

Research and Practice of Graduate Student Innovation Ability Training Mode Based on "Blockchain-like" Engineering Practice

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Abstract

This paper can be used for reference to innovate the training mode of professional degree postgraduates in our country. The main contents include: based on the service of local economic construction, expand the joint base of school and enterprise, and play the role of collaborative technology development and personnel training among "blocks"; Strengthen the project cooperation between the university and the enterprise and the team "multi-tutor" joint guidance and evaluation to ensure the quality of graduate training; Construct the teaching mode of course content reform based on the case of transformation of scientific research results. The talent training mode of the "blockchain-like" concept focuses on the training of application-oriented senior specialized talents.

Keywords

Raduate Student Innovation Ability Training, Blockchain-like , Engineering Practice.

1. Introduction

The training objectives of graduate students must be adapted to the needs of social talents. In the process of training, according to the characteristics of local universities and the role of regional economy, the training objectives and results of graduate students must serve the improvement of the innovation ability of local enterprises, and ultimately serve the local economic construction. But at present, the goal and actual results of graduate training are out of line with social needs and graduates' actual work. Secondly, with the expansion of graduate enrollment, the teacher team, the means and methods of education and teaching, the scientific research environment, and the training funds have not grown simultaneously or even ahead of time, and the problem of teachers has become more prominent. Secondly, with the development of economy and the progress of society, knowledge is created in a broader and interdisciplinary social and economic context, and knowledge suppliers are constantly emerging outside the university. These new knowledge is exactly the necessary content for the training of professional degree graduates[1].

Therefore, how to adapt to the new form, effectively integrate the university-enterprise cooperation resources and strengthen the connotation construction is the main problem of postgraduate teaching reform[2]. In view of the above problems, this study aims at the innovation ability of professional degree postgraduates, the demand for professional ability and the change of knowledge production mode in the new era, and establishes a "blockchain-like" graduate training mode of engineering practice innovation ability, which plays a certain reference role in exploring the training mode suitable for professional degree postgraduates in China[3].

With the support of the key discipline of Control Science and Engineering of Liaoning Province and the National Research Center of Financial Security and System Equipment Engineering

Technology, this paper, aiming at the modern society's demand for the engineering practice innovation ability of professional degree postgraduates and combining with the training goals of professional degree postgraduates in China, builds a "blockchain-like" concept talent training model suitable for professional degree postgraduates' education[4-5]. Methods to solve teaching problems

1) Strengthen project cooperation between universities, enterprises and teams, "multi-tutor" joint guidance and evaluation, and ensure the quality of graduate training. The graduate training mode based on team guidance is an important means to improve the quality of graduate training, and is also the objective demand of graduate training in the new era. In the process of graduate training, tutors should give students academic support, interpersonal support and independent support. In terms of academic support, tutors should provide students with relevant help, such as academic advice and guidance, academic resources help, etc. In terms of interpersonal support, tutors should encourage students to actively communicate with the outside world and help students overcome difficulties and pressures in study and life. In terms of independent support, tutors should encourage students to freely express their own knowledge and ideas, encourage students to innovate in learning, and identify with students' views. The research team (including temporary research team) is formed based on the research direction or specific project, and is composed of teachers with different research directions, different knowledge levels, and different professional specialties. The members of the team should complement each other and work together[8]. The research shows that the teaching style of different tutors has obvious influence on the creativity of graduate students. Through team guidance, each teacher can give full play to their own strengths and advantages, and can give students comprehensive support in these three aspects. A perfect tutor team is not only conducive to the all-round guidance of postgraduate students, but also conducive to the scientific research communication and exchange between tutors. Especially for young PhD graduates, how to guide them through team cooperation and tap their scientific research potential is crucial to the future development of the team and even the school discipline[9-10].

2) Encourage the course reform based on the transformation of scientific research results and the updating of course content on the university-enterprise service platform to build a new teaching model. In terms of the training program of graduate students, the multi-direction and multi-discipline joint establishment of a long-term and virtuous cycle of professional science literature discussion mechanism is based on the subject orientation and the characteristics of "technology block" (cross-professional and cross-team) [11]. In this way, students can fully and intuitively understand the latest academic developments of the major. By reconsidering the role of methods courses in postgraduate study, the application of scientific research results to transform cases and methods courses can help students establish a systematic thinking and learning system, make students understand how to carry out research, how to choose the best research methods in different research contents, and how to deal with experimental data, so as to improve the scientific research results of postgraduate students. The training goal of professional degree graduate students is different from that of academic degree graduate students. Professional degree graduate students emphasize the cultivation of practical ability and professional quality of graduate students. The curriculum system of professional degree graduate students should include the following five modules: humanities foundation module, professional skills module, professional expansion module, professional quality module, comprehensive ability innovation module. Through the implementation of the inter-block technical interaction in the concept of "class block" in the control engineering major, a new training mode of engineering practice innovation ability is constructed, and the advantages of base resource sharing, research transformation case sharing, and human resource sharing are

fully utilized to improve the practical innovation ability and professional quality of professional degree graduates

