education and independent financial support for different types.[2]

In recent years, many Chinese universities have also carried out innovation and entrepreneurship education.[3] Tsinghua University adopts the mode of organic integration of knowledge and skills with innovation and entrepreneurship, integrates innovation and entrepreneurship elective courses and practice courses into professional education by majors and levels, and takes into account the improvement of students' professional knowledge and innovation and entrepreneurship ability [4]. Shanghai Jiao Tong University adopts the mode of "one body and two wings" to promote the development of innovation and entrepreneurship education in the university, which is embodied in the establishment of entrepreneurship school to conduct innovation and entrepreneurship course training for students with entrepreneurial ideas, strengthen the cultivation of their entrepreneurial spirit and innovative consciousness, and achieve in surface coverage and point breakthrough[5]. Wang et al. proposed to build the multi-three-dimensional collaborative industry-education integration mode based on the training goal-oriented characteristic construction[6]. Yu et al. proposed the five-integrated talent training mode based on first-class disciplines[7] . Cheng et al. proposed the dual training path [8]. Wu et al. put forward the training system of "integrated design, three-stage training, multi-platform support and process monitoring", and explored and practiced the differentiated training method for graduate students with industry characteristics[9].

This paper first analyzes the problems existing in graduate innovation and entrepreneurship education in China and the necessity of specialized innovation and integration education, and finally introduces the new mode and practical effect of innovation and entrepreneurship education for electronic-information graduate students in Xijing University in detail.

2. Problems existing in innovation and entrepreneurship education in China graduate student

2.1. Postgraduate innovation and entrepreneurship education is out of the classroom

At present, the courses of graduate students are mainly professional courses, while the innovation and entrepreneurship courses are relatively lacking. At the same time, the existing graduate innovation and entrepreneurship education model and professional education system are not in place, and have not realized the benign development of interconnection and mutual promotion. The innovation and entrepreneurship courses set up by some universities are outdated and conservative and tend to be formalized, and they lack of entrepreneurial practice ability training content, which leads to the thinking of graduate students cannot be expanded and trained, and lack of corresponding innovation ability. Innovation and entrepreneurship education in some colleges and universities still focuses on employment education, and students lack a deep understanding of entrepreneurship, which cannot meet the needs of cultivating all-round development of innovative and entrepreneurial talents . How to integrate graduate innovation and entrepreneurship education into classroom education and achieve the organic integration of mass entrepreneurship and entrepreneurship education and professional education is the most important problem facing the reform of innovation and

entrepreneurship education at present.

2.2. The assessment system for innovation and entrepreneurship education is not complete enough

A scientific and perfect assessment system can comprehensively show the characteristics of students. However, at present, the assessment system of innovation and entrepreneurship education in domestic universities is not complete, and the degree of basic data is not high, which cannot comprehensively show the practical ability and innovation and entrepreneurship characteristics of graduate students. This leads to students' inability to receive good feedback and guidance, and the enthusiasm for innovation and entrepreneurship gradually disappears. Some colleges and universities only regard the performance of professional courses as the only standard to measure students' ability, and weaken and ignore the cultivation of innovation and practical ability. A good assessment system is also the data source for innovation and entrepreneurship education. Through continuously optimized evaluation indicators and extensive data collection, it can understand the problems existing in the existing education models, and improve and improve them in a targeted way.

2.3. The platform for innovation and entrepreneurship is not solid enough

The construction of innovation and entrepreneurship platform can improve the training quality of graduate students. Comprehensive management and organization, providing guidance, carrying out activities and inspiring the spirit feeling, which all help to create a culture of mass entrepreneurship and innovation. A good platform for innovation and entrepreneurship should be based on its fundamental facilities, information platform and communication platform and other composition. However, the present part of the university platform construction is not solid enough, the infrastructure can not be guaranteed, at the same time lack of good information communication and campus communication mechanism, so it is unable to provide namely time to-information and communication feedback. Those who have innovation and business plans, none to obtain funds, personnel, plans, equipment and other support from the platform, lead to planned abortion, the success rate of entrepreneurship greatly reduced.

