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Talent Training Models in Vocational Schools from the Perspective of Industry–Education Integration: Practices and Achievements in School–Enterprise Cooperation

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Abstract: ***The fundamental task of vocational education is to cultivate technical and skilled talents capable of adapting to economic and social development. Exploring talent training models in vocational schools is therefore conducive to improving the quality of talent cultivation. This paper summarizes the attempts made by vocational schools in talent cultivation from the perspective of industry–education integration. Drawing on the actual conditions of the school, various forms of school–enterprise cooperation have been implemented, and a series of tangible achievements have been produced, enabling effective reform in talent cultivation. The paper examines how these cooperative arrangements are organized, what forms they take, and how they contribute to improving students' technical competence and employability. It further analyzes the mechanisms through which industry–education integration aligns curriculum design, practical training, and enterprise needs, and identifies the conditions under which school–enterprise cooperation can be sustained and scaled. On this basis, the paper discusses the challenges encountered in implementation, including coordination between schools and enterprises, the allocation of resources, and the assessment of training outcomes. The study concludes by proposing practical measures for deepening industry–education integration and optimizing talent training models in vocational schools, with the aim of providing reference for vocational institutions seeking to enhance the quality and relevance of talent cultivation.***

Keywords: Vocational education, Industry–education integration, School–enterprise cooperation, Talent training models.

1. INTRODUCTION

The common goal of current education and social development is to implement the cultivation of moral character and talents, and to cultivate versatile and versatile talents who develop in morality, intelligence, physical fitness, aesthetics, and labor. With the continuous improvement of the domestic economic level and the transformation and upgrading of industries, a large number of composite technical talents who can adapt to the development of the new era and social needs are needed. Vocational education is also a key focus of current education reform and development in China. Carrying out school enterprise cooperation models and pursuing the integration of industry and education can effectively promote the development of vocational education and provide more high-quality talents for society. Practice has proven that the integration of industry and education has significant advantages in the talent cultivation process of vocational education.

The author fully explores the positive significance and intrinsic value of the integration of industry and education in the development of vocational schools and the cultivation of technical skilled talents. Taking the three-year vocational school electronic and information technology major group as an example, in response to the unclear level of education goals, incomplete professional settings and curriculum systems, lack of targeted evaluation standards and guarantee mechanisms, and other issues related to the integration of industry and education, focusing on the perspective of industry and education integration, starting from the collaboration of multiple institutions such as schools, governments, and enterprises, the author analyzes the problems in the development of school enterprise integration, conducts a comprehensive practical research for four years, and further formulates various improvement and innovation measures to promote the development of school enterprise collaborative education work. In recent years, the school's electronic and information technology major group has taken the integration of industry and education as the starting point, and improved the school enterprise cooperation and education mechanism through measures such as introducing enterprises into schools, running schools and enterprises, optimizing on-the-job internships, etc. It provides targeted curriculum education for students according to the employment needs of enterprises, optimizes teaching modes, improves teacher level, and provides diversified learning and training platforms, which has produced good results in talent cultivation in schools and

enterprises. The integration of industry and education is an important part of the vocational education field in the 14th Five Year Plan. Enterprise support for vocational education has always been a hot research topic. However, due to various reasons, enterprise support for vocational education faces numerous challenges. To address these challenges, it is necessary to analyze them from the perspective of industry education integration and find corresponding countermeasures. Local governments should accelerate the establishment of enterprise support mechanisms, establish and build industry education integration enterprises, select suitable enterprises and schools as pilot projects for industry education integration, "Chinese Characteristics High level Vocational Colleges and Professional Construction Plan" colleges should play a leading role in demonstration, schools should improve their technical service capabilities through connotative development, and enterprises should consciously establish a social responsibility to cultivate talents, in order to promote enterprise support for vocational education.

2. THEORETICAL RESEARCH ON THE INTEGRATION OF INDUSTRY AND EDUCATION

The concept of industry education integration was first proposed at the Third Plenary Session of the 18th National Congress, and it is also a new concept in current vocational education. Among them, "production" refers to industry, and "teaching" refers to education. Generally, vocational education mainly provides targeted skills teaching for students, helping them master various knowledge and skills for future careers. After literature review, it was found that most of the research on industry education integration that appeared in domestic literature before 2012 was similar to the concept of school enterprise cooperation. It was not until 2012 that scholar Chen Jianmin's works provided an in-depth exposition of the concept of industry education integration, which led to the emergence of the connection between industry and education. The integration of industry and education, as the name suggests, refers to the integration of education and industry. It means that schools and enterprises use their own advantages and characteristics, with the goal of win-win, project cooperation as the carrier, serving society as the starting point, cultural integration as the support, and various participating entities cooperate with each other. It is an economic and educational activity that optimizes and combines various elements within industry and education.

