Study on Establishing of Multilevel and Integrated System of Vocational Education

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Abstract. The establishing of the vocational education system in the era of knowledge economy is an important topic that must be studied and solved in current vocational education. This paper studies and explores multilevel and integrated system of vocational education. This paper puts forward the essential meaning of ‘customization, on-site, internationalization and digitization’ of vocational education, and constructs a multilevel and Integrated vocational education system and training mode, which could train different levels of technical skill talents to meet the lifelong learning.

1. Introduction

The fundamental mission of vocational education is to cultivate high-quality applied talents according to the needs of economic and social development. While the internal and external environment of vocational education has changed, the connotation and extension of vocational education have greatly changed. Give full play to the main role of enterprises in running schools and encourage qualified enterprises, especially large enterprises, to hold high-quality vocational education. Guided by promoting employment and adapting to the needs of industrial development, it is encouraged and supported all sectors of society, especially enterprises, to actively support vocational education and strive to cultivate high-quality workers and technical and skilled talents.

The paper implements the spirit of integration of industry and education, gives full play to the advantages of running schools in the industry, has conducted in-depth research and exploration in the construction of a new era vocational education system and training mode, and strives to cultivate high-quality technical and skilled talents.

2. Build a Complete Hierarchy of Vocational Education

With the development of high-tech industry, vocational education will be further developed, forming vocational education of junior college, undergraduate and graduate level equivalent to general education. Therefore, it is an inevitable choice for the sustainable development of economy and society to stick to the road of multi-level development and build a vocational education system that can train technical and skilled talents at all levels.

Based on the characteristics of the times and realistic needs, the college will study and build a scientific and reasonable vocational education hierarchy to adapt to the economic and social development, make unified deployment, overall management and coordinated
promotion of secondary vocational education, higher vocational education and vocational continuing education, adapt to the diversity of talents’ overall development needs, and reflect the concept of lifelong education.

2.1 Multilevel of Vocational Education System
The paper studied and established three layers of vocational education hierarchy in accordance with the level of vocational education, which are divided into five-years consistent secondary vocational education, higher vocational education and vocational continuing education with employees as training objects. It constructs the structure pattern of vocational education oriented by the development of vocational ability, coordinated development of the pre-service academic education and post-service technical skills training. The flexible transformation training mode from school to job and from job to school is realized.

Firstly, the training object of secondary vocational education is mainly junior high school graduates. These students have a certain level of basic knowledge and skills, but their level is low. Therefore, the training objective of secondary vocational education is to cultivate the primary practical operation talents who are combined with professional and technical skills.

Secondly, the training objects of vocational education at the junior college level are secondary vocational school graduates and ordinary senior high school graduates, who already have the corresponding basic knowledge or vocational skills. Therefore, the training objective of vocational education at the junior college level is to cultivate applied technical talents who serve the frontline in the production, management and service fields of the industry.

Finally, the training object of the vocational continuing education is mainly the new employees of the enterprise, and the teaching is classified according to their professional knowledge and technology. The training objective of vocational continuing education is to cultivate application-oriented senior professionals who serve the frontline in the production, management and service fields of the industry.

In addition, the college holds training courses for advanced technical and skilled talents from time to time. The training objective is to cultivate high-level applied research professionals and serve employees’ lifelong education and learning needs.

2.2 Strengthen the Connection of the Multilevel of Vocational Education
Vocational education is a platform for lifelong education. The rapid development of science and technology requires re-learning of in-service personnel to adapt to the continuous updating of knowledge. The adjustment of the industrial structure requires workers to receive vocational retraining to adapt to the change of occupation. Under the guidance of the concept of lifelong education, vocational education is not phased education. The different layers of vocational education are interrelated and interactive. Therefore, it is necessary to strengthen the connection and communication among different layers of vocational education in various links such as training objectives, specialty setting, teaching resources, teaching process and evaluation mechanism.

Firstly, the internal management system and mechanism is optimized. Centering on the production processes of power systems, the college has built six professional majors. The college has realized the integration of the teaching and the professional training department, the teaching management organization system, the learning management organization system. The teachers training, the construction of training facilities, the unified management of students and trainees are unified assessed.

Secondly, the on-site vocational education resources are built. Vocational education aims at the cultivation of skilled talents, which is characterized by emphasizing practical teaching
and highlighting the training of practical ability. The college has applied advanced technologies such as production site equipment and virtual reality hybrid simulation to build various training bases. As the practice training bases of all layers of vocational education are combined together, it can promote the understanding and the connections between secondary and higher vocational schools and make secondary and higher vocational schools tend to coordinate in the specialty curriculum designs.

