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Research on the Reform Path of Logistics Comprehensive Practical Training Curriculum under the Background of Industry-Education Integration

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Abstract: Since the reform and opening up, China's education cause has developed vigorously. The state attaches great importance to education and comprehensively promotes education reform, and the quality of education in China has been steadily improved. However, the supply side of talent education and the industrial demand side cannot fully adapt in three aspects. Deepening the integration of industry and education is a very urgent task to promote the structural reform of talent and human resources. In order to innovate the organizational form of education, cultivate high-quality logistics talents, and promote the joint development of education and industry. Based on Zhuhai University of Science and Technology, this paper puts forward the reform of comprehensive logistics practical training course. On the basis of establishing the basic direction of logistics comprehensive practical training course reform, this paper analyzes and clarifies the problems existing in logistics comprehensive practical training course reform through field investigation and analysis of logistics practical training room. According to the specific situation of the school and the development requirements of the integration of production and education, this paper discusses the reform path of the integrated logistics practical training course. Through the implementation of specific cases, the reform of comprehensive logistics training under the background of the integration of industry and education has achieved certain results, providing a direction for the promotion and implementation of similar courses.

1. Introduction

In the 21st century, the establishment and improvement of the socialist market economic system has endowed the market with unprecedented vitality, and all kinds of enterprises have grown rapidly and gained a certain "voice" in the market. Originally, the integration of industry and education only under the leadership of colleges and universities could not keep up with the pace of The Times, and the integration policy of industry and education has emerged in 2013. Since the 18th National

Congress of the Communist Party of China, with the in-depth implementation of the national innovation-driven development strategy, education and talent reform and development are faced with unprecedented new situation, new tasks and new requirements [1]. In response to the new round of scientific and technological revolution and industrial transformation wave. In 2017, The General Office of the State Council promulgated the issue on Deepening the Integration of industry and Education Several opinions, to the comprehensive implementation of deepening the integration of industry and education work has made a detailed deployment [2].

2. Comprehensive Practical Training Direction of Logistics under the Background of Industry-Education Integration

The integration of industry and education is the deep cooperation between relevant industrial organizations and relevant educational and scientific research organizations in collaborative education, collaborative innovation and other aspects. It is a new model to improve the talent training quality of relevant industrial organizations and relevant educational and scientific research organizations, so as to promote the in-depth integration and development of both sides [3]. The integration of industry and education is an important way for application-oriented undergraduate universities to realize self-development and serve local economic development. The integration of industry and education in application-oriented undergraduate universities includes four modes of research and development, the integration and joint construction, project traction, talent training and exchange [4]. Logistics industry rapid development of the integration of industry and education, in-depth cooperation between enterprises and universities, logistics the hardware facilities of the training room and the contents of the training course should be transformed, upgraded and updated simultaneously according to the current situation of logistics development.

3. Analysis of the Practical Training Curriculum Reform of Logistics Major

3.1 The Construction of the Logistics Training Room Lags Behind, and the Site Is Small

Logistics comprehensive training room of Zhuhai institute of science and technology was completed in 2008, laboratory main equipment is logistics hardware equipment (as shown in figure 1), such as: fluent combination shelves (light, heavy), double speed chain production line, automatic stereo warehouse (AS / RS), roller conveyor belt, automatic sorting line, AGV automatic guide trolley, electronic label shelf, RFID radio frequency identification system, wireless handheld terminal, A188 series RF data acquisition machine, barcode printer, POS machine sales system (including software) cargo automatic baler, hydraulic truck, hydraulic pile truck, forklift.

