Mechanisms and Research Strategies of Industry-Education Integration and Collaborative Cultivation of Professional Degree Graduate Students in the Context of New Agricultural Science

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Abstract: The development of new agricultural science requires the cultivation of interdisciplinary and practice-oriented professionals. In order to meet this demand, it is necessary to study in depth the mechanism and strategy of industry-education integration and collaborative cultivation of professional degree graduate students in the context of new agricultural science. It is necessary to strengthen the cooperation between schools and enterprises, build internship bases, improve the practical teaching mode of industry-education integration, establish the platform of industry-teaching integration, and promote the in-depth cooperation between schools and enterprises, so that the graduate students of professional degrees not only master solid theoretical knowledge, but also have strong practical ability. This is of great significance to cultivate high-quality compound talents and promote the development of agricultural modernization.

Keywords: Neo-Agriculture Education, Industry-teaching integration, Teaching mode, Compound talents, Agricultural modernization.

1. Characteristics of the Connotation of the Integration of Industry and Education in the Context of the New Agricultural Science

1.1 Overview of the Connotation of Integration of Industry-education

The integration of education and industry is to closely combine the two fields of education and industry, promote the in-depth integration of industry and educational resources, promote the penetration of high-quality educational resources into the industrial field, and achieve the organic combination of industrial innovation and talent training, so as to achieve a win-win situation for both sides. Integration of education and industry has the following levels of connotation:

- At the industrial level, enterprises should be the mainstay, bridging the upstream and downstream of the industrial chain, promoting synergies and co-operation among enterprises in different fields, and actively participating in areas such as talent training and scientific and technological research and development.

- At the educational level, quality educational resources should be explored, the level of co-operation between schools and enterprises should be improved, precise talent training should be carried out, and high-quality talents should be trained in a targeted manner according to market demand.

- At the talent level, high-quality talents recognized by the market should be cultivated, and various groups of talents adapted to the needs of industrial development should be built.

- At the policy level, policy and financial support should be increased, and the resources of enterprises and schools should be rationally planned so as to achieve an organic combination of the two sides.

1.2 Characteristics of Industry-Education Integration in the Context of the New Agricultural Sciences

In the general environment of the new agricultural science, there is a new change in the demand for integration of industry and education. First, it needs to focus on demand orientation. With the modernization of agriculture and the change of production methods, the demand of agricultural enterprises for new agricultural science and technology and high-quality agricultural talents is becoming increasingly urgent. The integration of industry and education should be closely combined with the actual needs of agricultural production, highlighting the demand-oriented, targeted cooperation in talent training and scientific and technological research and development. The development of new agricultural science needs to be realized through technological innovation and industrial upgrading. The integration of industry and education needs to be closely combined with the actual needs of agricultural production, highlighting the demand-oriented, targeted cooperation in talent training and scientific and technological research and development. The development of new agricultural science needs to be realized through technological innovation and industrial upgrading. The integration of industry and education needs to provide comprehensive support for agricultural enterprises in terms of technology transfer, scientific and technological consulting, technical services, etc. by carrying out cooperation between industry, academia and research and helping enterprises realize technological upgrading and industrial upgrading.

The development of new agricultural science requires linkage and cooperation among agricultural research institutes, universities and enterprises. The integration of industry and education needs to further strengthen the linkage between industry, universities and research institutes, promote the industrialization of scientific research results, and promote scientific and technological innovation and technology transfer. The new agricultural science needs to work on technological innovation and scientific and technological application. The integration of industry and education needs to grasp the technical characteristics and application features.
of the new agricultural science, give full play to the strengths of industry and institutions of higher learning, and improve the application value of scientific and technological innovation. The development of new agricultural science cannot be separated from the "three rural issues”, namely, farmers, rural areas and agriculture. The integration of industry and education needs to be closely related to the three rural issues, actively explore a new rural ecological economic system and social management model, create grass-roots poverty alleviation demonstration sites for cooperation between industry and education, and promote the modernization of rural development. New agricultural science needs to strengthen cooperation at home and abroad, absorb global advanced technology and management experience, promote technological innovation and entrepreneurial innovation, and improve the international competitiveness of China's agriculture. The integration of industry and education needs to strengthen international cooperation, expand international students and overseas employment, and enhance the internationalization quality and capability of enterprises and talents.

2. Problems of Collaborative Training of Professional Degree Graduate Students by Industry-Education Integration in the Context of New Agricultural Science

2.1 The School Levels

2.1.1 Lack of in-depth integration of industry-education

At present, there is a big problem in the cultivation of professional degree graduates in collaborative cultivation, and there is a gap between them and the actual needs of enterprises. There is a mismatch between the school’s syllabus and the actual needs of enterprises, and a lack of in-depth industry-education integration mechanism, which makes it more challenging for students to improve their actual working ability and practical skills, and at the same time, it affects the employment of graduates and the talent output of enterprises.

