

# The Influence of Discipline Connotation and Industry Development on the Course System of Logistics Management Major

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## ABSTRACT

The trend of interdisciplinary development in contemporary academic research is becoming more and more obvious. Instead of developing in isolation, each discipline adopts the integrated development of systematic thinking. Under the background of new engineering, logistics management is a typical interdisciplinary major. The emergence of new economy, such as big data, Internet and artificial intelligence, has brought new impact on the logistics industry, and also put forward new requirements for the talent cultivation of logistics management majors in colleges. The course of colleges should be improved in order to cultivate logistics talents who can meet the needs of society and the market. We analyze the connotation of logistics management. We summarize the requirements of the development of new technology and new industry in logistics industry for personnel cultivating. In view of the shortcomings of the current course system of logistics management major, we put forward four suggestions, namely, interdisciplinary connotation, optimization of the course system, highlighting its own characteristics and dynamic adjustment of the course.

**Keywords:** *Discipline connotation, Inter-discipline, Logistics management, Course system.*

## 1. INTRODUCTION

The new engineering majors are the major pointers to emerging industries. These industries focus on the Internet and industrial intelligence, including big data, artificial intelligence and other related engineering majors. The new engineering major is intelligent manufacturing, cloud computing, artificial intelligence and other majors used for upgrading and transformation of traditional engineering majors. Compared with the traditional engineering talents, the new industries and the new economy in the future need high-quality interdisciplinary engineering talents with high practical ability, innovation ability and international competitiveness [1].

Since 2017, the Ministry of Education has deployed new engineering projects. On the one hand, new engineering refers to the establishment and addition of a number of emerging and new engineering majors, such as artificial intelligence, intelligent manufacturing, robotics, cloud computing, etc. On the other hand, it refers to upgrading and innovating traditional engineering majors, such as logistics engineering,

transportation, industrial engineering, vehicle engineering, etc. The new engineering aims to cultivate interdisciplinary talents with data processing ability, humanistic care, continuous learning ability and innovation and entrepreneurship skills. Such talents not only have strong professional or industrial knowledge and engineering practice ability, but also can apply interdisciplinary knowledge to solve complex practical problems, independently learn and explore new knowledge. They have a keen sense of the frontiers of economic management, society and globalization.

The emergence of inter-discipline is the inevitable result of the development of discipline. It is also the result of the interaction of many factors, and its development and gradual maturity must have the corresponding conditions. J. G. Bruhn, an American educator, believes that interdisciplinary studies are "a process in which scholars of two or more different disciplines explore, design, implement and reach consensus on issues of common concern" [2]. The main characteristics of cross-disciplinary research activities usually include the synchronous development of inter-discipline research. The guiding role of the government

is obvious. The scientific and social functions of interdisciplinary disciplines are more significant. Interdisciplinary integration development is not simply the concept, theory, principle or method to borrow from each other, simple superposition or put together, but for the needs of the development of society, economy, industry and technology and the application situation, reveal the internal logic between disciplines. It promotes the interpenetration of different disciplines and specialties in knowledge, skills and qualities and other aspects at all levels to achieve organic integration and innovative breakthroughs.

## **2. ORIENTATION OF LOGISTICS MANAGEMENT SPECIALTY**

Today's academic research not only requires the development of knowledge within the core of a single discipline, but also increasingly requires the development of knowledge in the interface or combination of disciplines. Therefore, interdisciplinary research cooperation is aimed at developing more comprehensive knowledge [3]. Logistics management is an emerging major among domestic economic management majors. It is also the main professional field that enterprises need to practice to improve their competitiveness in the 21st century. The interdisciplinary integration and collaborative development is one of the important trends in the reform of higher education. Logistics major belongs to the interdisciplinary comprehensive discipline, which fits in with the new engineering concept. As a typical cross major, logistics management major in many universities at home and abroad is usually attached to engineering disciplines such as industrial engineering (mechanical engineering), traffic engineering, management science and engineering, etc., with strong characteristics of engineering education.

