

# Exploration and Innovation of the Teaching Evaluation System of Logistics Engineering Technology Major under the Modern Apprenticeship

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**Abstract.** The construction of teaching quality evaluation system is particularly important in the talent training of modern apprenticeship, which is an important basis for the quality diagnosis of talent training; it is the key to improve the teaching quality by actively constructing a diversified training system with various evaluations. Based on the logistics engineering technology major under the apprenticeship, this paper explores the establishment of a teaching quality evaluation system that is scientific, perfect, conforms to the rules of vocational education, reflects the characteristics of modern apprenticeship, and has the characteristics of logistics engineering technology major, evaluate in the whole process, in many ways and in all directions according to the actual situation. The role of the evaluation system in talent training is given full play to improve the talent training quality of modern apprenticeship.

**Keywords:** modern apprenticeship, logistics engineering technology, teaching evaluation system.

## 1. Introduction

In August 2014, the Ministry of Education issued the "Opinions on Developing the Pilot Work of Modern Apprenticeship", in 2016; the Ministry of Education clearly put forward the "Promote the Pilot Project of Modern Apprenticeship", in December 2017, the State Council issued the "Several Opinions of the General Office of the State Council on Deepening the Industry-education Integration", required fully promote the talent training pilot project of modern apprenticeship. In 2017, Hunan Modern Logistics College cooperated with Anji Zhixing Logistics Co., Ltd., and the modern logistics apprenticeship project of point logistics engineering technology major was successfully selected into the second batch of modern apprenticeship pilot projects of the Ministry of Education, schools and enterprises jointly practice talent training of modern apprenticeship. At present, both schools and enterprises are committed to exploring the in-depth study of the talent training mode and the teaching management system of logistics engineering technology major under the modern apprenticeship, aim at theoretically promoting the reform of the training model of technical and skilled talents, improve the fit between construction of logistics engineering industry and development of logistics industry, improve the quality of talent training and the ability to serve industry in higher vocational colleges.

## 2. Analysis of the Characteristics of Logistics Engineering Technology Major

### 2.1 Training Goal of Major

The logistics engineering technology major is based on the logistics system, and studies the resource allocation of logistics system, the engineering field of the control, operation and management of the logistics operation process. It aims to study the planning and design of resource optimization allocation of logistics system, the planning and control of the logistics operation process, and the talents of enterprise logistics management.

### 2.2 Construction Features of Major

The school adhere to innovate and practice "school-enterprise cooperation, work-learning combination" talent training mode, and deeply cooperate with some large domestic enterprises to jointly train high-quality logistics engineering and technical talent. The school actively builds off-campus employment bases to fully guarantee high-quality employment of graduates. Pay attention to

the achieve mastery through a comprehensive study of the subject, in addition to obtaining the graduation certificate, the student can also obtain the professional grade certificate, namely obtain "1+X" certificate.

### **2.3 Curriculum System of Major**

The construction of curriculum system of major covers basic courses, professional courses and extended courses. Its aim is to orient logistics occupational group and train logistics engineer with the comprehensive development of morality, intelligence, physical education, art and labor, a certain scientific and cultural level, good professional ethics and innovative consciousness, the craftsmanship spirit of excellence, strong sustainable development ability, and can engage in aided design of logistics system planning, operation and management of logistics center, production planning and scheduling, automotive logistics business management and logistics project management work. Among them, the basic courses mainly include career planning, innovation and entrepreneurship guidance, engineering drawing, AutoCAD, logistics engineering introduction, supply chain management foundation, etc.; professional courses mainly include logistics engineering project management, warehousing and distribution practice, logistics system planning and design, etc.; the extended courses mainly include planning and design of logistics park, intelligent logistics technology and application, Internet of Things technology application, mechanical 3D modeling technology, logistics laws and regulations, data analysis and application, etc.

## **3. Development Status of Teaching Evaluation System of Modern Apprenticeship**

### **3.1 Development Status of Teaching Evaluation System of Foreign Modern Apprenticeship**

Modern apprenticeship is a very popular talent training mode in developed countries. The EU's 2012 report shows that 24 of the 27 EU member states have implemented modern apprenticeship at the secondary level and 14 countries have adopted modern apprenticeship at the higher education level. Especially in the manufacturing and craftsmanship countries represented by Germany, the United Kingdom, and Switzerland, the implementation and development of modern apprenticeship have greatly promoted the economic development of the country [1]. According to foreign research, the modern apprenticeship in different countries has a slight difference in the evaluation index emphasis. Among them, the British apprenticeship emphasize that meet the standards of employer design, it has a comprehensive training and evaluation system based on the ability results, there is no strict requirement for teaching methods, teaching progress and teaching content in the apprenticeship process, more attention is paid to the evaluation of vocational skills and apprentice effectiveness, and focus on monitoring the training results. In Germany, besides guild conduct appraisal and evaluation for apprenticeship skills, employers prepare final exams for apprentices, the exam is a standardized national level exam.

### **3.2 Development Status of Teaching Evaluation System of Domestic Modern Apprenticeship**

At present, the domestic research on the evaluation system of apprenticeship teaching quality is not rich enough; most scholars analyzed single existing method, unreasonable setting of the multi-evaluation subject, the unscientific weight distribution in the evaluation index system, the late feedback of the results and the Feedback improvement suggestions lack guidance and relevance, emphasized the combination of empirical evaluation and humanistic evaluation, and emphasized teaching evaluation should adhere to the "student-oriented" value concept.

