

### Research on the Correlation between Higher Vocational Education and Regional Economic Development

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Abstract: This paper delves into the strong link between regional economic growth and higher vocational education. Research indicates that higher vocational education provides human resource support for regional economic development bv cultivating high-quality technical and skilled talents, while the regional economy offers material and financial guarantees for higher vocational education. There exists a mutually dependent and mutually driving relationship between the two parts. An examination of the impact of higher vocational education on regional economic growth and its effect on the regional economy's development is conducted in the article, with strategies for fostering their combined advancement being as augmenting policy proposed, such intensifying industry-education direction. unification, optimizing professional milieus, instituting a long-term and system. References from the research can be used by the government to devise pertinent policies and foster a harmonious growth of higher vocational education and the local economy.

Keywords: Higher Vocational Education; Regional Economy; Coordinated Development; Integration of Industry and Education

### 1. Introduction

The role of higher vocational education in regional economic development has grown ever more prominent due to China's swift economic and societal growth. In recent times, the government has issued a series of policy documents that have further clarified the direction and concentration of the unified growth of higher vocational education and the local economy. In 2020, the "Action Plan for Enhancing the Quality and Efficiency of Vocational Education (2020-2023)" was formulated to further the amalgamation of industry and education, as well as school-enterprise collaboration, and to foster the harmonious growth of vocational education and regional economy[1]. This plan emphasizes the establishment of a mechanism for predicting the demand for vocational education and industrial talents, promoting the alignment of professional settings with industrial demands, and facilitating the organic connection. In 2021, the "Opinions on Promoting High-Quality Development of Modern Vocational Education" proposed a plan to optimize the type positioning of vocational education, strengthen the integration of industry education, foster school-enterprise and collaboration, and foster the coordinated development of the four distinct chains: education, talent, industrial, and innovation. vocational education and regional economy. The alignment of vocational education with regional industrial layout is strongly advocated by this opinion, which encourages vocational colleges and industry-leading enterprises to collaborate in constructing industrial colleges, as well as promoting the organic link between the education, talent, industrial, and innovation pathways.

In 2022, the 14th Five-Year Plan for the Digital Economy's advancement aims to bolster the breeding of aptitudes in the digital economy sector and foster the amalgamation of vocational education and the digital economy[2]. This plan emphasizes supporting vocational colleges and digital economy enterprises to jointly build training bases, The issuance of policy documents, which provide policy support and direction guidance for the coordinated development of higher vocational education and regional economy, is essential for cultivating high-quality technical and skilled talents that meet the needs of digital economic development. Despite the fact that the integration of industry and education is still not as deep as it should be, professional settings and industrial demands are not as closely linked, and the quality of talent

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cultivation is still lacking, the coordination of higher vocational education and regional economy still faces numerous difficulties. Consequently, further research into the relationship between higher vocational education and regional economies is essential education and regional economic development, and exploration of effective paths for their coordinated development, has important theoretical and practical significance.

This article aims to explore the correlation between higher vocational education and regional economic development, analyze the mechanism of their interaction, and propose strategies to promote the coordinated development of both. The research adopts a method combining literature analysis and theoretical discussion. An in-depth analysis of the relationship between higher vocational education and regional economic development is conducted by examining pertinent research outcomes, thereby furnishing a theoretical foundation for policy formation and implementation.

### 2. The Promoting Role of Higher Vocational Education in Regional Economic Development

The promotion effect of higher vocational education on regional economic development is mainly reflected in three aspects: talent cultivation, technological innovation and industrial upgrading[3]. Firstly, higher vocational education provides human resource support for regional economic development by cultivating high-quality technical and skilled talents. These talents possess solid professional knowledge and practical abilities, and can quickly adapt to job requirements, thereby enhancing the production efficiency and competitiveness of enterprises. The close collaboration between higher vocational colleges and enterprises has enabled the transformation and utilization of scientific and technological accomplishments, thus injecting new vigor into regional economic growth. Moreover, higher vocational education institutions foster regional technological innovation through the implementation of applied research and the collaboration of industry, university, and research. Finally, higher vocational education adjusts professional settings and course contents to cultivate talents that meet the demands of emerging industries,



promoting the optimization and upgrading of regional industrial structure. This talent cultivation model helps regional economy achieve the transformation from traditional industries to high-tech industries[4].

## **2.1** The Theoretical Basis and Specific Manifestations of Talent Cultivation

The promotion effect of higher vocational education on regional economic development is reflected in talent cultivation. primarily According to the theory of human capital, educational investment is an important way to form human capital, which can enhance the knowledge and skill levels of workers, thereby increasing labor productivity and promoting growth[5]. economic As an important component of the education system, higher vocational education provides human resource support for regional economic development by cultivating high-quality technical and skilled talents.

