

Research on Reconstructing Mechanism and Path of the Higher Vocational Credit System under Innovation-Driven Development Strategy

Xiao Nie

Guangdong Mechanical and Electrical Polytechnic, Guangzhou, 510515, China

freeniexiao@126.com

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Abstract: Under the innovation-driven development strategy, it is inevitable to reconstruct the curriculum system of higher vocational credit system because of the diversified demands of enterprise employment, the internal development demands of higher vocational colleges and the personalized growth demands of students. Based on improving quality, knowledge and potential as a logical starting point, and general platform, professional shunt and multipath training as the critical path, we deeply analyze the breakthrough point, means, support and implementation of the research path. In this way, we promote curriculum structure optimization and innovation of credit system constantly, and improve credit system teaching management and teaching running mechanism.

1. Introduction

Innovation-driven development has become an established national development strategy. In 2016, National innovation driven development strategy program and National Science and Technology Innovation Plan for the 13th Five-Year Plan, which put forward that science and technology and talents become the most important strategic resources for national strength, and “insist on the essential requirement of talent-driven”. It can be seen that talent-driven is the key to innovation-driven development strategy, and the foundation of talent-driven lies in education drive. Therefore, it has become the primary task of higher education to cultivate innovative talents and provide talent support for innovation-driven development strategy, and higher vocational education plays an important role in the process of promoting development strategy. At the moment when the innovative development strategy puts forward new requirements for highly skilled talent, such as senior technicians and skilled workers, it is the key period when higher vocational education reaches a new level and faces new problems.

At present, some achievements have been made in the theoretical research on the credit system of higher vocational colleges, but few specific explorations have been made on the construction path of the credit system, which still needs to be further studied and refined. At the same time, under the innovation-driven development strategy, the higher vocational education is facing new problems, including how to meet the demand of industrial upgrading, such problems as how to improve the innovation ability training, which require refactoring the original curriculum system and talent cultivation mechanism, and realize practice path of higher vocational education to promote the upgrade and drive innovation.

2. The Realistic Demand of Reconstructing the Curriculum System under Credit System

2.1. Demand of Innovation-Driven Development Strategy.

Serving and supporting the national innovation-driven development strategy and regional economic development is the fundamental demand of talent training of higher vocational education. The implementation of national innovation and development strategies, such as made in China 2025, requires higher technical personnel. On the one hand, they need to master new technologies and processes; on the other hand, they need to have good comprehensive quality. The traditional

curriculum system of higher vocational education has been difficult to adapt to the new requirements. It is imperative to form a vocational education curriculum system that connects industries, supports innovation and develops cooperatively.

2.2. Demand of Comprehensive Employment of Enterprises.

Enterprises are the demander of talents, and they are the most sensitive and accurate to the requirements of talents. Under Innovation-driven development strategy, high-end services and high-end manufacturing industry are the focus of new generation of the enterprises, which put forward new requirements to the enterprise independent innovation. So the enterprises need skilled talents with innovation ability and development potential. The demand for talent is no longer a long-term fixed single skills and a single type of work, but rather, comprehensive and practical talents. Therefore, higher vocational education needs to face the innovation of talent cultivation mode, which is based on professional quality, comprehensive development and improvement of innovation ability, so as to provide enterprises with high-skilled talents to meet the job demand.

2.3. Demands of Internal Development of the Higher Vocational Colleges.

Higher vocational colleges have traditionally given professional-oriented curriculum system, and various resources have gradually formed professional barriers. The innovative educational concept of complementary advantages, compatibility and cross-boundary integration among different majors is an effective means to break down professional barriers, which makes resources sharing and cross-boundary association. The construction of the curriculum system should not only consider to meet the students' requirements for the "depth" of professional skills courses, but also consider the demand for the "breadth" of knowledge and the cultivation of professional quality. The vision is no longer limited to own professional, but should start from the large market and industry. All these are the key factors for higher vocational colleges to improve the quality of talent cultivation.

2.4. Demands of Personalized Growth of the Students.

The multiple characteristics of students are the key factors to determine their personalized growth. The diversity of the student source is the main reason of its multiple characteristics. At present, the student source of students includes ordinary high school graduates and "three-school students". Ordinary high school graduates have good theoretical foundation and weak professional practical skills, Students from three-schools are recruited from vocational high schools, vocational secondary schools and technical schools through the peer examination. Such students have weak theoretical foundation and good professional practice ability. The diversity of the student source determines the students growth needs complicated. Ordinary high school graduates have clear demand for employment and higher education, however some students from three-schools have only one need for a diploma, most of them think that theoretical knowledge is difficult to grasp, which leads to the lack of learning autonomy and enthusiasm.

