

On the Cultivation Mode of Smart Logistics Talents Based on Industry-Education Integration and Dual Innovation Practice

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Abstract: In order to enhance the competitiveness of logistics talents cultivation in higher vocational colleges, avoid the homogenization of college specialty settings, guide the personalized development of colleges, and enrich the ecology of higher vocational education, this paper takes JD Smart Logistics Industrial College of Guangdong Communication Polytechnic as an example to explore and analyze the cultivation mode of smart logistics talents with industry-education integration and dual innovation practice. First, it constructs the framework of talents cultivation mode, then puts forward the key path and specific measures of talents cultivation, and finally analyzes the implementation effects. This research and practice have proved that that the talents cultivation mode of industry-education integration and dual innovation practice can effectively realize the connection between the supply side of smart logistics talents and the demand side of the industry, adapt to the demand of high-quality talents for development and innovation of the smart logistics industry, and provide a new model and new path that can be replicated and promoted for the construction of logistics specialty in higher vocational colleges.

1. Introduction

Industry-education integration and school-enterprise cooperation are the basic school running mode of vocational education and the key to running vocational education well. ^[1] Industrial college is an important carrier to promote Industry-education integration and build a long-term mechanism of school-enterprise cooperation. ^[2] According to the relevant requirements of the National Vocational Education Reform Implementation Plan, it has become the core trend of vocational education development to improve the vocational education and training system, deepen industry-education integration, school-enterprise cooperation, and encourage enterprises to rely on or cooperate with vocational schools and colleges to establish industrial colleges. ^[3]

At present, there are three outstanding problems in the teaching of logistics related majors in vocational colleges across the country. First, there is a large gap between the teaching materials and training programs used by colleges and the job needs of enterprises and the cutting-edge technologies

of the industry. ^[4] Second, professional teachers in colleges and universities usually lack practical experience, especially the cognition and practice of all links in the whole production process. ^[5] Third, practical teaching mostly stays at the operation level of traditional logistics equipment. The software and hardware operation processes and data are mainly simulated, and the campus training is not integrated into the real business scene and task driven. ^[6]

With the gradual and extensive application of new technologies such as artificial intelligence, big data, cloud computing, 5G, etc., the demand for logistics talents in the future will focus on the application of new technologies, the management of business process adjustment and change based on new technologies, and the comprehensive and compound operation talents to improve the logistics operation efficiency. At this stage, the practical teaching of traditional logistics can no longer meet the actual demand of logistics enterprises for the training of modern logistics talents. ^[7]

2. Construction of Talents Cultivation Mode

At the beginning of 2020, Guangdong Communication Polytechnic and JD Logistics Group will cooperate to build a modern logistics Industry-education integration training base. The base uses JD's advanced intelligent warehouse management system (WMS) and sorting production system (DMS) Job training on sorting, settlement, operation, maintenance, etc. Both parties plan to build a mass entrepreneurship education practice base based on modern logistics training base, integrating professional practice teaching, competition certification training, innovation and entrepreneurship training, and campus operation and production. In September of the same year, the University and JD Logistics Group signed a framework agreement on the joint establishment of JD smart Logistics Industrial College. The two sides plan to carry out professional construction and realize resource sharing in terms of talents cultivation, technological innovation, employment and entrepreneurship, social services, cultural heritage, etc. according to the needs of the talents market.

2.1 JD Smart Logistics Industrial College Construction Planning

JD smart Logistics Industrial College Construction Planning is shown in Figure 1.

First, based on AI, 5G, the Internet of Things, big data, cloud computing, blockchain and supply chain management technologies, with reference to logistics industry standards, JD logistics operation standards, and JD logistics college talents cultivation cloud model, innovate the e-commerce logistics integration practical smart logistics talents cultivation model.

Second, through the three main lines of talents cultivation orientation, training base construction and entrepreneurship team formation, this paper analyzes the three functional levels of foundation, core and expansion that the Industrial College needs to achieve in order to create an integrated practical talents cultivation model. Its main functions include production practice, talents cultivation, technical consulting, innovation and entrepreneurship, training certification, communication and promotion.

Third, we will organically combine talents cultivation, teacher professional development, practical training and practice, student innovation and entrepreneurship, and enterprise service technology innovation functions, promote industry-education integration, science and education, and create a solid talents cultivation and innovation platform that integrates production, learning, research, innovation, and application, complementing, mutually beneficial, interactive, and win-win.

Fourth, based on the talents cultivation and innovation platform, the industrial college structure layer is built, that is, to develop the campus ecology and industrial ecology with the construction of an industrial college as the center. The school and enterprise jointly build three bases - industry and education integration base, teacher training base, science popularization education base, and create six centers - skills competition center, innovation and entrepreneurship center, teaching certification

center, social training center, technology consulting center, and international exchange center, Finally, "one college, two ecology, three bases and six centers" will be formed.

