

Research on Teaching Reform for Logistics Management Major under the Guidance of Intelligent Logistics

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Keywords: intelligent logistics; logistics management major; talent demand; teaching reform

Abstract: Intelligent logistics requires skilled technical and management personnel who are proficient in automated logistics processes, big data analysis methods, and artificial intelligence. Intelligent logistics is the development direction, talent competition is the core competitiveness, and it is necessary to lead the logistics management major teaching reform with intelligent logistics. In view of the existing problems in the training of traditional logistics management professionals, combined with the demand for talents in the era of intelligent logistics, and on the basis of in-depth investigation and study of relevant literature, this paper puts forward the teaching reform plan of intelligent logistics leading the major of logistics management: To reconstruct the training system according to the demand of intelligent logistics talents; To cultivate students' innovative ability through various channels; To strengthen the study and application of new intelligent logistics technology; To build a "double-qualified" team of intelligent logistics teachers.

1. Introduction

In 2009, IBM proposed to build a future-oriented supply chain featuring advanced, connected and intelligent, which generates real-time information through sensors, RFID tags, brakes, GPS and other devices and systems. Then the concept of "intelligent logistics" is extended. "Intelligent logistics" refers to the improvement of logistics system's ability of analysis and decision making and intelligent execution through intelligent hardware, Internet of things, big data and other intelligent technologies and means, so as to improve the level of intelligence and automation of the whole logistics system. "Intelligent logistics" attaches more importance to integrating the Internet of things and sensor network with the existing Internet, and realizes the automation, visualization, controllable, intelligent and networking of logistics through fine, dynamic and scientific management, so as to improve the utilization rate of resources and productivity level, and create more comprehensive connotation of social value.

Intelligent logistics is the direction of development, and talent competition is the core competitiveness. The development of intelligent logistics relies on talents, so it is necessary to fully recognize the importance of training intelligent logistics talents. The logistics management major in colleges and universities is the most direct channel to train intelligent logistics talents. The major of logistics management is to meet the needs of the socialist market economy, and to train students to have a solid foundation of management, economics and basic knowledge of information technology, as well as a higher level of English and basic computer skills. On the premise of mastering basic engineering knowledge, students can be familiar with laws and regulations, master modern logistics management theory, means and methods of information system, have strong practical operation ability of logistics management, planning and design, and become senior modern logistics management talents. Intelligent logistics requires skilled technical and management personnel who are proficient in automated logistics processes, big data analysis methods, and artificial intelligence. The existing training mode of logistics management professionals, which mainly serves traditional logistics, cannot meet the demand of intelligent logistics for talent ability. Therefore, in the context of smart logistics, through the market demand-oriented to strengthen the teaching reform of the logistics management profession, especially the reform of the practice teaching link, and then

cultivate the frontier dynamics of understanding the development of smart logistics, the latest intelligent technology in the logistics industry practical control capabilities, as well as application-oriented and innovative modern logistics people with strong processing power for various practical problems. Through the research of this paper, a specific teaching reform plan is proposed.

2. Correlational Research on Intelligent Logistics

The research field of intelligent logistics is broad, and the research contents related to this paper are as follows:

(1) The theory of intelligent logistics. First, the "third profit" theory. From the perspective of economic theory, all three elements of productivity can create value and realize profits. The first source of profit mainly comes from labor, which is realized by increasing labor productivity. The second profit source mainly comes from the labor object, which realizes the profit by reducing the cost of the means of production; The third source of profit mainly comes from labor tools, which is to exploit the profit sources of all links in logistics, while paying attention to the potential of labor and labor objects. Therefore, the third source of profit is more comprehensive than the first two sources of profit. Second, logistics system theory. In the whole logistics process, the six logistics elements, such as fluid, carrier, flow, flow direction, flow rate and flow rate, restrict each other and constitute the whole logistics system. In the professional field of logistics, only the hardware facilities are not enough, and all transportation lines are needed. Meanwhile, the importance of warehouse cannot be ignored. Third, the "iceberg" theory. Professor Nishizawa of Waseda university in Japan has put forward the "iceberg" theory of logistics cost. Corporate logistics costs are highly false, like an iceberg floating on the water. While parts of the surface can be seen, a large number of the submerged areas are invisible black areas. The theory of "iceberg" plays a guiding role in understanding logistics cost and logistics management.