2.4. The awareness of graduate innovation and entrepreneurship is not clear enough

Successful innovation and entrepreneurship is based on a correct understanding of it. At present, the training of graduate students in China lacks all-round and multi-perspective innovation and entrepreneurship, and the discovery of innovation and entrepreneurship points is not sensitive and clear enough, and can not use innovative thinking and business thinking to think about problems. Influenced by the early exam-oriented education in China and the idea of only papers, the innovative activities of graduate students have the phenomenon of quick success and instant benefit and blindly following the trend. They try to obtain innovative results through simple replication and modification, and do "assembly line" innovation, unable to break through the ideological imprisonment. At the same time, graduate entrepreneurship education in some colleges and universities is only superficial, students can not go out of the classroom, have access to instant information, and do rational analysis of market hot spots in combination with their own actual situation. Such entrepreneurial attempt is ultimately in vain time and energy. It is the key point and ultimate goal of graduate innovation and entrepreneurship education to establish a correct awareness of innovation and entrepreneurship and to carry out innovation and entrepreneurship activities in full combination with the market hot spots, the needs of The Times and their own situation.

3. The Necessary to carry out innovation and entrepreneurship education for graduate student

3.1. Meet to the development needs of the Times

At present, we are in the information age, and all walks of life have put forward higher requirements for the professional ability that graduate students should have. As high-end technical talents to promote social scientific and technological progress, electronic information graduate students master strong professional knowledge and related technical means. However, the improvement of academic work and the improvement of professional knowledge are no longer enough to meet the requirements of the society. Only with enough awareness of innovation and entrepreneurship can we use knowledge to better help social progress and transform the skills mastered into the basic force to promote the development of science and technology. In order to cultivate high-level talents in line with the needs of the development of The Times, universities need to reform the innovation and entrepreneurship education of electronic information graduate students through many aspects, such as the cultivation of student awareness and ability, so that the concept of innovation and entrepreneurship can take root and sprout in the heart of every student.

3.2. The only way to transform education

With the continuous reform and improvement of China's education system and the rapid development of higher education teaching level, many universities, while completing the basic teaching and scientific research tasks, vigorously develop school-enterprise cooperation projects, and combine scientific research achievements with social needs, to achieve the purpose of accelerating the transformation of scientific research achievements. In this context, the traditional talent training mode cannot meet the actual needs of the industry. Therefore, in order to achieve the purpose of successful transformation, colleges and universities must break the traditional mode of talent training, and transition the focus of talent training to innovation and entrepreneurship.

3.3. The change of talent training objectives

In order to keep up with the pace of the development of The Times and cooperate with the construction of the current innovative country, the universities begin to change from the training of scientific research talents to the training of innovative talents in the goal of talent training. Although China has a long history of taking the training of scientific research talents as the educational goal, with the development and progress of The Times, the traditional scientific research talents are not enough to meet the speed of social economy.

4. Exploration of the innovation and entrepreneurship training mode of electronic information graduate students

4.1. Research on the curriculum system design of the fusion of specialty and entrepreneurship

Integrating professional, innovation and entrepreneurship courses is an important path for the construction of curriculum system. According to the characteristics of undergraduate university electronic information professional and talent training target orientation, we can study how to penetrate in the existing electronic information discipline and professional innovative entrepreneurial accomplishment, explore in the professional education into innovative entrepreneurship education course feasible scheme, the innovation and entrepreneurial thinking, skills into the existing electronic information subject course, clear innovative entrepreneurial accomplishment and the corresponding

and correlation between the existing discipline course, make innovative entrepreneurship education in the whole curriculum system.

