International Journal of Public Health and Medical Research
ISSN: 3006-7707 (Print), ISSN: 3006-3752 (Online) | Volume 5, Number 3, Year 2025
DOI: https://doi.org/10.62051/ijphmr.v5n3.06
Journal homepage: https://wepub.org/index.php/IJPHMR/index

Innovation of "Government-Industry-University-Research" Collaborative Training Mode for Local Application-oriented Talents from the Perspective of New Quality Productive Forces

-- Taking the Transformation and Upgrading of Manufacturing Industry in Qingyuan City as an Example

Yuxiang Zheng [1], Feng Zhong [2, *]

[1] School of Financial Mathematics and Statistics, Guangdong University of Finance, Guangzhou, China

[2] School of Credit Management, Guangdong University of Finance, Guangzhou, China

*Corresponding Author: Feng Zhong

ABSTRACT

The formation and development of new quality productive forces depend not only on technological breakthroughs but also on high-quality application-oriented talents who master new knowledge, new technologies, and new processes. As the intersection of the Northern Guangdong Ecological Development Area and the undertaking ground for industrial transfer from the Pearl River Delta, Qingyuan City faces dual challenges in the process of promoting the digital, intelligent, and green transformation and upgrading of its manufacturing industry: a structural shortage of application-oriented talent supply and the poor operation of the "Government-Industry-University-Research" collaborative mechanism. Based on the connotation and characteristics of new quality productive forces, this paper analyzes the new requirements for the quality of application-oriented talents. It examines the realistic dilemmas in the current local "Government-Industry-University-Research" collaborative training mode, such as "divergent government guidance, involution of enterprise participation, lagging adaptability of universities, and inefficient conversion rate of scientific research." Based on the "Quadruple Helix" innovation theory and collaborative governance theory, this paper constructs a new "Government-Industry-University-Research" collaborative mode centered on the deep integration of the "industrial chain, innovation chain, education chain, and talent chain." Combined with the construction of the "Provincial Vocational Education City" in Qingyuan and the practice of the "Hundreds, Thousands, and Ten Thousands Project," specific innovation paths are proposed, such as co-constructing modern industrial colleges, creating regional industry-education consortia, and building a full-life-cycle talent service ecosystem. The aim is to provide theoretical support and a practical paradigm for underdeveloped areas to drive the development of new quality productive forces relying on the talent engine.

KEYWORDS

New Quality Productive Forces; Application-oriented Talents; Government-Industry-University-Research Collaboration; Manufacturing Transformation and Upgrading; Qingyuan City

1. INTRODUCTION

1.1. Research Background and Problem Statement

1.1.I. New Quality Productive Forces Reshaping the Talent Demand Pattern

Currently, a new round of global technological revolution and industrial transformation is accelerating, and China's economy has shifted from a stage of high-speed growth to a stage of high-quality development. General Secretary Xi Jinping proposed the major concept of "New Quality Productive Forces," emphasizing the need to lead industrial innovation with scientific and technological innovation and actively cultivate and develop new quality productive forces. New quality productive forces are characterized by high technology, high efficiency, and high quality, with the core mark being a substantial increase in total factor productivity. This leap in the quality of productive forces inevitably requires adaptive changes in production relations, especially in the quality of "people," the most active element of productive forces. Traditional skilled talents dominated by simple repetitive labor can no longer meet the needs of emerging industries such as intelligent manufacturing and the industrial internet. High-quality application-oriented talents with cross-boundary integration capabilities, digital literacy, and excellent engineering practice capabilities have become scarce resources.

1.1.2. "Talent Pain Points" in Local Manufacturing Transformation and Upgrading

Manufacturing is the foundation of the real economy. For Qingyuan City, as a city in the first tier surrounding the Greater Bay Area, it shoulders the mission of building a strong ecological barrier in Northern Guangdong and also bears the responsibility of undertaking the orderly transfer of industries from the Pearl River Delta and building an advanced manufacturing base. With the rapid development of carriers such as Qingyuan High-tech Zone and Guang-Qing Industrial Park, leading industrial clusters such as auto parts, new materials, and biomedicine have initially formed. The manufacturing industry is transforming from traditional resource-intensive sectors like ceramics and cement to technology-intensive ones. However, a significant "scissors gap" has formed between the rapid iteration of industries and the lagging supply of talent. On the one hand, enterprises are in urgent need of high-end blue-collar workers and on-site engineers who master intelligent manufacturing technologies; on the other hand, the talent training modes of local universities (especially those in the Provincial Vocational Education City) still suffer from disconnection from industry, serious homogeneity, and formalized practical teaching. Although all parties in the "Government-Industry-University-Research" collaboration have the willingness to cooperate, they often fall into a low-level cycle of "cooperation without integration, connection without action."