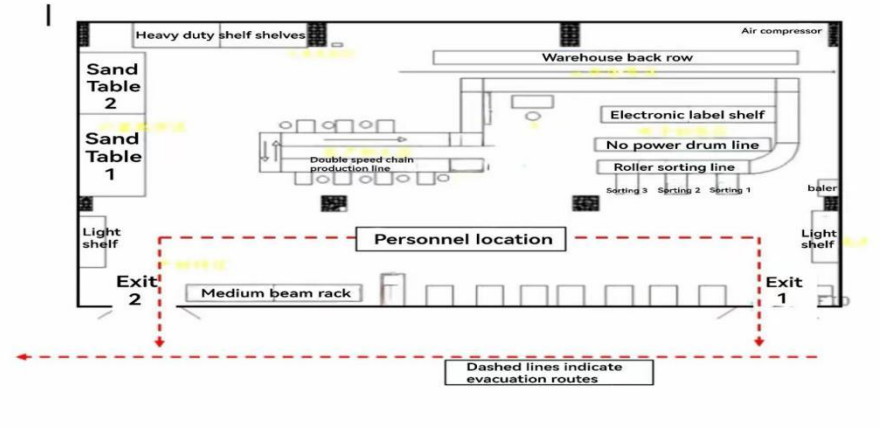

Figure 1: Floor plan of the logistics training room

After 14 years, the facilities of the training room have been worn, aged and slow, which affects the teaching progress of the training course. The technology of logistics industry is updated, but the training room is built for a long time and the technology used is relatively old. The environment of the training course is poor from the real business practice environment of the enterprise, which makes the training room disconnected from the actual operation of the modern logistics enterprise, and affects the actual training effect. With the continuous development of logistics industry, the function and scale of logistics training room should be continuously expanded. In contrast, the training room built in 2008 has the problem of insufficient space, which is difficult to meet the comprehensive logistics training the need for course teaching.

3.2 The Teaching System of Integrating Production and Education Is Not Perfect, and the Teaching Is Not In-Depth

At the present stage, the integrated teaching system of industry and education is still in the exploratory stage. At present, the experimental projects opened by the school include: the use of all kinds of logistics handling equipment, the driving of forklifts, the simulated storage of handheld terminals, and the simulation of a large number of materials (as shown in Table 1).

Table 1: Content of the experimental items

order number	Experimental project	Summary of experimental content	Experimental class hours
1	Practical training and experiment safety education	1. Study the relevant management regulations of practical training; 2. Dress code for students' practical training process; 3. Familiar with the location of the entrance and emergency escape port of the training room; 4. Familiar with the equipment safety use operation specification; 5. Familiar with the meaning of the safety signs in the training room; 6. Familiar with the requirements of safe electricity use in the training room;	2 Credit hours
2	Pallet, pallet shelf and shelf coding method	1. Understand the structure and type of trays; 2. Understand the structure and type of shelves; 3. Master the method and specification of shelf coding;	2 Credit hours
3	Port logistics and logistics handling equipment	1. Understand the port and wharf related facilities and equipment; 2. Understand the storage-related facilities and equipment; 3. Understand the port and dock yard management business; 4. Operation of related logistics and handling equipment;	2 Credit hours
4	Barcode, RFID identification technology and POS store sales	1. Master the barcode coding method, and make the relevant barcode; 2. Understand RFID technology, and complete RFID information recording through relevant equipment; 3. Understand the POS front-end sales business;	2 Credit hours
5	Selection and working principle of forklift handling equipment, automatic baler and manual packing equipment	一 Understand the structure and type of forklift truck; 2. Know how to drive a forklift truck; 3. Master the relevant logistics equipment selection methods; 4. Master the operation method of the baler;	2 Credit hours
6	Working principle and information management system of automatic three-dimensional warehouse	1. Understand the structure and type of the automated stereo library; 2. Master the operation skills and specifications of the automatic three-dimensional library management system;	2 Credit hours
7	Circulation processing	1. Understand the structure and type of multiple production line;	2 Credit hours

	business knowledge to explain times the speed chain production line training	2. Master the operation skills and specifications of the multiple production line management system;	
8	Handheld wireless terminal, electronic label auxiliary picking system	1. Understand the structure and working principle of handheld wireless terminals; 2. Master the methods and specifications of electronic label assisted picking system; 3. Learn the business process of fruit picking type picking by electronic label assisted picking system;	2 Credit hours
9	Production and logistics supply system knowledge explanation	1. Understand the production logistics supply business process through the production logistics supply system to master the production material plan, production material acquisition process, production order dispatching process, production and processing process; 2. Master the complete production process and method through specific product design;	2 Credit hours
10	Logistics comprehensive development of practical training	1. Design the material warehousing process, warehouse management process, production and material collection process, production and processing process, and the back-end sales process; 2. Use the existing equipment and system of the training room to design the above process and complete the verification;	2 Credit hours
11	Logistics comprehensive development of practical training	1. Through specific cases, the electronic label to assist the picking system to complete the product warehousing and warehousing process; 2. Required to complete the production of the relevant documents	2 Credit hours
12	Curriculum design (teachers guide students to complete the design)	1. Taking the complete warehousing related cases as the analysis, the design object specification requires students to complete the course design; 2. Teachers guide students to apply the professional course knowledge points to complete the course design; 3. Using the existing hardware facilities and equipment and the software information system of the training room as the framework, I think about the key content of the course design, and complete the knowledge points of the theoretical course to complete the design.	10 Hours

The integrated education system of industry and education is not perfect, and the participation of enterprises in the curriculum design is not high. From the perspective of industry orientation, curriculum design should be closely combined with the actual needs and development trend of the current logistics industry for [5]. At present, enterprises cannot really integrate their own actual needs and industry standards into the curriculum, and combine them in the process of talent training. As a result, logistics talent training is targeted and practical is not strong, talent training and industrial demand docking is not right.

