Research on the Dual-Teacher and Dual-Innovation Training Program for Master's Students in Logistics Management

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Abstract: *Based on innovations in higher education and teaching, and in response to the talent needs of universities, the logistics industry, and local industries, a dual-teacher team is established. This team deepens the integration of industry and education through an innovative teaching approach, teaching strategies, and the creation of outstanding teaching results. A dual-teacher and dual-innovation training program is proposed, which utilizes an expanded case study method. This program suggests reforms for the training of logistics management master's students from the perspectives of talent cultivation models, curriculum systems, core integrated theory-and-practice courses, and teaching teams. The program is then put into practice and promoted.*

Keywords: *Dual-teacher; Dual-innovation; Logistics management; Training program*

Introduction

The logistics industry is undergoing rapid changes, and the training of logistics management master's students must quickly respond to this dynamic environment. This paper proposes a dual-teacher, dual-innovation training program for logistics management talent. Based on innovations in higher education teaching and education, and in response to the actual talent needs of universities, the logistics industry, and the local economy and society, a training program is developed that integrates "learning and application[7], progressive competency development, and practice-first employment." This model, which serves the development of the local economy and society through specialized knowledge, plays an active role in promoting growth. The program allows graduate students to learn logistics management theory and apply it in real-world business practices and internships, thereby realizing the integration of learning and application. It aims to address issues faced by logistics companies and local economic and social development. The logistics management master's students trained by universities will be able to truly serve and meet the needs of regional logistics industries and companies for logistics talent.

1. Logistics Talent Literacy

Logistics job comprehensive literacy refers to the basic requirements that logistics companies have for employees' job knowledge, skills, and personal qualities. It includes basic operational knowledge and skills for logistics positions, professional ethics, personal qualities, and more. Professional literacy must meet the requirements of modern service industries, as well as the specific demands of the logistics industry's development, technological changes, social development, and logistics system reforms.

1.1 Professional Abilities of Logistics Talent

Through research on logistics companies, we have identified the professional qualities and skill requirements that logistics enterprises have for logistics master's graduates. Based on this, we developed four key professional abilities that logistics companies value in their talent: basic logistics skills, interpersonal communication skills, continuous learning ability, and computer and English proficiency. The training program is divided into four modules corresponding to these areas, with related courses developed for each. These four modules require joint training by both university faculty and industry professionals to fully implement industry-education integration. The master's graduates

trained by universities should meet the talent needs of regional and local logistics industries and enterprises. This collaborative approach will ensure that the training meets the theoretical and practical needs of universities, industries, and enterprises, producing versatile, industry-ready talent.

1.2 Professional Skills of Logistics Talent

Logistics master's education is demand-driven, with a focus on understanding the development status of the logistics industry and the changing needs of enterprises. The program adjusts its educational direction to cultivate talent that meets enterprise demands.

The logistics industry places a strong emphasis on teamwork abilities and the mastery of basic logistics skills, such as the ability to prepare logistics documentation, use logistics facilities and equipment, and understand logistics operation procedures. Interpersonal communication skills are also crucial, including the ability to manage relationships with colleagues in the department, colleagues in other departments, and superiors. Adaptability to the job is important, such as the ability to quickly adjust to the work environment, work independently, and possess the ability for continuous learning to adapt to the ongoing development of the profession. In response to the trend toward automation and internationalization, proficiency in computer skills and English is also necessary.

Theoretical thinking is beneficial for logistics master's students as they transition to employment in the logistics industry. They should be able to propose specific, clear, step-by-step, systematic, and logical research frameworks for addressing trends in the logistics industry and its challenges. Meanwhile, through their practical operational skills, they can transform theory into practical, feasible methods, applying them to real-world logistics functions. This integration of academic theory learned in universities and the practical experience gained from industry professionals allows for the effective fusion of theory and practice, maximizing the impact of industry-education integration and learning through application.

2. Qualitative and Quantitative Research Methods

Using different methods to collect various types of data helps to mitigate the biases and limitations of relying on a single research method, allowing for more comprehensive information to be gathered.

2.1 Extended Case Study Method

The extended case study method, a qualitative research approach [1,2], is used to collect empirical data, supplemented by observations, focus interviews, and the collection of practical literature. This method enriches theoretical development, helps with the reconceptualization and expansion of theories, and aims not to construct new theories but to integrate and extend existing ones[3]. By comparing theories with interview data, and by comparing concepts with theories, the two-cycle exchange and intensive analysis assist in the interpretation of data.

2.2 In-depth Interviews

In-depth interviews with logistics industry experts provide insights into how university faculty and industry mentors align theory with practice, organize course delivery methods, and implement enterprise internships. Interviews with the general manager of Yunda Supply Chain, the operations director of Haibo Logistics Co., and the manager of Shengfeng Logistics further clarify how logistics master's students can effectively transition into their roles, meeting the talent needs of the logistics industry. These interviews ensure that the logistics master's program is thoroughly aligned with the actual demands of the local economic and social logistics industries.