3. The Reconstruction Mechanism Analysis of the Curriculum System under Credit System

The reconstruction mechanism of curriculum system under credit system is the fundamental strategy to deal with multi-demands and the principle support of curriculum system path reconstruction under credit system in Higher Vocational colleges.

3.1. Quality Cultivation, Knowledge Mastery and Potential Enhancement are the Logical Starting Points.

The logical path of the development of curriculum system in higher vocational education is essentially different understanding of the training objectives of talents. The core connotation of the training objectives of modern vocational education is "high quality" and "sustainable development". Firstly, "human development" is the fundamental value of vocational education. Only by sustainable development can people adapt to the change of occupation and improve their skills and qualities continuously. Secondly, "high-quality" is based on development, which represents the

employment ability, and also contains the characteristics of humanism and innovation. To achieve the above training objectives, we need scientific curriculum system, and the quality cultivation, knowledge mastery and potential enhancement are condensed into a “trinity” as a whole, and starting with the “trinity”, the reconstruction of the credit curriculum system can achieve the goal of “quality, technical skills, sustainability”.

According to the logic of “trinity” in the content and objectives of the curriculum system, we analyze the needs of new technology, comprehensive ability and core quality under the strategy of innovation-driven development, and establishes general education courses, professional compulsory courses and open elective courses in the curriculum system (innovation and entrepreneurship courses, enterprise courses, etc.), which can meet the needs of comprehensive talents in enterprises, and effectively serve the national innovation strategic objectives.

3.2. General Education Platform, Specialty Diversion and Multi-Wing Training are the Key Path.

On the way of reconstructing the curriculum system, we should adopt the "three-stage progression" key path of general education platform, specialty diversion and multi-wing training.

The first stage is the general education platform training stage, based on the curriculum system of "general education courses", which will be completed in the first academic year; the second stage is the professional diversion training stage based on the curriculum system of professional compulsory courses. In this stage, students can choose their own specialties, and complete the upgrading of professional skills in a semester or a school year. The third stage is the multi-wing training stage, based on the curriculum system of open elective courses, training time is about in the third grade, the first "wing" is to enter the employment market after graduation; the second "wing" is to choose entrepreneurship after graduation, the third "wing" is to further education, such as the integration of specialized courses; the forth "wing" is for enterprise order cultivation; the fifth "wing" is a compound development, students can minor in other majors, comprehensive development in many directions.

By “three-stage progression” key path, the training stage of general education platform forms a unified professional basic curriculum platform through the integration of cross-professional resources, which is conducive to breaking professional barriers and realizing resource sharing among specialties in higher vocational colleges. In the stage of specialty diversion training, students can freely choose their specialty, which increases the autonomous choice of the students. In the multi-wing training stage, diversified curriculum modules are provided to achieve multi-direction employment, further education, minor courses and innovative entrepreneurship development, and to meet the needs of students' personalized development.

3.3. Personality Regression, Quality Remodeling and Excellent Skills are the Ultimate Goals.

In the past ten years, higher vocational colleges have been exploring credit system, but the effect is not satisfactory. One important reason is that they have neglected the reality of diversification of students' source structure, fluctuation of learning motivation, individualization of learning needs and discretization of career choices. That is, they have not designed curriculum system according to the characteristics of higher vocational students.

Higher vocational education should treat each student differently and reconstruct the curriculum under credit system with the ultimate goal of personality regression, quality remodeling, excellent skills and promoting human development. Firstly, the individualized regression of higher vocational talent training is to conform to the characteristics of students, to provide students with heterogeneous teaching courses, and to break the existing standardized and homogeneous teaching information of talent training by using credit system. Secondly, we should reshape the comprehensive quality of higher vocational students, promote the personality development and sound personality. Finally, we should use the differential training to teach students in accordance with their aptitude and cultivate outstanding skills.

4. Research on the Reconstruction Path of Curriculum System under Credit System

The essence of the path reconstruction of the curriculum system is the process of continuous optimization and innovation of the curriculum structure, as well as the process of continuous improvement of teaching management and teaching operation mechanism of the credit system.