3.3 Lack of Depth of School-Enterprise Cooperation and Lack of Enthusiasm

At present, the integration project of industry and education only stays at the superficial level, for example, inviting corporate executives to schools to give lectures, seminars and so on. Enterprises and schools lack effective communication and cooperation mechanism, lack of in-depth cooperation and communication, resulting in the integration of industry and education, and universities may not be able to obtain the latest and real logistics cases and make full use of these real cases for teaching. As an enterprise, it is faced with economic risks brought by uncertainty at any time. In the face of the integration of industry and education, enterprises have the right to decide whether to participate in the cooperation [6] after weighing whether the benefit of participating in the integration of

industry and education is proportional to the input cost of the enterprise. At the present stage, the depth of school-enterprise cooperation is far from enough, the talent training mode of school-enterprise cooperation and practical education is not yet mature, and there is the phenomenon of "school hot, enterprise cold" in the implementation of school-enterprise cooperation, and it is still in a shallow, spontaneous, loose and low level state [7]. The enthusiasm of enterprises needs to be improved, and the curriculum content of colleges and universities is relatively out of line with the production process of enterprises. Generally speaking, the problem of "emphasizing theory and neglecting practice" still exists in [8].

At the present stage, some enterprises have not given full play to the main role, and very few enterprises participate in the establishment of higher education by means of sole proprietorship, joint venture and cooperation. The interests of enterprises integrating industry and education are different from those of colleges and universities, and they lack the motivation to implement them. In order to give full play to the main role of coordinating education, enterprises such as educational integration need to carry out relevant practical activities in colleges and universities. Enterprises should also work out specific talent training plans with colleges and universities, and jointly set up courses. Practical activities need the corresponding funds, facilities and personnel to support the enterprise, and these investments are difficult to get a return in a short time. The benefits of cooperation are often not obvious, and some costs and risks may even arise due to students' internships [9]. In this case, the investment and income of enterprises do not match each other, leading to the lack of motivation to participate in cooperation, which greatly reduces the initiative and enthusiasm of enterprises to participate in the integration of industry and education.

In school-enterprise cooperation, other enterprises focus too much on short-term interests, and are more willing to invest resources in projects that can bring immediate benefits, while ignoring the long-term investment in talent cultivation. Talent training requires a lot of time and resources to invest, but the return is often long-term, and this kind of investment method is contrary to the short-term profit orientation of enterprises. Some enterprises still have the talent training is only the school thing, has nothing to do with the enterprise thought, enterprises lack of attention to talent training. The backward thinking leads to the lack of motivation and responsibility for enterprises to participate in school-enterprise cooperation.

4. Research on the Reform Path of Logistics Practical Training under the Background of Industry-Education Integration

4.1 Overall Thinking of Reform

By accurately docking the talent demand and talent training plan of the industry, the ideological and political teaching mode integrating the cultivation of cognitive spirit, professional ability, professional quality and innovative ability is constructed, so as to truly achieve the collaborative education of "curriculum ideological and political education" + "integration of industry and education". This study establishes the overall goal of improving moral quality education and cultivating professional skills, cultivating students' thinking ability through debate teaching, combining practical teaching methods, and mastering the basic working ability of logistics personnel. This study cultivates good professional ethics, such as teamwork consciousness, sense of responsibility, strong learning ability and summary ability, so as to meet the actual requirements of society for logistics talents, as shown in Figure 2.

Figure 2: Three teaching modes

4.2 Strengthen the Deep Integration of Schools and Enterprises, and Jointly Build a Teaching Resource Database

The first step to strengthen the deep integration of schools and enterprises must be for the college to select the right enterprises to achieve long-term and effective cooperation. The college should give priority to cooperation with industry-leading or influential companies that have social responsibility and have a good corporate image. Such enterprises usually have rich industry experience and resources, can provide more practical and in-depth integration opportunities, the enterprise itself must also have innovation consciousness and innovation ability, provide the latest technology, equipment and project, help to improve the students 'practical ability and innovative thinking, in the integration also can pay more attention to the students' all-round development and the cultivation of social responsibility. In the end, the college chose Select SF Express Co., Ltd. as a partner, to create SF class.