Innovation and entrepreneurship need not only profound professional knowledge, but also good comprehensive quality. The value and essence of general education lies in being people-oriented, promoting the integration of knowledge, stimulating individual subjectivity and creativity, and improving their innovation and entrepreneurship ability. In innovative entrepreneurship curriculum system design research, we can change the current excessive introduction of college students entrepreneurial background, characteristics, meaning, such as theoretical knowledge, but by helping students understand the entrepreneurial process of internal and external laws, stimulate and cultivate students' innovative thinking and entrepreneurship, innovation entrepreneurship education into the category of general education, reflect the inquiry, analysis, speculation, questions, action, design highly relevant and creative yuan ability attaches great importance to, for students' innovative entrepreneurial comprehensive literacy cultivation to lay a solid foundation.

Whether it is professional education or innovation and entrepreneurship education, practical curriculum is an indispensable and important link. Practical curriculum is a curriculum mode that can best reflect the characteristics and nature of innovation and entrepreneurship education. Organically integrating theoretical learning with practical application and reasonably constructing students' hands-on ability is the requirement of in-depth integration of innovation and entrepreneurship education and professional education. To study the curriculum system of innovation and entrepreneurship courses and professional practice, explore ways to integrate professional practice activities into the practice of innovation and entrepreneurship courses, and encourage students to carry out research-based learning, innovative experiments, entrepreneurship simulation and other activities based on college students' science and technology competition and college students' innovation and entrepreneurship training projects. On the other hand, through entrepreneurial practice training, students can operate simulation and practical experience, and gradually form diversified innovation and entrepreneurship practice activities.

4.2. Research on the practice system of the fusion of specialty and entrepreneurship

The integrated training mode of "production-learning-research" can improve students' practical ability, problem-solving ability and innovation ability. With talent, discipline, scientific research trinity innovation ability as the core, make full use of the existing foundation to gather social resources, vigorously promote institutions of higher learning, research institutes, industry enterprises, local governments and the international community, explore to establish to adapt to different needs, various forms of collaborative innovation mode. Therefore, in the electronic information talent training education, it need to explore the diversification of talent training mechanism, constantly create suitable for innovative talents growth environment, cultivate students' creativity and innovation ability, give full play to the enterprise in the education reform, funding, employment practice, make the students to apply knowledge to practice, solve practical problems, enhance their practice and innovation ability.

High-level innovation and entrepreneurship education teachers are the core force for the improvement of education quality. This topic tries to build a diversified teaching team of innovation and entrepreneurship education teachers through the following ways: First, we invite teachers with experience in enterprise practical training and company establishment as full-time teachers. In order to provide students with cutting-edge information on innovation and entrepreneurship, we also invited successful entrepreneurs, venture capitalists, business managers as guest guests to share and exchange experience with students. We need to establish a relaxed and free system for faculty development and encourage teachers to carry out innovation and entrepreneurship activities.

Experiential teaching is to introduce in the teaching process coincide with the teaching content of the scene, which can guide the student in the process of learning experience, make its accumulate positive experience, intuitive insight into the essence of the object or connotation, thus subtly master knowledge, improve ability, sublimation emotion and improve the mind. Experiential teaching method has four obvious characteristics: personal experience, inquiry, difference and interaction. This topic proposes the teaching method of experiential innovation and entrepreneurship, which intends to integrate various teaching methods, break through the simple teaching or "teaching + case", and organically integrates the diversified learning activities inside and outside the classroom, to improve students' understanding of key entrepreneurial activities and complex innovation and entrepreneurship practices. Meanwhile, the experiential teaching method is highly interesting, which is conducive to stimulating students' learning motivation, enabling students to more firmly grasp knowledge, enhance creativity, and promote the transformation of direct experience to abstract concepts.

4.3. Study and establish a diversified and multi-dimensional effect evaluation mechanism

In the electronic information innovation and entrepreneurship education, it is difficult for the traditional academic performance and course evaluation to comprehensively evaluate the students' actual performance. Therefore, it is necessary to find more evaluation indicators in line with the actual situation. For example, we can evaluate students' innovative thinking ability, practical ability and teamwork ability. These indicators can be used to investigate the performance of students through innovative design competition, entrepreneurship camp, enterprise visit and other activities, and introduce professional judges to score, and reflect the students' performance in the actual situation in an objective way.

