Journal of Human Resource Development (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/jhrd.2025.070111
ISSN 2616-3357 Vol. 7 Num. 1

# Research on the Innovative Model of Logistics Talent Cultivation in Building an Industry-Education Integration Community

**Yue'e Guo[1,a], Haibo Jiao[2,b,*]**

*[1]School of Economics and Management, Yingkou Institute of Technology, Yingkou, 115000, Liaoning Province, China*
*[2]School of Information and Engineering, Liaoning Agricultural Vocational and Technical College, Yingkou, 115009, Liaoning Province, China*
*[a]38289338@qq.com, [b]550814725@qq.com*
*[*]Corresponding author*

***Keywords:*** Combining Education and Industry; Training of Logistics Talents; Cooperation between Schools and Enterprises; Practical Training Platform; Innovative Model

***Abstract:*** The training of logistics talents faces challenges such as the disconnection between education and industry needs, insufficient practical ability and lack of innovative thinking. In order to deal with these problems, this paper proposes an innovative model for the training of logistics talents in an industry-education integration community, aiming to solve the shortcomings of the traditional training model by deepening collaboration between schools and businesses, creating a training platform together and optimizing the curriculum system. Specific measures include jointly developing courses between schools and enterprises, building warehousing and smart logistics training rooms, and providing opportunities to participate in enterprise projects to enhance the practical skills and inventiveness of the students. During the implementation process, special attention is paid to the industry-oriented adjustment of course content, the exchange and enhancement of educational materials, and the coordination of enterprise technical support and daily management to ensure that the teaching process is closely connected with actual work needs. Through the tracking and evaluation of multiple indicators, the results showed that the practical ability, innovation ability and employment competitiveness of the students in the experimental group are significantly improved, with an overall average score of 7.8, while the control group is 5.6. The experimental results show that the model of industry-education integration community has effectively improved the quality and efficiency of logistics talent training.

## 1. Introduction

In today's rapidly developing logistics industry, with the continuous changes in market demand and the fast advancement of technology, the training of logistics talents faces unprecedented challenges. The traditional logistics education model can no longer fully satisfy the demand for superior, multifaceted skills from contemporary logistics organizations, especially with the rise of emerging fields such as cross-border e-commerce and smart logistics, which further highlights the gap that exists between the industries and educational. In order to meet this challenge, the industry-education integration model has gradually becomean effective technique to improve the overall quality of logistics instruction for talents. To this end, this paper aims regarding explore how regarding improve the quality of logistics artists training by designing a creative ideas model of industry-education collaboration neighborhood, especially paying attention on how to improve learners and their achievable ability, innovation capability and a position competitive edge through cutting-edge design, project expansion, opposition interaction, etc. By combining theory with practice, we explore the path of cultivating high-quality talents that meet the needs of the modern logistics industry.

This paper has a clear structure. First, the introduction introduces the research background, problems and research objectives, and clarifies the significance of integrating industry and education in logistics talent training. Then, in the literature review, relevant domestic and foreign research is reviewed to lay a theoretical foundation for this study. The third part describes the experimental design and research methods in detail, including the setting of experimental and control groups, the selection of evaluation indicators, and the experimental period. Subsequently, the data analysis part demonstrates the significant impact of the industry-education integrating model on the strengthening of participants' abilities throughout all aspects through quantitative and qualitative analysis of the experimental results. Finally, the conclusion summarizes the research results and puts forward prospects for future research and practical application suggestions.

