

Research on Innovation of Talent Training in Logistics Management for Vocational Colleges

Taking Anhui Technical College of Mechanical and Electrical Engineering as Example

Yun He

Anhui Technical College of Mechanical and Electrical Engineering
Wuhu, Anhui Province, China 241000

Abstract—Currently, there exist a series of problems such as unclear professional orientation, no features of vocational colleges in terms of talent training mode and backward practical training condition in the education of professionals in logistics management in vocational colleges. Innovative researches are made on the above issues in combination with the reform of talent training program of Anhui Technical College of Mechanical and Electrical Engineering.

Keywords—logistics management major; professional orientation; mode of talent training

I. INTRODUCTION

In recent years, the speedy development and transformation and upgrading of logistics industry have formed huge demands for talents of logistics, especially for high-end talents and skilled talents. The colleges are the main course for scale training of talents. Therefore, all colleges are rush to open major of logistics management. According to the statistics by Ministry of Education, currently there are 378 universities, 824 vocational colleges and more than 2000 secondary vocational schools having opened the major of logistics. The student number at school in logistical major in vocational colleges is more than 1 million. As for the requirement for logistics position, the largest requirement is for skilled position of the first-line operators. Therefore, the highly skilled talents trained by vocational colleges have a large impact on the development of logistics industry.

Since 2002, vocational colleges have started to open the logistics management major successively, for training highly skilled talents urgently needed by the society. However, due to the late start, there exist problems in construction of the major, which results students trained can not find a proper job, and logistics enterprise can not find talents it needs on the other hand. Therefore, this issue is urgent to be solved by the vocational colleges, for strengthening professional construction and reform.

This paper analyzes the problems existing in the training of talents in logistics management of vocational colleges in China, and takes Anhui Technical College of Mechanical and Electrical Engineering as an example to make a corresponding innovative research.

II. PROBLEMS EXISTING IN THE TRAINING OF TALENTS IN LOGISTICS MANAGEMENT OF VOCATIONAL COLLEGES

A. *Setting of Majors Has Problems of Blindness, and the Orientation of Professional Talents Training Program Is Not Accurate*

Most vocational colleges open the logistics management major due to the popularity of logistics without full investigation and verification, and follow the trends blindly by imitating the professional construction of other colleges and opening the logistics management major. As logistics is a composite industry by itself across sectors and industries, the size of the logistics management major is large, being able to train professional talents in many fields, such as industrial logistics talent, commercial logistics talent, the third party logistics talent and internal logistics talent. The professional construction of most colleges has no clear orientation and unclear direction, and the setting of course varies greatly, which results the training program of professional talents has no accurate orientation and no features, and knowledge learned by the students is wide but not refined, making them not able to find a proper job after graduation.

B. *The Talent Training Mode Has No Features of Vocational College*

The talent training mode of logistics management major of vocational college has problems of emphasizing theory and not emphasizing practices, resulting in training in the mode of training in universities, which causes that the students have poor operating ability and can not enter the working roles.

C. *The Practical Training Condition Is Poor, Hard to Train the Students for the Operation Skills*

Logistics management major has a high requirement for the practical ability of the students, requiring the students to be able to grasp modernized logistics facilities and equipment, and be familiar with using of logistics information technology. As the input of hardware of campus practice base is small for many colleges, with no equipment for student to practice. What they have is only some simple software for simulation operation of business. It is even hard to be guaranteed for

practical training base outside the campus, which has severely affected the effect of practical training and teaching.

III. INNOVATIVE RESEARCHES FOR TALENTS TRAINING OF LOGISTICS MANAGEMENT OF ANHUI TECHNICAL COLLEGE OF MECHANICAL AND ELECTRICAL ENGINEERING

