Research on the Platform Construction Model of Industry-Education Integration Community in Vocational Colleges under the Background of New Productive Forces

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Abstract: Under the background of new productive forces, the integration of industry and education in vocational colleges faces unprecedented opportunities and challenges. New productive forces, driven by digitalization, intelligence, and innovation, promote the deep integration of industry and education, especially in the context of technological innovation and industrial transformation, where the demand for high-quality technical and skilled talents is becoming increasingly urgent. This paper explores the driving role of new productive forces in the platform construction of industry-education integration communities in vocational colleges, analyzes the theoretical framework and model of platform construction, proposes strategies for building interactive platforms between industries and vocational colleges, resource sharing, and complementary advantages, and discusses the supporting role of policy guarantees and mechanism innovations in platform construction. The study shows that platform construction can not only optimize the allocation of educational resources but also achieve precise alignment between educational and industrial demands, providing strong support for the cultivation of technical and skilled talents that meet the requirements of new productive forces.

***Keywords*:** new productive forces; vocational colleges; industry-education integration community; platform construction; talent cultivation

Introduction

With the rapid development of emerging technologies such as information technology and artificial intelligence, new productive forces are becoming the core driving force for industrial upgrading and social development. For vocational colleges, the integration of industry and education is an important way to improve the quality of talent cultivation and meet industrial demands. Traditional school-enterprise cooperation models can no longer meet the demand for high-quality technical and skilled talents in emerging industries. Therefore, the platform construction of industry-education integration communities based on the background of new productive forces has become an inevitable choice. This construction not only optimizes the allocation of educational resources and promotes deep alignment between education and industrial demands but also drives the innovation and transformation of the education system. This paper aims to analyze the theoretical framework and path of platform construction for industry-education integration communities in vocational colleges, providing theoretical support and practical guidance for the deep integration of vocational colleges and industries.

1. New Productive Forces and the Connotation and Development Background of Industry-Education Integration in Vocational Colleges

1.1 The Concept and Characteristics of New Productive Forces

New productive forces refer to a new form of productivity driven by emerging technologies such as information technology revolution, artificial intelligence, and intelligent manufacturing. It is characterized by the collaborative innovation between humans and machines, intelligent resource allocation, and highly networked production methods. Compared to traditional productive forces, new productive forces emphasize the integration of knowledge, technology, and innovation capabilities. Especially within the framework of the digital economy and intelligent industries, productivity

improvement is no longer solely dependent on the quantity of labor and traditional inputs of production factors. Instead, it relies on technological innovation and digital transformation, driving more efficient, greener, and more sustainable production processes. The main characteristics include deep integration of informatization and digitization, innovation-driven as the core force, a new model of resource sharing and collaborative cooperation, and the optimization and upgrading of industrial structures. New productive forces are cross-disciplinary and comprehensive, enabling more flexible and efficient social resource allocation, and promoting collaborative development in industries, education, and other fields[1].

1.2 Theoretical Foundations and Development Trends of Industry-Education Integration in Vocational Colleges

Industry-education integration refers to the deep fusion of industry, academia, research, and application, aimed at aligning the education system with industrial development needs and cultivating high-quality technical and skilled talents required for future development. For vocational colleges, industry-education integration is not only a necessary way to improve school performance and talent cultivation quality, but also an important mission to serve society and local economic development. The theoretical foundations include social contract theory, the theory of education-industry interaction, and demand-oriented talent cultivation theory. Social contract theory provides a framework of social responsibility for industry-education integration, emphasizing the interaction and cooperation between education, society, and industries; the theory of education-industry interaction highlights the need for an organic combination of the education system and the industry to jointly promote innovation in talent cultivation models; demand-oriented theory focuses on how industrial needs guide educational content and formats, promoting the industrialization and application of education.

With the continuous development of the socio-economic environment, especially the transformation and upgrading of industrial structures under the background of new productive forces, the trend of industry-education integration is becoming more in-depth, systematic, and platform-based. Vocational colleges are shifting from purely technical skill training to cultivating comprehensive qualities and innovation capabilities. The educational content focuses not only on basic knowledge but also on innovative thinking, practical abilities, and alignment with industry needs. The development of informatization and digitization further promotes the shift from traditional “school-enterprise cooperation” to more flexible and real-time “platform-based cooperation,” forming multi-party collaboration mechanisms that cross industries, disciplines, and regions.

