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Construction of Graduate Talent Training Mechanism based on Multi-Disciplinary Crossing and Integration

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Abstract: It is an urgent requirement for the high-quality development of universities and society to build an effective graduate talent training mechanism. The importance of building a graduate talent training mechanism based on multi-disciplinary crossing and integration is discussed. Under the background of "double first-class" construction, innovation ability has become the key to measure the quality of graduate training, and multi-disciplinary cross-training is an important way to improve this ability. To optimize the environment of interdisciplinary integration, the author puts forward some strategies, such as the integration of science and education, the cross-disciplinary training mode, the improvement of interdisciplinary course elective mechanism, the construction of the training ideological mechanism of deep integration of industry, university and research, the establishment of teaching evaluation system and the creation of the training mode of "reality teaching and learning training". At the same time, it is necessary to strengthen the construction of school-enterprise collaborative graduate training mode, including resolving the conflict of values and interest pursuit, strengthening the top-level design, and co-construction evaluation mechanism. It has a certain reference significance for the mechanism of graduate personnel training.

Keywords: Interdisciplinary; Graduate Students; Personnel Training Mechanism; Resources and Environment.

1. Introduction

The construction of "double first-class" requires first-class graduate innovative talents as support, and has also brought many reform advantages to the training mechanism of graduate innovative talents [1]. Innovation ability is not only the key factor to measure the quality of graduate education, but also the difficulty to improve the high-level graduate education system. In recent years, scientific and technological progress and social development have increasingly demanded compound and innovative talents. The interdisciplinary graduate training in Chinese universities has also made obvious progress in the cultivation concept, training process, interdisciplinary scientific research, organizational structure and rules and regulations, such as the gradual improvement of institutional system, continuous optimization of personnel training structure, and steady improvement of personnel training quality. People have regarded multi-disciplinary integration as an important means and channel to promote the cultivation of professional graduate students' innovative ability[2]. However, only the establishment of an efficient operating mechanism can guarantee the normal operation of the school-enterprise collaborative talent training mechanism, so as to achieve the purpose of cultivating high-quality innovative high-level talents, and at the same time can bring cooperation dividends to the enterprise, so that the school-enterprise collaborative training of high-level talents is more efficient. Therefore, it is necessary to continuously improve and improve the construction of the graduate talent training mechanism based on the cross-disciplinarity and integration, so as to ensure the continuous improvement of the quality of China's graduate education and enhance China's international innovation competitiveness [3].

2. Training Mechanism of Graduate Students' Innovative Ability based on Multi-Disciplinary Crossing

(1) Optimize the interdisciplinary integration environment

Schools should deepen the cross-integration of resources and environment with other related disciplines, such as mechanics, computer science, environmental engineering, etc. Through the establishment of interdisciplinary research platforms and cooperation mechanisms, teachers and researchers are encouraged to exchange and cooperate across disciplines, jointly study and solve practical problems, and expand the boundaries of disciplines. Through the study of cross-project, not only can enrich and improve the main knowledge of resources and environment, but also can cultivate new growth points of disciplines and form a characteristic research direction. These interdisciplinary programs can be combined with resource and environment majors to cover knowledge and skills in multiple subject areas, providing students with a broader academic background and capacity development across disciplines. Through the opening of interdisciplinary courses, students' comprehensive thinking ability, multicultural cognition and teamwork ability can be cultivated to better adapt to the needs of the future society[4]. The results of interdisciplinary research can be encouraged from the policy level of the school. In addition, the school should ensure that the teaching tasks of multi-disciplinary instructors are identified as higher than the teaching standards of their original department. In this way, the legitimate rights and interests of teachers participating in interdisciplinary teaching can be effectively protected, and more teachers can be encouraged to participate in interdisciplinary teaching. Schools and colleges at all levels should attach importance to and encourage the achievements of scientific research cooperation, which will promote

interdisciplinary cooperation between university teachers and researchers and promote the development of innovative research. Finally, in terms of platform construction, the school should realize full cooperation between different departments, open the internal experiment platform to students, provide hardware conditions for interdisciplinary cross-disciplinary innovation, ensure that interdisciplinary innovation practice is not hindered, and stimulate students' innovation awareness and creativity.

(2) The integration of science and education as a means to promote the cross-disciplinary training model

The integration of science and education is a prominent feature in the training process of professional graduate students, and it is also the key to training talents with real innovation ability, independent thinking and dialectical thinking, and the multi-disciplinary training mode provides an important path for them[5]. On the one hand, at the beginning of the elective course teaching, the tutor takes the initiative to show the students of different majors their scientific research projects, and inspects the students' scientific research interests, especially the direction of topic selection in the teaching process, and absorbs some students who have the possibility of interdisciplinary research into the scientific research team, so as to increase their understanding of other disciplines and broaden their perspective of observation while giving full play to their professional advantages. In addition, give play to the role of full-time scientific research institutions, and introduce scientific researchers from institutions into the classroom teaching of public courses or elective courses by means of special discussions, so as to attract academic graduate students of different disciplines to form interdisciplinary research teams. On the other hand, it constructs a trinity teaching framework with heuristic teaching method, case teaching and dialectical thinking training as the core. This model especially emphasizes on guiding students to use dialectical thinking to understand relevant theoretical viewpoints and practical problems, and encourages students to analyze the same scientific research problem from the perspective of different disciplines, so as to activate logical speculation and improve the possibility of innovation and breakthrough.