The integration of industry and education implemented by our school refers to the mutual integration of resources such as school investment, talent training programs, teacher management, product development, co construction and sharing of experimental and internship platforms, technological innovation, and national policy guidance among the school, enterprises, and government. Combining the experience of vocational education talent training, we jointly undertake educational activities and cultivate technical and skilled talents suitable for the new era and new requirements based on market and industry demand and development. As vocational colleges in China that cultivate high-quality applied talents, they shoulder important tasks and missions. In order to promote the organic connection between the education chain and the industry chain, vocational colleges need to innovate and reform the talent cultivation mode of industry education integration, combine market demand and social requirements, and promote the synchronous improvement of school education and enterprise technology capabilities. By exploring and researching the paths, strategies, and practices of cultivating skilled applied talents that meet social needs, we aim to provide reference for the innovation of talent training models in local vocational colleges under the transformation and development.

3. PRACTICAL RESEARCH ON THE INTEGRATION OF INDUSTRY AND EDUCATION

In order to effectively implement the spirit of (Guobanfa [2017] No. 95), various regions and schools across the country are conducting in-depth practical explorations of industry education integration, and various models of industry education integration have emerged, such as the "2.5+0.5" and "2+1" school enterprise segmented training models, phased engineering alternation models, modern apprenticeship models, etc. The Electronic and Information Technology major group of the school has launched various models of industry education integration, such as introducing enterprises into the school, establishing schools and enterprises, and "2.5+0.5" school enterprise segmented training. Through continuous practical operation, good results have been achieved in curriculum standard setting, base construction, teacher development, talent cultivation, and other aspects. The integration of industry and education is not only the main theme of talent cultivation reform in vocational colleges, but also the inevitable trend of school enterprise cooperation and win-win situation under the market economy system. By analyzing the basic concepts of current industry education integration and its positive impact on the talent cultivation of vocational construction engineering management majors, this paper explores the factors

affecting the quality of talent cultivation from the perspective of industry education integration. It focuses on establishing a sound industry education integration teaching management department, carrying out hierarchical industry education integration teaching, building a "dual teacher" teacher team, and constructing an efficient teaching quality monitoring and evaluation system under the perspective of industry education integration, in order to improve the quality of talent cultivation in vocational construction engineering management majors and cultivate more high-quality technical and skilled talents with balanced development of morality, intelligence, physical fitness, aesthetics, and labor for the country.

3.1 Introduce enterprises to schools and jointly build productive training bases between schools and enterprises

Traditional school enterprise cooperation is difficult to fully utilize the resources of both parties due to differences in time, space, unit attributes, management requirements, etc. Both schools and enterprises find it difficult to deeply participate in each other's core activities. School enterprise cooperation and industry education integration are only formal cooperation to a certain extent. The School's Electronic and Information Technology major group introduced Yangzhou Wenxu Electronic Technology Co., Ltd. in 2016, and through friendly negotiations, jointly established a productive training base - Modern Welding Technology and Product Assembly Public Training Center. In order to meet the needs of talent cultivation, teaching and research, and social training in schools, the company has expanded its production business of soldering, debugging, assembly, and maintenance of traditional SMT (surface mount technology) and THT (through-hole insertion technology) circuit boards. It has integrated with the existing equipment of the school and built a leading multi-functional comprehensive training base in the region that integrates enterprise production, education and teaching, teaching and research, and social training. The successful construction and normal operation of the Public Training Center for Modern Welding Technology and Product Assembly have achieved the integration of teaching equipment and production equipment, teaching scenes and production scenes, teaching and production, teachers and masters, and positions and seats; Truly achieving the goal of joint training of talents, joint scientific research and development, joint production and training, and joint development of teaching resources between schools and enterprises; Truly realizing the transformation from consumptive internships to productive internships, seamless integration between talent cultivation and job requirements, effectively improving the level of professional training bases, teaching staff, and curriculum construction, and effectively improving the efficiency of talent cultivation work. We have provided various talent training models such as school enterprise cooperation, collaborative education, and industry education integration.