In-depth interviews with students are conducted in the eighth and sixteenth weeks to compare traditional teaching methods with those incorporating the dual-teacher and dual-innovation approach. What are the differences in student learning outcomes? How effective is the enterprise practice in the third year of the master's program?

2.3 Comparative Analysis

Data on the effectiveness of teaching methods from traditional training programs will be collected and compared with the new teaching model adopted in the updated training program. The interview

duration will range from 10 to 30 minutes, and some interviews will be recorded with permission. Relevant data will later be cross-checked and confirmed with key information providers.[4]suggests using different methods to collect various types of data in order to overcome the limitations of a single research method.

Teaching assessments will be conducted before the end of the course, evaluating the effectiveness of the first phase (weeks 1-8) and the second phase (weeks 9-16). A comparative study will be undertaken to explore the differences between the teaching models of different training programs, with the aim of identifying an appropriate model for future graduate teaching reforms.

3. Dual-Teacher, Dual-Innovation Training Program

The new dual-teacher, dual-innovation training program for logistics master's students should first consider how to serve and align with regional and local logistics industries, deepen the integration of industry and education, and design course modules. It is essential to establish collaborative support for logistics functional courses by both industry mentors and academic advisors, including packaging, loading and unloading, warehousing, transportation, handling, distribution processing, delivery, information management, and more.

The curriculum should incorporate elements of innovation and excellence, such as innovative teaching methods, strategies, and outstanding educational outcomes (Outcome-Based Education, OBE), including patents, software products, and professional competition achievements.

Based on the results of enterprise interviews, logistics industry leaders have expressed concerns that master's students are unable to handle key logistics tasks such as transportation management, logistics information management, warehousing and distribution, logistics cost management, and procurement management. This indicates that, in addition to imparting logistics management knowledge, universities should also involve industry mentors to assist in teaching logistics functional tasks. Moreover, further improvements are needed in the following areas:

3.1 Establishing Talent Development Orientation

Logistics master's students are positioned as high-level leaders in the logistics industry, capable of solving problems within logistics enterprises. These students should possess theoretical knowledge in the logistics field while also being highly practical in their ability to apply logistics industry practices, particularly with intelligent equipment. The program is not designed to train warehouse workers, sorters, or inventory clerks on production lines.

Logistics management is a highly practical discipline, and talent development must balance theoretical knowledge with practical application. The goal is to cultivate skilled, high-quality, and versatile logistics professionals who not only understand logistics operations but also are familiar with advanced technologies such as intelligent operations and digitalization. This includes smart logistics, sorting robots, stacking robots, the Internet of Things, intelligent warehousing, and drone delivery systems, all of which are widely used to improve efficiency, reduce labor costs, and enhance industrial competitiveness. Furthermore, the logistics curriculum system and professional qualification certification system should be developed to train diversified talent that meets market demands.

3.2 Employment, Technology, and Quality: "Three-Dimensional Integration"

The talent development program is guided by the principle of "employment demand orientation, technological skills as strengths, and quality education as the main line," aiming to cultivate "three-dimensional integration" of employment, technology, and quality. This approach is supported by on-campus and off-campus training bases, as well as university-industry cooperation, creating a talent development model of "integration of learning and practice, progressive skill development, and practical experience before employment."

Using on-campus and off-campus training bases, courses will be set according to job requirements, broken down into comprehensive sections, and arranged in three stages with progressive levels. The aim is to develop students' foundational employment qualities, core competencies, and comprehensive abilities through a progressive teaching process. The entire talent development process is divided into three stages: the first stage focuses on cultivating logistics professional qualities and core competencies, including fundamental theory, knowledge, and skills training; the second stage involves comprehensive

logistics capability training, where students participate in rotational internships to enhance their practical operational skills and professional qualities; the third stage emphasizes strengthening students' logistics professional abilities, preparing them for employment with a one-year (third-year) internship at a company.

Throughout the teaching process, the focus will be on vocational skills as strengths, integration of learning and practice, and a combination of theory and practice. A training system that values technical expertise and ethics will be established. Additionally, with quality education as the main line, a "three-full" quality system (comprehensive cultivation, full participation, and full implementation) will be established to develop high-quality technical and skilled talent.

4. Core Courses Integrating Theory and Practice

The curriculum combines professional theoretical knowledge with enterprise practices, implementing the integration of learning and application. It features deep integration between universities and enterprises, with academic mentors and industry mentors jointly guiding the course system[5].

Academic mentors in universities should clearly articulate the knowledge system of the courses, especially the 5W1H of theoretical knowledge. To help students fully understand a theory, it is essential to grasp the theory's background, including the theory's originator (Who), the content of the theory (What), its source (Where), the time period (When), the motivation behind the theory (5W,Why), and how it can be applied (How).