Fifth, based on the "five in one" principle of "industry, education, research, innovation and application", JD smart Logistics Industrial College will conduct demonstration and promotion of the school-enterprise cooperation model of the Industrial College for vocational schools, higher vocational colleges, vocational education bases and industrial parks, so as to promote the construction of logistics related professional groups, personnel training and industrial development.

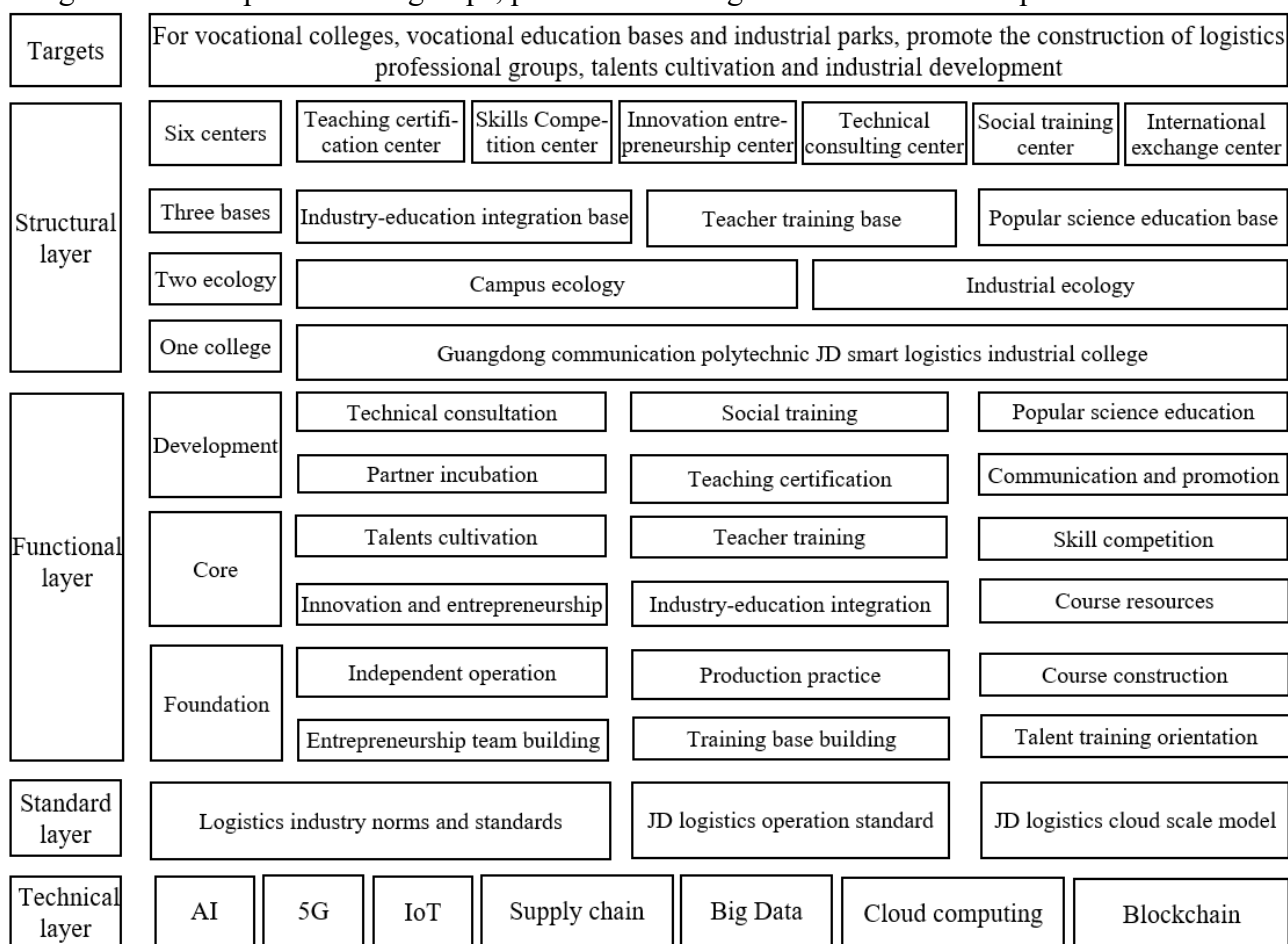


Figure 1: JD Smart Logistics Industrial College Construction Planning

2.2 Key Path of Smart Logistics Talents Cultivation

2.2.1 Establish a Modern Logistics Industry-Education Integration Training Base

As the core entity of the Institute of Industry, while meeting the needs of daily training and teaching, the base has the ability to provide warehousing and logistics services to enterprises inside and outside the school, provide the school, Guangdong Vocational Education Base and surrounding areas with express parcel sorting and distribution services, and introduce real business through cooperation with JD Logistics Group, so that students of logistics, e-commerce, traffic management and other majors can quickly master logistics sorting E-commerce warehouse allocation, express delivery operation and other related vocational skills can also cultivate the comprehensive management quality and special management skills of students in all majors. Through the establishment of a college student entrepreneurship company and the establishment of a cooperative relationship with JD Logistics

