Cooperative Education for Intelligent Logistics Talents in Colleges and Universities

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ABSTRACT

With the implementation of the strategy of "made in China 2025" and industry 4.0, the logistics industry in our country is transformed and upgraded to intelligent logistics, and the training of logistics talents in applied undergraduate colleges and universities needs to transform to high quality and technical intelligent logistics talents. Based on the analysis of the present situation of logistics talent training mode, this paper puts forward the ecosystem model of intelligent logistics talent training based on "Internet +", with the reform measures of intelligent logistics talent training mode of cooperative education between school and enterprise. The reform ways of intelligent logistics personnel training modes includes: the school and enterprise jointly determine the training goal and training specification of logistics management professionals under the background of intelligent logistics, and the enterprise jointly develop the modular curriculum system and subject courses of logistics management specialty, together with building flexible and feedback-oriented teaching evaluation system.

Keywords: Intelligent Logistics, collaborative education, training mode

1. INTRODUCTION

In recent years, the logistics industry has become a national economic supporting industry. With the innovation of technology and the change of business model, the application of intelligent equipment has been popularized, and the intelligent logistics industry with the background of "Internet logistics" has also emerged. Logistics enterprises have higher demand for professional talents, and the training of applied undergraduate colleges and universities needs to be reformed and innovated. China's State Council triggered the "New Generation of Artificial Intelligence Development Plan" (Guofa [2017]35), demanding the development of intelligent logistics. China has become the world's largest logistics market, with the application of intelligent technologies such as artificial intelligence, big data algorithms, drones, unmanned warehouses, and unmanned vehicles and so on. Intelligent manufacturing enterprises, new retail enterprises and third-party logistics enterprises need a large number of complex, technical and applied logistics talents. In recent years, scholars have studied the training of logistics talents from different angles under the background of intelligent logistics. Huang Qing-juan explored some ideas of the course teaching reform of "warehousing and distribution management" in order to train intelligent logistics talents with professional consciousness, professional quality and professional practical ability, based on the demand of intelligent logistics talents [1]. Liu Shengda put forward that the teaching goal of logistics information technology course should be aimed at the training requirements of logistics information talents in the construction of intelligent city to formulate and reorganize the teaching content, improve the teaching mode and teaching method, reform the practical teaching method and the examination method and so on [2]. Huanmei proposed that the practical teaching of logistics management specialty in colleges and universities should be reformed under the background of intelligent logistics, adopting experiential and challenging practical teaching models, and strengthening cooperation with logistics industry enterprises [3].

These studies have certain guiding significance for the training of applied university logistics talents in the intelligent logistics environment, but on the whole, there are obvious shortcomings, that is, the proposed talent training model is only focused on one aspect. Lack of systematic framework of logistics personnel training system is established in private colleges and universities.

2. ANALYSIS ON THE CURRENT SITUATION OF TRAINING MODE OF LOGISTICS TALENTS

At present, there are some problems in the training mode of logistics talents as following:

2.1. The talent training mode and the quality of talent output lag behind the development of new technology in the industry.

All the time, colleges and enterprises, as independent individuals, have their own operating system, such as colleges and universities have always pursued the inculcation of talent knowledge, to maximize the transmission of specialized talents as the development goal. Enterprises are often market-oriented and set their development goals according to market needs [4]. Because of the inconsistency of the two objectives, there are great differences between the two sides in the organizational setup, training program formulation, performance evaluation criteria and so on.

2.2. The mode of cooperative education between school and enterprise is too simple.

In the process of cooperation between schools and enterprises, there is no stable and long-term cooperative relationship, which is often accomplished overnight and lacks depth, long-term and systematic. The common cooperation between school and enterprise in practice is visiting, short-term practice and supplemented by some business lectures and training. This method is widely used because of its simple operation, low cost, wide coverage of students and easy acceptance by enterprises. But these methods are often careless, formalism is serious, because students cannot go deep and lack of effectiveness. In particular, "618" and "double eleven" short-term intern students are reduced to "temporary workers" and "cheap labor" for e-commerce and express delivery enterprises to solve the bottleneck problem of logistics workload caused by the big promotion. They mainly carry out simple and repeated basic tasks such as order picking, packing, reviewing and handling, and lack practical opportunities such as management, planning and solving practical problems at the grass-roots level [5].

