

Research on the Curriculum Reform Practice of the Integration of "Post Course Competition Certificate" in Logistics Management Major of Vocational Colleges

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Abstract: In the "Opinions on Promoting the High-Quality Development of Modern Vocational Education" issued by the General Office of the State Council, it is pointed out that it is necessary to improve the comprehensive education mechanism of "on-the-job course competition certificate", design and develop courses according to actual production and job needs, and enhance students' practical abilities. The author focuses on the core courses of logistics management and focuses on cultivating the abilities required for enterprise positions. They align with the standards of the National Vocational College Skills Competition and the 1+X certificate, restructure teaching content, reform teaching methods, innovate evaluation models, and propose a new paradigm for curriculum reform that integrates "job course competition certificate".

Keywords: Logistics management; Post Course Competition Certificate; Curriculum Reform

1. Introduction

On April 13, 2021, at the National Vocational Education Work Conference, Vice Premier Sun Chunlan of the State Council proposed the concept of "post course competition certification" for comprehensive education and improvement of education quality; On October 12, 2021, the General Office of the State Council issued the "Opinions on Promoting the High Quality Development of Modern Vocational Education", which pointed out the need to improve the comprehensive education mechanism of "on-the-job course competition certificate", design and develop courses according to actual production and job needs, develop modular and systematic training course systems, and enhance students' practical

abilities. It can be seen that the comprehensive education of "on-the-job course competition certificate" is of great importance and urgency in improving the quality of vocational education. This paper mainly focuses on the curriculum reform of the logistics management major in vocational colleges, integrating "job course competition certification". It focuses on cultivating the required abilities for enterprise positions, aligns with the national vocational college skills competition standards and 1+X certificates, restructures teaching content, changes teaching methods, innovates evaluation models, forms a new paradigm of "job course competition certification" comprehensive education, and optimizes the path of "three education" reform, It serves the organic connection between "1" and "X", promotes the transformation of skills competition resources, enhances the team teachers' modular teaching design and implementation ability, and provides strong support for comprehensively improving the quality of cultivating composite technical and skilled talents. Taking the course "Modern Warehouse Management" as an example, this article introduces the practical research process of the curriculum reform integrating "job course competition certificate" [1-4].

2. Integration of Job Courses, Competition and Certification, Precise Setting of Course Content

(1) Classroom based on job requirements, focusing on job requirements

Taking the professional literacy, professional ethics, and professional ability requirements of the employment position as the talent cultivation objectives, the curriculum system is designed to analyze the job tasks and professional abilities of the employment position. After sufficient market research, the teaching objectives and content of the course

are determined through joint discussions with industry experts based on the positioning of professional abilities. According to the job requirements, the course of "Modern Warehouse Management" is divided into three modules: inbound operation management, in warehouse operation management, and outbound operation management. Following the basic laws of cultivating students' professional abilities, the teaching content is integrated and sequenced based on real work tasks and their work processes, and the learning work tasks of each module are scientifically designed. And combined with the ability and quality requirements of logistics management major, explore the ideological and political education elements contained in the professional curriculum, play the role of ideological and political education in the curriculum, and integrate patriotic education, professional ethics, current political elements, craftsman spirit, etc. into the teaching content.

(2) Promote teaching through competitions and strengthen professional skills

Vocational college skill competitions are displays of basic and applied skills for positions. Currently, vocational college skill competitions mainly include skill competitions organized by government regulatory departments, vocational skill competitions organized by international organizations, and enterprise industry competitions. the focus of skill assessment varies among different competitions. the "Smart Logistics Operation

Plan Design and Implementation" competition of the National Vocational College Skills Competition takes logistics professional skills as the background, enhances the market matching of cultivating professional talents through the competition, and cultivates students' professional skills and craftsmanship spirit. the competition consists of four parts: logistics operation plan design module, logistics operation plan implementation module, logistics management 1+X professional ability evaluation module, warehouse layout design and equipment simulation building module. In the actual teaching process, the integration of professional course teaching with skill competition standards can achieve the goal of promoting teaching and learning through competitions. Design project-based and modular course tasks according to the rules, content, and performance evaluation standards of the skills competition, effectively decompose and classify the knowledge points assessed in the competition, internalize them into the teaching content of professional courses, and incorporate industry standards, norms, organizational management, professional team collaboration, on-site problem analysis and handling, work efficiency, quality and cost control in the competition Integrating professional qualities in safety and civilized production into daily teaching.