Group, we will provide schools and vocational education bases with campus express operation, intelligent parcel sorting and distribution, campus e-commerce operation, intelligent warehousing and distribution, and campus express, e-commerce data analysis and technical consulting services, so as to achieve industry-education integration, science and education, dual innovation practice and campus services, and become a school enterprise integration with the functions of production, teaching, dual innovation, and research A practical training and practice base for cooperation of production, teaching, research, innovation and application.

2.2.2 Create a Campus Ecology of Industry-Education Integration, Dual Innovation Incubation

Based on the integration advantages of JD's logistics and e-commerce, relying on the modern logistics Industry-education integration base, integrating campus e-commerce, campus cloud warehouse, campus distribution and other links, empowering campus partners, building campus supply chain ecology, building a supply chain ecological model characterized by business closed-loop in a fixed campus scenario, and realizing Industry-education integration. The supply chain ecology of JD campus provides an innovative talents cultivation mode of "Wisdom—E-commerce—Logistics—Information flow—Dual innovation" for real business operation, integrates real job skills and responsibilities, inputs enterprise practice courses, breaks through professional barriers, and interacts with schools, enterprises, teachers and students to achieve a real transformation from practical training to practice. Key points of project implementation: First, the actual combat scenario, the operation periodization, the introduction of real business flow, the selection of campus best sellers, the operation of explosives, and the completion of the operation of fixed SKUs in a fixed period according to JD Logistics operation standards; Second, teaching is related, practice is modularized, matching and relating the curriculum system and phased teaching plan of e-commerce and logistics majors, testing teaching results by practice, and designing students' practice content in a modularized and hierarchical way; Third, e-commerce logistics, cross professional integration, cooperation between teachers and students of e-commerce department and logistics department; The fourth is to empower students, incubate partners, enable students through practice and teaching cycle, incubate as campus partners, and enable them in a ladder like cycle.

The campus ecology of integration of production and education carries out online and offline campus services and production operations such as campus e-commerce, campus cloud warehouse, campus distribution, etc. on the platform of college students' entrepreneurship companies. Relying on the logistics warehouse distribution training center and business operation training center, it creates a practice field of integration of production and education with logistics and business flow. The school and enterprise cooperate to jointly carry out practical teaching and operation guidance, and the relevant functional departments of the school supervise the teaching effect and operation quality, To achieve high-quality and efficient integration of production and education, school enterprise collaborative talents cultivation, and establish a production and education integration and innovation practical talents cultivation base integrating professional practical teaching, innovation and entrepreneurship training, campus operation services, and training technology empowerment. Implement the talents cultivation path of "integration of production and education, dual innovation practice, school enterprise collaboration, and capability upgrading".

2.2.3 Build the Cultivation Mode of "Practical Plus Innovative" Smart Logistics Talents

The school has established an Industrial College in conjunction with JD Logistics Group to meet the needs of industrial transformation and development and regional economic and social needs, with the goal of strengthening students' professional competence and sustainable development ability, and with the focus on improving students' practical and innovative abilities. Based on the actual business

scenario of JD e-commerce logistics, the school implements the "cloud model" step by step to cultivate smart logistics talents according to basic operation, basic operation, special promotion and planning, Through the campus ecology of e-commerce logistics integration, we will build a "practical plus innovative" smart logistics talents cultivation mode of e-commerce logistics integration oriented to warehouse/transportation/distribution services, logistics information technology and business services/quality control, and cultivate smart logistics supply chain application talents with modern and innovative ideas.

Based on JD's logistics business operation and business standards, build a modern logistics Industry-education integration training base integrating logistics warehouse allocation, e-commerce operation and data analysis, and achieve intelligent, modern and full chain services from the technical level. The training base takes enterprise practice as the prototype to restore the enterprise operation scene, introduce real enterprise operations to complete the real business of logistics and e-commerce, and form a practical environment integrating logistics and business flow. Through various forms of teaching, learning, training, practice and research, combined with the multi-dimensional content of courses, resources and system platforms, the training base realizes the practical operation in different scenes, and builds a logistics campus ecology characterized by student practice closed-loop, Build an overpass for training modern logistics talents. Through the deep integration of production and education, we will deepen the cooperation between schools and enterprises, create a platform for coordinated education between schools and enterprises, carry out the training of order class and apprenticeship talents, take the training of schools and enterprises as the main body, and take the society as the bridge, expand the training mode of applied innovative talents, and improve the quality of professional training. Through the cooperation of the Institute of Industry, students can get close contact with JD's corporate culture, enterprise elements, enterprise values and enterprise operation standards, shorten the distance between enterprises and campus talents cultivation, and let students bring theory into work through real productive practice, and treat the training room as a workplace, so as to truly meet the requirements of training modern logistics talents.