Our country has the largest engineering education in the world. On the one hand, it is the need of the mature development of logistics management major. With the continuous deepening of the teaching reform of logistics management major, it is urgent to expand the breadth and depth of courses. On the other hand, it is also the need of logistics professionals to adapt to social practice. Logistics industry is a comprehensive industry, and logistics talents must be compound talents. Only in this way, logistics talents cultivated by higher education can better cope with the increasingly fierce market challenges [4].

To sum up, strengthening the teaching of the interdisciplinary content between logistics discipline and related disciplines can make up for the following deficiencies: On the one hand, the theoretical knowledge of logistics discipline has a concrete application background, which makes the teaching effect double with half the effort. On the other hand,

shortening the docking time from the school's theoretical environment to the specific working environment can improve the teaching quality of logistics discipline and promote the rapid cultivation of talents in the logistics industry.

## **3. THE NEW TECHNOLOGY OF LOGISTICS INDUSTRY REQUIRES THE CULTIVATION OF TALENTS**

With the sustained and stable development of the domestic economy, China's logistics industry has developed rapidly in recent years. With innovative operation modes and technologies, the development of logistics industry has entered a new stage.

Under the new economic situation, logistics enterprises are constantly exploring and innovating on the road of transformation and upgrading, and they are shifting from pursuing scale expansion to focusing on high quality and high efficiency. The sustainable development of the real economy provides a driving force for the transformation and upgrading of China's logistics industry, while the continuous innovation of logistics enterprises also brings new opportunities for the further development of the logistics industry. The development of logistics industry puts forward new requirements for the cultivation of talents in colleges and universities.

### ***3.1. The Requirements of New Technology on Personnel Cultivating***

The emergence of new technology in the logistics industry has promoted the transformation of traditional industries and created a large number of employment opportunities, which requires a large number of personnel who both know logistics management and master the latest logistics technology. The future logistics industry needs industrial and commercial talents who understand artificial intelligence, big data analysis and robot control, and technical management talents who can use "Internet plus initiative" logistics to realize driverless and intelligent distribution. The cultivation of intelligent logistics talents under the Internet plus initiative is the top priority in the development of contemporary logistics industry.

The characteristics of modern logistics talents are reflected in management characteristics and technical characteristics. Modern logistics requires enterprises to realize informatization, automation and intelligence through the application of cloud computing, big data, Internet of Things, smart city and emerging technologies of mobile Internet, so as to reduce dependence on labor force and greatly improve production efficiency.

Therefore, the production management mode of logistics enterprises will undergo tremendous changes. Under the new enterprise management mode, logistics practitioners should have the learning ability of new knowledge and new technology, be proficient in new technology, and have the overall view of supply chain management. The emergence of new technology in the logistics industry has led to the change of the demands and characteristics of logistics talents, and put forward new, higher and more comprehensive requirements on the professional knowledge, ability and comprehensive energy that logistics talents should have. In addition to mastering the basic knowledge of logistics, logistics management professionals also need to learn and master new knowledge such as intelligent algorithm, data mining, logistics cloud and big data.

### ***3.2. The Requirements of New Technology on Personnel Cultivating***

With the rapid development of the Internet, the "new retail" model based on the Internet has been promoted. The new retail model is mainly a new retail model combining online service and offline experience with modern logistics. It has changed and upgraded the production, sale and circulation of commodities through the advanced scientific and technological means.

As the new retail model has strong potential and development space at present and in the future, many large e-commerce companies and traditional retail enterprises are trying to use the new retail model to increase consumer goodwill and consumer experience. However, due to the immature development of the new retail mode and the lack of high-quality practitioners, it cannot keep up with the demands of the contemporary logistics industry. Therefore, how to cultivate high-quality practitioners to meet the needs of the industry development of the "new retail" mode is the key problem to be solved at present [5].