The following aspects are mainly indicative of the talent cultivation effect of higher vocational education on regional economic development.

Firstly, it provides high-quality technical and skilled talents. The establishment of the "Suzhou Model" for resolving structural employment difficulty was evidenced by the employment rate of graduates from local higher vocational colleges reaching 97.8% in 2023, a figure 9 percentage points higher than the national average. dynamic matching mechanism between professional settings and industrial demands": a professional assessment committee composed of 150 industry experts was established in the city, and the "Key Industry Talent Demand White Paper" was released quarterly. In the past three years,42 professional directions have been adjusted,16 new specialized fields such as industrial internet and biomedicine have been added, and 9 backward professional fields have been eliminated[6]. The "Intelligent Manufacturing Talent Reserve Pool" jointly established by the government, schools, and enterprises has precisely provided technical backbone for 3,000 enterprises with 12,000 people[7]. Higher vocational education aims to cultivate applied and skilled talents, emphasizing the combination of theory and practice, and the students it cultivates have solid professional knowledge and practical abilities, which can quickly adapt to job requirements and improve



the production efficiency and competitiveness of enterprises.

Secondly, it promotes the optimization of the labor force structure. The practice of "Technology Broker" at Shenzhen Polytechnic, which was established by Shenzhen Polytechnic to build a technology transfer system, is of great reference significance. The school set up a full-time "Technology Broker" position and formed a technology transfer team consisting of 38 engineers. A "full-chain service system of demand exploration - technology breakthrough market transformation" was constructed. In the past three years, the amount of technology transfer contracts exceeded 500 million Yuan, and the 5G base station intelligent detection system developed in cooperation with Huawei has been promoted and applied in the national communication industry, creating economic benefits of over 2 billion Yuan. This practice of "writing papers on the production line" has led to an average annual growth rate of 45% in the school's technical service income[8]. Higher vocational education adjusts professional settings and course content based on regional economic development needs, cultivating talents who meet the demands of emerging industries, promoting the optimization and upgrading of the regional labor force structure. Higher vocational colleges, for instance, can establish pertinent majors to nurture specialized abilities and fulfill the requirements of industrial growth in the region's key burgeoning industries.

Finally, it promotes industrial upgrading. The "Professional Group - Industrial Chain" Coupling Experiment of Changzhou Vocational Education: Changzhou Information Polytechnic, focusing on the Yangtze River Delta intelligent manufacturing industrial belt, has constructed a deep coupling mechanism between the "Intelligent Equipment Professional Group" and the "Industrial Robot Industry Chain". Through carriers such as "Professional Teachers' Station in Enterprises" and "Enterprise Mentors' Station in Schools", an ecosystem of talent co-education and technology co-research has been formed. The industrial robot cluster supported by the school's graduates exceeded 38 billion Yuan in 2022; an increase of 217% compared to five years ago, and the domestic market share of products has increased from 12% to 24%[9]. This "co-frequency resonance between the education chain and the industrial chain" model has been listed as a typical case of

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industry-academia integration by the Ministry of Industry and Information Technology. According to the theory of human capital, educational investment can enhance the knowledge and skill levels of workers, thereby increasing their income levels. The cultivation of high-quality technical and skilled talents, along with regional industrial upgrading, can lead to higher vocational education, thereby enhancing the employment ability and income level of workers and consequently stimulating consumption and economic growth.

## 2.2 Theoretical Basis and Specific Manifestations of Technological Innovation

The promotion effect of higher vocational education on regional economic development is also reflected in technological innovation. Theory of innovation posits that technological advancement is a powerful impetus for economic expansion. As an important carrier for technology knowledge creation and dissemination, higher vocational education institutions play a significant role in regional technological innovation. Shenzhen Polytechnic has carried out the "Technology Broker" practice project: The technology transfer system established by Shenzhen Polytechnic is of considerable reference significance. The school has set up full-time "Technology Broker" positions and formed a technology transfer team consisting of 38 engineers, building a full-chain service system of "demand exploration technology breakthrough market transformation". In the past three years, the amount of technology transfer contracts has exceeded 500 million Yuan, among which the 5G base station intelligent detection system jointly developed with Huawei has been promoted and applied in the national communication industry, creating economic benefits of over 2 billion Yuan. This "writing papers on the production line" practice has led to an average annual growth rate of 45% in the school's technical service income. The following aspects are mainly indicative of the technological innovation effect of higher vocational education on regional economic development: in conclusion, this is evident.