1.1.3. Research Significance

In this context, exploring the innovation of the "Government-Industry-University-Research" collaborative training mode for local application-oriented talents from the perspective of new quality productive forces has important theoretical value and practical significance. Theoretically, it helps to enrich the human capital theory of new quality productive forces and expand the research boundary of "Government-Industry-University-Research" collaborative innovation. Practically, it can provide actionable path guidance for Qingyuan and similar underdeveloped areas to break the "talent bottleneck," achieve high-quality manufacturing development, and promote the transformation from "demographic dividend" to "talent dividend."

1.2. Definition of Core Concepts

1.2.I. Application-oriented Talents from the Perspective of New Quality Productive Forces

Distinguished from traditional academic talents and simple skilled talents, application-oriented talents from the perspective of new quality productive forces need not only a solid theoretical

foundation but also the following "new quality" characteristics: First, Digital Survival Ability, capable of proficiently using digital technology to solve complex engineering problems; Second, Cross-boundary Innovation Ability, capable of adapting to production scenarios of "integration of skills and arts" and "multi-disciplinary intersection"; Third, Sustainable Development Ability, possessing green and low-carbon concepts and lifelong learning habits.

1.2.2. "Government-Industry-University-Research" Collaborative Training Mode

This refers to a long-term cooperation mechanism established by the four main bodies of government, industry (enterprises), universities, and research institutes throughout the entire process of talent training, based on common interests and educational goals, through resource integration, complementary advantages, benefit sharing, and risk sharing. In the context of new quality productive forces, this collaboration is no longer a simple "internship base" or "project cooperation," but involves all-around deep integration in the formulation of talent training plans, reconstruction of curriculum systems, construction of dual-qualified teams, and reform of evaluation systems.

2. THEORETICAL BASIS AND ANALYTICAL FRAMEWORK

2.1. Theoretical Basis

2.1.1. Quadruple Helix Innovation Theory

The traditional "Triple Helix" theory emphasizes the interaction between universities, industries, and governments. In the development of new quality productive forces, the roles of the public, research institutions, and intermediary organizations have become increasingly prominent, forming a "Quadruple Helix" or even "Quintuple Helix" structure. This theory posits that innovation is no longer a linear activity of a single subject but an emergent effect produced by the non-linear interaction of multiple subjects. In talent training, this requires breaking down the walls of schools, introducing social innovation resources into the education system, and realizing the closed loop of knowledge production, dissemination, and application.

2.1.2. Collaborative Governance Theory

Collaborative governance emphasizes that multiple subjects achieve the maximization of public interests through negotiation and cooperation in an open system. For the public affair of application-oriented talent training, the government is no longer the sole operator but a "meta-governor," responsible for rule-making and platform building; enterprises are the "question setters" and "graders" on the demand side; universities are the "answerers" on the supply side; and research institutes are the technology source. The four parties form an educational synergy through contract mechanisms, trust mechanisms, and incentive mechanisms [1].

2.2. Analytical Framework: Reshaping of "Government-Industry-University-Research" Collaboration by New Quality Productive Forces

New quality productive forces put forward new logical requirements for "Government-Industry-University-Research" collaboration:

(1) Goal Reshaping: From pure "employment orientation" to "innovation-driven and industrial upgrading orientation."

(2) Structure Reshaping: From "school-centered" to "school-enterprise dual subjects and industry-education integration body."

(3) Content Reshaping: From "fixed knowledge transfer" to "dynamic accumulation of technical skills and cultivation of innovation literacy."

(4) Mechanism Reshaping: From "administrative command + market spontaneity" to "institutional supply + interest binding + cultural integration."