(2) The function of intelligent logistics. First, sensory function. It uses a variety of advanced technologies to obtain information on all aspects of transportation, warehousing, packaging, loading and unloading, distribution, distribution and information services. It provides real-time data collection and accurate information on goods, vehicles and warehouses. Second, the organizing function. The collected information is transmitted to the data center through the network for data archiving and database establishment. Data can be connected, open and dynamic. Through the standardization of data and processes to promote the integration of cross-network systems, to achieve structured wisdom. Third, intelligent analytics. Apply the intelligent simulator model to analyze the logistics problem. Make assumptions based on the problem. Verify problems and discover new problems in practice. Combine theory with practice. During the operation, the system calls the original experience data and finds the weak links in the logistics activities. Fourth, optimize the decision-making function. Based on specific needs, it evaluates cost, time, quality, service, carbon emission and other standards according to different situations, evaluates probability-based risks, conducts forecast analysis, makes decisions in coordination, proposes the most reasonable and effective solutions, and makes scientific decisions. Fifth, system support functions. The system wisdom is concentrated in intelligent logistics, which is not an unrelated logistics system. Every link can be connected, data can be shared, and resource allocation can be optimized, providing the most powerful system support for all logistics links.

(3) Characteristics of intelligent logistics. First, "Internet plus" logistics is booming. The core of intelligent logistics is "collaborative sharing". The Internet platform of "Internet +" logistics breaks the boundary of traditional enterprises, deepens the division of labor and cooperation among enterprises, and realizes the socialization transformation of stock resources and the maximum utilization of idle resources. Second, the Internet of things is widely used in the field of logistics. With the rapid development of mobile Internet, logistics connectivity has shown a trend of rapid growth. A large number of logistics facilities are connected to the Internet through sensors, and logistics interconnection is driven by information interconnection and facility interconnection, making "logistics online" possible. Third, logistics big data becomes a reality. Through big data

processing and analysis of logistics, mining valuable information for enterprise operation and management, scientific and reasonable management decisions, is the general demand of logistics enterprises. "Business data" is becoming an important basis for intelligent logistics. Fourth, logistics cloud service to strengthen security. Relying on the logistics cloud platform, it provides customers with safe and stable basic logistics information services and unified application component services, strengthens the data connection between customers and enterprises, and promotes the transformation of logistics industry to wisdom and ecology. Fifth, AI is getting off to a fast start. Artificial intelligence can realize intelligent allocation of logistics resources, optimize logistics links, reduce resource waste, and greatly improve logistics operation efficiency.

(4) The development trend of intelligent logistics. First, the intelligent logistics storage system takes the three-dimensional warehouse and the distribution and sorting center as the main body, and consists of the detection and reading system and intelligent communication, so as to improve the speed to meet the needs of consumers. With the application of new technologies such as Internet of things, robot and storage robot, intelligent logistics storage system has become the best solution to intelligent logistics. Second, big data promotes the optimization of logistics supply chain. E-commerce big data can improve the efficiency of logistics distribution, and send all order information to the enterprise distribution warehouse. Intelligent warehousing can retrieve the nearest warehouse location of goods according to the buyer's address in the shortest time, and transportation agencies can load the goods according to the number of orders. Third, in the future, after the formation of logistics data through big data analysis, the previous mode of goods being sent out by the warehouse of brand owners will be changed to direct delivery of some goods or goods from manufacturers. The goods will not flow with data, so as to achieve the optimal path and improve efficiency. Fourth, meet consumer demand more flexibly. Informationization, intelligence, intensification and small batch customization are the development trend of future logistics. Smart logistics centers on customer needs, flexibly implements material mobilization and meets downstream needs. Through the timely feedback of consumer demand information via the Internet, the information will quickly reach the production enterprise command center, implement order-oriented management, reduce enterprise inventory, and reduce upstream business risks.