4.1. Breakthrough Point: Restructuring the Course Structure of Credit System.

Based on the construction mechanism of "trinity" and "three-stage progression", the curriculum structure of the three stages follows the basic principle of "trinity", echoes with each other and progresses spirally. Firstly, we study the demand of economic society for higher vocational talent training under the strategy of innovation-driven development. Based on the professional post group, we form a set of similar jobs with similar nature and competence and quality requirements, form a professional group, and carry out job and responsibility analysis. Starting with the main points of the work, the work contents, business logic and core qualities required at all levels are summarized according to the level standards. Then, the elements of post competence are analyzed and refined, and the elements of work competence are compared with those at all levels to determine the knowledge and skills that should be mastered to complete the corresponding job contents. The curriculum structure can be divided into four parts: general education courses, professional compulsory courses, open elective courses and graduation comprehensive practice in final semester. There are 140 credits in total. We rationally arrange the proportion of each part of the credits. Among them, elective credits exceed at least 30% of the total credits.

4.2. Means: Constructing the Teaching Operation Mechanism of Credit System.

Firstly, curriculum resources should be reorganized. The course system of credit system is based on course selection, so sufficient and open course resources are the basic guarantee of credit system. Reorganization of curriculum resources, including the construction of curriculum database and resources adapting to credit system and self-learning, should follow the principles of marketization and flexibility, involve industries and enterprises, and develop innovative and entrepreneurial courses, employment courses, entrance courses and international ability development courses. The construction of teaching resources should consider the adaptability of students, fully integrate information technology, use open course platform, micro-course, course learning website and other ways to enhance the innovation, interaction and interesting of teaching resources. Secondly, the mechanism of guiding students and assisting students should be constructed. Guidance-assisted learning is an important means to realize the "three-stage progression" training mode. After completing the first stage of general education platform training, students will face the choice of the second stage of professional diversion and the third stage of multi-wing choice. Therefore, we need to improve the course selection mechanism and tutor-assisted learning system, and make "guidance and autonomy" choices. According to students' own characteristics, including interest in learning and choice of graduation direction, free course selection is allowed, guided by tutors at key points such as students' course selection, specialty diversion and multi-wing selection, innovative and entrepreneurship guidance, and learning environment of developing personal wisdom, exerting individual potential and constructing students' spiritual garden is constructed.

4.3. Supporting: Improving the Teaching Management System of Credit System.

Around the operation of the curriculum system under credit system, higher vocational colleges need to improve course selection system, tutor performance appraisal system, employment management system, credit management system (including credit measurement and credit score point accounting etc.) they should improve information management means of credit system, support large-scale course selection of students and credit management. The functions of charge according to credit, such as assessment according to achievement points, evaluation of excellent students and graduation according to credit, can be realized. The teaching management system can optimize the allocation of school resources, help the development of students' potential and improve the quality and efficiency of talent training, and support the operation of the credit curriculum

system in an all-round way.

4.4. Realization: Optimizing the Talent Training Scheme of Credit System.

In the process of reconstructing the curriculum system, we should analyze the vocational posts and vocational abilities, orientate the training objectives and specifications, clarify the requirements of knowledge, ability and quality, adopt the logic of "trinity" in the curriculum content and objectives, integrate innovation and entrepreneurship training, and formulate the assessment and evaluation criteria and teaching organization. In the form of training, we adopt the "three-stage progression" operation mechanism, complete the organization of curriculum modules, the arrangement of curriculum credits and the requirements of graduation credits, and form an optimized "sub-module scoring", "diversion training" and "tutoring and assisting students" talent training scheme of credit system.

5. Conclusion

Reconstructing the curriculum system of credit system in higher vocational colleges is an urgent need to adapt to the economic development under the strategy of innovation-driven development. The credit system based on the "trinity" and "three-stage progression" has the following innovative concepts: firstly, the quality cultivation, knowledge mastery and potential enhancement will be condensed into a whole, integrated into the three stages of general knowledge platform, professional diversion and multi-wing training, and scientifically plan the three-year training process of students. Secondly, according to the multiple characteristics of higher vocational students, the curriculum system follows the teaching according to their aptitude, adheres to the ability-based concept of vocational education, serves the overall goal of speeding up the transformation, adjusting the structure and promoting the upgrading of the country.

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