The second step of strengthening the deep integration of schools and enterprises, universities and enterprises should fully realize the importance of school-enterprise cooperation, strengthen communication, and establish long-term and stable cooperative relations. Strengthening cooperation between schools and enterprises can not only implement the fundamental task of cultivating people, but also help to meet the needs of all parties [10]. The college takes the school-enterprise cooperation as the focus of its work, strengthens the cooperation with SF Express Co., Ltd., establishes an internship base or jointly builds a comprehensive logistics training room. Both parties shall clarify their respective responsibilities and obligations, and jointly promote the construction and operation of the training room. In the teaching process of practical training courses, relevant industry standards should be introduced to make the teaching and practice of practical training courses more effective Close to the actual working environment. It helps to improve students' professional quality and adaptability, and shorten the transition period from school to the workplace. College teachers should also own training and equipped with guiding students to participate in the production practice of business ability [11], in order to ensure the teaching quality of logistics comprehensive training course, university-enterprise cooperation, will regularly organize teachers to participate in the enterprise practice activities, understand the latest industry dynamics and technology development, improve the teachers' practical ability and teaching level. In order to continuously optimize the teaching and practical effect of the practical training courses, the school should establish a feedback mechanism with enterprises, collect opinions and suggestions from students and teachers regularly, and adjust the teaching in time Content and method. At the same time, enterprises are invited to participate in the evaluation of practical training courses, and jointly improve the construction and teaching level of practical training courses.

In the third step of strengthening the deep integration of schools and enterprises, enterprises must truly integrate into the training of student talents. China's digital construction continues to promote, the digital transformation of enterprises is the trend of The Times [12], and enterprise transformation is not without the demand for talents. For the digital transformation of related logistics enterprises, the demand for talents is not only required to have relevant logistics professional knowledge, but also required to have the theoretical and practical application ability of information technology related to logistics business, which is very different from the talents needed by traditional logistics [13]. The direction of talent training should match with the needs of enterprises, and the quality should be adapted to the development of enterprises. [14]. Enterprises should work together with schools to develop curriculum syllabi and constantly improve the content of logistics comprehensive training courses. The school and the enterprise can jointly build a digital learning database, and teachers and enterprise technicians can jointly develop teaching knowledge points. In the integration of industry and education, the training goal of applied talents should be combined with the actual development of enterprises and industry [15]. Enterprises provide real industry data, and integrate the real problems faced by enterprises at the present stage into the students' practical training courses. In the comprehensive training of logistics, we can really learn practical things, actually solve the problems of enterprises, provide intellectual support for solving the problems of enterprises, and promote the benign development of university enterprises.

4.3 Hold School-Enterprise Competitions and Include Them in the Comprehensive Assessment of Students

As an important direction of educational reform, the integration of industry and education aims to cultivate high-quality talents with both theoretical knowledge and practical experience. Colleges and universities must strengthen the importance to the integration of industry and education from the training thinking, and actively develop different forms of industry and education integration channels [16]. The school-enterprise competition is an important innovative form of the integration of industry and education, which is of great significance to deepening the integration of industry and education and promoting practical teaching. In order to cultivate students' innovation and entrepreneurship ability, accelerate the construction of high-quality logistics talents, and meet the needs of logistics enterprises, the School of Logistics Management and Engineering of Zhuhai University of Science and Technology and SF Express Co., Ltd. (West Guangdong District) jointly held the "SF Cup" logistics training comprehensive design competition. The competition is a large-scale logistics competition for Zhuhai University of Science and Technology. By solving the practical problems in enterprise production, it has played a positive role in improving the college students' organization and planning ability, analytical problem-solving ability and practical ability, promoting teaching and learning, and cultivating college students in the new era.

The concrete implementation of "SF Cup" logistics training comprehensive design competition is designed by students according to the operational difficulties in quality control in the actual operation, and form a complete design scheme. At the scene of the game, in turn, roadshow and reply link, the judges for the team plan and roadshow situation questions and comments, enterprise representatives and teachers will also be based on the design content, design method, innovation and application, the performance four aspects nine evaluation index of the team logistics comprehensive training design for comprehensive appraisal, course results into the course comprehensive assessment results.

