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Research on the Evaluation of Intelligent Logistics Management Talents' Competence and Influencing Factors in Colleges and Universities of Higher Education--Based on the survey and analysis of Chinese colleges and universities

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Abstract:
With the development of the logistics industry, the ability requirements for logistics talents are gradually improving, especially the demand for intelligent logistics management talents. However, the training system for advanced intelligent logistics management talents is not yet mature. Based on the theory of educational objectives and achievement-oriented educational theory, this research establishes the ability evaluation system for intelligent logistics management talents. The questionnaire survey method is used to analyze the quality of intelligent logistics management personnel and its influencing factors. It is found that the training quality of intelligent logistics management talents is generally low; uneven teachers, unreasonable teaching curriculum, and unclear educational objectives are the main factors affecting the ability of intelligent logistics management talents. Accordingly, this study proposes to improve the ability of intelligent logistics management talents in the aspects of curriculum arrangement, teachers, training programme design, and curriculum system design.

Key words:
Intelligent Logistics; Logistics Management Talent; Education Goal Theory; Achievement-oriented Education Theory

1.Introduction

With the continuous refinement of the market division of labour, the continuous improvement of social productivity and the transformation of the people's consumption pattern, the requirements of the whole society on the logistics industry have gradually increased, and the demand for intelligent logistics talents adapted to the new era has been on the rise year by year. At the same time, the modern logistics industry is also accompanied by the emergence of intelligent logistics and reform and innovation, big data, Internet of Things and artificial intelligence and other scientific and technological means are gradually integrated into all aspects of the modern logistics industry, improving the efficiency of the logistics industry. In this development process,

the market requires to improve the professionalism and comprehensive quality of logistics management personnel, and cultivate senior intelligent logistics management personnel to adapt to the development needs of intelligent logistics. Logistics management as an important branch of traditional liberal arts management, its training of talents in the development of the logistics industry occupies an important position. However, there is a lack of logistics talents, especially a serious shortage of senior logistics management talents, logistics planning and consulting talents, logistics export-oriented international talents, logistics research talents are most lacking [1].

The modern economic environment as well as the logistics industry are more and more demanding on the technical requirements of logistics management, however, the senior intelligent logistics management personnel training system adapted to it is not yet mature. If the connotation of intelligent logistics can be systematically sorted out and evaluated in terms of normalization, data, intelligence, etc., it will be extremely meaningful to the development of the logistics industry. Based on the above considerations, this study takes the teachers of logistics-related majors as the research object, and conducts empirical research on the ability of the students of logistics-related majors and their influencing factors from the four dimensions of background, input, process and result according to the status of logistics management talent cultivation, with a view to constructing a relatively perfect evaluation system for the cultivation of advanced intelligent logistics management talents, and providing directions and references for the better cultivation work of talents. To this end, this paper proposes the following research questions: (1) What abilities should senior intelligent logistics management talents have? (2) What are the influencing factors affecting the ability of senior intelligent logistics management talents? (3) How should schools adjust the cultivation direction of logistics management professionals according to market demand?

2.Overview of Intelligent Logistics and Intelligent Logistics Talents

2.1.Intelligent Logistics

In the Implementation Opinions on the Construction of Smart Logistics and Distribution System released in July 2015, it is considered that the smart logistics system is a modern integrated logistics system supported by information technology such as the Internet, big data and cloud computing, and penetrating advanced science and technology into every aspect of the logistics industry, so as to have intelligence, visualization, flexibility, networking and automation. Yue Yanting (2023) believes that smart logistics is an emerging logistics model that utilizes modern information technology to improve logistics efficiency and reduce logistics costs [2]. Huo Baofeng,Liu Weihua (2022), on the other hand, believes that smart logistics is a logistics service system based on the Internet of Things technology and the comprehensive use of big data, cloud computing, block chain and related information technology to achieve real-time response and intelligent optimization decision-making by comprehensively sensing, identifying, and tracking the state of logistics operations [3]. Zhou Dingbo (2017) believes that smart logistics is a more efficient logistics industry formed by integrating Internet technology, intelligent sensing technology, cloud computing big data and other means [4]. He Liming (2017) also believes that smart logistics is a new ecology that relies on logistics Internet and logistics big data to realize new ideas of industrial development transformation through collaborative sharing and advanced technology such as artificial intelligence [5].

And Ouyang Xiaoxun (2019) believes that smart logistics mainly involves intelligent products, intelligent transportation, and logistics automation, which apply advanced technologies such as the Internet, the Internet of Things, cloud computing, big data, artificial intelligence, and the concept of modern management to the logistics industry and realize the development of controllability, visualization, information technology, networking, automation, and intelligent development of the whole process of logistics through scientific, reasonable, and dynamic and precise management [6]. Wu Ningjie (2018) believes that smart logistics is an integrated logistics management system based on information technology such as the Internet, Internet of Things, big data, cloud computing, artificial intelligence, etc., which can link procurement, transportation, warehousing, distribution, etc. in traditional logistics in the fusion of information technology and modern management systems and better utilize the information and resources generated by each link of logistics [7].

Most of the previous scholars believe that smart logistics is a mode of optimization and upgrading for the logistics industry relying on existing science and technology, so this paper considers smart logistics as an important empowerment for the traditional logistics industry to adapt to the new development needs of the new era based on the Internet of Things, cloud computing, big data, and other related technologies. He can better help the logistics industry reduce costs, improve efficiency, and enhance visualization.

2.2.Intelligent logistics management talents

Foreign scholars Wagner SM and Kemmerling R (2014) proposed that logistics talents currently have a supply-and-demand mismatch imbalance; the personnel engaged in the logistics industry have been saturated, but talents with theoretical and practical integration are still very scarce [8]. To promote the development of China's smart logistics, we need to start by changing the ability characteristics of the talent requirements and improving the ability standard of the talent.