1.3 Industry-Education Integration Needs under the Background of New Productive Forces

Under the background of new productive forces, the deep integration of industry and education has become an inevitable demand for the development of the times. First, industries are rapidly evolving, especially under the rapid development of technologies such as intelligent manufacturing, big data, cloud computing, and artificial intelligence, traditional industries are facing pressure to transform and upgrade. This requires vocational colleges to capture industry development trends and cutting-edge technologies more accurately, cultivating composite technical and skilled talents with innovation and practical abilities, ensuring a high match between talent cultivation and industry needs.

Second, with the rise of emerging industries and the deepening of the technological revolution, the demand for high-skilled, high-quality, and interdisciplinary innovative talents in the labor market is continuously increasing. In this context, the demand for industry-education integration in vocational colleges is becoming increasingly urgent. Educational content updates and changes in industry demands need to be synchronized to cultivate talents that can meet the needs of future industry development[2].

In addition, the formation of new productive forces relies on a highly collaborative innovation ecosystem. This ecosystem requires vocational colleges to not only enhance the flexibility of teaching content and curricula but also strengthen cooperation with enterprises and deepen industry-academia-research relationships. Vocational colleges should optimize the allocation of educational resources according to the needs of industry and technology development, using information technology, the Internet+, and other methods to break the limitations of geography and disciplines, promoting the application of industry-education integration in broader fields.

2. Theoretical Framework and Model of Platform Construction for Industry-Education Integration Communities in Vocational Colleges

2.1 Components and Functions of Industry-Education Integration Communities

2.1.1 The Role of Vocational Colleges in Industry-Education Integration

As core participants in industry-education integration, vocational colleges undertake key tasks in talent cultivation, educational reform, and scientific research innovation. Their main functions include adjusting curriculum content and structure according to industry development needs, promoting modernization of teaching methods, strengthening practical teaching, and improving students' capabilities through cooperation with enterprises in real-world environments. Additionally, vocational colleges are responsible for combining industry, academia, and research, participating in industry technological innovation and research achievements transformation, and providing technical support and innovation momentum for industrial development.

2.1.2 Mechanisms for Enterprise Participation in Industry-Education Integration

The role of enterprises in the industry-education integration community primarily involves resource support and demand guidance. Enterprises promote the alignment of educational content with industry needs by participating in curriculum design, providing technical support, and jointly establishing training bases. Furthermore, enterprises can provide internships, employment positions, and participate in talent cultivation evaluation to ensure that the talents cultivated are more competitive in the market. Enterprise participation in industry-education integration not only addresses their own staffing needs but also accelerates technological innovation and industry upgrading through cooperation.

2.1.3 Government and Research Institution Support and Guidance

The government plays the role of policy guide and resource allocator within the industry-education integration community, formulating policies to support industry-education integration, such as the introduction of special funds for integration and the establishment of innovation incubation platforms. At the same time, research institutions, as the sources of technological innovation, can provide theoretical research and technical support, promoting the transformation of educational content and research achievements, and ensuring the scientific and technological foundation for industry-education integration.

2.2 Theoretical Foundation and Structural Design of Platform Construction

2.2.1 Theoretical Background of Platform Economy and Educational Platformization

The core idea of platform economy theory is to provide an efficient resource allocation space for multiple stakeholders through platforms, breaking traditional market boundaries and monopoly structures. In the field of education, the application of platform-based models is grounded in platform economy theory. By constructing an open, shared educational ecosystem, it optimizes the allocation of educational resources and promotes real-time alignment of educational content with industry needs. Educational platforms not only serve as carriers for information flow but also form the foundation for interaction and collaborative innovation among all parties.

2.2.2 Multidimensional Structural Design for Information Flow and Resource Sharing

The design of platform architecture should ensure the efficient transmission of information, capital, and resources. Optimized design of information flow ensures seamless alignment of educational resources with industry needs, facilitating real-time interaction among students, teachers, and enterprises. The design of the resource-sharing layer is the core of platform construction, promoting the optimal allocation of educational resources through technological support, shared educational content, and integration of resources between enterprises and colleges. Additionally, the platform should have data analysis and decision-making support functions to help all parties adjust cooperation models and resource allocation strategies based on real-time feedback[3].