2. The Innovation of The Result

Due to the continuous expansion of the enrollment of professional degree postgraduates in China, the shortage of scientific research resources and tutor resources is becoming increasingly serious, and the actual training results of professional degree postgraduates in China are out of touch with the social needs and the practical work of graduates. In order to solve the above problems, the research group proposed a "blockchain-like" graduate training model for engineering practice innovation ability from the perspective of resource sharing. It has the following characteristics:

(1) From the perspective of resource sharing, construct the training model of professional degree postgraduates. Introduce the concept of "blockchain" into the talent training mechanism, build a new relationship between graduate culture medium, scientific research team, and technical direction, and conduct decentralized management. The school is policy-oriented, gives full play to the independent technology development ability of the research team and the updating ability of the market technology demand, takes service, coordination and construction of public research resources as the main work, and establishes relevant assessment and evaluation mechanisms to support the construction of the original research team and support and advocate serving local projects as the guide. Break the original shackles of scientific research team and technical exchange barriers, and build a temporary scientific research team composition. Give full play to the characteristics of the distributed, point-to-point transmission and consensus mechanism in the blockchain model, build the technology "block" of the scientific research team and the "block" of the served economy, and realize the sharing of technology, research resources and human resources.

(2) Propose a "blockchain-like" training model to improve the engineering practice innovation ability of professional degree graduates. The training of graduate students' engineering practice innovation ability revolves around the construction of graduate school and enterprise joint training base (served as "economic regional block"); Multi-tutor joint training mechanism (postgraduates participate in research service projects as the center, build temporary tutor teams, form a many-to-many training mechanism, give full play to the technical expertise of different tutors); The transformation of scientific research results case based curriculum reform teaching mode. In practice, give full play to the maximum value of "blockchain-like" integration to improve the ability of postgraduate engineering practice innovation.

3. Conclusion

(1) The application and implementation results are remarkable, and the students' engineering technology is hard and their innovation ability is strong. Through the training model of engineering practice innovation ability of "blockchain-like" implemented in the control engineering major, the practical innovation ability of graduate students in this major is comprehensively improved. Before the training mode was not implemented, the invention patents of graduate students were almost zero, after the implementation, in the past 4 years, 5 invention patents, 5 utility model patents, and 4 invention patents are being publicized. At the same time, the graduate students of this major won the first prize in the first Innovation and Entrepreneurship Competition held in Anshan City in 2017, and the project was also funded by the municipal Science and Technology Bureau to set up a startup company. In addition, the graduate students of this major have won 37 provincial and above competition awards in the past four years.

(2) The training mode of "blockchain-like" engineering practice innovation ability has been widely recognized. Relying on the research results, I completed 1 excellent research course in Liaoning Province. Liaoning Province Education Science planning graduate training mechanism reform special project 1, Liaoning Province university United front research key project 1, Liaoning Province graduate Education Innovation plan joint training pilot project 1, Liaoning Province graduate joint training unit project 1 Project, 2 self-selected projects for national engineering degree graduate education, and 1 educational research project of China Academic Degree and Graduate Education Association; He has published 14 teaching reform papers, including 1 indexed by EI and 3 papers from international conferences. Publishing 3 textbooks; Won the Liaoning University of Science and Technology postgraduate education reform achievement award 3.

(3) The initial results of the promotion and application effect were implemented in the control engineering major of Liaoning University of Science and Technology, which realized the resource sharing under the situation of the shortage of existing resources and the general situation of the expansion of postgraduate enrollment, and promoted the construction and reform of the graduate education of control engineering degree. In the process of training graduate students for professional degrees, the School of Telecommunications takes the skills required for industry production as the main line to construct a training system, establish 6 technical teams to serve more than 20 enterprises around the province, and give full play to the role of collaborative talent training in the process of technical exchange and improvement of university-enterprise block, team block and enterprise block with technical team as the medium. In the process of school-enterprise cooperation, with the help of enterprises direct contact with the market, more sensitive to market demand and social needs to put forward transformable technology research direction, while with the help of high-tech enterprises, large and medium-sized national enterprises with strong technical strength, advanced equipment and development teams, to achieve the upgrading of scientific and technological achievements. In the process of promotion, technology sharing, scientific research platform sharing, talent training sharing, each research and development process can realize the promotion of local economic development and talent technology, especially the ability of graduate students to improve engineering practice and innovation.

In summary, the results have strong theory and practice, can effectively improve the training quality of professional degree postgraduates, has popularization significance and broad radiation prospects, and provides reference for the teaching reform and practice of brother colleges.

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