Table 1. The integration of National Competition Content with the Course "Modern Warehouse Management"

Serial Number	module	Competition duration (hours)	weight%	Integration with the curriculum
1	Logistics operation plan design	3	30	Theoretical teaching integrating the management module of inbound and outbound operations
2	Logistics Management 1+X Professional Ability Assessment	1	10	Integrate with the 1+X certificate module and integrate it into course teaching
3	Implementation of logistics operation plan	1	45	Integrating practical teaching into the management module of inbound and outbound operations
4	Warehouse layout design and equipment simulation construction	3	15	Combined with the 1+X certificate related modules, set as the warehouse planning and layout module in the course content
Total		8	100	

When designing the content of the course 'Modern Warehouse Management', the material momentum ABC analysis, receiving inspection, cargo assembly, shelving storage, and other

warehousing operation plans in the competition logistics operation plan design module will be integrated into the theoretical teaching of the warehousing operation

management module. Order effectiveness analysis, inventory analysis, customer priority analysis, inventory allocation plan, replenishment operation plan, etc. will be integrated into the theoretical teaching of the warehousing operation management module. Integrating the content of outbound operation plans such as picking operation plans into the theoretical teaching of outbound operation management module; Integrate the inbound and outbound operations in the implementation

module of the logistics operation plan into the practical teaching of the inbound and outbound operation management modules, respectively; Integrate the logistics management 1+X professional ability assessment module, warehouse layout design and equipment simulation building module with the 1+X certificate related module. As shown in **Table 1**.

(3) Integration of course certification and alignment with professional standards

Table 2. Integration of Logistics Management Vocational Skills Level Certification (Intermediate) Content with Modern Warehouse Management Course

Occupational function	work	Practical examination points (accounting for 15% of the total certificate score)	Theoretical examination points (accounting for 15% of the total certificate score)	Integration with the curriculum
Warehousing and Inventory Management	Warehouse operation management	1. Able to prepare warehouse operation plans and organize their implementation 2. Ability to develop storage plans and determine storage strategies 3. Can determine inventory strategy and select inventory method	1. Understand the content of the warehouse operation plan and the main job responsibilities of the warehouse supervisor 2. Understand cargo classification management and storage strategies 3. Master the methods and content of goods inventory 4. Master the picking methods and strategies of goods	Integrating into the management module for inbound and outbound operations
	Warehouse layout and logistics facility planning	1. Capable of designing storage lines and spatial planning 2. Able to plan and configure storage and handling equipment	1. Understand the types of warehouse space layout 2. Master the functional area division of warehouse layout 3. Master the connotation, influencing factors, and types of warehouse movement planning 4. Understand the importance and types of logistics equipment	Combine with skills competition related content and set it as the warehouse planning and layout module in the course content
	inventory control	1. Ability to develop inventory management plans 2. Ability to conduct inventory analysis and optimize inventory structure	1. Understand the significance, purpose, and objectives of inventory control 2. Master the basic methods and tools of inventory control 3. Understand strategies for reducing inventory levels 4. Understand the methods of inventory analysis	Integrating into the in stock job management module

The logistics management 1+X certificate aligns with the professional skills requirements of enterprise logistics positions, with the goal of cultivating high-quality technical and skilled talents who master the core professional skills of the position, and organically combines vocational education and training. Strengthen

the integration of course certificates, and teach professional courses based on real work tasks and practical cases of enterprises to cultivate students' ability to analyze and solve problems. According to the content requirements of the vocational function modules of the Logistics Management 1+X Vocational Skill Level

Certificate, new technologies, processes, and standards should be incorporated into the curriculum standards and teaching content in a timely manner, and the certification content of each module of the certificate should be integrated into the professional curriculum teaching.

The course 'Modern Warehouse Management' corresponds to the warehouse and inventory management work field in the logistics management 1+X vocational skill level standard, including three work tasks: warehouse operation management, warehouse layout and logistics facility planning, and inventory control. When designing course content, integrate inventory control content into the inventory assignment management module; Integrate warehouse operation management content into the inbound and

outbound operation management module; Integrate the content of warehouse layout and logistics facility planning with the warehouse layout design and equipment simulation building module in the skills competition, and set it as the warehouse planning and layout module, as shown in **Table 2**.