3. ANALYSIS OF THE CURRENT SITUATION OF MANUFACTURING TRANSFORMATION AND TALENT DEMAND IN QINGYUAN CITY

3.1. Development Trend of Manufacturing in Qingyuan

3.1.1. Evolution of Industrial Structure

In recent years, Qingyuan City has deeply implemented the strategy of "Establishing the City through Industry and Strengthening the City through Manufacturing," relying on Guang-Qing integration to actively undertake high-quality industrial spillovers from Guangzhou and Shenzhen. Currently, advanced manufacturing clusters represented by auto parts, frontier new materials, smart home, and biomedicine have been formed. Especially under the guidance of new quality productive forces, traditional advantageous industries (such as ceramics and building materials) are undergoing digital technological transformation, with "machine replacement" and "dark factories" becoming increasingly popular; emerging industries have put forward extremely high requirements for R&D, design, and process optimization links.

3.1.2. Characteristics of Technological Change

Qingyuan's manufacturing industry is in a stage where "Industry 2.0" make-up lessons, "Industry 3.0" popularization, and "Industry 4.0" demonstration coexist. The introduction of new quality productive forces has shifted production methods from large-scale standardized production to flexible and personalized customization; production factors have shifted from being land and capital-led to data and technology-led. This change has directly led to the reconstruction of the job competency model.

3.2. Structural Contradictions in Supply and Demand of Application-oriented Talents

3.2.1. Coexistence of Quantity Gap and Quality Mismatch

Surveys show that manufacturing enterprises in Qingyuan face a severe "talent thirst" during transformation and upgrading. On the one hand, despite possessing the Provincial Vocational Education City with numerous graduates annually, the retention rate in Qingyuan needs improvement, as a large number of talents flow to the core area of the Pearl River Delta, forming a "siphon effect." On the other hand, among the talents remaining locally, "high-quality technical and skilled talents" capable of solving complex on-site problems are extremely scarce. Enterprises generally report that fresh graduates have "deep but impractical theory, shallow and unfamiliar hands-on skills," making it difficult for them to adapt to the commissioning and maintenance of intelligent equipment [2].

3.2.2. Insufficient Reserve of "New Engineering" Talents

With the development of new quality productive forces, the demand for composite skills such as big data analysis, artificial intelligence application, and industrial robot operation has surged. However, the professional settings of local institutions have a certain lag, with a high proportion of traditional business and liberal arts majors, while the construction strength of majors closely related to manufacturing, such as advanced manufacturing and electronic information, is relatively weak, leading to a serious structural imbalance between the talent supply side and the industrial demand side.

4. EXAMINATION OF THE DILEMMAS OF THE CURRENT "GOVERNMENT-INDUSTRY-UNIVERSITY-RESEARCH" COLLABORATIVE TRAINING MODE

Although Qingyuan City has made a series of explorations in industry-education integration, under the "high standard" scrutiny of new quality productive forces, the current mode still has deep-seated pain points.

4.1. Government Level: Divergent Guidance and Difficulty in Policy Implementation

4.1.1. Policy Fragmentation and Implementation Obstruction

Although the government has issued multiple policies supporting industry-education integration, they are often scattered across different departments such as human resources and social security, education, industry and information technology, and science and technology, lacking a mechanism for overall coordination. Policies are mostly macro-guidance, lacking specific implementation details and supporting funding, leaving enterprises and universities "at a loss" during execution.

4.1.2. "Administrative" Tendency in Platform Building

Some industry-university-research docking platforms led by the government often have strong administrative colors. Activity forms are mostly "signing ceremonies" and "unveiling ceremonies," lacking substantive project docking and interest coordination mechanisms. The service function of the platform is weak, making it difficult to accurately capture the real technical and personnel needs of enterprises.

4.2. Enterprise Level: Involution of Participation and Short-sighted Gaming

4.2.1. "Uneven Enthusiasm" under Cost-Benefit Considerations

In a market economy, enterprises pursue profit maximization. Participating in talent training requires investment in equipment, venues, teachers, and funds, with a long return cycle and high risk (e.g., students changing jobs after graduation). Therefore, except for a few large leading enterprises, the vast majority of small, medium, and micro enterprises take a wait-and-see attitude towards deep participation in industry-education integration, and even regard interns as cheap labor, causing school-enterprise cooperation to fall into "shallow, low-level" involution [3].

4.2.2. Technology Secrecy and Resource Barriers

New quality productive forces often involve core technological secrets of enterprises. Out of consideration for intellectual property protection and commercial competition, enterprises are unwilling to open the most advanced equipment, processes, and technologies to universities, resulting in university teaching content always lagging behind the industrial frontier, and students often learning "outdated" technologies.