Talent is the basic guarantee of logistics change and is a key factor in promoting the development of smart logistics. Yang Lixiang (2021) With the development of intelligent logistics, the demand for logistics talents will also change. The traditional assembly-line positions will be replaced by digital and intellectual skill-based talents with the ability to provide logistics operation services or master the development and operation of modern logistics information technology [9]. This will become the main trend in talent demand in the logistics industry. Li Fangmin (2023) believes that the future demand for logistics personnel is biased towards comprehensive talents; such talents need to master the logistics optimization, integration, and development capabilities, as well as the global supply chain integration, intelligence, standardization, and environmental protection development concepts of the composite management capabilities [10]. Zhang Hong (2023) believes that smart logistics talents are technical and managerial talents with professional knowledge and skills in logistics and familiarity with Internet of Things technology, big data algorithms, artificial intelligence and warehousing, transportation, distribution intelligence, etc., and are a composite, applied talent who understands the cutting-edge dynamics of the development of smart logistics, grasps the operation of the logistics industry characterized by smart logistics, possesses the ability to apply information technology in smart logistics, and also possesses a high comprehensive quality. applied talents [11]. Wu Yunxuan and Zhang Qingwu (2019) proposed that with the transformation and upgrading of the logistics industry, there is a greater need for strategic talents who are familiar with the whole process of logistics, the characteristics of the development of logistics in various industries, and the economic operation and management of logistics [12].

Therefore, this paper argues that smart logistics management talents should be high-quality, comprehensive talents who master the basic knowledge of logistics, economics, management, and other multidisciplinary disciplines, understand the overview of the development of contemporary cutting-edge technology, use modern information technology software, have an international vision and innovative consciousness [13], and are advanced, compound, applied, and skilled.

3.Theoretical basis and research design

3.1.Theoretical basis

3.1.1.Educational objective theory

The theory of educational objectives establishes a set of classification systems of educational objectives to help teachers analyze and think about teaching more carefully and deeply to better answer the four major problems of "learning problems, teaching problems, assessment problems, and consistency problems" activities, and[14], which helps teachers to design more appropriate and reasonable teaching objectives, teaching activities, teaching assessment, and to improve the effectiveness of teaching. This will help teachers design more appropriate and reasonable teaching objectives, teaching activities, and teaching assessment and improve the effectiveness of teaching, which is an important reference for the cultivation of intelligent logistics talents.

In Bloom's theory of educational objectives, the cognitive domain is the most widely used in the field of education. Bloom divided the educational objectives of the cognitive domain into six levels:

(1) Knowledge.Knowledge,the ability to remember and name specific knowledge that has been learned),refers to the recall of previously learned knowledge material, including facts, concepts, principles, and rules. This is the lowest level of cognitive results in the cognitive domain, and the mental process it requires is mainly memory [15]. Hu Hu, Zhang Dongdong, and Zhang Jingbo et al. (2017) also emphasized that logistics talents need to have a solid professional theoretical foundation, be able to learn independently, and have good adaptability [16]. Based on this, this paper examines talents' mastery of subject-specific knowledge, logistics terminology, and logistics equipment knowledge in the knowledge dimension.

(2)Comprehension.Comprehension, also known as understanding or comprehension, refers to understanding the meaning of the knowledge or concepts learned, which is the lowest level of understanding, that is, transformation, interpretation, and inference of the three. Based on this, this paper examines the ability of relevant logistics management personnel to apply theoretical knowledge to explain logistics activities and to propose and solve logistics problems in the dimension of comprehension.

(3)Application.Application refers to the ability to use abstract concepts to solve problems in specific, concrete situations. Utilization is the application of knowledge and information in new situations, and application is a higher level of understanding. In addition, Fu Ruiyuan (2023) pointed out that students' practical skills are crucial for the sustainable development of schools and students' lifelong learning [17]. Schools should explore effective ways to cultivate students' practical ability in order to cultivate excellent talents that match the needs of social enterprises and the market. In this paper, we mainly measure the practical height of their

utilization ability from various aspects, such as the practical operation ability of logistics equipment, the management ability of logistics operation links, the operation ability of logistics information systems, and the research ability of professional topics.

(4)Analysis.Analysis refers to the ability to break down acquired concepts and ideas into their constituent elements and to analyze the relationship between the components in a simple manner. This objective requires the development of the learner's ability to break down the whole into its constituent elements. With the development of new technologies, the labor-intensive model of traditional manufacturing is being replaced by automation and intelligent equipment. This requires that intelligent logistics talents continuously improve their informational ability, including logistics information analysis, processing, and modeling ability, in order to adapt to the needs of modern logistics positions. In this paper, the proficiency of simulation software and statistical software is used to consider their ability to design and analyze the logistics operation process and logistics management problems.

(5)Synthesis.Synthesis refers to a variety of elements and components to form a whole, including unique information communication, operational planning, and the generation of abstract relationships. In the process of synthesizing, the whole may form a new whole as well as a new structure, and this ability can be understood as innovation. In addition, in the process of integrating information, it is necessary to look at the whole situation and have a big-picture view, and inevitably, it is also necessary to keep an eye on the international development situation and have a good command of foreign languages so as to facilitate the reading of literature [18]. Therefore, this paper mainly examines the three major aspects of international logistics, foreign language reading, and academic innovation achievements.

(6)Evaluation.Evaluation to make value judgments about information and methods for a specific purpose, using the criteria of assessment. Including value judgments made in accordance with internal evidence and external criteria. This is the highest level of competence in the cognitive domain objectives.