A. Making Precise Professional Orientation in Combination with the Local Economic Features and College Characteristics

First, it is certified that, the logistics management major of the college is mainly facing enterprises in the supply chain of manufacturing industry in Anhui Provinces and Yangtze River Delta area, combining with the regional economic features of developed manufacturing industry in Wuhu district, and the advantage of the college in education of engineering. Second, the investigation is made for job groups for these enterprises, and there are three levels of job groups relating to the logistics management: operating level (forklift driver, storehouse person, tally man, order clerk, purchase man, quality inspector, storekeeper, sorter and so on), the logistics management level (storing manager, transport manager, materials purchase manager, logistics marketing manager and so on), the level of logistics decision-making and planning (high level decision-making job of logistics enterprise, such as manager of supply chain, advisor, analyzer, trainer, planning engineer and planning person, and so on). The job groups related to the logistics management major of vocational colleges are the two levels of logistics operation and logistics management, and the targeting job groups of logistics major are finally set on the level of logistics management, which is also a process for detailed division of talent training market, and determination of the targeting market”.

It is obtained from the identified targeting job groups that, the logistics management major is oriented to facing supply chain enterprise of auto industry (supplier of auto spare parts, finished-auto production enterprise, auto sale agent, the third party logistics and so on) and other manufacturing enterprise, to train technical and skilled talents who uphold the party’s basic route, develop morally, intellectually, physically and aesthetically, and have cultural education adaptable to their jobs and good professional ethics, and sound professional knowledge and skills, and are able to engage in the work of whole-process logistics operation, logistics management, logistics planning and logistics informationization.

TABLE I. PROFESSIONAL ORIENTATION OF LOGISTICS MANAGEMENT

Main area of service	Supply chain enterprise of auto industry (supplier of auto spare parts, finished-auto production enterprise, auto dealer agent, the third party logistics and so on)
Main area of employment	Supply chain enterprise of auto industry (supplier of auto spare parts, finished-auto production enterprise, auto dealer agent, the third party logistics and so on), mainly including Cherry auto, JAC, Midea Electrical Appliances, Post express, Debang logistics, Xinbang logistics, Changyuan logistics, Logistics of China Merchants, Ande logistics, Dacheng storage and transportation, and so on.
Main jobs for employment	Storehouse person, tally man, order person, purchase person, inspector, store keeper, sorter, storing manager, transport manager, materials purchase manager, logistics marketing manager, and so on.
Professional Certificate	Professional certificates such as for assistant logistician, forklift certificate, driver license, and documentation specialist of international business

B. Reform of Talent Training Mode for Combining Working and Studying of “Cooperation between College and Enterprise, and Integration of College and Factory”

1) *Thought of reform for talent training mode:* In the professional construction, investigation of enterprise and society is made further for the current logistics job requirements and job ability requirements and verification is made with experts in the industry, and the college joins the enterprise to make up talent training programs and develop courses together, according to the regional economic features of developed manufacturing industry in Wuhu district and advantages of engineering education of the college, with edging-in point of reforming the talent training mode to combine working with studying, aiming at training technical and skilled talents facing to auto supplier chain enterprise (auto spare parts supplier, finished-auto production enterprise, auto dealer agent, the third part logistics and so on) and other manufacturing enterprise, being able to engage in whole-process logistics operation in industrial logistics field, and works such as logistics management, logistics planning, logistics informationization and so on. The teaching organization mode of alternate working and studying is explored by fully using campus productive practice base and teaching resources of practical training base outside the campus of the all-in-one training center of industrial logistics, in principle of combination of professional teaching and practical training, to train for the students’ professional quality, professional core ability, professional comprehensive ability and professional development ability according to the execution line of course learning → job practice → project practice → on-post practice of combination of working with studying. The professional ability can be trained according to the process of knowing to getting the knowledge to exiting from the training till doing it all around, striving to explore a way for training the talents of logistics management of vocational college suitable to the regional economic talents requirements.