3. Results

Since the establishment of the modern logistics Industry-education integration training base, Guangdong Communication Polytechnic has cooperated with JD Logistics Group to introduce the real business of e-commerce logistics on campus, so that students from multiple majors such as logistics and e-commerce can quickly master the relevant professional skills such as smart logistics sorting, e-commerce warehouse distribution, express delivery operation, etc. in the real warehousing and distribution operations. Guangzhou Academy of Communications has actively explored and implemented the talents cultivation path of "industry-education integration, dual innovation practice, school enterprise collaboration, and capability upgrading", and has achieved initial results, as follows:

3.1 Deep Industry-Education Integration, High-Quality and Efficient Practice

The modern logistics industry-education integration training base uses JD's advanced intelligent storage and sorting management system to integrate the two functions of student training practice and enterprise production and operation. The college students in the school set up a college entrepreneurship company to carry out production and operation. JD Logistics Group and the school jointly carry out operation guidance and training teaching. Through the school enterprise dual teacher training guidance, students can experience the real warehouse allocation business scene, enable students to master the operation process of intelligent warehouse configuration. Up to now, the students of the logistics and transportation specialty group have practiced nearly 8000 person times in the base, a total of 20000 person days, and the popularization rate of the specialty group practice

has reached 100%.

3.2 School and Enterprise Jointly Build a Dual Innovation and Cooperative Education Team

Under the joint guidance of the school and enterprise tutors, a campus e-commerce and campus end logistics innovation and entrepreneurship team composed of school students was incubated. The team handled 10000 express packages per month, and the campus e-commerce business was carried out synchronously and orderly. This practical mode of e-commerce logistics integration is an innovation in the training mode of logistics e-commerce related professionals in higher vocational colleges, which helps schools form a new mode of integration of production and teaching. It truly combines teaching with real production. Students are exposed to real business scenes in the school, and the same enterprise system and culture are of great significance to their quality education and ability education.

3.3 School and Enterprise Jointly Build Industrial College and Cultivate Innovative Talents

JD smart Logistics Industrial College of Guangzhou Academy of Communications integrates regional resources with JD Logistics Group to jointly create a benchmark brand for regional school enterprise education. JD Logistics exports the core content of the industry, enterprise management mechanism, employment standards, operation standards, technical standards and cutting-edge technologies. The school exports education technologies. Both sides take the path of industry-education integration to cultivate precise talents in the industry, and innovate the training standards and training modes, jointly cultivate innovative and application-oriented talents of smart logistics supply chain with modern concepts for four major job groups, namely, smart logistics basic operation, basic operation, special operation and planning and design.

4. Conclusions

The school-enterprise cooperation mode between Guangdong Communication Polytechnic and JD Logistics Group has gradually developed from the initial major—enterprise connection (point-to-point form) to the major cluster—industry chain (line-to-line form), and then to the major cluster—industrial college (face-to-face form), that is, from the construction of logistics warehouse distribution training center to the operation of modern logistics industry-education integration project, to the school-enterprise cooperation system and mechanism, talent collaborative training, technology research and development in the process of carrying out a series of cooperation in social services, student employment and entrepreneurship, the integrated development of the college and JD Logistics Group has expanded from the initial "point-to-point cooperation" to "face-to-face cooperation". This is a process of practice and exploration, a real process of industry-education integration, and a process of joint development of "industry—education—research—innovation—application".

The key point in the process is how to carry out industry-education integration, whether it is operated by a third party or operated by a student team led by teachers. It involves the degree of control over the operation of the third party, the difficulty of communication with multiple departments, the legitimacy of student start-up companies, the complexity of the conflict of interests on campus, and many problems that need to be solved, such as industry-education integration, team management, operation support, profit distribution, etc. This is a process of rebirth. The exploration of the construction mode and talents cultivation path of the "five in one" smart logistics Industrial College in higher vocational colleges will promote the close connection between the supply side and the industry demand side of logistics talents cultivation in higher vocational colleges, cultivate high-quality talents that meet the high-quality development and innovation needs of the logistics industry,

and provide a new mode and path that can be replicated and promoted for the construction of logistics specialty in higher vocational colleges.

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