Based on the psychology of learning, Bloom divides the human cognitive process into six different stages. The categorization is a hierarchical system in which the development of learning tasks at the latter level is predicated on the achievement of pedagogical goals at the former level. The most basic level is the "knowledge" level, where the learning task is "knowing" and requires only simple memorization of information, while the next five levels are intellectual skills.

3.1.2 Achievement-oriented education theory

Results-oriented education theory (outcome-based education, OBE) by the American scholar Spady was proposed. The OBE education concept is a results-oriented, student-oriented approach that uses a reverse thinking approach to the construction of the curriculum system concept. Simply put, it is known that the "educational outcomes" to inverse "conditions" can then be derived from the "conditions" level of the specific factors needed to achieve the intervention and ultimately to achieve the final educational goals of this paper [19]. The ultimate educational goal of this paper is . In the process of intelligent logistics personnel training, based on the OBE education concept, colleges and universities should reform the teaching mode, from the teaching objectives, teaching content, teaching methods, teaching evaluation, and other multi-dimensional exploration, research, and application to innovative talent training methods, to achieve the high-quality development of

school education.

As an advanced educational concept and an effective theoretical tool for planning talent cultivation mode, OBE theory has been favored and widely used by scholars engaged in the field of education, and scholars have carried out a great deal of research on the relationship between OBE theory and the teaching mode, which mainly focuses on the following four aspects:

First, the application and practice of OBE theory in cultivation objectives. Based on the perspective of OBE theory, scholars Zhou Xiaoyan Dongbo and Miao zhuang (2021) believe that local colleges and universities need to transform their goals in cultivating liberal arts talents from "passively adapting" to market demand to "actively responding" [20]. First of all, colleges and universities should take the initiative to adapt to the market demand for breaking down disciplinary barriers, realizing the integration of arts and sciences, and integrating interdisciplinary knowledge so as to cultivate high-quality composite liberal arts talents with the ability to lead the new technology, interdisciplinary intersection, and broad knowledge. Secondly, colleges and universities should take the initiative to establish quantitative graduation requirements and an evaluation system for the achievement of cultivation goals according to professional and market demands, analyze the degree of achievement of cultivation goals by measuring quantitative "outputs," quantitatively evaluate the academic and career planning needs of students, provide feedback on the satisfaction of the employment units, and provide feedback on the learning of students.Zhang Lu (2022) believes that the curriculum plays a central role in talent cultivation, and the curriculum objectives are an important aspect that reflects the intent of the curriculum. The teaching objectives are a specific refinement of the course objectives, which guide the direction of teaching activities [21]. When designing the teaching objectives, the viewpoint of system theory should be adopted, and the sources of the teaching objectives should be clarified according to the idea of reverse design: First, the comprehensive teaching needs that consider the needs of the students themselves and the characteristics and interests of the students' physical and mental development should be fully taken into account. Secondly, the comprehensive teaching demand that considers the knowledge-based, effectively imparting teaching content to students, emphasizing the completeness and logic of knowledge to ensure the teaching effect; thirdly, the comprehensive teaching demand that considers the social-based, actively responding to the reality of social development and change, and continuously improving to meet the social demand for talents and education. In fact, in the teaching of logistics management majors, there is a situation in which practical teaching is implemented but there are no clear teaching objectives, and at this time, the implementation of practical teaching seems to lack an inner soul. Teaching objectives that are not clear will affect the development of teaching tasks from various aspects, so that the practical aspects of the task of training talent are fuzzy, as are "attitude and emotion," as well as the needs of social reality and the overall comprehensive rationality of the objectives[22].

Second, the application and practice of OBE theory in teaching content. Zhang Panfeng and Wulizi (2023) pointed out that in terms of teaching content, the traditional education concept focuses on theoretical learning, while the OBE education concept emphasizes the learner's subjective position and practical ability, promotes students' independent learning, and takes the learning outputs as the assessment standard, which is committed to enhancing each student's learning ability to reach the highest level before graduation [23]. This difference in emphasizing theoretical knowledge and practical ability essentially reflects the problem of attribution of

classroom subject positions under traditional and OBE education concepts. According to Zhou Xiaoyan and Dongbo, based on the "output-oriented" principle of OBE theory, the modularization course content should be flexibly designed according to the quantitative graduation requirements and competency index system of local colleges and universities in order to satisfy the core literacy structure required by the talent specifications (professional specifications or job specifications), so as to make the curricula of local colleges and universities specializing in liberal arts in the following ways balance between traditional characteristic courses and practical application-oriented courses, and finally realize that the results of educational output meet graduation requirements and competency indicators. In order to achieve this goal, it is necessary to build a curriculum combination of "professional basic course modules, employment-oriented modules, extended modules, and characteristic modules," as well as a second-level module package within the curriculum module, so as to take into account the cultivation of applied talents and theoretical talents. At present, schools and enterprises also pay more attention to the cultivation of market-oriented application talents and actively build a practical teaching platform for logistics majors in colleges and universities, combining theory and practice to promote the overall development of talents. However, there are many problems in the real implementation: the platform is in the form, the platform teaching content is single, the school-enterprise cooperation practice platform in the training mechanism is not sound, and so on. Therefore, this paper will be about intelligent logistics management. "Professional theory knowledge" and "application software knowledge" are included in the specific consideration of the factors affecting [24].