2) *Contents of talent training mode:* The teaching program designed systemically for combination of working and studying, covers across the whole process of the talent training. As shown in Fig.1, for aiming at training the students’ professional quality, professional core ability, professional comprehensive ability and professional development ability,

and fully using the campus all-in-one training center of industrial logistics and other teaching resources of practical training outside the campus, combining the course theory learning, single job practical training, project management practice with the real work in the enterprise, making the students go through the process of knowing to getting the knowledge to exiting from the training till doing it all around, the specific arrangement is as follows:

- Long semester of course 1 + short semester of work 1: course study + practice at working position. By visit and study in practical training base outside the campus, to acknowledge the post setting and working content and requirements in combination with study of “Introduction of logistics management”, “Management of supply chain” and other courses.
- Long semester of course 2 + short semester of work 2: course study + practice at working position. To form basic professional quality and experience the work process of the post by course study of “Transport technology and management” and “Logistics facility and equipment”, and post practice in the productive practice training base of “the integrated training center of industrial logistics”.
- Long semester of course 3 + short semester of work 3: course study + practice at working position. To form

core professional ability by the core professional course study of “Warehousing management” and “Logistics information technology”, and post practice in the productive practice training base of “the integrated training center of industrial logistics”.

- Long semester of course 4 + short semester of work 4: course study + practice at working position. To form the professional comprehensive ability by core professional course study of “Distribution management”, “Logistics system planning and design” and so on, and practice of comprehensive management of logistics enterprise operation project and enterprise logistics management project.
- Long semester of course 5 + short semester of work 5: study of the professional development course. To enrich the future development direction of the students by study of the courses such as “International logistics and goods transportation agency”, and practical operation of documentation specialist.
- Long semester of work 6: on-post practice. By half-year term on-post practice, to let students know fully about the employment requirement of the post, and promote their adaptability to the post, and their professional development ability to finish the transformation from student to staff.

1. Professional quality		2. Vocational core capability		3. Integrated professional capability		4. Career capability development	
Course semester	Long course semester I	<ul style="list-style-type: none"> Introduction to Logistics Management Fundamentals of Management ... 	Long course semester III	<ul style="list-style-type: none"> Warehouse Management Logistics Cost Management ... 	Long course semester V	<ul style="list-style-type: none"> International Logistics and Freight Forwarders Marketing ... 	Factory in campus
	Long course semester II	<ul style="list-style-type: none"> logistics facilities and equipment Transport Technology and Management 	Long course semester IV	<ul style="list-style-type: none"> Distribution Management Logistics system planning and design ... 			
Working-learning combination	Course study		On post practice	Project practice		In-post practice	
Work semester	<ul style="list-style-type: none"> Logistics enterprise recognition Data Entry ... 	Short work semester I	<ul style="list-style-type: none"> Barcode and RFID Training Warehouse keeper and purchaser practice training ... 	Short work semester III	<ul style="list-style-type: none"> Documentation clerk PRACTICE Logistics marketing practice ... 	Short work semester V	Campus in factory
	<ul style="list-style-type: none"> Facilities and equipment recognition Transportation scheduling practical operation ... 	Short work semester II	<ul style="list-style-type: none"> Logistics enterprise operation project industry logistics management project ... 	Short work semester IV	In-post practice	Short work semester VI	
Understand the trade		Master the trade		Qualified for trade		Practice the trade	

Fig. 1. Framework of talent training mode of combination of work and study of “Cooperation between college and enterprise, integration of college and factory”

C. Strengthening the Connotative Construction of the Practice Training Base

To surround the training requirement for professional ability, and focus on logistics flow program of advanced standard, a comprehensive simulation practical training center of high-level logistics shall be created in all efforts for training skilled talents for enterprise by using advanced logistics information system and the professional equipment and taking the complete simulation environment of logistics practical training as the core. We cooperate with enterprises such as Ande Logistics Co., Ltd for practicing cooperation between college and enterprise, fully enhancing construction of the campus productive practical training base with the typical feature of "Campus practical training base". By introduce real work task of enterprise, "factory in college" shall be set up to create a all true and simulating professional environment consistent with the work site, forming a sharing productive practical training base integrating teaching, training, skill evaluation, production and technical service. By constantly persisting in principle of co-building of college and enterprise, sharing and win-win, long term and stable practical training base outside campus shall be formed, to strengthen the connotative construction of the practical training base for satisfying the requirement for high skill talent training and servicing the society.

General construction thought: focusing on the construction and completeness of the practical training base, stressing on the professional feature and practice feature, to form a high standard campus practical training base focusing on productive skill training. By constantly sticking in principle of cooperation between college and enterprise, sharing and win-win, long term and stable practical training base outside campus shall be formed, to strengthen the connotative construction of the practical training base for satisfying the requirement for high skill talent training and servicing the society.