## 2. Related Work

Against the backdrop of the rapid development of the global supply chain management and logistics industry, the importance of talent management, skills matching, and education and training has become increasingly prominent. Many scholars have conducted in-depth research on optimal personnel allocation, industry skills requirements, education curriculum adjustment, and new technology applications to promote continuous innovation and development in this field. An optimization technique based on a non-dominated organizing genetic algorithm was created by Chen et al. and is capable of producing a personnel combination approach that is almost ideal. Through an empirical study of the reorganization of the logistics and procurement department of a semiconductor manufacturing company, the effectiveness of the framework in skills matching, workload balancing, and team collaboration was verified [1]. Based on student perspectives, Merkert et al. surveyed global scholars and industry executives to analyze the skills demanded for prospective supplying chain organization. In the face of talent shortages, they suggested that colleges and educational institutions adjust LSCM courses to emphasize learning habits and lifelong learning to meet the needs of industry development [2]. Yıldız et al. focused on the Turkish container shipping industry (shipping companies and ocean freight forwarders), identified existing TM (Talent Management) practices through a systematic literature review, and constructed a concept of TM functions [3]. Al Harrasi et al. evaluated the importance of knowledge and skills covered in Logistics and Supply Chain Management (LSCM) degree courses and analyzed the knowledge and skills gaps at the entry level of graduates. The results showed that industry professionals recognized the core competencies cultivated by LSCM degrees, but five fields of study and six tough and soft abilities still had moderate deficits [4]. Leung et al. explored the attitude and cognition of management towards green logistics, analyzed the external factors that promote and restrict their positive behaviors, evaluated the adoption of green logistics by logistics service providers, and identified its main application barriers. The results revealed the industry's attitudes at the institutional and individual levels, and constructed a behavior-driven framework covering green "attitudes", sustainable "subjective norms", "behavioral control" and "external environment" factors to understand the key influencing factors of green logistics adoption [5]. Ai et al. analyzed the new challenges brought about by the epidemic and the changes in market demand, and proposed solutions to improve the quality of labor training to adapt to the industry development needs in the post-epidemic era [6]. Yanamala et al. explored the application of artificial intelligence (AI) in talent management, including predictive analytics, personalized learning, sentiment analysis, and interactive tools. The study showed that AI-driven talent management can effectively improve retention rates, especially in high-churn departments[7]. The effects of integrating human and technological assets on the financial and other outcomes of third-party logistics enterprises in India were investigated by Kumar and Prashar. The findings demonstrated that while technology and human resources can greatly enhance business performance, logistics capabilities—such as order administration, tracking, and final assembly—were unable to mitigate this effect[8]. Dewi et al. pointed out that Indonesia's transportation and logistics services are crucial to various licensing processes, and there is an urgent need to develop more land transportation companies and focus on sustainable development[9]. Yildiz et al. systematically defined TM functions for the first time and used the F-AHP (Fuzzy Analytic Hierarchy Process) method to evaluate their effectiveness and priority, focusing on the container shipping industry. The results showed that talent development is the most important and influential function[10]. Yuxia and Jantan explored three factors that affect the development of e-commerce in rural SMEs in China from a macro-environmental perspective: Internet technology, rural logistics, and rural talent [11]. Although existing research has explored talent optimization and skill matching in the supply chain management and logistics industries, it still has certain limitations in terms of cross-industry applicability, continuous learning mechanisms in a dynamic environment, and new technology integration.

## 3. Method

### 3.1 The Construction of an Industry-Education Partnership Communities

(1) Industry-education integration community refers to the in-depth cooperation between educational institutions and industry enterprises, which forms an organic combination of production, learning, research and application through sharing resources, collaborative innovation and common development. This model not only promotes the practical application of university education content but also helps enterprises solve the problem of talent shortage through education and training. Achieving mutual promotion between economy and higher learning, making sure that educational content satisfies industrial growth goals, and developing top-notch personnel with real-world operating capabilities for businesses are the main objectives of the industry-education integrated network.

(2) Collaboration between schools and businesses and joint building of training facilities

The combined effort of industry and educational is based on collaboration between schools and businesses. Through cooperation with leading local logistics enterprises, colleges and universities can obtain cutting-edge technical support, practice platforms and actual enterprise cases in the industry, providing students with a real learning environment. Through the co-construction of training facilities such as warehousing comprehensive training rooms and smart logistics information technology training rooms, students can train in a simulated real working environment and accumulate practical operation experience. Enterprises can not only provide students with internship opportunities but also enhance the industry relevance of educational content through project commissioned development and joint research and development courses.