Third, the application and practice of OBE theory in teaching methods. Based on the concept of OBE teaching, Liu Xie and Meng Yong (2022) proposed that the goal of OBE teaching method improvement is to introduce new concepts, modes, methods, technologies, etc. on the basis of the traditional classroom teaching methods to improve the efficiency and effectiveness of classroom teaching and to quickly apply the knowledge gained in the classroom to carry out specific practices [25]. In teaching, practical cases and a variety of teaching methods should be used to deepen students' understanding of knowledge and application ability. At the same time, the introduction of new technologies and artificial intelligence to assist teaching, such as virtual reality, live video broadcasting, and artificial intelligence systems, can enhance the learning effect and students' perceptual understanding. In recent years, the "SPOC+Virtual Simulation" flipped classroom model has been used in the teaching of higher vocational logistics management, which establishes a SPOC learning platform, builds a PDCA teaching cycle path, and guides the students to conduct simulation training in virtual simulation scenarios to improve their practical ability. Relevant researchers have also conducted experimental control studies on the actual role of smart logistics in logistics education to assess the teaching effect of smart logistics in the classroom. This paper adds bilingual teaching, flipped classroom, experimental teaching, and other ways to reflect the strength of the impact of teaching methods on competence when specific performance is underlined [26].

Fourth, the application and practice of OBE theory in teaching evaluation. Scholars Wang Yan and Wen Rong (2023) constructed a digital teaching quality evaluation system under OBE orientation [27]. Its OBE teaching concept and digital technology as a support point encompass the teaching construction, teaching process, and teaching results of the three first-level indicators, and through the results, digital technology-enabled teaching quality evaluation can not only provide timely feedback on the teaching effect but also timely corrections to the problems that exist in the teaching process, so as to improve the quality of teaching. At

present, there are many scholars actively constructing a logistics teaching quality evaluation index system, according to Zhou Pei and Ma Li, according to the characteristics of the integration of intelligent logistics and intelligent manufacturing two industries, combined with the CIPP evaluation model, and finally through two rounds of screening to determine the final quality evaluation index system [28]. Wang Xingwang and Sun Tongchao scholars are more focused on the evaluation of skills teaching quality, combined with the teaching standards of higher vocational logistics management specialties and the actual situation, using the CIPP evaluation model to establish the establishment of the evaluation index system [29]. Synthesizing the actual situation of current institutions at the level of teaching construction, this paper is divided into three major aspects: faculty, teaching resources, and social resources, mainly through the scientific research capacity, experimental facilities, and practice resources of the specific situation of the evaluation of teaching construction. The other teaching process is mainly reflected in the teaching methods and teaching content, while the teaching results are the embodiment of the final results, so there is no need to be reflected in the influencing factors.

Overall, the application and practice of OBE theory in education emphasizes the clarity of cultivation goals and the effectiveness of teaching content [30], which provides strong support for the development of students' comprehensive quality as well as the factors influencing the research competence in this paper.

In summary, taking Bloom et al.'s classification theory of educational goals and Rahm's situational model of learning participation as the basis and combining with the existing literature, the framework of this theory is constructed, as shown in Fig. Among them, the educational objectives are categorized into five aspects: knowledge, comprehension, application, analysis, and synthesis with reference to Bloom's research results, and the influencing factors are developed from two aspects: the teaching environment and personal information.

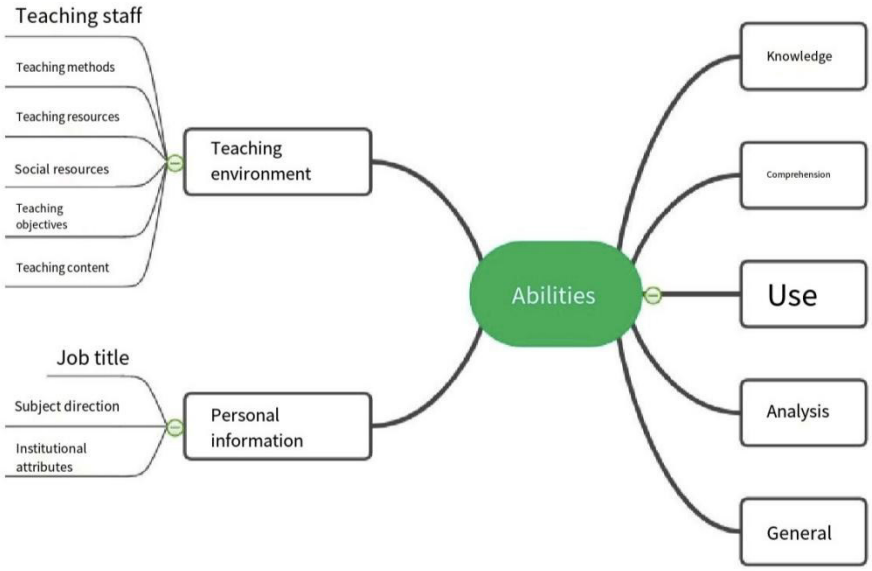

Figure 1. The study framework

3.2.Research subjects

Taking college teachers of logistics-related majors in China's colleges and universities as the research object, a total of 200 questionnaires were issued, and 129 valid questionnaires were recovered, with an effective recovery rate of 64.5%. Among them, 56 (43.41%) were teachers from "double first-class" undergraduate colleges and universities, 59 (45.74%) were teachers from non-"double first-class" undergraduate colleges and universities, and 14 (10.85%) were teachers from higher vocational (high school) colleges and universities; 32 (24.81%) were teachers with senior titles, 41 (24.81%) were teachers with intermediate titles, and 32 (24.81%) were teachers with senior titles. 24.81%), 41 teachers with intermediate titles (31.78%), 46 teachers with junior titles (35.66%), and 10 others (7.75%).