## **4. ANALYSIS AND SUGGESTIONS ON THE COURSE SETTING OF LOGISTICS MANAGEMENT MAJOR**

### ***4.1. Analysis on the Course Setting of Logistics Management Major***

Different from traditional labor-intensive logistics talents, contemporary logistics talents should be able to meet the operation and management requirements of contemporary logistics, with a solid theoretical foundation and skilled practical operation [6]. It is the most basic and key work to grasp the cultivation of thought of modern logistics management personnel and analyze the characteristics and demand of modern logistics industry [7]. The single-discipline mode cannot meet the increasingly rich logistics management mode,

so it is necessary to adjust the course system to adapt to the development of the times and cultivate logistics talents to meet the social and market demands [8, 9]. At present, there are still some problems in the course system of logistics management major in colleges. The specific analysis conclusions are as follows:

(1) The degree of interdisciplinary integration is not deep.

According to the characteristics of logistics management, it involves urban planning, economic management, computer, law, geographic information, system engineering, and other professional knowledge. It stresses "cross-border integration". Under the background of the new engineering, college course cultivating needs to integrate resources, strengthen discipline connection and cultivate interdisciplinary innovative talents. The course of logistics management in colleges is relatively unitary, which fails to combine with Internet of Things and intelligent information technology effectively. As an engineering college under the background of the new engineering, it should combine the popular knowledge of big data, artificial intelligence and block chain with the teaching of logistics management.

(2) The construction of course system lags behind.

Logistics personnel cultivating, course system, teaching materials, experiments, case database and other specific teaching resources and links are disconnected with the market demand for talents in emerging industries and new business models. Intelligent logistics system planning and integration, intelligent logistics, supply chain finance, logistics equipment and control, international logistics and other comprehensive high-end talent gap. At the same time, with the development of new technologies and new models in the logistics industry, a large number of new jobs have emerged in the contemporary logistics industry, and some traditional logistics jobs have been eliminated. Therefore, colleges and universities need to combine the employment needs of contemporary logistics enterprises to set up professional courses. The existing course system lags behind the development of the contemporary logistics industry, and the teaching content focuses on theory, while the proportion of practical courses is low. It cannot meet the learning needs of students in different industries, positions and levels [10].

(3) The characteristics of logistics management major in colleges are not obvious.

The objective of logistics undergraduate personnel cultivating in Chinese colleges and universities has been changed from the abstract "senior management personnel" and "senior specialized personnel" to the more specific "compound and applied personnel". Such as Wuhan University of Technology, logistics

management undergraduate cultivating objectives expressed as "this major aims to develop the knowledge management and the basic theory and basic methods in the field of economy, to master the professional theory and technology in the field of logistics and supply chain management method, has the strong ability of logistics system management and operations management, logistics system engineering and method of comprehensive application ability, as well as the supply chain system analysis, design, decision-making ability and certain innovation ability, can in enterprises, research institutes and government departments engaged in logistics system optimization and operations management, supply chain design work of professional talents. " This kind of expression is more explicit than before, what foster is applied technology type talented person. This statement also follows and refers to the professional cultivating objectives proposed by the National Logistics Teaching Steering Committee. In view of the needs of undergraduate major level evaluation and comprehensive major evaluation in some provinces and cities, in order to avoid the deduction of points by evaluation experts in the cultivation goal, the cultivation goal of logistics management major in various colleges and universities tends to be the reference goal designated by the TEACHING Committee, leading to the convergence of the cultivation goal. Instead, they have lost the characteristics that could have been maintained in the transformation and development of local economy or schools [11].

**4.2. Suggestions on the Course Setting of Logistics Management Major**

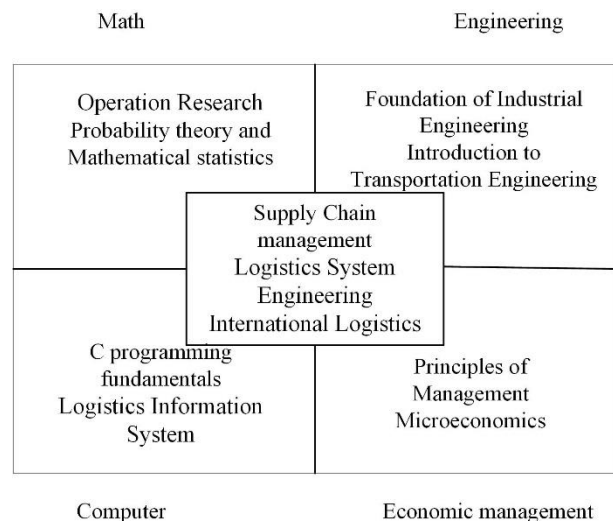
Logistics management is an interdisciplinary field of study. Modern logistics personnel need to combine business management, computer technology, mathematical knowledge and other engineering fields. However, from the point of view of the setting of logistics management courses in universities, the degree of integration is not deep [12]. According to the above analysis of the course setting of logistics management major, the characteristics of modern logistics management course and the goal of cultivating high-quality logistics personnel, combined with the connotation of logistics management discipline [13], we puts forward the following four suggestions:

(1)Grasp the interdisciplinary connotation of logistics management and set up interdisciplinary courses.

The core of the interdisciplinary undergraduate cultivation course model lies in the breakthrough of the discipline development boundary and the impetus of social demand to set up a number of interdisciplinary courses, regarding the substantial integration of

multidisciplinary content as the main requirement for the course.

The cultivation goal of college undergraduates is based on major, and each school should set up courses according to its own characteristics and teachers' qualifications, with different emphases. Students can systematically master the basic theories, knowledge and basic skills and methods of management, operations research and statistics, which will enable students to have good practical ability of data engineering after course learning and practice. Second, courses in computer programming, the programming language learning through the system, and the application of information system in logistics, graduates can work in the logistics and supply chain industry not only, and will be engaged in management, the Internet IT, artificial intelligence, business analysis and forecast, software maintenance, and the application of big data, and many other industries work. The course classification of interdisciplinary disciplines is shown in Figure 1.



**Figure 1** Classification of Inter-disciplinary Courses.

(2) Optimize the course system in a targeted way.

The comprehensive and systematic course system should be able to meet the individualized and differentiated learning needs of students and realize the docking of professional course construction and vocational ability on the basis of taking traditional teaching modules into account. For example, courses such as big data analysis, smart logistics technology application, smart logistics and data mining are offered.

(3) The course setting in colleges should highlight its own characteristics.

Colleges should combine regional advantages and service industry needs to refine professional characteristics. For example, Wuhan University of Technology was founded in 2000 by the merger of the former Wuhan University of Technology, Wuhan

University of Communications And Technology, and Wuhan University of Automobile Technology. The school's logistics management major is characterized by water transportation and port. The courses that highlight the major features include the introduction of transportation course, international logistics and management of port enterprises.

(4) Establish a dynamic adjustment mechanism for majors and courses closely related to the needs.

The competent departments of education should strengthen the overall coordination and systematic planning of setting up majors in colleges and universities. We should strengthen the overall layout of new majors in colleges and universities. Be proactive in your professional setting. For example, the team of teachers of logistics management in Wuhan University of Technology keeps track of the development frontier and current situation of the logistics industry. It adjusts the syllabus and teaching content in time according to the current situation of the industry and the direction of talent demand. At the same time, the cultivating program should be revised every three years to ensure that the cultivating program is closely related to the needs of the industry.

## 5. CONCLUSION

Under the background of the new engineering, the course setting of colleges and universities pays attention to interdisciplinary integration and collaborative innovation. The cultivated talents should have the ability to use appropriate thinking to think for reference when facing various unknown and complex problems. Taking the course setting of logistics management major as an example, we analyze how to deal with the challenges posed by the development of new economy to the course setting of logistics management major under the background of new engineering, and explores the development path of this discipline.

We put forward four adjustment methods of curriculum system, namely, interdisciplinary connotation, optimization of course system, highlighting its own characteristics and dynamic adjustment of curriculum. This adjustment can enable students majoring in logistics management to meet the talent demand under the new technology and new mode. It can cultivate talents with cross-border integration and lead the future industrial transformation.

## AUTHORS' CONTRIBUTIONS

Yong Gu and Yue Liu did their research and gathered important background information. Yong Gu and Yue Liu have carried out the work of concept, design, definition, literature retrieval, data collection, data analysis and manuscript writing for the knowledge content. Yong Gu and Zhangqiong Wang reviewed the

manuscript. All the authors have read and approved the contents of the manuscript.

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