4.4 Increase the Evaluation of Enterprise Teachers and Innovate the Curriculum Reform Mode

The results of "SF Cup" logistics training comprehensive design competition are taken as the basis for the final assessment. See Table 2 for detailed scoring criteria. The course innovates and changes the traditional paper examination methods by developing design schemes and the form of on-site roadshows. Compared with the traditional test paper examination, this form of competition and practice, to a greater extent to stimulate students' enthusiasm for learning, improve the learning effect. Enterprise representatives participated in the defense and scoring, and listened to the solution of students' problems. Enterprises discover outstanding talents through competitions, sponsor prizes, expand corporate influence, and promote corporate culture. The class teacher actually inspects the students can Force, accumulate experience, trigger thinking, and constantly innovate the course content. The final score is composed of student group mutual evaluation + teacher score + enterprise tutor score. The proportion is 10% + 50% + 40%, respectively. The college has always attached great importance to the training of application-oriented, compound and innovative college students to improve students' strain ability, communication ability, team awareness and practical skills. "SF Cup" logistics training Comprehensive Design Competition aims to promote teaching through competition, and expand the classroom teaching to outside the classroom. We will improve the quality of personnel training. School-enterprise competition is an important bridge between schools and enterprises, helping to enhance the understanding and mutual trust between the two sides and realizes learning Students, teachers, and enterprises three parties' win-win. This cooperation mode realizes resource sharing and complementary advantages.

Table 2: Evaluation and Evaluation Table of "SF Cup" Logistics Training Comprehensive Design Competition

metric	Index description (score value)
Design content (30)	Targeted: the problem is accurate, targeted, prominent (10)
	Correcacy: correct content, reasonable scheme, able to solve practical problems (10)
	integrity: Specific, complete, logical and systematic content (10)
design technique (30)	Scientific rationality: loyal to the facts and data provided in the case; reasonable and realistic assumptions; clear and applicable design methods; scientific and rigorous design methods (20)
	Normative: reasonable and standardized application of written and non-written elements (such as charts, software, mathematical models, etc.), submitted and the review materials are complete, standardized, beautiful, and strong performance (10)
Innovation and application (10)	Innovation and application value: reasonable innovation in line with the actual situation of case enterprises; expected after implementation, with certain application value for enterprises or certain guiding significance for solving problems (10)
On-site performance (30)	Description: PPT Exquisite production, rich and varied expression forms; clear, accurate and smooth expression; accurate time control, without delay (10)
	Defense: accurately understand the judges' questions; quick and accurate accurately (10)
	Overall impression: dignified appearance, full of spirit; tacit cooperation and efficient cooperation (10)

"SF Cup" logistics practice comprehensive design competition to realize the high integration of industry, university and research, the practical ability to help students to develop and grow up, and improve the school visibility, through the publicity and promotion of the education concept and teaching mode, so as to enhance the social recognition and support for the integration of industry and education.

5. Impact and Significance of the Integration of Industry and Education on Logistics Comprehensive Training Courses

Through teaching fusion, schools can according to the actual needs of enterprises and the development of the development trend of the industry, adjust the content of logistics comprehensive training and key, enterprises to introduce school excellent professional talents, these enterprise experts not only have rich practical experience, also can bring the latest trends of industry and the needs of the enterprise, enrich the logistics comprehensive training teachers. Enterprises provide strong support for improving the quality of school teaching. Enterprise experts and teachers to participate in the curriculum research together, so that the curriculum content is more close to the reality, more targeted. In addition, the school can obtain the capital and equipment support of the enterprise, upgrade the logistics training room in a timely manner, and improve the existing hardware facilities of the logistics training room.

Enterprises can reduce the cost of research and development and training by sharing the facility resources of universities. The research results of colleges and universities can provide enterprises with the latest scientific and technological information and production technology, and help enterprises to transform the scientific research results into actual productive forces more quickly. By strengthening exchanges and cooperation with universities, enterprises can establish long-term and stable cooperative relations with universities, and constantly improve the breadth and depth of cooperation. This partnership can help enterprises to transform the technological advantages of universities into market advantages, improve their innovation ability, and bring good social and economic benefits. Enterprises can also obtain excellent talent resources from the university, to provide a strong support for their own development hold.

6. Conclusion

At present, China's higher education is facing the pressure of transformation and upgrading. It is urgent to pay more attention to the actual needs, with the goal of cultivating applied talents in line with the development of modern industries, and accelerate the deepening of the integration of industry and education.

Based on the background of the integration of industry and education, through the investigation and study of the comprehensive logistics practical training courses of Zhuhai University of Science and Technology, this paper deeply discusses the reform of the logistics practical training courses in colleges and universities. This paper advocates reaching in-depth cooperation between universities and enterprises to carry out practical teaching and practice training, so as to improve students' employment competitiveness and innovation and entrepreneurship ability. It is proposed to strengthen students' practical application ability and innovation and entrepreneurship ability by strengthening the depth integration of schools and enterprises, building teaching resource database and holding the specific implementation of school and enterprise competitions, and to cultivate high-quality applied talents with international vision and innovative spirit together.

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