Based on the principle of integrating "job course competition and certification" mentioned above, the course of "Modern Warehouse Management" is set up into four modules: warehouse planning and layout, inbound operation management, in warehouse operation management, and outbound operation management. Each module also includes multiple sub modules, under which specific work tasks are set. As shown in **Table 3**.

Table 3. Design of Course Content for "Modern Warehouse Management" Integrating "Post Course Competition Certificate"

module	submodular	remark
Warehouse Planning and Layout	Warehouse layout design	Integration of competition and certificate content
	Planning of warehousing facilities and equipment	Integration of competition and certificate content
Warehousing operation management	Design of inbound operation plan	Integrating competition content into the course
	Warehousing operation	Integrating competition content into the course
In stock job management	Working in the library	Incorporating certificates and competition content into the course
	inventory control	Integration of certificate content into the course
Outbound operation management	Design of outbound operation plan	Integrating competition content into the course
	Outbound operation	Integrating competition content into the course

3. Innovate Teaching Methods and Organize the Implementation of Course Teaching

(1) Collaborate between schools and enterprises to recruit teachers and establish a curriculum teaching team

The implementation of curriculum teaching that integrates "on-the-job course competition and certification" requires comprehensive changes in teachers, teaching methods, teaching environment, and other aspects. Teachers must be double qualified, with the participation of enterprise technical personnel in the teaching team. the teaching process needs to be carried out in an integrated environment of theory and practice. the modern logistics management major of the school adheres to the construction concept of

"collaborative innovation, open sharing", combined with the digital upgrading of the modern logistics industry and the demand for talent cultivation of the integration of the two industries. On the basis of summarizing the experience of modern apprenticeship pilot programs, it collaborates with typical logistics enterprises in regions such as Jingbo Logistics and Rongqing Logistics to comprehensively cooperate in talents, equipment, venues and other resources, and introduces practical teaching resources from enterprises, Upgrade the planning and construction of internship and training conditions, and promote the cooperation between schools and enterprises to jointly build a high-level practical teaching base for the integration of industry and education. Selecting engineering and technical personnel from logistics enterprises, as well as

highly skilled management talents, to join the part-time teacher resource pool and have two-way flow with professional teachers on campus, provides a high-quality teaching environment and high-level teaching team for the teaching of "Modern Warehouse Management" course.

(2) Team members collaborate and explore the implementation of modular teaching through division of labor

According to the teaching needs of the course "Modern Warehouse Management", a dual teacher teaching team consisting of part-time teachers from enterprises, professional teachers on campus, and guidance teachers for vocational skills competitions will be established. the team members will collectively prepare lessons, collaborate on teaching and research, and fully participate in the entire process of course construction, including course content setting, teaching implementation, assessment and evaluation. Based on the professional fields and technical expertise of team members, clarify the division of teacher responsibilities, continuously optimize course module settings according to the development trend of modern logistics industry, explore the reform of modular teaching mode through division of labor and cooperation in new industrial development models such as smart logistics, and continuously improve teaching quality and effectiveness. the warehouse planning and layout module is mainly responsible for designing specific work tasks and organizing teaching implementation by enterprise mentors and skill competition instructors, introducing new technologies, processes, and standards from industry enterprises, and constructing a teaching system based on real enterprise projects; the theoretical teaching of the management module for inbound, inbound, and outbound operations is mainly the responsibility of professional teachers, who organize and implement teaching in accordance with the professional ethics, professional abilities, and professional literacy requirements of the job position; the practical teaching of the management module for inbound, in warehouse, and outbound operations is mainly the responsibility of enterprise mentors and skill competition instructors. Work tasks are designed based on actual production job requirements, and

vocational core skills are strengthened through the school training center and enterprise production training bases to enhance students' ability to adapt to their job positions.

(3) Reasonably utilizing information technology and reforming and innovating teaching methods

In response to the current requirements and challenges of digital learning for students, combined with the cultivation of supply chain management ideas and information technology literacy, student-centered exploration and implementation of situational teaching, action oriented teaching, work process oriented teaching, project-based teaching and other new teaching methods based on the new generation of information technology, to serve the modular teaching mode and effectively improve teaching quality.