2.1.2 Separation of theory and practice

There are also problems with the school's curriculum structure in the process of collaborative training of professional degree graduates. Theory and practice are separated, and most of the courses are based on theoretical teaching from books or laboratory environment, which lacks market adaptability and practicality of work. Therefore, more practical teaching is needed to improve students' proficiency in practical work application.

2.1.3 Inadequate teaching staff

Currently, despite the emergence of new agricultural technologies, there is a serious lack of teachers in schools, which leads to the inability of students to meet the demand for training in practical skills. In addition, the lack of teachers not only directly affects the development of students, but also has an indirect impact on the entire agricultural industry. Only professional teachers can ensure that students can fully master practical skills, so the lack of professional teachers will directly lead to many students losing the opportunity to master practical skills.

2.2 The Enterprise Levels

With the continuous development of new agricultural science and advancement of biotechnology, the agricultural industry is also moving forward, which increases the demand for high-end agricultural talents. However, at the enterprise level, there are still many problems. First, enterprises need to balance the issues between vocational skills training and academic standards in order to realize the synergistic training of industry-education integration. For advancing the development of enterprises, high-end talents are essential, but at the same time, it is also necessary to ensure that students are cultivated in accordance with academic standards and can obtain a degree. Therefore, the training program of industry-education integration needs to consider the balance and unity of the two aspects. Second, companies need to ensure the legitimacy of students' practical learning and credit transfer. As time goes by, students spend more time practicing than studying in enterprises, and whether the credit transfer of these practices is authoritative and fair is also an issue that enterprises need to consider. Finally, enterprises need to consider how to ensure students' career development during practice. The integration of industry and education should be based on career planning, according to the actual demand, and actively respond to industrial development and adjustment to improve the training program. Of course, this requires forward-looking planning in the light of the actual situation, predicting future job requirements and timely training. Determine the appropriate career development program for students to grow and become professionals, and implement career planning and orientation.

2.3 The Government Levels

At present, Chinese legal and regulatory mechanisms are relatively insufficient to regulate and support the model of industry-education integration and collaborative cultivation of graduate students for professional degrees. Specialized regulations have not yet been issued to regulate the implementation of the model. Therefore, it is necessary to further improve relevant policies and consider practical factors to support the development of the model. The model involves enterprises and universities working together, so the number of teachers available to schools participating in the model will be limited. Students need to alternate teaching and internships between enterprises and schools, and the adequacy of teacher staffing can provide students with good counseling and support, and promote students' practical ability and learning effectiveness. However, the current model of industry-education integration and collaborative cultivation of professional degree graduate students is insufficiently equipped with teachers. As the model is relatively new compared with the traditional talent cultivation method, the industry does not have a high degree of recognition for graduates of this model. The traditional interview recruitment method may have difficulties in screening such talents, which need to be assessed by clearer career orientation and evaluation criteria.
3. Mode Analysis of Collaborative Training of Professional Degree Graduate Students by Industry-education Integration in the Context of New Agricultural Science

3.1 The Development Model of Industry-Education Integration and Collaborative Cultivation of Professional Degree Graduate Students

The development model of training professional degree graduate students is to closely integrate higher education with industrial economy, aiming to cultivate high-quality compound talents with profound academic background, open vision and the ability to translate theories into practice. The core of this model is the integration of industry and education, i.e., schools and industries jointly carry out all-round cooperation in education, scientific research and technological innovation. Firstly, enterprises invite school teachers, students and experts from research institutes to participate in technological research, R&D and innovation in order to realize classified research on enterprise needs and the solution of key technological problems; secondly, schools and enterprises cooperate to jointly formulate the curriculum arrangement of professional courses, and provide a more realistic practice environment and topics; finally, schools and enterprises form a cooperation mode of talent cultivation, which can improve students' quality of life and career through joint enrollment, guidance and assessment and other forms to improve students' professional quality and practical ability, and provide strong support for students' career development.

3.2 Collaborative Education Model of Industry-education Integration under the New Agricultural Science

In order to establish a collaborative education model of industry-education integration, it is necessary to first raise the awareness of industry-education integration among the participating parties. Enterprises should recognize the importance of training talents to meet the needs of production development; education should clarify the needs of enterprises for professionals, and adjust the teaching content, carry out practical teaching, so that students can gain practical experience in enterprises, not only need to learn the basic knowledge in school, but also need to use the knowledge learned in practice to solve problems, absorb practical experience, and transform it into their own skills.

In order to establish the collaborative education model of industry-education integration, it is necessary to build an information exchange platform for enterprises to express their own learning needs, technical advantages and development plans to the school, so that the school can better carry out teaching and scientific research in accordance with the needs of the enterprises, and feedback the teaching results to the enterprises. Education needs to understand the actual needs of enterprises, constantly update the teaching content, combine teaching research with practice, and test the teaching effect through practice.

