

Research on the Reform of Comprehensive Education Model in Higher Vocational Colleges from the Perspective of Integration of Industry and Education

Yefei Lei

Tianjin Vocational Institute, Tianjin, China

Leiyefei314@126.com

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Abstract: Textbooks are the practical carrier for achieving education, and their reform is of great significance for the development of vocational education. This article proposes a new path for the construction of loose leaf textbooks under the background of the 1+X certificate system. Improve the adaptability of textbooks according to the requirements of enterprise job standards. According to the needs of curriculum reform, improve the structure of textbooks. Optimize the target of the textbook by comparing with the new technical standards of the competition. Integrate the X certificate standard into the content of the textbook, strengthen the systematic nature of the textbook, and deepen the reform of the textbook.

1. Introduction

The automotive industry has become an important pillar industry of China's national economy. The continuous innovation and iteration of automotive products and technology have brought huge challenges to the automotive maintenance industry. The demand for job and professional abilities of employees has changed, which has put forward new requirements for the training of automotive maintenance technical skills talents. The school has encountered some problems in the development of the service industry and the practice of talent cultivation. One issue is the lack of attractiveness of schools to enterprises, the lack of endogenous motivation for cooperation between enterprises and schools, and the lack of deep cooperation between schools and enterprises[1-2]. Secondly, it is difficult for enterprises to apply the latest technology to teaching in a timely manner, and new technologies, standards, and norms are not introduced into the classroom in a timely manner. Thirdly, there is a lack of close integration between the teaching process and the production process, resulting in insufficient cultivation of practical abilities[3].

2. Identify the coupling points of school enterprise interests

Based on the interests and needs of schools, enterprises, students, and employees, establish a "interest coupling" cooperation mechanism to solve the problem of cooperation but not deep in talent cultivation, and collaborate to build a community with a shared future for schools and enterprises. Focusing on the common interests of schools and enterprises, coupling mutual needs, and building a community of shared future for schools and enterprises that is mutually integrated and symbiotic. Jointly build a talent cultivation and employee training system, and jointly develop and implement a talent cultivation path of "ideological and technological integration"; Jointly build a physical campus enterprise technology training center, carry out the "six co" cooperation of equipment, technology, standards, teachers, culture, and resource sharing, and create an innovation platform that integrates production, teaching, research, and incubation. Meet diverse needs such as student development, corporate interests, employee value-added, and social services, complement and promote deep cooperation between schools and enterprises, and achieve win-win outcomes in multiple aspects[4-5].

3. Integration of Post Course Competition and Certification

3.1 Integration of posts and courses

Build Integration of posts and courses, strengthening the depth of integration of industry and education and the level of cooperation between schools and enterprises. It breaks the traditional curriculum system, reorganizes the teaching content, and reconstructs the classroom teaching ecology, so as to realize the integration of the curriculum and the ability requirements of automotive mechanical and electrical maintenance technicians. School-enterprise co-construction of Lincoln China, Ford, Jiangling Ford and Dongfeng Nissan five campus enterprise training centers, smooth enterprise practice path[6]. The school and the enterprise jointly operate the enterprise training center, and the enterprise trainers and professional teachers jointly form a training team. Each professional teacher shall undertake the enterprise training task for no less than 6 periods per year to implement the requirements of teachers' enterprise practice. Through the implementation of the role exchange between professional teachers and enterprise trainers, the ability of "double training" is enhanced. Ensure that new technologies, new processes and new norms are introduced into the classroom in a timely manner[7].

To meet the development needs of the automobile industry and connect the high-end of the industry, with technical skill accumulation and innovation as the link, China Automotive Technology Research Center will build a technical skill collaborative innovation center integrating talent training, team building, technology research and development and service, skill inheritance and innovation, think tank consulting, combined with Tianjin Skill master Studio, the university-enterprise joint development of practical training teaching equipment. Develop product technical standards, actively carry out teaching reform and practice, such as compilation of loose-leaf textbooks, declaration of teaching reform topics, publishing of teaching papers, etc[8].

3.2 Integrated of course and competition

Integrated courses and competitions to improve students' skill level and comprehensive vocational quality. The university - province - national three-level competition system has been established. Carefully study the content of provincial and national competitions, combine competition training with practice teaching, competition training methods with practice teaching methods, competition evaluation standards with teaching assessment standards.