### **3.3 Development Status of Modern Apprenticeship Evaluation System for Logistics Engineering Technology Major**

At present, the research on the teaching evaluation system of logistics engineering technology major under the modern apprenticeship is basically zero. Relevant research only indirectly points out

the importance and necessity of the system construction of modern apprenticeship teaching evaluation in logistics engineering technology major, but lacks innovative empirical research and action research. In order to train high-level technical and skilled logistics talents for logistics engineering technology major, it is imperative to build a whole process, many-sided and all-round teaching evaluation system based on actual conditions.

#### **4. Build a Whole-Process, Many-Sided and All-Round Modern Apprenticeship Evaluation System of Logistics Engineering Technology Major**

##### **4.1 Broaden the Time Dimension and Achieve Full Process Evaluation**

According to the teaching objectives and teaching norms of logistics engineering technology major under the modern apprenticeship, the dynamic management of professional teaching quality can be conducted, and the teaching quality monitoring mechanism of closed-loop control can be established. The database is established from admission, collect all types of data from the admission to the apprenticeship period timely and standardized, establish apprenticeship learning practice management files, regularly check the study and practice condition, track, guide and manage apprentice learning practice process during the whole process, track and investigate the employment development condition of apprentice after graduation. Through collecting, analyzing and monitoring all kinds of teaching information, the teachers report the problems in the teaching process in time, and effectively control the teaching implementation process, check and evaluate the teaching effects, and study the teaching decisions suitable for it, use time as a coordinate, the apprentice's horizontal and vertical development contrast indicators are designed.

##### **4.2 Expand and Refine Evaluation Indicators to Achieve Many-sided Evaluation**

Combining the characteristics of logistics engineering technology major, constructing a comprehensive teaching evaluation indicator, formulating theory teaching, practical teaching, evaluation, and comprehensive quality evaluation system for modern apprenticeship of logistics engineering, and clarifying evaluation objectives, subjects, indicators, implementation methods, processes, and feedback, etc., and making the corresponding dynamic adjustment plan. The evaluation index should be based on job skills evaluation, coordinated development of all aspects as goals, focusing on the realization of students' lifelong learning, meeting the development of the social industry and improving the overall quality of individuals.

Since the logistics engineering technology major focuses on the logistics park, logistics enterprise, logistics planning enterprise, logistics department of manufacturing enterprise and logistics technology enterprise management (industrial) engineering and technical personnel occupation group, and trains logistics engineers with strong planning and operation abilities. Therefore, in addition to theoretical study, the teaching evaluation system of logistics engineering major specialty should pay more attention to the investigation of apprentice's practical ability, emphasis should also be placed on the investigation of the skills imparting of school teachers and enterprise teachers. Therefore, the evaluation system of teaching quality should not only include students' evaluation for teachers, teachers' evaluation for students, teachers' evaluation for teachers, teaching supervisors' evaluation for students and teachers, more importantly, teachers' evaluation of teachers and students in enterprises, enterprise teachers' evaluation for teachers and students, school teachers' evaluation for enterprise teachers, in order to fully and effectively reflect the quality of teaching.

Under the concept of modern apprenticeship, combined with the construction characteristics of logistics engineering technology major, and guided by professional post demand, the evaluation system closely linked with the national vocational qualification system is established, and the evaluation indicators and methods are adjusted. The schools urge students to actively prepare for the vocational qualification examination, respond to the call of "1+X" certificate requirements, and improve their professional accomplishment. At the same time, combined with various skills

competitions of logistics engineering major, the competition participation rate and the award-winning rate are included in the evaluation indicators to urge learning.

Considering the talent training requirements of logistics engineering technology major, the evaluation of the comprehensive quality of apprentices is particularly important. Therefore, under the modern apprenticeship, the logistics engineering technology major intends to include apprentice ideological and political education in the evaluation system. Expand, refine and rationally distribute the apprentices' working attitude, teamwork ability, innovation and entrepreneurship ability, and post competency, sustainable development ability, etc., scientifically evaluate the overall quality of apprentices.

### **4.3 Build a "Three Tutors" Training System and Achieve All-round Evaluation**

The talent training program of modern apprenticeship is based on a series of mature teaching theories. On this basis, the talent training program of modern apprenticeship of logistics engineering technology major combines professional characteristics, and further explores the "professional literacy teaching theory based on cognitive apprenticeship" and "professional literacy education theory of skilled talents based on integration theory", school tutors, corporate tutors, career planning instructors to jointly cultivate, build "three tutors" training system, namely school tutors, enterprise tutors, career planning tutors jointly train students. The career planning tutors are mainly responsible for apprentices' ideological and political education, training their craftsmanship spirit, cognition of professional positions and professional pursuit. The daily evaluation of teaching quality is organized by both schools and enterprises, according to the principle of combining process evaluation and final evaluation, the three tutors, industry, enterprise experts or third-party institutions evaluate the learning situation of apprentices. After completing the training tasks for each post, the apprentices' self-identification, the school tutors conducted a theoretical evaluation for the apprentices, the enterprise tutors and industry experts conducted skill evaluation for apprentices, and the three tutors jointly evaluated the apprentices.

## **5. Conclusion**

The pilot project of modern apprenticeship in vocational colleges in our country is derived from the Reference of talent training mode in Europe and America developed countries, the goal of implementing the modern apprenticeship pilot project is to establish a modern apprenticeship system at the national strategic level. Therefore, under the bright environment of the logistics industry, it is necessary for the society to work hard to grasp the essential characteristics of the apprenticeship, and explore the whole process, many-sided and all-round teaching evaluation system peculiar in the logistics engineering technology major according to the industry and major background, and provide typical cases for the formulation of modern apprenticeship evaluation system at the national level.

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