3.3.Research tools

Questionnaire survey is used to collect questionnaires by convenient sampling and snowball sampling. The questionnaire is composed of teachers 'background information and multiple scales on the evaluation of students' ability and influence factors in logistics related majors. Draw on the authoritative scale and the scale is revised according to the characteristics and specific conditions of teachers. In order to further verify the credibility and validity of the data obtained from the scale, use the reliability test of the scale, that is, the reliability analysis of the questionnaire. The test results are shown in the following table:

Table 1. Reliability test results

reliability statistics	
Clone Bach, Alpha	number of terms
0.964	51

According to the reliability test of all variables in the scale, the clonal Bach coefficient is 0.964 (> 0.8), which indicates that the overall internal consistency of the scale has good credibility for the analysis target and has reference value. In order to further explore the current situation of intelligent logistics talent training, the exploratory factor analysis method is used to classify each influencing factor and judge the effectiveness of the scale.

Firstly, the available Bartlett test statistics are calculated based on the correlation matrix to verify the validity of the questionnaire, and the running results through SPSS are as follows:

Table 2. Results of KMO and Bartlett tests

KMO and Bartlett tests		
Number of KMO sampling suitability quantities		0.883
Bartlett spherical test	Approximate chi square	5189.218
	free degree	1275
	conspicuousness	0.000

As shown from the table above, KMO was 0.883 greater than 0.8, indicating that the KMO value met the requirements of factor analysis, and the observed value of Bartlett spherical test statistics was significantly less than 0.01, which indicates that the null hypothesis was rejected at the significance level of 0.01, that is, the correlation coefficient matrix is significantly different from the unit matrix, indicating that the data meets the precondition of factor analysis, and the questionnaire validity is good.

In conclusion, the reliability and validity test of the questionnaire can show that the questionnaire has a good design structure and strong interpretation power, which provides a solid and reliable foundation for the subsequent data analysis and survey research.

4.Results analysis

4.1.Descriptive statistics

Take the university teachers of logistics related majors as the research object. Among them, there are 56 teachers (43.41%) in "double first-class" undergraduate colleges, 59 (45.74%) in non-double first-class " undergraduate colleges, 14 (10.85%) in higher vocational (college), 32 (24.81%), 41 (31.78%), 46 (35.66%), and 10 (7.75%). The questionnaire was designed as follows:

Table 3. Questionnaire dimensions and questions

Dimension	Embodiment indicators
The first dimension	knowledge
	comprehension
	application
	analysis
	synthesis
The second dimension	Teachers' strength
	Teaching methods
	teaching resource
	teaching goal
	educational content
The third dimension	Personal Information

The first dimension consists of teachers' assessment of students' mastery of basic knowledge, possession of relevant competencies, and students' acquisition of outcomes in the program. The second dimension is the teachers' assessment of the education and teaching situation of the teachers in this program. It is mainly reflected in the faculty strength, teaching methods, teaching resources, teaching objectives and teaching contents. The third dimension is the basic information of the respondents, which is used for categorization and analysis at a later stage.

Among the research subjects of this study, regarding the respondents' titles, 32 of them have senior titles, 41 have intermediate titles, 46 have junior titles, and 10 have other titles. Regarding the research direction of the respondents, 67 of them are from the logistics management research direction, 47 from the logistics engineering research direction, and 15 from other directions. As for the attributes of institutions, there are 56 re-

spondents from "double first-class" undergraduate colleges and universities, 59 respondents from non-double first-class undergraduate colleges and universities, and 14 respondents from higher vocational (high school) colleges and universities. The survey population covers a wide range.

Table 4. Table of descriptive statistics

	N	average value		Standard Deviation	variance (statistics)	skewness		kurtosis	
	statistics	statistics	Standard Error	statistics	statistics	statistics	Standard Error	statistics	Standard Error
knowledge	129	7.56	.236	2.675	7.155	.186	.213	-.545	.423
compre-hension	129	7.48	.213	2.418	5.845	.078	.213	-.062	.423
application	129	13.22	.340	3.861	14.910	-.033	.213	-.292	.423
analysis	129	7.79	.237	2.689	7.229	.097	.213	-.239	.423
synthesis	129	19.14	.452	5.138	26.402	-.227	.213	-.003	.423
Teachers' strength	129	12.72	.419	4.755	22.609	.239	.213	-.766	.423
Teaching methods	129	10.40	.306	3.472	12.053	.017	.213	-.872	.423
teaching resource	129	10.30	.325	3.690	13.619	.079	.213	-.793	.423
social resources	129	16.18	.516	5.866	34.413	.305	.213	-.564	.423
teaching goal	129	11.85	.415	4.714	22.220	.527	.213	-.342	.423
educational content	129	12.00	.388	4.409	19.438	.338	.213	-.512	.423
Effective number ofcases (in columns)	129								

Through the first and second dimensions of descriptive statistics to view the overall data situation can be seen, the results of this questionnaire skewness statistics concentrated in the distribution between ± 0.5, it can be seen that the teacher for the overall level of student evaluation is still more satisfactory, while the kurtosis statistics are all less than 0, it can be considered that the distribution of the distribution of the more moderate, which may be due to the respondents for the actual situation of the individual perception of the bias and the treatment of the rigor of the problem and make a more moderate evaluation.

