Exploration and Practice of Diversified Talent Training Mode in Vocational Colleges based on the Supply-side Structural Reform

Peng Du¹, ²

¹College of Electromechanical Engineering, Qingdao University of Science and Technology, Qingdao, Shandong, China
²College of Electromechanical Engineering, Weifang Engineer Vocational College, Weifang, Shandong, China

Abstract

Under the strategic background of the adjustment and upgrading of national economic and industrial structure, the structural adaptability adjustment of higher vocational education has become a new problem faced by higher vocational education. In order to ensure the social demand for talents, the reform of talent training mode can improve the teaching quality and achieve the goal of high-tech talents training. From the perspective of supply-side, this paper analyzes the problems faced by the talent training mode of higher vocational education. From the perspective of curriculum reform, teaching mode and innovative thinking, the research on talent training mode is carried out. In order to serve the goal of regional economic development, this paper carries out the reform of talent training mode according to the characteristics of mechatronics technology professionals based on the supply-side structural reform theory.

Keywords

Higher vocational education; Talent training mode; Supply-side.

1. Introduction

At present, China's economic development is entering a new stage. The direction of industrial structure upgrading is to leap to the middle and high-end value chain, to the quality technology brand service competition, and to the low-carbon mode transformation [1-3]. According to the data of China human resources market information monitoring center, 84.4% of enterprises' employment demand is mainly concentrated in manufacturing, wholesale and retail, residential services and other service industries Leasing and business services, information transmission computer services and software, construction and other industries. From these data, we can see that the manufacturing industry in the second industry ranks first in labor market demand. The disharmony of the upgrading and development of economic and industrial structure caused by the hierarchical structure, professional structure and regional layout structure of higher vocational education directly affects the development of Higher Vocational Education from "Plateau" to "peak" [4, 5].

Higher vocational colleges tend to rely on demand side thinking, hoping to strive for more investment from the government, enterprises and industries, and enrich hardware facilities with "fast money", while ignoring the layout of software resources [6]. From the perspective of supply-side reform, the structural contradiction of insufficient investment lies in the imbalance of resource allocation in higher vocational education. Higher vocational colleges should pay more attention to the adjustment of internal structure, reasonably plan and allocate various resources, and improve the input-output efficiency [7, 8].

In order to meet the needs of industrial upgrading and economic development, this paper studies the reform of personnel training mode based on the major of mechatronics. Based on
the theory of supply-side reform, we should carry out the structural adjustment of higher vocational education, and focus on improving the quality of supply and changing the traditional single supply structure. Finally, a supply-side structure with various levels, rich contents, diversity and selectivity will be formed to meet the different requirements of students and different social groups to the greatest extent.

2. Research contents

2.1. Current Situation Investigation

According to the regional enterprises and units, this paper carries out the research on the demand of talent training, especially the research and carding on the technical skills demand of higher vocational graduates from mechatronics technology major. This paper analyzes and summarizes the talent training mode reform and achievements of other vocational colleges in China, and forms relevant summary reports. Combined with the new requirements of higher vocational colleges, this paper studies the personnel training mode of mechatronics and other majors. Relying on the major of mechatronics, it actively connects with local excellent enterprises, such as "Caterpillar", the world's top 500 enterprise, "Weichai Power", the giant of internal combustion engine industry, and "goer", the electronic product processing enterprise. It also establishes joint training programs and modern apprenticeship classes to give full play to its professional advantages and promote regional economic development.

2.2. Curriculum Reform

By carrying out the "Internet + supply-side reform" curriculum reform, we can realize the transformation of the way of curriculum teaching. In order to ensure the diversification of teaching forms, the curriculum reform includes not only the way of thinking, but also the technical characteristics. Higher vocational education should be based on the characteristics of students' academic burnout, concrete thinking and practical needs, rely on Internet technology and adopt multi-dimensional way to achieve the presentation of teaching content. Carry out experiential courses to simulate the professional environment, and use the opportunity of internship to strengthen the combination of theoretical knowledge and practical ability.

2.3. Optimize the Education Mode

The outline of national medium and long term education reform and development plan (2010-2020) proposes that by 2020, a modern vocational education system will be formed to adapt to the transformation of economic development mode and the requirements of industrial structure adjustment, embody the concept of lifelong education, and coordinate the development of secondary and higher vocational education. We should create a layered whole process education mode to enhance the fit of talent training. Integrating through thinking to develop diversified growth path for students. It can be seen that higher vocational education should fully integrate through thinking into the process of talent training, comprehensively promote the convergence of all kinds of education at all levels, and provide students with diversified growth paths.