(3) Cooperation model of technical support and daily management

During the convergence of industry and education, the division of labor between technical support and daily management is the key to success. Enterprises are responsible for providing technical support to help colleges and universities update facilities and improve teaching resources, while colleges and universities are responsible for management and teacher allocation. Enterprises and colleges and universities jointly formulate talent training plans to ensure that the content of education and training is consistent with industry needs. Through this cooperation model, it is possible to cultivate logistics talents who have both basic theoretical knowledge and high practical ability.

### 3.2 Deep Integration of the "Industry-Education-Competition-Innovation" Model

The "Industry-Education-Competition-Innovation" model is an innovative talent training model that deeply integrates the four elements of industry, education, competition and innovation. This model not only emphasizes the combination of education and industry but also promotes the comprehensive improvement of students' abilities through competition and innovation mechanisms.

1) Under the "Industry-Education-Competition-Entrepreneurship" model, industry and education form a two-way interaction. Industry demand provides direction for education, and education provides talents for industry. By jointly developing teaching content and organizing practical activities, it can ensure that the knowledge learned by students is closely connected with industry needs.

2) Competition and innovation incentive mechanism

Competition is not only a means to test students' actual ability but also an important way to encourage students to think innovatively and improve practical experience. Colleges and universities can encourage students to actively carry out practical innovation on the basis of theoretical learning by organizing various logistics skills competitions, innovative design competitions, etc. This not only improves students' comprehensive ability but also enhances their ability to solve practical problems.

3) Innovation drives educational renewal

Innovation is the core driving force of the "industry-education-competition-innovation" model. Colleges and universities should encourage teachers and students to conduct cross-disciplinary and cross-field innovative research, introduce innovative concepts into curriculum settings, teaching methods and practical activities, promote the continuous updating of educational content and methods, and keep teaching in sync with industry development.

### 3.3 Design of Talent Training Model for Cross-Border E-commerce Logistics

The field of cross-border e-commerce logistics is new and has grown quickly in the last several years. There is a great need in the market for qualified individuals with expertise and real-world experience in cross-border e-commerce logistics. In this regard, the training of cross-border e-commerce logistics professionals is strongly supported by the merger of industry and education.

(1) Construction of cross-border e-commerce logistics course system

In response to market demand, higher academic institutions ought to establish courses on international electronic shopping logistics and incorporate the most recent technological advancements along with market phenomena into their curriculum. By strengthening the integration of logistics, supply chain management, international trade and other disciplines, students can fully understand the complexity and practicality of cross-border e-commerce logistics and improve their practical operation capabilities.

(2) Enterprises participate in the teaching process

Businesses can take part in creating the course material, the development of practical training projects, the construction of internship bases, etc., so that students can apply the knowledge they have learned in a real business environment and improve their capacity to address real-world issues. At the same time, the cutting-edge technology, professional skills and job demand information provided by enterprises can also help colleges and universities optimize their curriculum settings and improve the quality of training.

(3) Improve the innovative ability of cross-border e-commerce logistics talents

In addition to cultivating basic skills, colleges and universities should also focus on developing pupils' capacity for innovation. By organizing students to participate in the actual operation of cross-border e-commerce projects and develop new logistics solutions, students' innovative thinking and ability to solve practical problems can be effectively improved.

### 3.4 A Three-dimensional Education Model

"Industry-education integration" requires not only the integration of educational institutions and business but also the consideration of the diverse needs of different student groups and the design of flexible training paths. The three-dimensional model includes "large group-professional unit-student individual", that is, training from the whole to the profession and then to the individual.

(1) Sharing of basic courses among large groups

Universities should provide students with a common knowledge platform through the establishment of interdisciplinary courses. This platform not only covers the basic theories of logistics majors but also integrates interdisciplinary knowledge such as internationalization, IT, and mathematical thinking to help students build a broad knowledge framework.

(2) Expansion of the capabilities of individual majors

After students have acquired a certain foundation, colleges and universities should further enhance students' professional capabilities in specific fields through the establishment of professional courses. By strengthening course practice and project practice, students can be helped to transform knowledge into practical operation capabilities.

(3) Personalized training of individual students

Based on the interests and development directions of different students, colleges and universities can implement personalized training paths, such as order classes and experimental classes, to help students carry out refined ability training according to their career plans. Through flexible training models, students can have higher professional precision and competitiveness in their future careers.