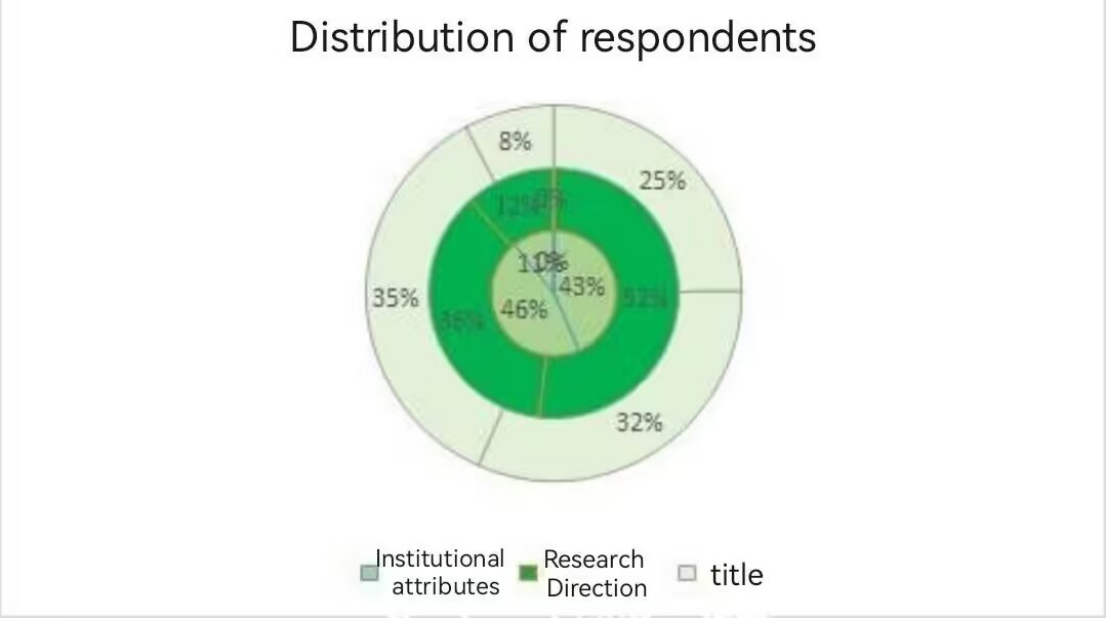

Figure 2. Map of the distribution of respondents

4.2.Cross-analysis

In order to study the detailed situation of students in different institutions and the situation of educational resources, this paper uses the method of cross-analysis, and obtains the cross-analysis table as follows: Through the table, this paper can be found that, for the statistical indicators of the learning situation, the average scores of double-first-class undergraduate institutions, non-double-first-class undergraduate as well as higher vocational colleges and universities are comparatively similar.While the variance shows that there is a large gap among the students of double first-class undergraduate institutions in terms of knowledge, comprehension, and application, there is an even more pronounced difference in terms of analysis as well as synthesis among the students of higher vocational college-type institutions

Table 5. Cross-analysis table

		obs sample size	Mean average score	variance (statistics)
knowledge	Double First-class undergraduate Program	56	7.589	2.897
	Non-double first-class undergraduate	59	7.508	2.589
	Higher vocational tertiary category	14	7.643	2.240

	Double First-class undergraduate Program	56	7.196	2.533
comprehension	Non-double first-class undergraduate	59	7.797	2.391
	Higher vocational tertiary category	14	7.286	2.016
		56	13.071	3.818
application	Non-double first-class undergraduate	59	13.424	3.843
	Higher vocational tertiary category	14	13.000	4.350
	Double First-class undergraduate Program	56	7.375	2.741
analysis	Non-double first-class undergraduate	59	8.000	2.580
	Higher vocational tertiary category	14	8.571	2.848
	Double First-class undergraduate Program	56	18.661	4.818
synthesis	Non-double first-class undergraduate	59	19.305	5.415
	Higher vocational tertiary category	14	20.357	5.315
	Double First-class undergraduate Program	56	12.821	4.991
Teachers' strength	Non-double first-class undergraduate	59	12.390	4.323
	Higher vocational tertiary category	14	13.714	5.676
	Double First-class undergraduate Program	56	9.857	3.397
Teaching methods	Non-double first-class undergraduate	59	10.746	3.442
	Higher vocational tertiary category	14	11.071	3.832

	Double First-class undergraduate Program	56	10.125	3.847
teaching resource	Non-double first-class undergraduate	59	10.407	3.524
	Higher vocational tertiary category	14	10.571	3.975
	Double First-class undergraduate Program	56	15.500	6.606
social resources	Non-double first-class undergraduate	59	16.746	5.384
	Higher vocational tertiary category	14	16.500	4.620
	Double First-class undergraduate Program	56	12.000	4.805
teaching goal	Non-double first-class undergraduate	59	11.712	4.917
	Higher vocational tertiary category	14	11.857	3.613
	Double first-class undergraduate Program	56	11.768	4.373
educational content	Non-double first-class undergraduate	59	12.017	4.603
	Higher vocational tertiary category	14	12.857	3.860

ANOVA was conducted on the results of the questionnaire, and after comparison, it was found that the F-values corresponding to the answers to all the questions were small and the significance level was greater than 0.05, which means that there are no significant differences in the mastery of basic knowledge, the possession of related abilities, the acquisition of results of the students of logistics management-related majors in different schools, as well as in the education and teaching of the teachers of logistics management-related majors, the exchange and cooperation with outsiders, and the professional curriculum of the majors in different schools. This indicates that the sample is reasonably selected and that the students of logistics management related majors in different schools have similar performance and teaching experience.

To process the data, assuming that all aspects of competence have equal impact on students' competence, the scores of the teachers' assessment of students' competence in the first dimension were summed up, and this data was used as the students' competence scores. In order to test whether there is a significant difference

in the impact of institutional category on the competence of logistics management students, the data were divided into three groups according to institutional category, namely, "double first-class" undergraduate colleges and universities, non-"double first-class" undergraduate colleges and universities, and higher vocational (high school) colleges and universities. According to the results of spss analysis, the chi-square test is greater than 0.05, which means that ANOVA can be performed. Observing the results of ANOVA, it was found that the F-value between the three groups of data was 0.465>0.05, which means that there is a reason to believe that there is no significant difference in the effect of institutional category on the competence of logistics management students at the 95% level, and the results of the multiple analyses also indicate that there is no significant difference between the three groups, and this paper has a reason to believe that, regardless of the category of the institution, there is no significant difference in the current competence ratings of the teachers of the logistics management students. significant difference and that institutional category has little effect on the competence of logistics management students.