3. Talent Demand in Intelligent Logistics Era

In the era of smart logistics, advanced information technology will be widely applied in the field of logistics. New internet-based logistics technologies, new models and new forms of business will become a new driving force for the development of logistics industry. In the era of intelligent logistics, higher requirements have been put forward for talents. The demand for talents has the following characteristics: First, they should be able to master the basic theory and method of enterprise logistics management, familiar with enterprise logistics business process and enterprise resource organization mode, master the logistics information management, warehouse management, distribution optimization, real-time monitoring, warning notice and emergency response and other aspects of the processing method. Second, they need to be able to effectively use advanced information technology, such as the Internet, reshape enterprise logistics business process wisdom, innovation enterprise resources organization way, using information technology accurate docking suppliers, distributors, partners, delivery vehicles, distribution network and distribution customer information and so on each link, establish the depth perception intelligent warehouse management information system. Third, they should have the ability of supply chain management and service system for the construction of wisdom, effective to construct "Internet +" intelligent integrated logistics mode of mass customization, can also have a small batch, more category, fast delivery and continuous replenishment demand characteristics of the enterprise, provide to the seamless integration of logistics services. Fourthly, smart logistics pays more attention to the application of emerging technologies such as cloud computing, Internet of things, big data and intelligent equipment, and drives the transformation and upgrading of the logistics industrial structure with new ideas and technologies, and puts forward higher requirements on the professional knowledge, management skills and comprehensive quality of logistics personnel. Applied talents of intelligent

logistics require to master basic logistics business, operation and maintenance of logistics system, comprehensively apply relevant professional knowledge of emerging technologies such as big data and Internet of things, and complete decision-making work such as intelligent storage, intelligent distribution and intelligent transportation.

4. Scheme on Teaching Reform for Logistics Management Major under the Guidance of Intelligent Logistics

The development of intelligent logistics requires high-quality interdisciplinary talents who are proficient in modern information technology, familiar with the basic rules of logistics operation, and have a strong sense of innovation and service. In order to better adapt to the development trend of logistics industry, it is necessary to lead the teaching reform of logistics management major with intelligent logistics. The reform plan proposed in this paper is as follows:

(1) To reconstruct the training system according to the demand of intelligent logistics talents. It includes four aspects: First, teaching systems. Build basic knowledge system based on logistics links and supply chains, fully investigate and understand the development needs of the logistics industry, and fully integrate relevant theories and technologies of intelligent logistics. Second, instructional designs. Taking smart logistics project as the starting point, the course system and experiment system are designed to deepen the application of smart logistics theory and technology through relevant social practice, discipline competition, innovation and entrepreneurship projects, as well as relevant scientific research projects in the field of smart logistics. Third, the implementation of teaching. Make full use of in-class teaching and out-of-class spontaneous exploration, use campus resources and off-campus social practice, with enterprises as the main body, establish the industry-university-research education base, and realize the organic integration of "production, learning and research". Fourth, teaching operation. Establish scientific teaching management system, monitoring and evaluation mechanism, as well as incentive and restraint mechanism for teachers, standardize teaching behavior, and improve the enthusiasm of teachers to improve their ability.

(2) To cultivate students' innovative ability through various channels. In the process of teaching and training, teachers should pay attention to the individual differences of students and meet the personalized needs in the growth process. Guided by the educational concept of smart logistics, it aims to improve the innovation and efficiency of teaching and cultivate students' innovative ability through multiple channels. With the help of science and technology competitions to cultivate students' innovative consciousness and operational ability, teachers should organize students to participate in various science and technology competitions, based on the subject group to carry out targeted classroom education, effectively cultivate students' innovative ability. Teachers organize students to carry out practical training and practice. In the process of cultivating application-oriented talents, they take students as the center and set up relevant laboratories or training bases through the integration of industry and education to expand the channels of cultivating students' innovative ability.