Firstly, conducting applied research. Vocational colleges of higher education conduct applied research to tackle practical issues in regional economic growth and foster technological progress. For example, for technical problems in

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regional characteristic industries, higher vocational colleges can organize research teams to conduct breakthroughs, develop new technologies and new processes, and improve industrial technical levels.

Secondly, promoting industry-university-research cooperation. The collaboration between higher vocational colleges and businesses, fostering the alteration and utilization of scientific and technological accomplishments, injects new vigor into regional economic growth. For example, higher vocational colleges can jointly establish research and development centers with enterprises, jointly carry out technological research and technology transfer, and promote regional technological innovation.

Finally, cultivating innovative talents. Higher vocational education focuses on cultivating students' innovative consciousness and practical abilities, providing support for regional economic development with innovative talents. For example, higher vocational colleges can innovative cultivate students' spirit and entrepreneurial ability through courses such as entrepreneurship and innovation, and organizing entrepreneurship competitions, providing talent support for regional economic development.

## 2.3 The Theoretical Basis and Specific Manifestations of Industrial Upgrading

The promotion effect of higher vocational education on regional economic development is also reflected in industrial upgrading. According to the theory of industrial structure, industrial structure upgrading is an important way for economic growth. Higher vocational education, by cultivating talents who meet the demands of emerging industries, promotes the optimization and upgrading of regional industrial "professional structure[10]. In the group-industrial chain" coupling experiment of Changzhou Vocational Education, Changzhou Information Vocational College, centering on the Yangtze River Delta intelligent manufacturing industrial belt, has constructed a deep coupling mechanism between the "intelligent equipment professional group" and the "industrial robot industrial chain". Through carriers such as "professional teachers stationed in enterprises' workstations" and "enterprise mentors stationed in schools' studios", an ecosystem of joint talent cultivation and joint technology research has been formed. The



industrial robot cluster supported by the graduates of this school, with an output value exceeding 38 billion Yuan in 2022, has increased by 217% compared to five years ago, and the domestic market share of products has increased from 12% to 24%[11]. The Ministry of Industry and Information Technology has identified the "education chain and industrial chain resonate at the same frequency" model as example of industry-education а prime integration. Higher vocational education's part in advancing industrial growth for regional economic progress is mainly seen in the following ways: Firstly, encouraging the alteration and enhancement of traditional industries. Higher vocational education, by cultivating high-quality technical and skilled talents, promotes the transformation and upgrading of traditional industries towards high-end, intelligent, and green directions. In response to the transformation and upgrading requirements of regional traditional manufacturing industries, higher vocational colleges can establish majors such as intelligent manufacturing and green manufacturing to cultivate specialized skills and foster the transformation and upgrading of these industries. Moreover, they can also foster the growth of emerging industries. Adapting professional settings and course contents to meet the needs of burgeoning industries in the area, higher vocational education cultivates talents that can meet the requirements of these industries, thus advancing their growth. In response to the burgeoning industries of artificial intelligence, big data, and cloud computing in the region, higher vocational colleges can establish related majors to nurture specialized abilities and satisfy the needs of these burgeoning industries. By cultivating high-quality technical and skilled talents, higher vocational education can be a powerful tool in the advancement of regional industrial clusters. To illustrate, in response to the needs of regional industrial clusters, higher vocational colleges can establish related majors to cultivate specialized abilities and further the growth of such clusters.

# **3.** The Impact of Regional Economy on the Development of Higher Vocational Education - Economic Feedback on Education

The scale, quality and level of higher vocational education are profoundly impacted by the development of the regional economy. To begin



with, the regional economy furnishes both material and financial assurances for higher vocational education. Regions with higher economic development levels tend to invest more resources in the construction of vocational education infrastructure, the building of teaching staff teams and the upgrading of teaching equipment, thereby improving the quality of vocational education. The "job-based course package" revolution has been sparked by the transformation of Dongguan's intelligent manufacturing, and this has had a profound effect on the professional settings and talent cultivation directions of higher vocational education, which are determined by regional industrial structure.

Facing the wave of intelligent transformation of manufacturing. traditional Dongguan Polytechnic has innovated the training model and decomposed real production projects from enterprises into 136 teaching modules. It has jointly built "teaching factories" with 150 large-scale enterprises in the local area and implemented an immersive training model of "learning theory in the morning, practicing practical operations in the afternoon, and solving problems in the evening". The starting salary of the 2023 graduates in the position of industrial robot system integration reached 8,500 Yuan, exceeding the average level of local undergraduate graduates[12]. This reform has shortened the supply cycle of intelligent manufacturing talents in Dongguan from 3 years to 1.5 years, supporting the density of industrial robots per worker in the city to reach 350 units, ranking first in the country. The demand for talents varies among different regions due to their advantageous industries and characteristic economies, which requires higher vocational education institutions to adjust professional structures according to regional economic characteristics and cultivate talents that meet the development needs of local industries. Finally, the development level of regional economy affects the employment environment and career development space of higher vocational education graduates. Developed regions usually provide more high-quality employment opportunities, which is conducive to attracting outstanding students and improving the employment quality of graduates.