4.3. University Level: Lagging Adaptability and Closed Schooling

4.3.1. Deviation in Evaluation System Orientation

Although they are application-oriented universities or vocational colleges, the internal evaluation system is still influenced by traditional academic orientation, with phenomena of "emphasizing papers over practice" and "emphasizing vertical projects over horizontal services" still existing. Teachers lack the motivation to go deep into the front line of enterprises to solve practical problems, resulting in "dual-qualified" teams existing in name only.

4.3.2. "Island Effect" of Curriculum System

Curriculum settings and teaching content updates are slow, failing to timely absorb industry standards and enterprise cases. Teaching methods are still dominated by classroom lectures, lacking project-based and inquiry-based learning. The channels for knowledge flow between universities, research institutes, and enterprises are not smooth, leading to talent training being in a relatively closed "island" state.

4.4. Research Institute Level: Inefficient Conversion Rate and Absence in Education

Research institutes possess rich high-end intellectual resources and advanced experimental equipment, but in "Government-Industry-University-Research" collaboration, they often focus on technological R&D and neglect the function of talent training. The conversion rate of scientific research results is low, with a large number of patents remaining on paper and failing to be transformed into teaching resources. The mechanism for researchers to participate in university teaching and guide student practice is unsound, resulting in research advantages failing to translate into educational advantages.

5. INNOVATION PATHS FOR "GOVERNMENT-INDUSTRY-UNIVERSITY-RESEARCH" COLLABORATIVE TRAINING MODE UNDER THE PERSPECTIVE OF NEW QUALITY PRODUCTIVE FORCES

Addressing the above dilemmas and combining the objective laws of the development of new quality productive forces, this paper proposes building a new collaborative training mode centered on "Four-Chain Integration" (Industrial Chain, Innovation Chain, Education Chain, Talent Chain).

5.1. Top-level Design Innovation: Building a Multi-party Governance Mechanism under "Meta-governance"

5.1.1. Establish a Substantial "Industry-Education Integration Coordination Committee"

It is suggested that the main leaders of the Qingyuan Municipal Government take the lead, integrating the functions of development and reform, education, industry and information technology, and human resources and social security departments to establish a substantial industry-education integration coordination agency. This agency is responsible for compiling regional industry-education integration development plans, coordinating the layout of vocational education resources, coordinating cross-departmental policies, and breaking the situation of "nine dragons managing water" (fragmented management).

5.1.2. Establish an Interest Linking Mechanism for "Government-Industry-University-Research"

Clarify the rights and obligations of all parties in talent training through legislation or contracts. Innovate financial investment methods, establish a "special fund for industry-education integration," and provide combined incentives of "finance + fiscal + land + credit" to enterprises deeply involved in talent training. For example, based on indicators such as the number of interns received and the amount of equipment invested in co-constructed majors, provide corresponding tax credits or financial subsidies to make enterprises "profitable" through education [4].

5.2. Carrier Platform Innovation: Creating an Industry-Education Integration Community

5.2.1. Construct High-level "Modern Industrial Colleges"

Relying on Qingyuan High-tech Zone and Guang-Qing Industrial Park, support colleges in the Provincial Vocational Education City to co-construct modern industrial colleges with leading industry enterprises (such as GAC Group, Kingfa Sci. & Tech.). Industrial colleges implement a dean responsibility system under the leadership of a council, with both schools and enterprises jointly formulating talent training plans, developing courses, forming teaching teams, and building training bases. Move enterprise production lines and R&D centers into campuses, or build classrooms in workshops, realizing the physical space integration and chemical reaction of "school in factory, factory in school" [5].

5.2.2. Form a Regional Sector Industry-Education Integration Community

Focusing on Qingyuan's strategic pillar industries, form an industry-education integration community led by leading enterprises, with the participation of upstream and downstream enterprises, universities, and research institutes. Within the community, promote the free flow of elements such as technology, talent, data, and equipment. For example, establish the "Qingyuan New Energy Vehicle Industry-Education Integration Community" to jointly carry out key technological breakthroughs and on-site engineer training, realizing the simultaneous advancement of technological innovation and talent training.