Once logistics master's students have learned the theory, such as the industry analysis framework, they can apply it specifically to logistics industry practices for concrete analysis. For example, in the case of supplier bargaining power, they can identify the main suppliers of a company, understand the quality of raw materials and components provided by these suppliers, and assess the suppliers' bargaining power. This helps the logistics industry select suitable suppliers and obtain appropriate components at the right cost. As for the intensity of competition among existing competitors, students can analyze the company's main competitors, their strengths and capabilities, and determine the appropriate competitive strategy. This is the integration of theoretical thinking and practical operation, where students not only learn the theory but also apply it in practical operations, achieving the integration of learning and application.

As the name suggests, research-based teaching involves guiding students through the process of research from a research perspective. This includes teaching them how to observe from a theoretical standpoint, select research topics, collect data on research subjects, search for literature, and so on. In this approach, graduate students engage in questioning and research in the classroom to experience the essence and operational process of research-based teaching. By working on practical research tasks, students strengthen and internalize theoretical knowledge, applying theory to discover and solve problems within enterprises, thus bridging theory with concrete practice [6].

Through this process, the mentor identifies entry points and problem areas for research, combining them with theory and research subjects to develop a hypothesis or proposition. From this, solutions and strategies are proposed, leading to research outcomes. This is also a skill—a capacity to identify the potential for research topics through teaching. It is a teaching-driven research, research-driven teaching approach, where both teachers and students produce thesis results by the end of the course, emphasizing outcome-oriented research-based teaching methods.

During the course, the mentor requires graduate students to read research papers in their field each week, to reflect on the theoretical content, and how it can be applied to observed social phenomena. Each week, students must present the theories they have learned and explain how these theories can be used to address issues within a particular enterprise. Progress is expected every week, with theoretical thinking used to solve practical problems in business.

The "Learning, Thinking, Expressing, Applying, and Transforming" model of integrating theory with practice involves: "Learning" theory, "Thinking" about theory, "Expressing" theory through the 5W1H approach, "Applying" theory to business practice, and "Transforming" it into various forms of outcomes[8]. Only then can graduate students apply the theories they have "learned" to life and work, making what is learned into what is used. This integration of learning and application ensures that what is learned immediately becomes practical, allowing for the verification of whether the theory is feasible, usable, adaptable, and breakthrough-oriented.

5. Dual Innovation and Dual Teacher Teaching Team

Logistics education aims to cultivate modern logistics operations, service professional knowledge, and comprehensive skills. Teaching assistants, lecturers, and industry mentors should have experience in both business practice and entrepreneurship. Each must participate in at least 4 months of production practice in logistics companies to become familiar with logistics industry tasks. A “Dual Innovation” and “Dual Teacher” teaching team is essential, where professional teachers possess both theoretical knowledge and practical skills, making them true dual-teacher educators.

Industry leaders from renowned logistics companies, such as Yunda, Haibo, and Shengfeng, are invited to serve as practice teaching mentors, participating in the development of professional talent training programs, course construction, teaching, and practical education. They assist in core skills courses, such as enterprise management practice, logistics comprehensive skills training, logistics simulation training, express business training, and typical logistics position practice. These mentors help implement practical experience in logistics procurement, transportation, warehousing, distribution, information technology handling, and comprehensive logistics services, enhancing students' practical skills and preparing them for the workforce.

6. Building a Comprehensive School-Enterprise Cooperation System

The cooperation between universities and enterprises aims to address regional economic development talent needs and social stability employment issues, realizing a win-win cooperation between universities and enterprises, and ensuring that students benefit from skill enhancement and compensation within the school-enterprise collaboration.

School-enterprise cooperation contributes economic and social value by promoting the development of both universities and enterprises, as well as regional economic progress. It focuses on the actual needs of logistics-related industries and talent cultivation, jointly developing talent capability and assessment standards. Together, universities and enterprises can create efficient talent development models tailored to their cooperation.

A practice-based training environment centered on business development should be established, with the training site located within the enterprise's logistics workspace. Students will engage in value creation within actual logistics companies. Alternatively, the training environment can be constructed on campus, with enterprises providing practical logistics workspace requirements, operational skill standards, raw material processing standards, staff support systems, and product sales systems, while the campus offers the necessary environment, facilities, and technical equipment. This setup simulates real logistics workflows.

One outcome of deepened school-enterprise cooperation is that university employment education can provide talent for the completion of enterprise projects. School-enterprise collaboration can link business projects with the theoretical knowledge, operational skills, and comprehensive capabilities required, placing logistics graduate students on specific projects within enterprises to support mutual needs, benefiting both the company and the university.

Conclusion

The dual-teacher, dual-innovation logistics management master's program should align with the development of talent needs in the logistics industry, logistics companies, and local economies. By creating a school-enterprise cooperation platform that combines theoretical knowledge from universities with practical experience from logistics enterprises, a curriculum guided by academic and industry mentors, the program integrates course innovation and practical excellence. It includes a four-module curriculum system, incorporates the "Five Hows and Five Methods" teaching approach, and adopts the "Learning, Thinking, Expressing, Applying, and Transforming" model to integrate theory with practice, universities with enterprises, and teachers with students, making it a model worthy of promotion and application.

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