### 3.5 Training Path for Research-oriented Logistics Talents

The training of research-oriented logistics talents requires educational institutions to provide systematic discipline training and conduct in-depth research in combination with practical problems.

(1) Construction of discipline and professional system

Universities should offer related disciplines such as logistics management, logistics engineering, and supply chain management to cultivate students' solid theoretical foundation and guide students to apply theory to practice through problem-driven course design.

(2) Research-oriented training

Pupils can comprehend real-world issues more deeply in the logistics industry by participating in corporate projects and laboratory research, and develop their capacity for problem-solving and analysis throughout the study process. Educational institutions should set up relevant research topics and encourage students to conduct academic research based on practical problems, thereby cultivating their scientific research and innovation capabilities.

By building a network for the cooperation of manufacturing and academia, promoting the deep integration of the "industry-education-competition-innovation" model, and providing personalized training paths for cross-border e-commerce logistics and research talents, the quality of logistics talent training can be effectively improved. This innovative model provides new ideas for the training of logistics talents in colleges and universities, and also offers crucial assistance for industrial advancement and innovations in technology in the logistics sector. By steadily strengthening the connection between business and education, the logistics industry will be able to cultivate more high-quality talents that meet market demand and promote the sustainable development of the economy and society.

## 4. Results and Discussion

### 4.1 Experimental Subjects

Experimental group: students who participated in the industry-education integration community model (enrolled students).

Control group: students who adopted the traditional teaching model (enrolled students).

### 4.2 Experimental Steps

Establishing experimental and control groups:

Two groups of students are randomly selected from courses such as logistics management and logistics engineering with different professional backgrounds. The experimental group consists of students participating in the industry-education integration community model, and the control group consists of students in the traditional teaching model.

Preliminary preparation:

A co-constructed training platform is built for the experimental group, including a comprehensive warehousing training room, a smart logistics information technology training room, etc., and the course content jointly developed by the school and the enterprise is introduced.

The control group continues to use the traditional classroom lectures and basic experimental teaching mode, and does not participate in the courses and practical activities of the industry-education integration model.

The experimental period is set to one semester (about 16 weeks), with mid-term evaluations conducted every month and a comprehensive evaluation at the end of the semester.

Teaching intervention:

Students in the experimental group (number 1-5) participated in corporate internships, project case analysis, skills competitions and other activities, and the course content is closely connected with actual work needs.

The teaching activities of students in the control group (number 6-10) are limited to classroom lectures and routine experiments, lacking corporate project participation and practical operation links.

### 4.3 Data Analysis

The evaluation indicators include practical ability, innovation ability, employment competitiveness and course knowledge mastery. Practical ability assesses students' operational capabilities in warehousing, transportation, logistics information processing, etc.. Innovation ability assesses students' innovative problem-solving ability; employment competitiveness assesses students' comprehensive quality and employment readiness. Course knowledge mastery examines the combination of students' theoretical knowledge and practical operation ability.


Figure 1. Practical ability score (full score 10 points)

From the experimental data in Figure 1, the median results of those in the group that was experimental in the three aspects of warehousing operation, transportation management and logistics information processing are significantly higher than those of the control group. The experiment group's overall average score was 7.8, but the control group's is only 5.6. This suggests that the industry-education integrating concept has successfully enhanced individuals' practical logistics skills. Specifically, in terms of warehousing operation, the highest score of the experimental group reaches 9 (student 003) and the lowest score is 6 (student 004), while the highest score of the control group is only 6 and the lowest score is 4, indicating that the experimental group's ability in actual warehousing management has been more significantly improved. In terms of transportation management, the average score of the experimental group is 7.4, which is 2.4 points higher than the control group's 5, indicating that practical activities such as corporate internships and case analysis can help students better understand and master the management process of logistics and transportation. In terms of logistics information processing ability, the average score of the experimental group is 8.4, much higher than the control group's 6, which shows that skill competitions and corporate project development can effectively cultivate students' information operation skills and make them more in line with the actual needs of the industry.