(3) Improve the mechanism arrangement of interdisciplinary elective courses in the training program

Multidisciplinary interdisciplinarity is not a simple addition of multidisciplinary courses, but needs to truly reflect the ability of multidisciplinary collaborative problem solving in the curriculum[6]. At present, although the design of resource and environment graduate training program considers the curriculum setting of interdisciplinary subjects, the problems such as weak pertinence, limited selection, and not obvious cross-content are common. From the perspective of students' learning feedback, on the one hand, the selection of interdisciplinary courses lacks the decision-making process dominated by tutors' opinions, and the supply of interdisciplinary courses is insufficient. On the other hand, the intersectionality of course content is not prominent, the mechanism of joint communication and lesson preparation between lecturers is lacking, the teaching goal of guiding students to organically combine interdisciplinary courses from different levels is not clear, and the lecturers of different subject courses still teach according to the teaching paradigm of their own subject, ignoring the original intention of students to choose interdisciplinary courses. Therefore, it is necessary to classify and organize relevant courses according to the characteristics of resources and environment majors, and pay attention to the scientific nature of professional training programs and mentors' opinions.

3. Innovate The Training Mechanism of Resources and Environment Graduate Students under the Integration of Industry, University and Research

(1) Establish a deep integration of production, university and research graduate training ideological mechanism

In order to make the graduate students of resources and environment establish the correct cognition of moral education and the correct "three views" and improve the comprehensive quality, the curriculum ideological and political construction should be strengthened in the graduate course. It should be regarded as the fundamental task of postgraduate education to create new methods of moral education on the basis of original teaching and improve the current situation of "full teaching" of moral education. In the teaching process, make full use of the existing resources in the school, such as the advanced deeds of outstanding party members in the school as the carrier of moral education. The core of moral education is to carry forward the patriotic spirit and space spirit, and to tell the classic examples of patriotic scientists, so that moral education runs through the whole process of teaching. On this basis, the content of moral education should be expanded and enriched continuously. For example, in the teaching process, explain to students the great achievements made since the founding of New China to help students gain national pride and establish a sense of responsibility. Actively respond to the call of the state, according to the expertise of students to organize special lectures in school, so that students establish a correct understanding of moral education. The core idea of education should be adjusted to regulate students' professional behavior[7]. At the same time, provide students with the opportunity to communicate with outstanding representatives face to face, encourage students to exchange ideas with outstanding talents, and comprehensively improve the comprehensive quality of students.

(2) Establish a graduate teaching evaluation system that deeply integrates resources and environment

It is necessary to establish an evaluation system in order to solve the problem that the evaluation standards of postgraduate teaching are not uniform. In the comprehensive evaluation of education quality, teachers should make clear the evaluation objectives and talent training concepts, and strictly follow the educational principle standards, educational quantification standards and teaching model standards[8]. For example, according to the content of the textbook, students' growth and progress space in learning is the main evaluation basis, students' learning results are the auxiliary evaluation basis, and teachers' teaching behaviors and curriculum quality objectives are integrated into the comprehensive evaluation. When there is a contradiction between the above standards, students' upward space can be taken as the main evaluation standard to comprehensively evaluate the teaching quality. In addition, attention should be paid to the scientificity and operability of relevant standards in the evaluation, and the unity of stage process evaluation standards should be maintained according to the actual ability

of the evaluation object, so as to ensure that the evaluation results have a certain rationality.

(3) Create a "reality teaching, learning and training" graduate training model

The realization of employment is an important goal of graduate training in colleges and universities. However, at present, some colleges and universities lack cooperation mechanism with enterprises when training graduate students, do not carry out in-depth cooperation with enterprises, and do not fully understand the current industry status and the real needs of enterprises. As a result, the graduate students trained by colleges and universities do not meet the needs of industry development, and the employment rate of graduate students is affected. Although universities and enterprises have signed relevant agreements, the specific content and responsibility division of school-enterprise cooperation have not been clearly defined, leading to the situation of shirking responsibility between each other during the cooperation period, and the effect of school-enterprise cooperation is poor. In order to solve the above problems and improve the employment rate of resources and environment major, the university should make use of its regional and technological research and development advantages, establish good cooperative relations with surrounding enterprises, expand education and teaching to the real work situation of enterprises, combine the on-campus study of resources and environment graduate students with practical work, and combine on-the-job internship, productive learning and practical training. At the same time, the innovative ability and practical ability are combined to establish a three-dimensional talent training model. Make full use of the local enterprise resources and industrial advantages, according to their own school experience and actual situation, jointly establish the training objectives of resources and environment graduate students, determine the quality and ability training requirements of resources and environment graduate students; Enterprises actively participate in the whole training process of graduate students in resources and environment, strengthen the training of practical ability of graduate students in resources and environment, and promote the joint and collaborative research of enterprises, universities and research institutes based on their knowledge advantages, so as to improve the training quality of graduate students in resources and environment, and form a graduate training model of "reality teaching and learning training" with industrial characteristics[9]. In this process, teachers should guide students to exert their subjective initiative, help enterprises solve practical engineering and technology problems, help enterprises develop, and realize the deep integration of production, learning and research.