1) New Integrated training center of industrial logistics" to be built:

a) Construction thought:

A new "Integrated training center of industrial logistics" will be built, setting up a practical training base integrating "the five as a whole", to satisfy the development planning and teaching requirement of the college for the next ten years, and build an advanced, practical and all-round modern logistics practical training base at industrial level with remarkable features both in the province and nationwide.

"The five as a whole": satisfying the training of college student and workers in the profession; training the R&D team for horizontal subject development; becoming the site for professional skill evaluation; technical service center of public practical training base; and doing partner assistance to brother colleges.

The modern logistics integrated the modern management technology, automation technology, system engineering and modern information technology, to combine various technologies organically and build a high level, modern, intelligent and automatic comprehensive teaching platform

of logistics practical training, making this system be able to satisfy not only the practical training requirement of relevant majors of logistics in college, but also provide scientific platform for teachers and service the local people.

"The integrated training center of industrial logistics" provides an environment for students to be able to participate in, focusing on advanced and standard logistics flow program, and taking the advanced logistics information system, the professional equipment and the complete simulation environment of logistics practical training as the core, for striving to create a high level and comprehensive simulation practical training center of logistics for training skilled talents for enterprises. The overall training center includes practical training area of industrial and automatic 3D warehousing, practical training area of warehousing management, E-label sorting practical training area, circulation processing practical training area, practical training area for distribution and express mail, practical training sandplay room of simulation management, and remote education classroom, totally 7 practical training areas. After completion of their construction, practical training class for transport technology and management practical training, warehousing management practical training, purchase management practical training, distribution management practical training, logistics system planning and design practical training, enterprise logistics practical training, logistical facility and equipment practical training, and international logistics and goods transportation agent can be opened, for satisfying professional course and training requirements of logistics, to train the students of logistics major for their comprehensive ability of logistics (such as equipment identification ability, equipment use ability, logistics operation and planning ability, logistics dispatching ability, logistics warehousing ability, logistics transport management ability, the third party logistics operation ability, logistics enterprise management ability and so on), to promote the market competitive capacity of the college student.

b) Construction objective:

- After completion of the practical training center, it can not only satisfy the basic requirements for the college student experiment, practical training, and practice, but also the training of the innovative ability of the students, and requirements of scientific research of the teachers. Besides, it can also service the society, providing service of logistic or logistics training and certification for other colleges, social enterprise and other organizations.
- Between the logistics practical training room and various main systems, data can be transferred according to the technical requirements of facility and equipment via wired or wireless means for mutual link, or via local network (except for individuals, EDI means can be used for data transfer between various objects).
- Various soft and hardware system of the practical training center can not only operate separately for satisfying needs of single practical training project,

but also satisfy comprehensive practical training teaching requirements by flexible combination according to the teaching requirements of the practical training; can satisfy not only the needs of practical training teaching of logistics major, but also the needs of practical training teaching of relevant non-logistics majors.

- The practical training center can satisfy not only the practical training teaching needs of logistics major courses, but also: the teaching needs of many majors practical training course such as marketing, industrial administration, tourism management, E-commerce, commercial economy management, enterprise management and computer information management.
- It can provide enough business cases (including documentation and bills, business activity and flow program and so on) used for the system operation, and ensure to have close relation with the actual business.

2) *Stable practical training base outside the campus:*

Based on the existing practical training base outside the campus, one productive enterprise practical training base with good cooperation relation, 2 warehousing logistics practical training bases, 2 chain distribution practical training bases are built newly, for satisfying the individualized skill training and employment of student post. The enterprises practice management of “quasi-employee” for the trained students, who are trained in pertinence by the enterprise experts; and participate in on-post work in enterprises for not less than half year.

IV. CONCLUSION

Talent training of logistics in vocational college shall combine the local economic feature, to make precise professional orientation, for training skilled talents satisfying the local enterprises requirements, and talent training mode reform for combining study with work shall be enforced, focusing on the training for professional ability of the students, by creating good practice teaching condition to satisfy the requirements for high skill talent training and servicing the society.

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