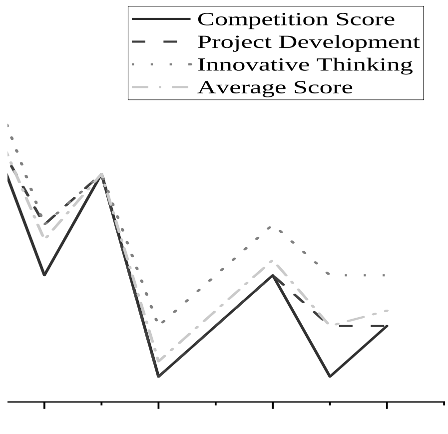


Figure 2. Innovation ability score (full score 10 points)

In terms of competition results, the students in the experimental group perform relatively well, with the highest score being 9 (student 003) and the lowest score being 4 (students 006 and 009), showing that students participating in the innovation design competition can stimulate stronger competitive awareness and hands-on ability. The competition results of the students in the control group are generally low, with the highest score being 6 and the lowest score being 4, indicating that students who lack practical participation have relatively weak innovation and competitiveness. In terms of project development, the students in the experimental group generally score high, especially student 003, who scored a high score of 9. The high scores in project development mainly come from the students' participation in actual development projects, which give them richer practical experience and improved their project development capabilities, as shown in Figure 2.


Figure 3. Employment Competitiveness Rating (full score 10)

Students in the group performing the experiment outperform those in the control group in terms of employment knowledge, expert skills, and simulated job interviews. In terms of mock interview scores, the experimental group students generally perform well, with the highest score being 10 (student 003), showing that they performed very well in the mock interviews. The control group students generally score lower, with the highest score being 7 and the lowest being 5, indicating that students who lack practical activities have weaker coping abilities in mock interviews. In terms of vocational skills, the experimental group students also perform well, especially student 003, who scores a high score of 9, showing strong vocational skills. The average score of the experimental group is generally higher than that of the control group, with the highest score of 6 and the lowest score of 5, reflecting that the improvement of vocational skills of the students in the control group is relatively limited. In the assessment of employment knowledge, the experimental group students show strong employment preparation ability, with students 003 and 001 scoring 10 and 9, respectively. The employment knowledge scores of the control group students are generally low, with the highest score being 6 and the lowest being 5 (as shown in Figure 3).

In terms of the final exam, the average scores of the experimental group students are generally higher, with the highest score being 90 (student 003) and the lowest score being 78 (student 004). The experimental group's overall outcome shows a strong grasp of theoretical knowledge. The average scores of the control group students in the final exam are generally lower, with the highest score being 78 (student 008) and the lowest score being 72 (student 007), indicating that the theoretical knowledge of the control group students is relatively weak. In terms of skill tests, the experimental group still performs superior to the control group. The average skill test score of the experimental group students is higher, with the highest score being 88 (student 003) and the lowest being 76 (student 004). The skill test scores of the control group students are generally lower, with the highest score being 74 (student 008) and the lowest score being 68 (student 007), reflecting that the experimental group students have a higher level of practical operation skills (as shown in Table 1).

Table 1. Course knowledge mastery (full score 100 points)

| Student ID | Final Exam | Skill Test | Average Score |
|---|---|---|---|
| 001 | 85 | 80 | 82.5 |
| 002 | 80 | 75 | 77.5 |
| 003 | 90 | 88 | 89 |
| 004 | 78 | 76 | 77 |
| 005 | 83 | 80 | 81.5 |
| 006 | 75 | 70 | 72.5 |
| 007 | 72 | 68 | 70 |
| 008 | 78 | 74 | 76 |
| 009 | 70 | 68 | 69 |
| 010 | 74 | 72 | 73 |

