

Research on the In-depth Development Model of Industry-Education Integration in Vocational Education

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Abstract: Vocational education serves as a critical link connecting education and industry, with its core value lying in the precise alignment of talent cultivation with market demands through industry-education integration. Although China has made some progress in this area, numerous bottlenecks persist in terms of the depth, breadth, and sustainability of integration. Starting from the connotation and theoretical foundations of deep industry-education integration, this paper analyzes the practical challenges currently faced. It then systematically explores the implementation paths for deep integration from dimensions such as system improvement, multi-agent collaboration, resource integration, and quality evaluation. The aim is to provide theoretical reference and practical guidance for promoting the high-quality development of vocational education and cultivating high-quality technical and skilled talents that meet industrial development needs.

Keywords: Deep Industry-Education Integration; Implementation Paths; Technical and Skilled Talents

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Introduction

Against the backdrop of continuous industrial upgrading and accelerating technological iteration, the demand for high-quality technical and skilled talents is becoming increasingly urgent. As the main front for cultivating such talents, the quality of vocational education directly impacts the competitiveness of industrial development and the sustainable growth of the national economy. Industry-education integration, as the essential characteristic and core model of vocational education, can effectively break down barriers between education and industry, optimize the allocation of educational and industrial resources, and promote the seamless connection between talent cultivation and job requirements. However, currently, industry-education integration in China's vocational education remains at a "shallow integration" stage, plagued by issues such as ineffective policy implementation, insufficient motivation for enterprise participation, and formalistic school-enterprise cooperation, making it difficult to meet the talent demands of high-quality industrial development. Therefore, in-depth research on the paths for deep industry-education integration in vocational education holds significant theoretical and practical value.

1 The Connotation and Theoretical Basis of Deep Industry-Education Integration in Vocational Education

1.1 Connotation of Deep Industry-Education Integration

Deep industry-education integration is not merely the superposition of "industry" and "education." It is guided by industrial needs, centered on talent cultivation, and aims to achieve comprehensive and deep-level collaboration between education and industry in terms of objectives, resources, processes, and evaluation. In terms of connotation: Firstly, the integration goals are consistent, meaning that through joint participation in talent cultivation by schools and enterprises, students not only master professional theoretical knowledge but also acquire practical skills and professional qualities that meet the demands of industrial positions. Secondly, the integrating entities are collaborative; government, vocational

institutions, enterprises, industry associations, and other stakeholders need to clarify their responsibilities and cooperate closely, forming a pattern of "multi-party participation and collaborative governance." Thirdly, the integration content is systematic, covering various aspects such as program establishment, curriculum development, faculty development, practical training base construction, and teaching process implementation, achieving deep alignment between education/teaching and industrial production practices. Finally, the integration outcomes are mutually beneficial, both supplying enterprises with needed talents to enhance their competitiveness and promoting the quality improvement and sustainable development of vocational institutions.

1.2 Theoretical Basis for Deep Industry-Education Integration

1.2.1 Collaborative Governance Theory

Collaborative governance theory emphasizes that multiple actors, through mutual cooperation, resource sharing, and complementary advantages, jointly address public affairs issues and achieve governance goals. In deep industry-education integration in vocational education, actors such as the government, vocational institutions, enterprises, and industry associations possess different resource advantages and interest demands: the government holds the power of policy formulation and regulation, providing institutional guarantees for integration; vocational institutions possess educational resources and talent cultivation experience, serving as the primary implementers of talent cultivation; enterprises possess cutting-edge industrial technology and job requirement information, providing practical scenarios and job standards for talent cultivation; industry associations can play a bridging role, coordinating resources within the industry and providing industry standards and talent demand forecasts. Based on collaborative governance theory, these actors need to break down administrative barriers and interest divisions, establish effective communication mechanisms and collaboration platforms, form a synergistic force for collaborative governance, and promote the deepening of industry-education integration.

1.2.2 Human Capital Theory

Human capital theory posits that human capital, formed through education, training, practice, etc., consists of knowledge, skills, and abilities that can bring economic benefits to individuals and society. Vocational education, as an important avenue for human capital investment, focuses on enhancing individuals' technical and skill levels through educational activities, thereby meeting the demand for human capital in industrial development. Deep industry-education integration can incorporate enterprises' practical resources and industrial needs into the talent cultivation process, making the cultivation in vocational institutions more targeted and practical, effectively improving the quality of students' human capital. Simultaneously, by participating in integration, enterprises can acquire talents that meet their own needs, reduce talent cultivation and recruitment costs, increase their stock of human capital, achieve win-win outcomes for both enterprises and individuals, and consequently promote the improvement of human capital levels across society.