## 4. Strategies for the Synergistic Development of Higher Vocational Education and Regional

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### Economy

Achieving a beneficial relationship between education and the regional economy necessitates the synergy of higher vocational education. Its core lies in constructing a governance framework characterized by "demand-oriented, adaptation, dynamic and diversified collaboration"[13]. On one hand. the government should strengthen policy leadership through top-level design, such as formulating regional vocational education development plans and embedding industrial transformation demands into the mechanism for adjusting professional structures of institutions, thereby forming a closed-loop feedback system of "industry - education - talent". In response to the technological advancement of local leading industries, the government can stimulate businesses to cultivate talent through policy measures like tax incentives and financial subsidies, as well as creating an information system for industry-education integration to keep track of labor market supply and demand in real time, furnishing data to create professional curricula. On the other hand, vocational colleges need to optimize their curriculum systems based on the principle of dynamic adaptation, by introducing real project cases enterprise and developing modularized training courses, converting technical standards of regional industrial chains into teaching standards, thereby shortening the adaptation period between talent cultivation and job requirements[14]. In this process, the "dual-subject" role of deepening school-enterprise cooperation is particularly crucial. It can rely on carriers such as industrial and technology research colleges and development centers to promote the two-way flow of technical experts from enterprises and teachers from institutions, forming an integrated collaborative innovation network of "teaching research - production", which not only enhances teachers' practical teaching abilities but also helps enterprises overcome technical bottlenecks. Vocational education must adjust to the digital economic growth trend and reform the talent cultivation model through interdisciplinary integration and the restructuring of the lifelong education system. For example, in emerging fields such as intelligent manufacturing and digital economy, additional course modules such as industrial internet and digital marketing can be added to

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cultivate interdisciplinary talents with both professional skills and digital literacy. In addition, for regional workers in the workforce. a "1+ X" certificate system and other flexible learning mechanisms can be constructed which not only alleviates the problem of lagging skills among industrial workers but also helps traditional enterprises transform and upgrade through technical training. It is worth noting that rural revitalization, as an important dimension of balanced regional economic development, requires vocational education to actively integrate into the rural industrial chain. For example, by establishing agricultural technology assistance teams and vocational education training programs for rural cadres, production technologies advanced and management concepts can be introduced to rural promoting extension of areas, the "industry-education integration" to for "industry-education agriculture", and achieving the spatial expansion of vocational education services from cities to rural areas.

To sum up, the integration of resources from multiple sources - government, institutions, industries, and enterprises - with systematic thought is essential for the successful relationship between higher vocational education and the regional economy. Through policy coordination, mechanism innovation, and digital transformation, a symbiotic and mutually beneficial ecosystem can be constructed. The integration of the educational, talent, industrial, innovative pathways can only and be accomplished through this method, thus injecting lasting impetus into the high-caliber growth of the local economy.

### 5. Conclusion

A strong relationship exists between higher vocational education and regional economic development, which are mutually beneficial and interdependent. Through the cultivation of talent, technological advancement, and industrial growth, higher vocational education can foster regional economic development, while the regional economy furnishes material aid, shapes professional settings, and shapes iob opportunities. To achieve the coordinated development of both, it is necessary to strengthen policy guidance. deepen industry-education integration, optimize professional settings, and establish long-term mechanisms. Exploring new models for the joint



growth of higher vocational education and regional economy in the future could foster a beneficial relationship between them, thereby providing sustained impetus for regional economic and social progress.

Standing at the historical juncture of new industrialization, industry-education integration is writing a new development equation. From the technological breakthroughs in Suzhou Industrial Park to the teaching revolution in intelligent manufacturing Dongguan's workshops, from the cloud-based training bases in Hangzhou to the four-chain integration practice in Qingdao, the collaborative development of vocational education and regional economy in China has entered an period. intensive А block chain-based industry-education credit system should be established to resolve the trust issues in school-enterprise collaboration; legislation for vocational education and regional economy should be enhanced to create institutional social organizations assurances: and of industry-education integration should be created to bring together multiple entities in the future. Only in this way can a virtuous cycle of "education empowering industry and industry benefiting education" be achieved, injecting lasting impetus into economic high-quality development.

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3. Liaoning Province education science "14th Five-Year plan" project"Research on the correlation between higher vocational education and intra-regional economy in Northeast China"(Project number. JGEB247)

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