The fundamental purpose of the industry-education integration and collaborative education model is to respond to the changing needs of the market, increase the talent pool and bring more reliable technical barriers to enterprises. Schools and enterprises can carry out school-enterprise cooperative innovation projects through joint research to solve practical problems in actual production and improve the quality and technical level of products. Cooperative innovation projects are an important way of practical teaching in which students can improve their scientific research and innovation ability.

The schools should formulate teaching plans and curriculum systems that meet the requirements of enterprises according to their actual needs, offer relevant courses and internship training bases, provide more opportunities for students to experience cutting-edge technology and practical operation, and at the same time, strengthen exchanges and cooperation between disciplines and enterprises, so as to enhance students' comprehensive quality and ability.

4. Optimization Path of Industry-Education Integration and Collaborative Cultivation of Professional Degree Graduate Students in the Context of New Agricultural Science

4.1 Cooperate by Setting up Off-campus Training Bases

Off-campus training bases refer to enterprises or organizations with appropriate practice environments and conditions, which can provide teaching content in line with industry standards and are suitable for graduate students to carry out practice and teaching activities. Compared with the traditional on-campus teaching environment, off-campus training bases have more close-to-actual teaching content, broader practice platforms and richer industry resources. Incorporating off-campus training bases into the path of industry-education integration and collaborative cultivation of professional degree graduate students can provide students with more practice opportunities, improve their professionalism and practical experience, better meet the needs of enterprises and the society for high-quality professionals, and promote the cooperation and interaction between students and enterprises to create a good talent cultivation environment for the development of the industry. When selecting off-campus training bases, priority should be given to the industry sector and nature of the enterprises they are in, and enterprises or organizations with influence and good reputation should be preferred. In the process of cooperation, the actual needs of postgraduates and the requirements of teaching tasks should be fully considered, and a strict and standardized off-campus training program and management system should be established, while also taking into full consideration of the complementary advantages of internal and external resources, and strengthening the cooperation of the faculty, so as to ensure that the off-campus training bases become an organic part of the industry-education fusion model, and play a real role in promoting the cultivation of professional talents and the development of the agricultural industry.

4.2 Optimize the Practical Teaching Mode of Industry-education Integration

In order to optimize the path of industry-education integration and collaborative cultivation of professional degree graduate
students, an innovative industry-education integration practice teaching mode can be adopted. Firstly, the industry-education integration collaborative cultivation mode oriented to industrial demand is established, and the cultivation of practical ability and comprehensive quality of professional degree graduate students is emphasized to strengthen the collaboration and exchange between enterprises and universities. Secondly, promote the practice teaching mode such as famous enterprise tutor system, industry-education integration courses and industrial research practice to improve the practice ability and comprehensive quality of professional degree graduate students to meet the needs of industrial development. Finally, integrating all kinds of educational resources, establishing a collaborative cultivation model as the core, covering various types and levels of educational institutions and educational resources, and establishing a strong network system, so that graduate students can benefit from diversified education.

4.3 Building a Platform for Integration of Industry-education

As the new agricultural science continues to advance, there is a growing demand for high-level human resources in the agricultural field. In order to meet this demand, industry and education should collaborate to cultivate professionals as a key talent training model. In order to realize this model, it is necessary to create a platform for the integration of industry and education. This platform should first have openness, cooperating with famous enterprises and research organizations at home and abroad to establish resource sharing and network openness, providing students with practice opportunities and learning resources. This will allow students to be exposed to the latest technology and knowledge and continuously improve their own quality. Second, the industry and education integration platform should have personalized features. In order to meet the needs of different students, it establishes personalized learning plans and cultivation programs, and provides services that meet the individual needs of students. For example, provide more in-depth research opportunities for outstanding students and help them develop innovation and entrepreneurship. Finally, the platform for the integration of industry and education should be practical. The platform should provide students with rich practical opportunities to develop their practical and real-world problem-solving abilities. At the same time, enterprises and research organizations should provide real cases and projects to improve students' social adaptability and innovation ability.

5. Conclusion

In the context of the new agricultural science, traditional land resource utilization and production techniques have been replaced by modern agricultural production and management, and this change is driving the pace of agricultural modernization. At the same time, the integration of industry and education has become an important way to improve the quality of higher education and the comprehensive quality of students. By creating a collaborative platform for the integration of industry and education, implementing the enterprise tutor system, implementing practical courses and promoting industrial practice, and through optimizing the curriculum, encouraging the sense of innovation and strengthening university-enterprise cooperation and other strategies, the cultivation of professional degree graduate students in the context of new agricultural science and technology can be effectively improved. The mechanism and research strategy of industry-education integration and collaborative cultivation of professional degree postgraduates can draw on relevant experiences at home and abroad to realize the theoretical and practical integration of postgraduates by establishing a reasonable mechanism for the selection and management of enterprises or practice bases, formulating a reasonable cultivation plan and curriculum, strengthening the interaction between postgraduates and enterprises or practice bases, and formulating an appropriate evaluation and incentive mechanism. This will not only improve the comprehensive quality of graduate students, but also meet the needs of enterprises or practice bases and promote the sustainable development of the agricultural field.

References