Table 6. ANOVA table

square sum (e.g. equation of squares)		(number of) degrees of freedom (physics)	mean square	F	significance
intergroup	175.151	2	87.576	0.465	0.629
within a group	23705.004	126	188.135		
(grand) total	23880.155	128			

4.3.Analysis of Impact Factors

Table 7. Analysis of factors influencing the participation of intelligent logistics management talents in professional learning

variant	Knowledge (model 1)		Comprehension (Model 2)		Application (model 3)		Analysis (model 4)		Synthesis (model 5)	
	β	SE	β	SE	β	SE	β	SE	β	SE
Teachers' strength	.094	.460	-.041	.746	.053	.660	.004	.973	-.114	.362
Teaching methods	.352	.026	.413	.010	.309	.041	.271	.097	.371	.017
teaching resource	-.283	.047	-.142	.318	.030	.825	-.046	.756	.011	.935
social resources	.315	.001	.105	.270	.018	.841	.127	.194	.293	.002
teaching goal	.205	.155	.249	.086	.045	.740	.058	.697	-.038	.786
educational content	.043	.750	.146	.283	.349	.008	.293	.038	.245	.066
(Constant)		.003		.000		.000		.002		.000
R2	.602a		.597a		.649a		.562a		.621a	

In order to further explore how each factor affects the professional learning participation of intelligent logistics management talents, this paper conducts regression analysis on the influencing factors of each dimension of learning participation, and the results are as follows Table 7 The results are shown in Table 7.

Model 1 is the regression analysis of influencing factors on the knowledge level of professional learning

of intelligent logistics management talents. According to the regression equation of Model 1 and the given β and SE values, the following analytical results on the influencing factors of the learning knowledge level of intelligent logistics management talents' specialties can be drawn: faculty strength, teaching methods, and social resources have a positive influence on the improvement of learning knowledge, while the increase of teaching resources may reduce the level of learning knowledge. In addition, setting clear teaching objectives and providing rich teaching content may also promote the improvement of learning knowledge. Summarizing the results of the above analysis, in this specialty, rational use of faculty and teaching methods can effectively promote the improvement of learning knowledge, while attention needs to be paid to the rational use of teaching resources, by increasing social resources and providing rich teaching content and clear teaching objectives can also help to improve the level of learning knowledge.

Model 2 is the regression analysis of factors affecting the learning comprehension level of intelligent logistics management talents. According to the regression coefficient table of model 2, the following conclusions can be drawn: the regression coefficient of teaching methods is 0.413, SE is 0.010, which can be regarded as teaching methods have a positive influence on the level of learning comprehension, that is, the improvement of teaching methods can promote the improvement of students' learning comprehension in the specialty of intelligent logistics management talents. The regression coefficient of social resources is 0.105, and the SE is 0.270, which can be considered that social resources have a positive effect on the learning comprehension dimension, i.e., the increase of social resources may promote the students' learning comprehension of the intelligent logistics management personnel specialty. The regression coefficient of teaching objectives is 0.249, and the SE is 0.086, which can be considered that teaching objectives have a positive effect on the learning comprehension dimension, i.e., clear teaching objectives may contribute to the improvement of students' learning comprehension of the intelligent logistics management personnel specialty. However, faculty strength, teaching resources, and teaching content do not have a significant effect on the learning comprehension dimension of the intelligent logistics management talent major, i.e., they do not have a significant effect on the students' learning comprehension dimension.

Model 3 is the regression analysis of factors influencing the learning application level of intelligent logistics management talents. According to the regression coefficient table of model 3, we can analyze the degree and direction of the influence of each factor on the learning application level of the intelligent logistics management personnel specialty. The regression coefficient of teaching method is 0.309, and the SE is 0.041. It can be concluded that the teaching method has a positive influence on the learning and application level, and the use of more effective teaching methods can promote the improvement of the application ability of the intelligent logistics management personnel specialty. And the five factors of faculty strength, teaching resources, social resources, teaching objectives and teaching content do not have a significant effect on this dimension.

Model 4 is the regression analysis of the influence factors on the learning analysis level of intelligent logistics management talents majors. According to the regression coefficient table of model 4, faculty strength has no significant effect on the learning analysis level, teaching methods and teaching resources have a positive effect on the learning analysis level, i.e., the improvement of teaching methods and the increase of teaching resources may promote the improvement of students' learning and analysis ability of the intelligent logistics management talent specialty; social resources have no significant effect on the learning analysis level, and

the teaching objectives have no significant effect on the learning analysis dimension; teaching content has a positive effect on the learning analysis dimension, i.e., the optimization of teaching content may promote the students' learning analysis ability of the intelligent logistics management talents profession. Taken together, teaching methods and teaching resources have a positive effect on the learning analysis level, while teaching content also has a positive effect on the learning analysis level. Faculty, social resources and teaching objectives have no significant effect on the learning analysis dimension.

Model 5 is a regression analysis of the factors influencing the synthesis dimension of learning of intelligent logistics management talents majors. According to the table of regression coefficients in Model 5, the following conclusion can be drawn: faculty strength has no significant influence or even slightly negative influence on the synthesis dimension of learning. Teaching methods and teaching resources have a positive effect on the synthesis dimension of learning, that is, the improvement of teaching methods and the increase of teaching resources may promote the students' comprehensive ability to improve the learning of intelligent logistics management personnel specialties; social resources do not have a significant effect on the synthesis dimension of learning, and the teaching objectives do not have a significant effect on the synthesis dimension of learning. Teaching content has a strong positive effect on the synthesis dimension of learning, i.e., the optimization of teaching content may promote the improvement of students' comprehensive ability to learn about the intelligent logistics management talent profession. Taken together, teaching methods and teaching resources have a positive effect on the synthesis dimension of learning, while teaching content also has a strong positive effect on the synthesis dimension of learning. Teachers' strength, social resources and teaching objectives do not have a significant effect on the synthesis dimension of learning.