3.3 Integration of course and certificate

The integration of course certificates helps students' personalized growth and high-quality employment, integrates vocational skill grade standards into professional curriculum teaching standards, and integrates vocational skill training modules into professional curriculum structure.

4. Innovative talent cultivation mode

A talent cultivation system matrix that includes a list of innovative professional abilities, modular courses, flexible teaching materials, structured teams, and diversified evaluations, achieving collaboration and integration.

4.1 Develop a list of professional abilities

According to the national professional teaching standards, based on industry, enterprise, and job research, analyze the corresponding job tasks of the position, integrate the 1+X vocational skill level standards, and develop a list of professional abilities in the automotive field [9].

4.2 Develop modular courses

Based on the list of professional abilities, develop modular courses and standards, clearly describe the course objectives, structure, content, and implementation suggestions, integrate new processes, technologies, norms, and ideological and political elements into the course content, achieve the integration of work fields with courses, work tasks with course modules, skill points with teaching

tasks, and complete course reconstruction. Based on the reconstruction of the curriculum, a modular curriculum system of "three stages, four modules, and five directions" is constructed to provide students with multiple choices and serve their diverse talents and comprehensive sustainable development.

4.3 Develop loose leaf teaching materials

Taking students as the center and work tasks or projects as carriers, organically integrating post course competition and certification, based on module course content, supplemented by relevant standards such as the X certificate standard, reasonably arranging technical theoretical knowledge, technical practical knowledge, and knowledge that promotes learning and development, introducing real projects, typical tasks, and representative cases of enterprises, developing loose leaf teaching materials, and achieving dynamic updates of teaching materials in different regions. Schools, teachers, and students can make menu based choices when using textbooks, and are equipped with digital resources such as online videos, online question banks, and application tools to achieve simplicity, practicality, precision, and novelty, so that students can understand, learn, and use them as soon as they learn.

4.4 Build a structured team

Build a structured team, leverage collaborative advantages, and complement skills. Construct a three-dimensional collaborative teaching model with horizontal communication and vertical connection based on "three levels, five modules, and six links". Establish a modular curriculum team, work in division of labor and collaboration, and mix and complement school and enterprise teachers. Each module curriculum is arranged with 2 to 3 teachers to teach in collaboration. According to the identity of teachers and professional expertise, assign tasks, carry out a series of activities such as collective lesson preparation, collaborative teaching research, standardized teaching plan preparation, teaching methods, actively implement action oriented teaching methods such as project teaching method, Case method method, role playing method, and explore AB corner teaching mode, Collaborating between schools and enterprises to implement modular teaching of "one course with multiple teachers, one teacher with multiple courses". Industry mentors deeply participate in the "X" module course teaching by providing real production cases in the automotive industry, directly participating in task teaching, demonstrating key skill operations, guiding students in skill training, and commenting on the standardization and proficiency of student skill training, achieving teaching effectiveness for teachers.

4.5 Implement diversified evaluation

Develop an innovative team teaching quality evaluation plan to comprehensively evaluate the satisfaction of education and teaching through student evaluation, teacher self-evaluation, peer evaluation, and supervision evaluation. Analyze the effectiveness of phased teaching, closely monitor various standards, benchmark the advanced and identify gaps, identify gaps and fill in strengths and weaknesses, and deepen and implement teaching work. Taking students as the center, a diverse evaluation body consisting of professional teachers, industry mentors, enterprise masters, and students is conducted for process evaluation. The X certificate module assessment is used as the final evaluation, and value-added points are added by measuring the degree of learning progress and promotion of the module. The degree of learning achievement is evaluated to test the effectiveness of education.

5. Summary

At present, professional social services for automobiles are limited to utilizing their own teaching and research talent resources, teaching facilities and equipment resources, teaching technology and training resources, and providing talent cultivation (mainly employee training) and talent supply (mainly providing high-quality technical and skilled talents for enterprises). However, services such

as technology supply (including technology development, technical services, and consulting) are insufficient, and the situation of social service capabilities is not optimistic. Vocational colleges should identify the interests of school enterprise cooperation, integrate positions, courses, skill competitions, and skill level certificates, innovate talent cultivation models, and achieve organic coordination between the five social service capabilities and professional construction.

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