5.3. Training Process Innovation: Implementing "Project-Driven + Dual Mentor" System

5.3.1. Teaching Reform Based on Real Production Projects

Thoroughly change traditional disciplinary knowledge system teaching and reconstruct a curriculum system oriented by work processes. Introduce real R&D projects and technical transformation projects of enterprises as teaching cases and training carriers. Implement "learning by doing, doing while learning," allowing students to master new knowledge and technologies while solving practical engineering problems. For example, addressing the digital transformation needs of ceramic enterprises, organize teacher-student teams to carry out production line automation transformation projects, where students are both learners and technicians.

5.3.2. Create a Mixed "Dual-Qualified" Structural Team

Establish a mutual employment and recognition mechanism for university teachers and enterprise engineers. Implement the "Visiting Engineer" plan, mandating that professional teachers must have a cumulative enterprise practice experience of no less than 6 months every 5 years. At the same time, establish "Industrial Professor" posts, hiring enterprise technical backbones to teach in schools, enjoying corresponding professional title reviews and salary treatment. Build a "School Mentor + Enterprise Mentor" dual mentor system, with school mentors responsible for theoretical guidance and ideological education, and enterprise mentors responsible for skill transfer and professional quality cultivation [6].

5.4.Technology Empowerment Innovation: Building a Digital Industry-Education Integration Cloud Platform

5.4.1. Build a Regional Industry-Education Supply and Demand Docking Big Data Platform

Utilize big data and artificial intelligence technologies to build the Qingyuan Industry-Education Integration Information Service Platform. Collect real-time data on enterprise technical needs, talent needs, university research results, and graduate data to draw an "Industrial Map" and "Talent Map."

Through algorithmic recommendation, achieve precise matching of supply and demand between schools and enterprises, solving the problem of information asymmetry.

5.4.2. Promote Virtual Simulation and Digital Twin Teaching

Address training difficulties in the field of new quality productive forces such as expensive equipment, high danger, and high energy consumption by vigorously developing virtual simulation teaching. Cooperate between schools and enterprises to develop training software based on digital twin technology, allowing students to perform process simulation, fault diagnosis, and system operation and maintenance in a virtual environment. This not only reduces training costs but also allows students to familiarize themselves with the "digital world" of intelligent manufacturing in advance, enhancing their digital adaptability.

6. SAFEGUARD MEASURES FOR THE OPERATION OF THE COLLABORATIVE TRAINING MODE

6.1. Institutional Safeguard: Reform of Evaluation and Incentive Mechanisms

6.1.1. Establish a Contribution-Oriented Classification Evaluation System

Break the tendency of "papers only, degrees only" and establish an evaluation system consistent with the laws of application-oriented talent training. For universities, focus on evaluating their contribution to serving local industrial development (e.g., horizontal project funding, local employment rate of graduates); for teachers, make enterprise practice experience and technical service effectiveness important bases for title reviews; for students, make enterprise skill level certificates and innovation and entrepreneurship achievements important contents for graduation credit substitution.

6.1.2. Perfect Intellectual Property Ownership and Benefit Distribution Systems

In "Government-Industry-University-Research" collaborative innovation, clarify the ownership of intellectual property rights of scientific research results. Encourage universities and research institutes to devolve the rights to use, dispose of, and benefit from scientific and technological achievements to R&D teams. Establish a fair and reasonable benefit distribution mechanism to safeguard the legitimate rights and interests of enterprises in technology transfer and stimulate the endogenous motivation of all parties to participate in collaborative innovation [7].

6.2. Resource Safeguard: Diversified Investment Mechanism

6.2.1. Strengthen the Guiding Role of Fiscal Funds

Increase financial support for industry-education integration enterprises and modern industrial colleges. Optimize the structure of educational funding expenditure, tilting towards practical teaching and dual-qualified team construction. Establish a "New Quality Productive Forces Talent Training Fund" to support the training of top innovative talents and scarce skilled talents.

6.2.2. Activate Social Capital Investment

Encourage enterprises to participate in vocational education with capital, technology, management, and other elements. Explore mixed-ownership reform of secondary colleges, allowing enterprises to obtain reasonable returns in the form of equipment investment and technology equity. Broaden financing channels for industry-education integration by issuing special bonds and establishing public welfare funds.

6.3. Cultural Safeguard: Integration of Craftsmanship Spirit and Innovation Culture

6.3.1. Carry Forward the Craftsmanship Spirit of the New Era

Integrate the craftsmanship spirit of "striving for perfection and pursuing excellence" into the entire process of talent training. Create a social atmosphere where labor is glorious and skills are precious by inviting craftsmen of great powers into campuses and holding skills culture festivals. Guide students to establish correct professional values and enhance their professional identity with the manufacturing industry.