## 5. Conclusion

With the continuous growth of the logistics sector and the application of intelligent and digital technologies, the need for exceptional talent in the logistics industry continues to increase. In order to meet this demand, higher vocational colleges need to deepen the combination of manufacturing and schooling in the process of talent training and explore more efficient training models. This study focuses on the innovative model of "industry-education integration community" in logistics talent training, and promotes the development of the quality of transport manpower instruction through measures such as school-enterprise cooperation, co-construction of practice platforms, and optimization of curriculum systems. Through the research in this paper, we explore the innovative model of logistics talent training that builds a community that integrates educational institutions with business, and examine the variations between the control group and the group that underwent experimentation in terms of practical ability, innovation ability, and employment competitiveness. The experimental results show that the performance of the experimental group students in various ability tests is generally better than that of the control group, especially in the improvement of practical ability, innovation ability and comprehensive employment quality, which shows the positive role of the industry-education integration model in the cultivation of students' abilities. Specifically, by participating in practical activities such as corporate internships, project case analysis, and skill competitions, students in the experimental group can better apply theoretical knowledge to practice and develop stronger innovative thinking and problem-solving abilities. However, this study also has certain limitations. The experimental period is short, and it may not fully reflect the effect of the industry-education integration model in long-term teaching. Future research can expand the sample size, extend the experimental period, and further explore the impact of other factors (such as corporate culture, industry-specific needs, etc.) on the training effect of logistics talents.

## Acknowledgement

Funding:
Project Number: CAWDKT2002
Project Title: Research on the Talent Cultivation Mode in Which the Industry-Education Integration Community Facilitates the Logistics Industry to Adapt to New Qualitative Productive Forces
Project Number: ZJ2024B120
Project Title: Research on the Innovation of Talent Cultivation Mode for Economics and

Management Majors under the Background of the Digital Economy

Project Number: LnzkB202324

Project Title: Research on the Strategies of "Talent Revitalization" in Rural Areas of Yingkou

## References

*[1] Chen Y H, Chen C A, Chien C F. Logistics and supply chain management reorganisation via talent portfolio management to enhance human capital and resilience[J]. International Journal of Logistics Research and Applications, 2024, 27(12): 2571-2594.*

*[2] Merkert R, Hoberg K, Mahadevan K. Logistics and Supply Chain Superpowers and Skills for Survival in the "New Normal" Globalized World[J]. Transportation Journal, 2023, 62(4): 369-396.*

*[3] Yıldız R O, Bastug S, Esmer S. Talent management functions: A qualitative research on container shipping industry[J]. International Journal of Shipping and Transport Logistics, 2023, 16(3-4): 320-359.*

*[4] Al Harrasi N, Salah El Din M, Reason M, et al. Knowledge and skills gap of graduates entry-level: perception of logistics and supply chain managers in Oman[J]. Higher Education, Skills and Work-Based Learning, 2023, 13(6): 1269-1285.*

*[5] Leung T C H, Guan J, Lau Y Y. Exploring environmental sustainability and green management practices: evidence from logistics service providers[J]. Sustainability Accounting, Management and Policy Journal, 2023, 14(3): 461-489.*

*[6] Ai T H, My P T C, Ai H T C. Training high quality workers in logistics and construction industry in Vietnam after Covid-19[J]. International Journal of Advanced Multidisciplinary Research and Studies, 2023, 3(1): 682-692.*

*[7] Yanamala K K R. Artificial Intelligence in talent development for proactive retention strategies[J]. Journal of Advanced Computing Systems, 2024, 4(8): 13-21.*

*[8] Kumar D, Prashar A. Linking resource bundling and logistics capability with performance: study on 3PL providers in India[J]. International Journal of Productivity and Performance Management, 2024, 73(1): 270-302.*

*[9] Dewi P A G K, Dwipayana A D, Darmayanti N L, et al. Implementation of green human resource management in land transportation and logistics in indonesia[J]. ADI Journal on Recent Innovation, 2023, 5(1): 54-60.*

*[10] Yildiz R Ö, Yeni K, Esmer S. Prioritisation of TM functions and talent development practices in a specific service industry context[J]. International Journal of Human Resources Development and Management, 2023, 23(1): 73-92.*

*[11] Yuxia L, Jantan A H B. Analysis from a Macro Perspective: Factors Affecting the Effectiveness of E-commerce in Chinese Rural SMEs[J]. Journal of International Business and Management, 2023, 6(1): 01-08.*