2.3. Lack of practical teaching content and resources

In order to train the logistics talents who meet the needs of the industry and industry departments, although the proportion of practical teaching has been improved by revising the training scheme, the talent training mode is still influenced by theory before practice, and practical teaching is still dependent on theoretical teaching. Secondly, the renewal speed of

experimental training equipment is slow, the engineering practice ability of teachers is insufficient, and the purchase and use of professional experimental equipment are restricted. The setting of practical teaching content deviates from the demand of talents [6].

2.4. The incentive mechanism is not sound

Colleges and universities train talents for enterprises and society, and the development of enterprises cannot be separated from high-quality talents. At present, due to the lack of specific policy guidance, small and medium-sized enterprises are restricted by personnel size, office space and diversity of talent demand, and their enthusiasm is not high in the cooperative training of schools and enterprises [7]. In addition, colleges and universities lack the substantive measures to bring school-enterprise cooperation teachers into performance appraisal, and enterprises cannot obtain high quality talent supply after participating in school-enterprise cooperation, which leads to the school-enterprise cooperation education cannot run efficiently.

3. REFORM CONCEPT OF TRAINING MODE OF LOGISTICS TALENTS

In the Internet era, with the development of artificial intelligence, the Internet of things, robots and "unmanned" equipment technology application and promotion, logistics industry for both professional literacy, innovation ability, but also understand computer technology, Internet of things and intelligent control of a multi-skilled compound talent demand increased. Based on the demand of intelligent logistics talents, through the deep cooperation between schools and enterprises, we can reconstruct the teaching mode, teaching items and teaching environment of logistics management courses, train applied intelligent logistics talents to meet the new era, new trends and new needs, and improve their ability to serve the social and economic transformation and upgrading.