2.2.3 Organic Integration of Educational Resource Layer and Technological Innovation Layer

The educational resource layer of the platform should include curriculum content, teaching platforms, learning tools, etc., ensuring the openness and flexibility of the educational system. The technological innovation layer should promote the introduction and application of cutting-edge technologies through the participation of enterprises and research institutions. The integration of the

two layers not only optimizes curriculum content and enhances education quality but also promotes the synchronous development of educational content and industry technologies, thereby fostering deeper integration between education and industry.

2.3 Innovative Exploration of Platform Construction Models

2.3.1 Cross-Industry Cooperation and Ecosystem Building

One innovation in platform construction is the promotion of cross-industry and cross-disciplinary cooperation, forming a multidimensional and diversified collaborative ecosystem through coordination among different entities. This cross-sector cooperation model extends beyond school-enterprise collaboration to include deep participation from governments, research institutions, and society at large. Through the platform, the educational system can align with industry demands, technological innovation, social services, and other areas, facilitating the sharing of resources and problem-solving among community members at a broader level.

2.3.2 Data-Driven and Intelligent Platform Construction

Another innovation in platform construction lies in data-driven and intelligent applications. By using big data, artificial intelligence, and other technologies, platforms can analyze data across various dimensions—such as educational content, student needs, and industry dynamics—forming precise service models. For example, through data analysis, platforms can predict industry development trends and skill requirements, guiding adjustments in curriculum design and teaching methods. Furthermore, intelligent applications can provide students with personalized learning recommendations, real-time feedback, and technical support, improving learning efficiency and practical abilities[4].

2.3.3 Personalized Learning and Precision Employment Services

An additional innovative service in platform construction is personalized learning and precise employment services. With the technical support of the platform, students can select personalized learning content, internship opportunities, and employment positions based on their interests and development goals. The platform, through in-depth analysis of student data, can tailor career planning and employment recommendations for each student. Simultaneously, enterprises can use the platform to release talent demands for specific skills, optimizing talent recruitment and cultivation strategies for accurate matching.

Through these innovations, the platform construction model not only enhances the efficiency of industry-education integration but also provides strong support for vocational colleges in cultivating technical and skilled talents that meet the requirements of new productive forces.

3. Paths and Strategies for Building Industry-Education Integration Platforms in Vocational Colleges Driven by New Productive Forces

3.1 Building Interactive Platforms between Industry and Vocational Colleges

3.1.1 Industry Demand-Oriented Educational Curriculum Design

Under the background of new productive forces, the interactive platform between industry and vocational colleges should start with an in-depth alignment of educational curriculum content and structure. Industry enterprises can participate in the design of curriculum content to ensure that the courses reflect the latest technological trends, industry needs, and directions for future development. By jointly formulating teaching outlines, professional directions, and skill standards, the educational system can more accurately match market demands and cultivate talents that meet the practical requirements of enterprises. Especially in high-tech fields, the interaction between industry and vocational colleges will drive timely updates and upgrades of educational content, avoiding a disconnect between courses and industry needs.

3.1.2 Internship, Practice, and Innovation & Entrepreneurship Platform Construction

The interactive platform should not only align teaching content but also deepen cooperation in practical aspects. Vocational colleges and industry enterprises can jointly establish internship practice bases, set up joint research and development projects, and promote students' participation in real production and technological innovation activities. In this collaborative model, students can improve their hands-on and innovative abilities through real work environments. Meanwhile, industry

enterprises can use this opportunity to select and cultivate outstanding technical talents, injecting fresh blood into the development of enterprises. Furthermore, the platform should support innovation and entrepreneurship activities, offering entrepreneurial mentors, funding support, and incubator services to cultivate compound talents with innovative and entrepreneurial capabilities.

3.1.3 Long-term Development Mechanism for School-Enterprise Cooperation

To ensure the long-term effective operation of the interactive platform between industry and vocational colleges, a stable and sustainable school-enterprise cooperation mechanism must be established. Cooperation between enterprises and colleges should not only address short-term talent needs but also achieve mutual development in long-term cooperation. The platform can strengthen mutual trust and collaboration through long-term cooperation agreements, establishment of special funds, and regular exchange meetings. By establishing a complete assessment and incentive mechanism, both parties can share benefits and promote the long-term healthy development of the platform.