2.4. Innovative Thinking

In order to improve students' Entrepreneurship and employment ability, actively promote innovation and entrepreneurship education reform and practice. In addition, in order to provide more entrepreneurial opportunities for students, we use innovative thinking to build a multi-channel entrepreneurial platform for students. Cultivating innovative talents is the fundamental task of higher vocational education. Its main goal is to improve students' creativity, and to enhance their innovation and entrepreneurship quality. In order to speed up the implementation of innovation driven development strategy,
we take "mass entrepreneurship and innovation" as an opportunity to push forward a new round of talent training mode reform of higher vocational education, accelerate the improvement of ability oriented innovative talent training system and education mode, and promote the coordinated development of students' knowledge, ability and quality.

3. Exploration and Practical Reform of Talent Training Mode

The construction of "platform sharing, direction diversion, expanding mutual selection" professional curriculum system based on the typical links of intelligent manufacturing production.

The major of mechatronics technology is based on the post standards of employees in first-class enterprises at home and abroad (such as Caterpillar, Weichai Power, Goethe, BIDWIN, etc.) to create a talent training standard that meets the needs of enterprises. Learn from foreign advanced teaching ideas, such as German dual system, American stem, etc., take the development needs of domestic regional system as the goal, absorb new technology, new assembly, new materials and new enterprise ideas of the industry, integrate them into the existing professional courses, and even develop new courses.

"Caterpillar modern apprenticeship class" of mechatronics technology major is a pilot project of Modern Apprenticeship of Vocational Education in Shandong Province. Taking the construction of apprenticeship pilot project as an opportunity, this paper summarizes the experience of pilot project construction, and deeply implements the modern apprenticeship training mode.

"Four stages, double track operation" to cultivate excellent apprentices. "Modern apprenticeship" teaching takes the form of school enterprise and enterprise school to complete the training process. The whole talent training should complete four stages of learning. The first three semesters of students study on campus, the fourth and fifth semesters of students study in enterprises (including enterprise schools), and the sixth semester of students work in enterprises. The two sides of school and enterprise adopt the way of dual track integration. During the period of study in school, the main professional courses and assessment are followed up and implemented by the enterprise master team, and the school is responsible for the assessment of part of the practical operation, theoretical learning and moral education performance; during the period of enterprise apprenticeship, the apprentice's post skills and practice are assessed by the master, and the apprentice's behavior habits and moral education performance are assessed by the school teachers. Double track operation, each to fulfill their responsibilities, jointly assume the responsibility of personnel training.

The major of mechatronics technology draws lessons from the "Caterpillar" training mode of the world's top 500 enterprises, designs and implements the personnel training scheme according to the general requirements of "three types (innovative, developmental and compound)" development, and actively explores and gradually deepens the reform of the "five modernizations" personnel training mode guided by the project.

"Five modernizations" are project platform, modular curriculum, standardized teaching, post quality and enterprise evaluation. Integrating the professional qualification standards and enterprise production standards, according to the enterprise post needs and students' career
characteristics, the school teachers and enterprise masters jointly discuss the training goal positioning, carry out post ability analysis, jointly construct the curriculum system, develop practical training projects and teaching materials, and form 16 training projects with increasing difficulty, which are composed of three modules: professional foundation, professional ability and career development. We should establish a professional modular curriculum system; learn from caterpillar swe training mode to carry out swe standardized teaching; introduce international post literacy with world-class level; learn from caterpillar's level 4 "pqvc" evaluation system to carry out the whole process assessment of some professional courses to form enterprise evaluation.

4. Conclusion

The current stage is a critical period for the leap forward of "intelligent manufacturing", and also a window period for comprehensively promoting the supply-side structural reform and realizing the transformation of the old and new driving forces of industrial growth. Based on the supply-side structural reform is the key task of the current economic work, the exploration and practice of diversified talent training mode in Vocational Colleges Based on the "supply-side structural reform" provides a new idea for talent training in higher vocational education. The research results of this paper will provide a theoretical basis for training more high-quality talents with strong adaptability, innovation and entrepreneurship.

Acknowledgments

The supports from National Nature Science Foundation of China (Grant No. 51674149), Weifang Science and technology development plan project (Grant No.2020GX086) and Research project of Weifang Engineering Vocational College (Grant No.201902).

References