Guided by the needs of cooperative enterprises, jointly trained by enterprises and schools, through theoretical study in schools, individual and comprehensive training and internship in cooperative enterprises, we should strengthen the cultivation of students' ability, focus on cultivating students' professional skills and practical working ability, and promote the coordinated development of students' knowledge, ability and quality. The ecosystem model of intelligent logistics personnel training is shown in figure 1.
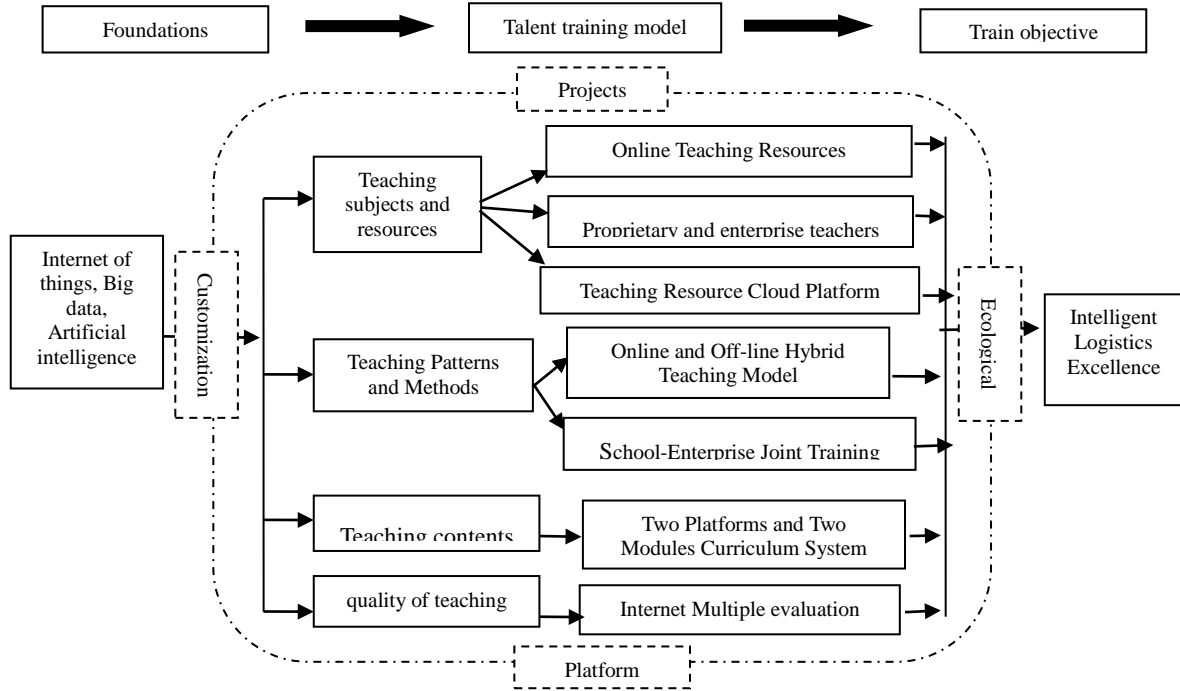
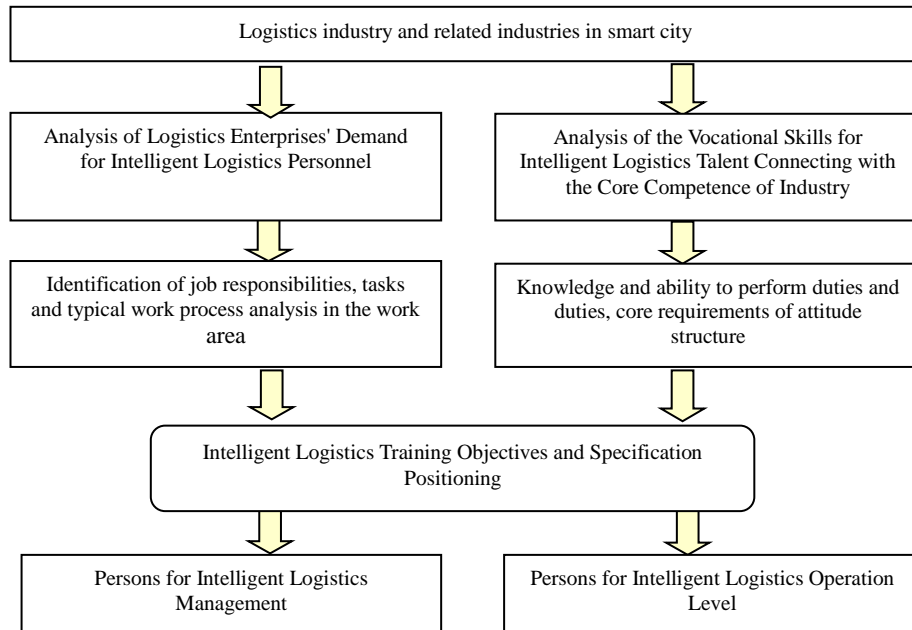**Figure 1** Eco-model of Intelligent Logistics Talent Training in Internet Age

Figure 2 Flowchart of Training Objectives and Specifications of Intelligent Logistics Personnel

4. REFORM WAYS OF INTELLIGENT LOGISTICS TALENTS TRAINING MODE

There are three main ways to reform the training mode of intelligent logistics talents in undergraduate colleges and universities:

4.1. Schools and enterprises jointly determine the training objectives and training specifications of logistics management professionals in the context of intelligent logistics

Under the background of intelligent logistics, logistics management specialty is built by schools and enterprises, and the training goal and specification of professional talents are accurately positioned, which is conducive to giving full play to the role of training goal in professional construction and education and teaching [8]. The cooperative analysis of the training objectives

and specifications of intelligent logistics professionals is shown in figure 2.

4.2. Development of Modular Curriculum System and Subject Courses for Logistics Management Specialty

According to the requirements of the talent training program of the school college, the curriculum system of intelligent logistics is to adopt the modular curriculum system of applied practical teaching [9]. The modular curriculum system consists of the basic professional quality module, the cooperative education teaching module of the school and enterprise, and the vocational orientation post practice module.

The subject course development, which constitutes a modular curriculum system, plays an irreplaceable role in task presentation, task induction and integration, typical work process analysis, engineering unit formation and case provision. The intelligent logistics specialty plan develops several subject courses based on the work process in three years, including the introduction of intelligent logistics, intelligent supply chain, intelligent logistics equipment and application, intelligent logistics operation and management, etc [10].