3.2 Modern apprenticeship system, joint enrollment and training between schools and enterprises

In accordance with the spirit of the Ministry of Education's document No. 9 of 2014, the school has formulated the "Implementation Plan for the Pilot Work of Modern Apprenticeship System in Schools". In 2017, the Electronic and Information Technology major was piloted and a school enterprise cooperation contract was signed with Yangjie Electronic Technology Company as a pilot for apprenticeship training. Based on the common goal of talent cultivation, both schools and enterprises fulfill their respective rights and obligations, carry out apprenticeship pilot work in an orderly manner, and continuously try to establish various cooperation mechanisms such as school enterprise cooperation and collaborative cultivation in practice. The specific methods and achievements are as follows:

3.2.1 Actively promote the integration of enrollment and recruitment

The necessary prerequisite for the orderly implementation of all apprenticeship pilot projects is the integration of enrollment and recruitment. Schools and enterprises jointly formulate enrollment and recruitment plans for electronic and information technology majors, and conscientiously implement the integration of recruitment and enrollment.

3.2.2 Deepen the reform of the talent cultivation mode of integrating engineering and technology

The most important aspect of carrying out pilot projects for modern apprenticeships is to implement the integration of work and study, and cultivate more specialized talents. The school and Yangjie Technology analyze the existing demand for technical talents and the actual job employment standards, adjust the teaching mode based on talent cultivation needs, industry and professional integration, and optimize course content to provide students with more targeted skills education. Divide students' existing majors according to job requirements, and further refine skill

learning based on job employment standards. Schools and enterprises collaborate to analyze and develop new teaching content and talent cultivation plans, matched with a comprehensive assessment mechanism to test the implementation effectiveness. The main responsibility of schools is to provide students with professional knowledge and skills teaching; Enterprises, on the other hand, provide practical job guidance to students through the apprenticeship model of mentorship, allowing them to test their knowledge in real work.

3.2.3 Strengthen the construction of a combination of full-time and part-time teaching staff

The most crucial part of modern apprenticeship work is the construction of the teaching staff team. This teaching model no longer concentrates teaching tasks on school teachers, but also requires guidance from enterprise mentors to students. Schools need to improve the teaching ability and level of teachers, and enterprises also need to provide targeted guidance for each student. By providing a dual mentor teaching model to enhance students' skill levels. Through this teaching mode, teachers can continuously improve their teaching level. There is a need for continuous communication and exchange between teachers and enterprises, clarifying the latest technological requirements and research and development standards of enterprises, in order to provide more targeted teaching guidance to students. Both teachers and enterprise masters should be subject to unified assessment and rewarded to stimulate their work enthusiasm and provide better teaching services for students.

3.2.4 Develop a teaching management and operational mechanism that is compatible with modern apprenticeship systems

Effective teaching management and implementation mechanisms are also needed in the process of carrying out modern apprenticeship pilot work. Schools and enterprises need to establish a specialized organizational structure based on actual needs, and develop a unified management system and standardized standards to implement targeted teaching management. Strengthen safety education for students participating in enterprise labor, establish an information communication mechanism between schools, enterprises, and parents, formulate assessment rules for modern apprenticeship class management, record students' learning status, and ensure the healthy, safe, and orderly implementation of pilot work.

3.3 Optimize on-the-job internships and improve the quality of segmented training

In the "2.5+0.5" segmented training mode, 0.5 is the final semester's on-the-job internship, which is an important organizational part of talent cultivation and a standard for testing the effectiveness of talent cultivation. The school has established specialized teams to enhance understanding of on-the-job internships, streamline all aspects of on-the-job internships, conduct regular campus recruitment, strengthen the selection of on-the-job internship enterprises, implement a two-way selection mechanism, strive to improve the adaptability of majors and industries, talents and positions, and the consistency between on-the-job internship enterprises and employment enterprises. The school has implemented the responsibilities of the school, enterprises, and students, and formed a regular follow-up and feedback mechanism for on-the-job internships, which has achieved good results and truly achieved a win-win situation for all three parties.

4. CONCLUSION

With the changes in knowledge production models and the acceleration of high-level professional construction, it is imperative to promote innovation in vocational education talent training models through the integration of industry and education. In the process of innovating the talent cultivation mode, it is necessary to grasp its key points and explore the innovative path of vocational education talent cultivation mode on this basis, namely: deepening the integration of industry and education, improving the education system, and achieving the two-way connection between talent cultivation goals and industry enterprise requirements; Adopting a "dual mentor" system for teaching, achieving a "combination of learning and practice" in talent cultivation; Coordinate professional construction and production practice, accelerate the improvement of talent cultivation quality; Optimize talent training standards guided by enterprise needs and promote communication and cooperation among educational institutions.

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