4. The Construction of School-Enterprise Collaborative Graduate Training Model

(1) The collaborative training mechanism should first solve the problem of values and interest pursuit of both schools and enterprises

The primary problem of school-enterprise cooperation is the conflict of values and interests between the two sides. Universities undertake the responsibility of personnel training, scientific research and social service, while the main pursuit of enterprises is economic interests. There are great differences in values between universities and enterprises, but they are closely related in school-enterprise cooperation. The effective combination of universities and enterprises can effectively understand the market demand for talents, master the development of disciplines, adjust talent training programs in real time, and improve the quality of talent training. For enterprises, in the current era of knowledge economy, enterprises are facing fierce market competition, and the transformation, upgrading and development of enterprises are also inseparable from talents. The combination of enterprises and universities can take advantage of talents and scientific research advantages of universities. But we should also see the difference in the pursuit of interests between universities and enterprises. The main pursuit of universities is talent training, while the main pursuit of enterprises is economic benefits. Therefore, the two sides need to have in-depth communication and exchanges before cooperation, and achieve mutual benefit and win-win situation through mutual help. Therefore, as a partner, colleges and universities should give priority to training and transporting high-quality talents for enterprises, and at the same time, take advantage of resources such as teachers and teaching to actively carry out personnel training for enterprises. In addition, according to the needs of enterprises, colleges and universities should try to send high-level teachers to provide technical and intellectual support for enterprises. At the same time, it actively participates in the scientific and technological research and development of enterprises, helps enterprises to solve problems in production and development, and helps enterprises to transform new technologies and scientific and technological achievements[10]. Through cooperation, enterprises can benefit a lot, so as to improve the enthusiasm and resource investment of enterprises in the collaborative training of graduate students. Enterprises should also provide the necessary environment and research platform for cooperative projects and personnel in the process of collaborative training of graduate students, so as to help the efficient operation of cooperative projects and the training of high-quality talents.

(2) Strengthen the top-level design and build an efficient school-enterprise collaborative training operation plan

In the process of school-enterprise collaborative training, many subjects such as government, universities and enterprises are involved, and the interests, responsibilities and functions of different subjects are not only different but also closely related. In order to do a good job in the collaborative training and innovation management of resource and environment graduate students, top-level design is very necessary. University-enterprise collaborative training should be jointly formed by universities and enterprises to form a joint leading group, identify the person responsible for the operation system, project implementation, post responsibilities, etc., establish an effective accountability mechanism, and guide and guarantee the efficient operation of the school-enterprise cooperation system[11].

(3) Both schools and enterprises should jointly establish an evaluation mechanism

School-enterprise collaborative talent training should be clear in personnel evaluation, management of scientific research achievements, reward and other policies[12]. Otherwise, it will not only affect the enthusiasm of personnel and the depth of cooperation between the university and enterprise, but also affect the quality of personnel training and the transformation of scientific research results. First of all, a scientific and perfect evaluation mechanism should take the

quality of talent training as the core. For universities and research institutes, the achievements of scientific and technological transformation, the quality of social services, the quality of talent training, and the value of regional contribution should all be taken as important reference indicators. Secondly, the cooperation value of the entire scientific research team should also be fully valued. Finally, it is suggested that the evaluation of government departments and all sectors of society should be included in the evaluation mechanism to ensure the objectivity, reliability and operability of the evaluation mechanism. For enterprises, they should abandon the traditional investment concept, look further away, avoid only considering the short-term profits of enterprises, but should consider the future development of enterprises and science and technology comprehensively, and see the value created in the training of innovative talents.

5. Conclusion

The country has entered a new era, education is facing a new mission, and the demand for postgraduate talents is increasingly urgent. Under the mechanism of interdisciplinary and integrated graduate talent training, Xiangtan University actively explores the all-dimensional innovative and high-level integrated talent training mode, and jointly establishes the industry-university-research collaborative innovation base with enterprises and public institutions. The collaborative innovation base focuses on the cultivation of graduate innovative talents, highlights the principal position of students in the teaching process, lets students directly face social practice and scientific research innovation, and cultivates students' knowledge application ability and creative ability. This mode of collaborative innovation of talents training makes the talents training of the school directly face the employment needs of the society, and can more effectively train innovative and application-oriented high-quality talents demanded by the country and society. In short, innovative talents are the key to the construction of an innovative country, and their role in supporting the economic and social development of China's graduate education is gradually prominent. Strengthening the exploration and research on the reform of the training mechanism of professional degree postgraduates is conducive to improving the training quality, cultivating outstanding innovative talents for the society, and promoting the rapid development of society.

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