4.3. To construct a flexible, multi-element and feedback-oriented teaching evaluation system

Teaching evaluation should take various forms through various channels to investigate students' ability to solve practical problems in different learning and life situations. This study constructs a flexible and feedback-oriented teaching evaluation system, which provides multiple evaluation function support, and provides learners with the whole process records, including learning content, assessment, communication activities, discussion, practical exercises, skills training, etc., and provides learners with diversified evaluation reports. Professional knowledge and professional skills can be subdivided by adopting different evaluation methods, paying attention to the evaluation of students' learning process, increasing the proportion of process evaluation, advocating the whole process evaluation and comprehensive evaluation of students' intelligent development level in the process of learning, including students' innovative practical ability performance, classroom performance, extracurricular individual independent learning and research, second classroom performance, network autonomous learning performance, designing experimental programs, writing research summaries and small papers, and communicating with teachers, group cooperative learning situation and achievements, social practice, etc., so that process evaluation can play a positive role in teaching practice, Improve the feedback of teaching evaluation, correction and control of teaching quality and other functions, guide students to actively study in peacetime, actively explore research, so as to improve students' innovative consciousness and ability. The diversified teaching process evaluation system is shown in figure 3.
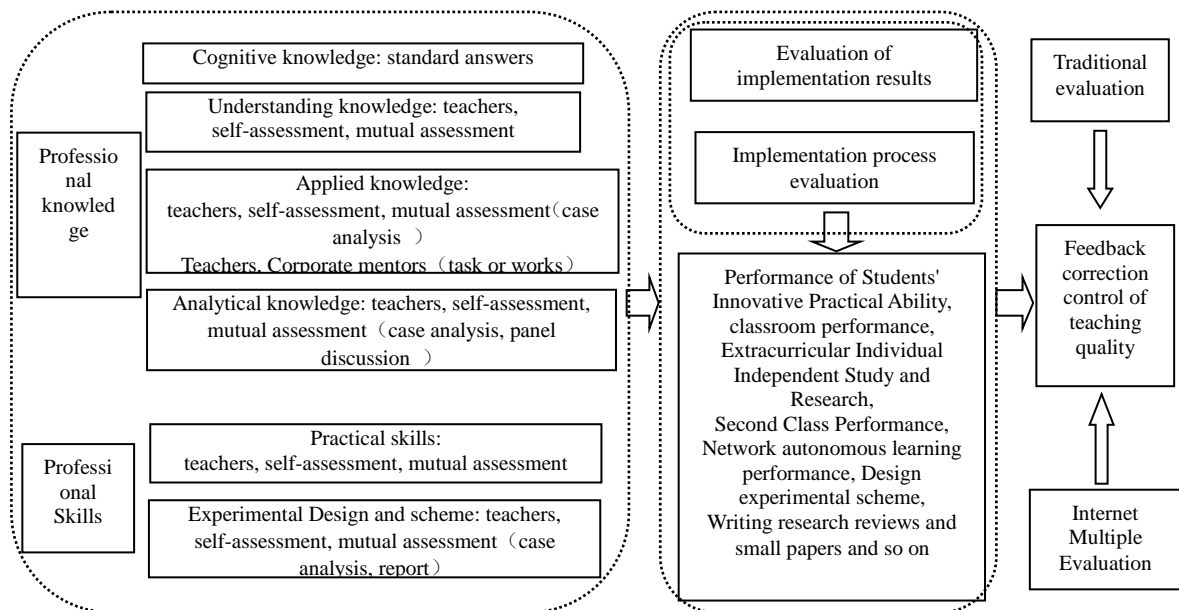

Figure 3 Evaluation System of Multiple Teaching Process

5. CONCLUSION

In order to meet the needs of innovative, entrepreneurial and multi-skilled intelligent logistics talents in the new situation of intelligent manufacturing, this paper starts from the current situation of the training mode of cooperative logistics talents between schools and enterprises, carries out the reform of the training mode of intelligent logistics talents in the Internet era based on the cooperation of schools and enterprises, and explores a series of reform paths for the training of logistics talents in undergraduate colleges and universities through the joint determination of the training objectives and training specifications of logistics management professionals under the background of intelligent logistics, the joint development of logistics management professional modular curriculum system and subject courses by schools and enterprises, and the construction of flexible and multi-oriented and feedback teaching evaluation system, Promote economic development and intelligent logistics transformation and upgrading.

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