Finally, establish a dual-teacher team of teaching and training. The college implements the selection, appointment and assessment system of internal trainers, and establishes a dual-teacher team composed of teaching experts and technical experts, forming a team of trainers with rich on-site experience and strong operational abilities.

2.3 Integration of Vocational Education and Vocational Qualification
The college integrates academic education, training services and vocational qualifications. Through the practice of integrating vocational qualification appraisal into the whole process of talent training at all layers of vocational education, the college has realized the zero connection of learning content, vocational qualification certificate course content and job requirements, and improved the matching degree of students' and trainees' abilities and job requirements. The college has set up vocational skill assessment station and technical skill talent assessment center. On one hand, it provides vocational education students with professional qualification appraisal of primary, middle and senior workers, technicians and senior technicians. On the other hand, it provides talent evaluation services for senior technical talents of the enterprise.

3. The New Connotation of Modern Vocational Education

3.1 Customization Mode of Modern Vocational Education
The development of vocational education service enterprises reflects the customization of its closely linked industries, enterprises, jobs and positions. The industry and enterprise is the evaluation carrier of vocational education quality. In vocational education, we should adhere to the demand orientation, and promote the connection between specialty setting and industrial demand, curriculum content and professional standards, and teaching process and production process. Vocational colleges should realize the close connection with industry enterprises in terms of professional design, courseware design, and education methods. And the professional catalogs, curriculum standards, internship standards, and training standards should timely be updated in accordance with changes in needs, so as to achieve customized design and targeted training, and export technical and skilled talents that are highly in line with enterprise needs.

Based on the customized characteristics of vocational education, we should focus on building a new vocational education talent training model. Based on the module concept, we can divide the vocational education training mode into professional module, teaching material module, curriculum module, teacher module and organization module, etc., and then determine the professional setting and adjust the teaching material system by subdividing the industry market, establish the teaching team and optimize the curriculum by tracking the post demand, and build a customized training mode of vocational education with the characteristics of flexible configuration and quick response, and form a school enterprise cooperative school running mechanism with the requirements of industrial enterprises and types of work as the leading role and the demands of economic construction and social development as the direction, so as to carry out the customized education to the end.
3.2 The On-Site Practice of Modern Vocational Education

Modern vocational education should be carried out on-site teaching based on enterprise standard. The principal of traditional education model is education background first and ability second, so the students usually study in the classrooms. In modern vocational education the students go out of the classrooms and enter the enterprises, which promote the integration of classroom teaching and on-site practice mode and realize the unity of knowledge and practice.

The on-site teaching mode can enable students to realize the integration of theory and practice in the combination of doing and learning and improve their professional skills and quality in an all-round way. Modern vocational education should test the effect of on-site integration through the implementation of skill level evaluation and certification.

Based on the on-site characteristics of vocational education, we should strive to create a school-enterprise collaborative education model. Based on the concept of on-site teaching, we should build a training platform integrating production and education, introduce the latest equipment of enterprises into the teaching process of vocational education, and create an on-site training environment in the school. We should encourage high-skilled talents in enterprises to teach in vocational colleges and realize the on-site ability of vocational education teachers.

3.3 Digitalization of Modern Vocational Education Resources

Digital technology innovation will promote the rapid change of modern vocational education system. In the digital era, the vocational education should actively apply digital and Internet technologies and constantly exploring and innovate the mode of vocational education teaching in the digital environment.

Based on the digital characteristics of vocational education, we should focus on building an intelligent interconnected education and training ecosystem to promote the transformation of vocational education to a digital education model. Vocational colleges can build resource data sharing centers, which comprehensively serve the implementation of teaching activities such as curriculum development, teaching design, teaching implementation and teaching evaluation, and promote the construction and sharing of educational resources across regions and industries.

3.4 Internationalization of Modern Vocational Education Service

The internationalization of vocational education will provide talent support and intellectual guarantee for the industry. The international development of vocational education will further promote technical standards, cultural exchanges and mutual learning.

The internationalization of vocational education should be the comprehensive internationalization of school running concept, management mode, professional courses and teaching staff. On the one hand, we should strengthen the top-level design of vocational education internationalization business, improve the system of vocational education internationalization, and increase funds investment in vocational education internationalization, which promote the all-round internationalization of vocational education school running concept, management mode. On the other hand, it is important for the teaching staff to focus on training high-quality and universal international technical talents, which could effectively enhance the international competitiveness of vocational education.

4. Conclusion

With the rapid economic development, the enterprises need a large number of talents that is knowledge-based, skilled and innovative. The modern vocational colleges should seize the
opportunity of the development of vocational education, respect the rules of vocational education, give full play to the advantages of running schools in the industry, and take positive actions to achieve high-quality development and continuously export technical talents for the enterprises.

5. References
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