1.2.3 Stakeholder Theory

Stakeholder theory indicates that organizational development relies on the support and participation of various stakeholders. Organizations need to pay attention to and balance the interests of all stakeholders to achieve their own sustainable development. Deep industry-education integration in vocational education involves multiple stakeholders with differing interests: the government pursues the coordinated advancement of educational equity and industrial development, hoping that integration will improve the quality of vocational education and provide talent support for industrial development; vocational institutions seek to enhance educational quality and social reputation, hoping to gain resource support from enterprises and optimize talent cultivation models; enterprises pursue the maximization of economic benefits, hoping to obtain high-quality talents, reduce talent costs, and enhance technological innovation capabilities; students pursue personal career development and employment quality improvement, hoping to acquire practical skills and enhance employment competitiveness through integration. Only by fully considering and balancing the interests of all stakeholders, and establishing reasonable benefit distribution and incentive mechanisms, can the enthusiasm of all parties for participation be mobilized, ensuring the sustainability of industry-education integration.

2 Practical Challenges Facing Current Industry-Education Integration in Vocational Education

2.1 Incomplete Institutional Guarantee System, Poor Policy Implementation Effectiveness

Although China has introduced multiple policies on industry-education integration, implementation issues are prominent. Firstly, policies are often macro-oriented, lacking specific implementation rules and supporting measures; policies like corporate tax incentives and financial subsidies suffer from unclear local standards and complex application processes, making them difficult to implement. Secondly, monitoring and evaluation mechanisms are lacking; some localities and institutions treat integration as a "surface-level project," prioritizing form over substance. Thirdly, laws and regulations are fragmented, with no dedicated "Vocational Education Industry-Education Integration Law," leading to unclear rights and responsibilities among stakeholders and difficulties in resolving interest disputes through legal channels, which dampens participation enthusiasm.

2.2 Insufficient Motivation for Enterprise Participation, "One-Way" School-Enterprise Cooperation

The level of enterprise participation directly affects the quality of integration, but currently, motivation is generally low, showing a trend of "hot schools, cold enterprises." On one hand, there is a significant contradiction between the profit-driven nature of enterprises and the public welfare nature of integration; participation requires substantial resource investment with difficult-to-achieve short-term returns, alongside additional costs like equipment wear and safety risks. On the other hand, long-term cooperation mechanisms are lacking; enterprises often engage in short-term cooperation and have insufficient voice in talent cultivation, making it difficult for them to lead the training direction. Furthermore, some enterprises have doubts about the skill levels of vocational institution graduates, lacking confidence in participation.

2.3 Vague Positioning of Vocational Institutions, Disconnect Between Talent Cultivation and Industry Needs

Some institutions have unclear positioning and homogeneous development, failing to plan according to regional industrial needs. Firstly, program establishment is unreasonable, blindly chasing popular programs while neglecting regional industrial characteristics, leading to imbalances in talent supply and demand. Secondly, the curriculum system and teaching content lag behind; theoretical courses have a high proportion with insufficient practical components, and they fail to incorporate cutting-edge industrial technologies and job standards in a timely manner, making it difficult for students to adapt to enterprise needs. Thirdly, the proportion of "dual-qualified" teachers (with both teaching skills and industry experience) is low; most teachers lack enterprise practical experience, making it hard to connect teaching with industrial practice.

2.4 Insufficient Resource Integration Capacity, Lagging Integration Platform Construction

There are significant shortcomings in integrating resources from multiple parties and building platforms. On one hand, resources are scattered and lack integration mechanisms; it's difficult to share practical training equipment from institutions and production equipment from enterprises; industry associations do not fully play their role in information services, resulting in resource wastage. On the other hand, the quality of integration platforms is not high; some practical training bases and industry colleges "emphasize construction over operation," have vague functional positioning, and lack joint school-enterprise management, resulting in limited service scope. Furthermore, platform funding relies heavily on government investment, with low participation from social capital, leading to weak sustainable development capacity.

3 Implementation Paths for Deep Industry-Education Integration in Vocational Education

3.1 Improve the Institutional Guarantee System and Strengthen Policy Implementation

First, improve laws and regulations, accelerate the formulation of the "Vocational Education Industry-Education Integration Law," clarify the rights and responsibilities of all parties, and detail policies such as corporate tax reductions, financial subsidies, and risk compensation, while safeguarding the autonomy of institutions to adjust programs and curricula according to industrial needs. Second, refine implementation rules; local governments should, based on regional realities, clarify policy application conditions, procedures, and supervision methods, simplify procedures, and interpret

policies through official websites and training to enhance awareness. Third, establish monitoring and evaluation mechanisms; form evaluation committees with multi-party participation, develop indicator systems covering policy implementation, enterprise participation, etc., and link evaluation results to financial investment, institutional assessment, and corporate credit, ensuring policy effectiveness.