(3) To strengthen the study and application of new intelligent logistics technology. Intelligent logistics is widely used in all aspects of logistics, including Internet of things, big data, cloud computing and artificial intelligence. Through mobile communication technology, information of the whole system can be shared, and self-perception, self-learning and self-decision-making can be achieved, making the whole logistics system more intelligent. The key to train intelligent logistics talents is to master intelligent logistics technology. The main idea of the Internet of things is to connect all objects together through the Internet to form a huge network composed of many devices, which can remotely manage and control any object and communicate by receiving and sending information and sensing the surrounding environment. Big data sets can provide higher forms of wisdom and knowledge, dig and analyze massive data in the logistics process, and improve the efficiency of smart logistics, which is the core of smart logistics big data strategy. As a computing paradigm and distributed architecture, cloud computing's main goal is to provide secure, fast and convenient data storage and network computing services. All computing resources are visualized as

services and delivered through the Internet to improve business flexibility. With the application of many artificial intelligence technologies, the logistics industry is truly intelligent. Robots, visual systems and interactive interfaces, as well as automatic transportation vehicles, are all practical manifestations of ai in logistics operations.

(4) To build a "double-qualified" team of intelligent logistics teachers. Senior management talents in the era of smart logistics are the integration of basic logistics theory, logistics operation ability, information technology ability and logistics management ability. Under the background of comprehensively deepening reform and promoting the upgrading of industrial structure, it has become the common voice of the society and education circles to strengthen the construction of "double-qualified" teachers and create more "master-level" human soul engineers. To further promote the construction of "double-qualified" teaching staff, it is necessary to help the majority of logistics teachers deeply understand the demand trend of logistics talents under the intelligent logistics environment, and put forward the scientific and reasonable development of new ideas for the training of logistics talents in colleges and universities, which is the objective requirement of the construction of teachers in the era of intelligent logistics. The construction of the double-skilled "teacher team" is the fundamental strategy for the development of logistics management. It is necessary to focus on the basic needs of students to grow into talents and to link the direction of economic and social development. Efforts should be made to broaden the sources of teachers, improve training channels, create teaching platforms and improve the construction system, so as to create a good environment for the construction of "double-qualified" teachers and escort the sustainable development of colleges and universities.

References

- [1] X. Li, M. He, F. Xie, "Discussion on the Training Mode of Applied Logistics Talents under the Background of Intelligent Logistics," *Logistics Engineering and Management*, vol. 40, no. 3, pp. 130-132, 2018.
- [2] C. S. Liu, F. H. Huang, "Teaching Reform of Logistics Management Specialty in China Universities in the Age of Intelligent Logistics," *Logistics Engineering and Management*, vol. 40, no. 12, pp. 131-132, 2018.
- [3] L. M. He, Five New Characteristics and Six Development Trends of Intelligent Logistics," <https://www.iyiou.com/p/68535.html>, 2019-7-10.
- [4] C. H. Pan, L. M. Duan, "Research on the Training of Applied Logistics Talents in the Age of Intelligent Logistics," *China Market*, vol. 26, no. 21, pp. 161-162, 2019.
- [5] X. L. Feng, L. M. Zhou, "Research on Training System of Intelligent Logistics Talents Based on DR-CDIO," *Modern Business Trade Industry*, vol. 31, no. 10, pp. 48-49, 2018.
- [6] B. Yang, Y. P. Du, L. Zhu, et al., "New Technology Application and Case Analysis in Intelligent Logistics System," *Green Packaging*, vol. 4, no. 6, pp. 35-44, 2019.
- [7] J. Chen, "Construction of 'Double Teachers' Teachers of Logistics Management Major in Colleges and Universities," *Journal of Guangxi Normal University for Nationalities*, vol. 35, no. 6, pp. 136-138, 2018.
- [8] M. Huan, "Exploration on Practice Teaching Reform of Logistics Management Major in Universities under the Background of Intelligent Logistics," *Logistics Engineering and Management*, vol. 40, no. 6, pp. 150-151, 2018.
- [9] J. J. Liu, "Exploration on the Reform of Practical Teaching of Logistics Management Major in Higher Vocational Education under the Background of Smart Logistics," *Journal of Wuhan Polytechnic*, vol. 17, no. 5, pp. 34-38, 2018.