A. situational teaching

Utilize teaching cloud platforms and smart classrooms to build smart classrooms, introduce or create vivid and specific scenes through teaching resources such as cases, animations, videos, and pictures on the teaching platform, and stimulate students' learning emotions. Through various forms of teaching interaction such as online and offline integration, students can actively participate in the classroom, fully reflecting their classroom subject status. At the same time, the new generation of information and communication technology is utilized to break down the spatiotemporal barriers of schools and enterprises, and real-time data, production process videos, and other information of enterprises are transmitted to the classroom, enabling students to understand the practical application of professional knowledge in real situations.

B. Work process-oriented teaching

Utilizing a virtual simulation training room to create a virtual factory training environment based on typical enterprise production operation scenarios and processes, creating a practical work professional atmosphere, aligning teaching organization with professional positions and production processes, forming a work process oriented teaching practice process, transforming various professional abilities into independent and typical work tasks, and integrating work tasks, Transform the action oriented field of the work process into the learning field of the

curriculum, with cultivating students' professional abilities as the core, and integrate teaching to achieve progressive improvement of professional abilities.

C. action-oriented teaching

Relying on the teaching cloud platform, teachers prepare teaching task books, guidance texts, teaching cases and other materials, set work tasks, and use methods such as brainstorming and card presentation to guide students in analyzing problems, making plans and decisions. Utilize virtual simulation training rooms and a teaching venue that integrates theory and practice to guide students in division of labor and collaboration, and implement and complete work tasks. Utilizing the new generation of information and communication technology, connecting part-time teachers in enterprises, conducting on-site teaching in production and work, interacting with students in real-time, guiding them to showcase and discuss tasks, identifying patterns and characteristics, and providing evaluations of the completion of each group's tasks. Action oriented teaching enables students to learn through action, reflect through action, and continuously enhance their practical and innovative abilities.

4. Optimize Evaluation Mode and Scientifically Carry Out Course Evaluation

(1) Focusing on process evaluation for work tasks

The curriculum design of the integration of "job course competition certification" is based on the "typical work tasks" of professions, which are completed through group cooperation. In the process of completing authentic tasks, individuals must have student interaction and group assistance. Through collaborative learning, students discuss task completion plan design, task difficulties and their decomposition, experience exchange and sharing, and create a united and competitive learning atmosphere through intra group cooperation and inter group competition. These behaviors, operating standards, safety regulations, language expression, and the effectiveness of exploring creative task completion during the learning process should be included in the process evaluation of the course assessment. Through evaluation, Promote the construction of a student-centered curriculum, create a personalized and highly

participatory learning experience for students, and better align with their learning characteristics.

(2) Relying on information technology for diversified evaluation

Building a smart education evaluation system that includes multiple evaluation subjects, a comprehensive evaluation index system, multiple evaluation methods, and explicit evaluation results, relying on information technologies such as teaching cloud platforms. Relying on the teaching cloud platform, establish a good teaching effectiveness evaluation system, introduce multiple evaluation subjects such as school teacher evaluation, enterprise teacher evaluation, student self-evaluation, and group mutual evaluation, promote the joint implementation of evaluation by multiple subjects, and ensure the comprehensiveness of evaluation results. Design a comprehensive evaluation index system that includes collaborative exploration ability, problem analysis ability, knowledge mastery ability, and self-learning ability, and integrate it into the teaching cloud platform. By recording students' learning duration, learning trajectory, achievements, and other indicators, comprehensively evaluate the learning effect. Design a diverse evaluation method that includes process evaluation, summary evaluation, and tripartite evaluation to comprehensively evaluate students' learning outcomes. By utilizing modern information technology and big data analysis, monitoring, diagnosing, and evaluating the learning situation of students in various teaching modules, all evaluation results are presented comprehensively and intuitively, forming a personal portrait of students and making the learning process and evaluation results explicit.

(3) Building a credit bank to promote the conversion of learning outcomes

Build a credit bank for vocational education, 1+X certificates, and skill competitions, open a credit bank account for each learner, and record the learning outcomes of 1+X certificates, skill competition awards, and professional course modules obtained by learners into their personal credit bank account for storage. Learners can accumulate and convert their learning outcomes according to their own growth and development needs. Explore the recognition, accumulation, and conversion mode of learning outcomes. After

obtaining vocational skill level certificates and winning skills competitions at all levels, students can be exempted from taking credits for relevant professional course modules.

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