Different students have different backgrounds and specialties, so the evaluation mechanism should also take these factors into account. Students can choose the innovation and entrepreneurship projects that they are interested in by themselves, and make different evaluations according to their own conditions. For some students, they may be better positioned to complete a research project in the laboratory and publish a paper, and for others to participate in entrepreneurship competitions or team projects to develop their innovation and entrepreneurship skills. Therefore, flexible and diversified evaluation mechanisms need to be established to maximize and stimulate students' potential and creativity.

In the process of evaluation, we should not only pay attention to the combination of process evaluation and result evaluation, but also the combination of short-term evaluation and long-term evaluation, as well as the combination of immediate evaluation, prospective evaluation and retrospective evaluation. A variety of evaluation methods, a comprehensive evaluation of students' entrepreneurship education. The implementation of evaluation should also pay attention to the two-way evaluation of innovation and entrepreneurship teaching feedback. Through two-way evaluation, teaching problems are timely understood, adjust the curriculum plan, teaching design and teacher arrangement, grasp students' learning situation, provide targeted learning guidance, and effectively improve the teaching quality of innovation and entrepreneurship education.

5. Conclusion

Combined with the education practice of electronic information degree graduate students in our university, with the integration of industry and education as the core, the integration of the curriculum system guarantee, scientific research project promotion, school-enterprise cooperation education and the guidance of the innovation team cultural atmosphere, a relatively professional innovation and entrepreneurship integration has been gradually established. Graduate students have improved their

scientific research and training, innovation ability, engineering practice ability and other aspects to a great extent, reflecting a better practical application effect.

Xijing University has integrated the innovation and entrepreneurship education model, and achieved fruitful results. In recent years, graduate students of this discipline have participated in various types of innovation and entrepreneurship activities, such as “China Internet + Competition”, China Graduate Electronic Design Competition series, Xijing University Graduate Innovation Fund, etc., which have achieved excellent results. The exploration results can provide ideas and support for the training mode of graduate innovation and entrepreneurship.

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References

- [1] Li Ke. *International Comparison and Reference of Innovation and Entrepreneurship Education*[J]. *Studies in Dialectics of Nature*,2017,33(9):73-78.
- [2] Zhong Sai. *Research on innovation and entrepreneurship education mode for college students*[J]. *Think think era*, 2020(12):230-232.
- [3] Lu Chunping, Zhao Mingren. *Analysis of the characteristics of entrepreneurship education practice programs in world-class universities—— Take Massachusetts Institute of Technology and Stanford University as an example* [J]. *Research in Higher Engineering of Education*,2020(4):174-179
- [4] Wang Lanjing. *Research on the model of integrating university innovation and entrepreneurship education into professional education* [J]. *Journal of Higher Education*, 2021 (1): 49-52.
- [5] Li Ping. *Training system and cultivation of graduate innovation ability —— Based on an empirical investigation in Guizhou Province* [J]. *Graduate Education Research*, 2014 (2): 48-53.
- [6] Wang Quanbao, Bu Chunmei. *The integration of industry and education in professional degree graduate education is based on a goal-oriented specialized strategy* [J]. *Degree and Graduate Education*, 2019 (3): 24-29.
- [7] Yu Tongpu, Shao Fuqiu, Yin Yan, et al. *Construction and practice of the five-in-one talent training system of FIRST " in the basic discipline* [J]. *Academic Degree and Postgraduate Education*, 2019 (8): 42-46.
- [8] Cheng Yongbo, Ou Ya. *Dual process: path selection of professional degree postgraduate training* [J]. *Academic Degree and Postgraduate Education*, 2018 (8): 46-52.
- [9] Wu Chunlei, Li Kewen, Yu Jixian, et al. *Reform and practice of training mode of information students in universities with industry characteristics*[J] *Degree and Postgraduate Education*, 2018 (4): 45-49.