6.3.2. Create an Inclusive and Open Innovation Ecology

Advocate an innovation culture of "encouraging innovation and tolerating failure." In "Government-Industry-University-Research" collaboration, establish a fault tolerance and correction mechanism to encourage teachers, students, and enterprise personnel to boldly try new technologies and processes. Strengthen the exchange and mutual learning between university culture and enterprise culture, promote the organic integration of academic spirit and entrepreneurial spirit, and provide fertile cultural soil for the development of new quality productive forces [8].

7. CONCLUSION AND OUTLOOK

7.1. Research Conclusions

Through an in-depth analysis of the transformation and upgrading of the manufacturing industry in Qingyuan City and the current situation of application-oriented talent training from the perspective of new quality productive forces, this paper draws the following conclusions:

(1) New Quality Productive Forces are the Fundamental Driving Force: The development of new quality productive forces forces the application-oriented talent training mode to undergo systemic reform, moving from closed to open, and from singular to collaborative.

(2) "Government-Industry-University-Research" Collaboration is the Only Way: The key to solving the mismatch between talent supply and demand lies in breaking institutional barriers and building a collaborative education mechanism involving the government, enterprises, universities, and research institutes.

(3) Mode Innovation Requires Multi-dimensional Efforts: Efforts must be made simultaneously in top-level design, carrier platforms, training processes, and technical empowerment to build an ecosystem of "Four-Chain Integration" in order to achieve a substantive improvement in the quality of talent training.

7.2. Outlook

Looking forward, with the deepening of the construction of the Guangdong-Hong Kong-Macao Greater Bay Area and the comprehensive implementation of the "Hundreds, Thousands, and Ten Thousands Project," Qingyuan City and the vast underdeveloped areas will usher in a window period for the development of new quality productive forces. The innovation of the "Government-Industry-University-Research" collaborative training mode for local application-oriented talents is a dynamic evolutionary process.

Future research can further focus on:

(1) Quantitative Evaluation of Collaborative Performance: Constructing a scientific indicator system to accurately measure the performance of "Government-Industry-University-Research" collaborative education.

(2) Deep Application of Digital Governance: Utilizing frontier technologies such as blockchain and the metaverse to explore new forms of industry-education integration governance.

(3) Cross-regional Collaborative Mechanism: Under the background of Guang-Qing integration, how to break administrative divisions and realize cross-regional coordination between high-quality educational resources in the Greater Bay Area and industrial needs in Northern Guangdong is worth further investigation.

We firmly believe that through continuous institutional innovation and practical exploration, local application-oriented talent training will surely embark on a high-quality development path with distinct characteristics and remarkable results, providing a steady stream of talent support and intellectual engines for the vigorous development of new quality productive forces.

REFERENCES

[1] Zhou Wen, Xu Jiarui. Connotation Characteristics and Development Path of New Quality Productive Forces [J]. Reform, 2023(10): 12-21.

[2] Zeng Xiangquan. Development of New Quality Productive Forces and Innovation in Human Resource Development [J]. People's Tribune, 2024(05): 34-37.

[3] Zhong Feng, Li Yingmei. Research on Dilemmas and Countermeasures of Industry-Education Integration in Universities in Underdeveloped Areas—Taking Northern Guangdong as an Example [J]. Vocational and Technical Education, 2022, 43(12): 25-30.

[4] Cao Peijie. Integration of Industry and Education: The Only Way for the Development of Vocational Education in the New Era [J]. Educational Research, 2018(09): 97-104.

[5] Chen Chunhua, Zhu Li. Synergistic Symbiosis Theory: New Logic of Organizational Evolution [J]. Journal of Management Sciences in China, 2018, 21(06): 1-13.

[6] Xiao Qunzhong. Contemporary Value of "Craftsman Spirit" and Its Cultivation [J]. People's Tribune · Academic Frontiers, 2021(15): 68-75.

[7] Wu Yan. Deepening the Integration of Industry and Education to Build High-Quality Higher Education [J]. China Higher Education, 2020(17): 4-7.

[8] Xing Hui. Deep Dilemmas and Breakthrough Paths of Industry-Education Integration in Vocational Education [J]. Journal of National Academy of Education Administration, 2021(08): 32-39.