3.2 Resource Sharing and Complementary Advantages in Platform Construction

3.2.1 Dynamic Sharing and Adjustment of Educational Resources

Resource sharing in platform construction needs to be dynamically adjusted according to the demands of industry and education. In the platform, educational resources from vocational colleges, including curriculum systems, teaching materials, and online learning platforms, can be updated in real-time according to changes in enterprise needs. For example, the technological development of enterprises and changes in market demands may lead to an increase or decrease in certain skill requirements. Vocational colleges should promptly adjust curriculum content and practical aspects to ensure that educational resources align effectively with industry demands. Additionally, during the process of educational resource sharing, the platform should build a transparent information and traceable data system to ensure that all participants can access the resources they need in real-time[5].

3.2.2 Complementary Cooperation in Enterprise Technology and Research Resources

Resource sharing between enterprises and vocational colleges should not be limited to educational content but should also include research resources and technical support. Enterprises can provide vocational colleges with advanced production technologies, equipment, processes, as well as training and guidance for technical personnel, while vocational colleges can offer technological innovation support through the establishment of research platforms, promoting the transformation of technological achievements. Through this complementary cooperation model, not only is the teaching level of colleges improved, but also the technological advancement of enterprises is accelerated. Additionally, vocational colleges can conduct special technological research based on enterprise needs to help solve practical production-related technical problems.

3.2.3 Collaborative Sharing of Social Resources and Innovation Resources

Platform construction should encourage the participation of social resources, government resources, industry associations, and other parties in resource sharing and complementary advantages. Social resources can provide diversified support to the platform, including policy guidance, funding, and talent mobility. Industry associations, as intermediary organizations in the industry, can play roles in information exchange, technology sharing, and talent cultivation, helping vocational colleges and enterprises establish connections and providing cooperation opportunities. At the same time, the platform should integrate government resources, including policy support, tax incentives, and project funding, to provide external support for the long-term sustainable development of the platform.

3.3 Policy Support and Mechanism Innovation: Supportive Environment for Platform Construction

The government plays a key role in promoting the platformization of industry-education integration in vocational colleges. First, the government encourages enterprises and colleges to jointly invest in platform construction through policy guidance and financial support (such as special funds and tax incentives). At the same time, the government should formulate relevant regulations to ensure compliance in areas such as intellectual property and talent mobility, ensuring a fair and transparent cooperation environment, and strengthening supervision to ensure that all parties implement cooperation according to goals, avoiding resource waste and conflicts of interest[6].

Secondly, to ensure the smooth operation of the platform, a clear legal framework and incentive mechanism should be established for school-enterprise cooperation. During platform construction, the

responsibilities and rights of all parties should be clearly defined, and fair contracts and agreements should be established. Incentive mechanisms should encourage enterprises and colleges to collaborate deeply, ensuring shared benefits. Technological innovations and educational achievements within the platform should be protected by intellectual property law to ensure proper return on results.

Finally, the long-term development of the platform relies on a sound institutional guarantee and operational mechanism. A dedicated management organization should be established to conduct regular assessments and feedback, adjusting platform strategies and goals in a timely manner. The evaluation mechanism should focus not only on the platform's construction effectiveness but also on the satisfaction and cooperation outcomes of the participants, ensuring the platform's sustainable development. Government policy support and mechanism innovation provide a guarantee for platform construction, promoting the in-depth development of industry-education integration.

Conclusion

The rapid development of new productive forces requires vocational colleges and industries to strengthen collaborative cooperation, deepening industry-education integration through platform construction. In the future, the platform-based construction of industry-education integration in vocational colleges should place greater emphasis on resource sharing, complementary advantages, and innovation-driven approaches, while building a diversified and cross-industry collaborative ecosystem. At the same time, the government should increase policy guidance and financial support, improve legal frameworks and incentive mechanisms, providing solid guarantees for platform construction. As digital and intelligent technologies continue to advance, platform construction will continually drive innovation in educational models and talent cultivation systems. Future research can further explore the construction of intelligent educational platforms and how data-driven approaches can achieve more precise educational content and employment matching, promoting deep integration between vocational colleges and industry enterprises, and cultivating high-quality technical talents that meet the demands of new productive forces.

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