3.2 Stimulate Enterprise Participation Motivation and Build School-Enterprise Collaborative Education Mechanisms

First, establish benefit incentive mechanisms; besides policy preferences, link enterprise participation to social responsibility evaluation, government tendering, and credit ratings. Also, encourage joint school-enterprise research and development to achieve benefit sharing. Second, grant enterprises a voice in talent cultivation; increase the proportion of enterprise representatives in institutional program guidance committees, promote enterprise participation in program establishment, curriculum development, and faculty development, such as dispatching key personnel as part-time teachers and hosting institutional teachers for internships. Third, build long-term cooperation mechanisms; promote the shift from short-term cooperation to deep collaboration between schools and enterprises, jointly establish industry colleges and practical training bases, formulate joint training plans, and establish regular communication mechanisms to resolve cooperation issues.

3.3 Clarify the Positioning of Vocational Institutions and Optimize Talent Cultivation Models

First, align programs with regional industries; institutions should clarify their positioning through research, establish dynamic program adjustment mechanisms, phase out or reform inefficient programs, and focus on building program clusters that match regional industries. Second, restructure curricula based on job standards; break the traditional disciplinary system, integrate job skills and literacy requirements, ensure practical courses account for no less than 50%, adopt project-based teaching, incorporate cutting-edge industrial technologies in a timely manner, and develop new teaching materials. Finally, strengthen the development of "dual-qualified" teaching staff; enhance the capabilities of existing teachers through enterprise practice bases, introduce enterprise technicians as part-time teachers, and establish evaluation mechanisms centered on practical experience and technical service.

3.4 Enhance Resource Integration Capacity and Strengthen Integration Platform Construction

First, establish mechanisms for integrating multi-party resources; the government should lead in building resource sharing platforms, integrating teaching resources from institutions, production resources from enterprises, and information resources from industry associations, promoting equipment sharing and information linkage, and leveraging the service role of industry associations. Second, improve the quality of platform construction; adhere to the principle of "joint construction, joint management, sharing, and win-win" by schools and enterprises, clarify the functions and operational plans for platforms like practical training bases and industry colleges, introduce real enterprise projects, and form professional operation teams for regular optimization. Third, broaden funding channels; establish a mechanism guided by the government, led by enterprises, and involving society, set up special funds, encourage enterprises to contribute equipment or capital as shares, attract social capital through PPPs and crowdfunding, and establish fund supervision mechanisms to ensure earmarked use.

4 Conclusion

Deep industry-education integration in vocational education is a key element in promoting the high-quality development of vocational education, cultivating high-quality technical and skilled talents, and facilitating industrial upgrading. Through an in-depth analysis of its connotation and theoretical basis, this study clarifies that deep integration is a win-win systematic project involving multi-agent collaboration and comprehensive resource integration. Its theoretical support encompasses collaborative governance theory, human capital theory, and stakeholder theory.

Simultaneously, the research finds that current industry-education integration faces numerous challenges. These manifest specifically as an imperfect institutional guarantee system, low enthusiasm for enterprise participation, a

disconnect between institutional talent cultivation and actual industry needs, and weak resource integration capacity. These issues severely constrain the depth and practical effectiveness of integration.

In response to the above problems, this study proposes paths for achieving deep industry-education integration from four dimensions. At the institutional level, solid guarantees should be provided by improving relevant regulations, refining policy details, and establishing monitoring and evaluation mechanisms. At the level of stakeholder collaboration, it is necessary to stimulate enterprise participation motivation through benefit incentives, granting enterprises more voice, and building long-term cooperation mechanisms. At the institutional level, the quality of talent cultivation should be enhanced by aligning programs with industry needs, restructuring the curriculum system, and strengthening the construction of the "dual-qualified" teaching faculty. At the resource integration level, resource allocation should be optimized by building shared resource platforms, improving platform service quality, and broadening funding channels.

It must be pointed out that deep industry-education integration in vocational education is a dynamically developing process. In the future, targeted integration paths can be explored based on the characteristics of different regions and industries, tracking research on integration effectiveness can be strengthened, and attention can be paid to the application of digital technology in integration to inject new vitality. In summary, achieving deep industry-education integration requires collaborative cooperation among multiple stakeholders including the government, institutions, enterprises, and industry associations, forming a powerful synergy to break through existing difficulties, promote the resonance of vocational education and industrial development, and provide solid talent support for the high-quality development of the economy and society.

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