5.Conclusions and recommendations for response

By analyzing the data from the questionnaire, the following conclusions can be drawn from this paper:

First of all, from the perspective of students' knowledge system, a complete knowledge system is the foundation of intelligent logistics talents. However, on the whole, the scores of all indicators are concentrated at a low level, which indicates that whether it is a "double first-class" undergraduate institution, a non-"double first-class" undergraduate institution or a higher vocational (high school) institution, the teachers of universities generally believe that the students' knowledge mastery, understanding, application, analysis and synthesis abilities are still lacking and there is great room for improvement. From a local point of view, teachers of different levels of institutions have different evaluations of students' knowledge system. Among the three types of institutions, "double first-class" undergraduate colleges and universities have the lowest scores on the evaluation of students' knowledge system, followed by non-double first-class undergraduate colleges and universities. On the contrary, higher vocational (high school) colleges and universities have the highest scores on the evaluation of students' knowledge system, which to some extent reflects that institutions of different levels have different requirements and standards for students' knowledge system. From the internal viewpoint of the knowledge system, the scores of students' knowledge analysis and synthesis ability are slightly higher than the scores of other parts, which indicates that teachers believe that the students of this specialty have a certain degree of intelligent logistics thinking, and are able to transform the knowledge they have learned into corresponding results.

Secondly, from the teachers' education and teaching situation, education and teaching is an important way to cultivate intelligent logistics talents. From an overall perspective, the scores of the three types of institutions are still concentrated at a low level, and there is no particularly huge difference between them, which indicates that the educational and teaching situation of various institutions is not very optimistic. Combined with the evaluation system of education and teaching, except for the high score of teaching resources, which proves that major institutions attach importance to the investment and utilization of educational resources, the rest of the aspects need to be strengthened. Specifically manifested in the following aspects: first, the teachers' strength is uneven, the level of teachers' strength in colleges and universities is not very strong; second, the teaching curriculum is unreasonable, mainly using bilingual teaching, and has not been separated from the traditional teaching classroom, while the practical or experimental way of teaching the curriculum, interactive teaching, and flipped classroom teaching courses are relatively few, which is not conducive to the application of knowledge by the students or their participation in the classroom; third, the educational objectives are not clear, the educational content is not perfect, which is not conducive to the learning and progress of students in this specialty.

In summary, whether from the knowledge system or from the education and teaching system, China's major universities and colleges in the process of cultivating intelligent logistics personnel there are still many problems, the need for colleges and universities in the knowledge system and education and teaching joint efforts, not only to improve the level of knowledge of students, but also to cultivate their practical ability and comprehensive literacy[31] to adapt to the needs of the rapidly developing field of smart logistics, only in this way can we better cultivate high-quality talents who can adapt to the development of the future logistics industry. This study proposes the following measures:

First of all, students are guided to study the specialized courses carefully to understand and master the basic theories and concepts. (1) Pilot the undergraduate mentorship system. By guiding students in their research activities, mentors can cultivate students' professional interests, learning attitudes and scientific spirit. Mentors can also share their professional knowledge and experience, provide learning methods and academic resources, and help students solve problems and confusions in their studies. (2) Reform of course assessment system. The professional course assessment method should be reformed, and the concept of equating course assessment with examination should be abandoned. The whole process of teaching should be included in the scope of assessment, so that the course assessment becomes process-oriented and frequent. This will not only help students master theoretical knowledge, but also guide students to think hard, be good at finding and asking questions, and stimulate students' innovative thinking. (3) Enriching practical and field operation courses. Through the experimental operation courses, students can apply the theoretical knowledge to the actual operation to help them understand and master the professional knowledge more deeply, deepen the understanding and memory of the theoretical concepts, and at the same time can cultivate the students' experimental skills and operation ability. (4) Encourage students to participate in logistics competitions. Competition is the integration of theoretical knowledge and practical operation as one of the ways to examine the overall quality of students, but also to promote the absorption of professional knowledge of the perfect opportunity. Schools should take measures to encourage students to participate in logistics-related competitions (such as the National Student Logistics Design Competition), so that students take the initiative to learn specialized knowledge.

Secondly, strengthen the construction of teachers specialized in logistics. Schools can introduce logistics professionals who have graduated from logistics majors or have rich practical experience through open recruitment or cooperation with relevant enterprises. These talents as teachers can not only provide students with practical experience, but also promote the close integration of course content with industrial demand. At the same time, the school can also establish close ties with enterprises, industry associations and research organizations to promote the interaction between teachers and students and the actual work scene[32] . This helps teachers understand the latest industrial developments. In addition, schools should also help teachers familiarize themselves with the cutting-edge knowledge of the discipline by inviting experts and leaders in the logistics industry to hold logistics symposiums or training to share their experiences and latest research results with teachers.

Again, optimize the professional curriculum and update the syllabus. The school regularly conducts research on the logistics industry to understand the latest logistics development trends, and based on this information, adjusts the curriculum so that the courses and the logistics industry development trends are in line with each other. And it should focus on the application of Internet of Things, big data, artificial intelligence and other emerging technologies in the field of logistics. Consider interdisciplinary integration in curriculum design, combining the contents of management, economics and other related disciplines, for example, through the introduction of information technology management, marketing and other related contents, to cultivate students' comprehensive ability, so that they can be more competitive in the complex logistics industry. The university establishes a regular curriculum evaluation mechanism to adjust and improve the curriculum in a timely manner through feedback from students and teachers to ensure that it is consistent with actual needs.

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