

The Enlightenment of German Dual Vocational Education Model to China's Vocational Education

Jingjing Cai, Lei Yang, Qian Zhang*

Department of Health and Social Care, Shanghai Urban Construction Vocational College, Shanghai, China

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Abstract: This paper discusses the dual vocational education (VE for short) model in Germany and its enlightenment to VE in China. With the development of China's economy and industrial structure, the importance of VE has increased, but it faces challenges such as uneven resources and the disconnection between theory and practice. German mode cultivates high-quality technical talents and supports economic development through close cooperation between schools and enterprises and combining theory and practice. Its characteristics include the dual-track education system and the emphasis on school-enterprise cooperation and joint participation in curriculum design and quality evaluation. In view of the current situation in China, the enlightenment includes: the government strengthens support and legislation, deepens school-enterprise cooperation, reforms curriculum design, pays attention to practical skills, strengthens teacher construction, enhances teachers' practical experience, and establishes a teaching quality monitoring system. This aims to promote the reform of VE in China and serve the economic and social development.

1. Introduction

With the sustained development of China's economy and the continuous upgrading of industrial structure, vocational education (VE for short) plays an increasingly important role in cultivating high-quality skilled talents. However, at present, China's VE still faces many challenges, such as the uneven distribution of educational resources, the disconnection between theory and practice, and outdated teaching methods, which all restrict the quality and efficiency of VE [1-2]. At the same time, globalization and technological progress have also brought new development opportunities for VE, especially in the fields of intelligent manufacturing and information technology, which urgently need talents with high professional quality and practical ability.

Under this background, the dual VE model in Germany has attracted wide attention. As a world-famous VE power, Germany's dual system model enjoys a high reputation around the world [3]. Through the close cooperation between schools and enterprises, this model successfully combines theory with practice, cultivates a large number of high-quality technical talents and provides a solid talent support for Germany's economic development [4].

Therefore, this paper aims to deeply explore the characteristics and successful experience of German dual system VE model, and combine with the actual situation of VE in China, analyze how to learn from this model to improve the overall quality of VE in China. Through the research, we can provide useful reference and enlightenment for the reform and development of VE in China, so as to promote the continuous improvement of our VE system and better serve the economic and social development.

2. Overview of dual VE model in Germany

Germany's dual VE model is an educational model that closely combines school theoretical education with enterprise practical operation (Figure 1). The so-called "dual" refers to the two main places of VE: vocational schools (theoretical education units) and enterprise or inter-enterprise training centers (practical operation units). This model originated in Germany, and after years of development and practice, it has become an internationally recognized successful education model.

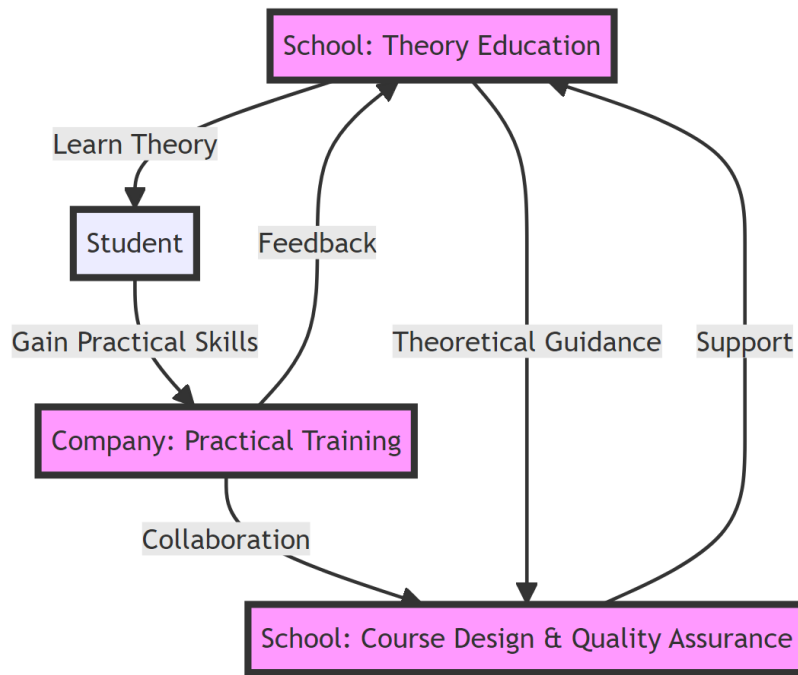


Figure 1 Dual VE model in Germany

In Germany, the dual VE model has a profound historical foundation and wide social recognition. It is not only an educational system, but also a manifestation of cultural traditions and social habits [5]. German society has a high degree of respect and recognition for skilled workers, which also provides a good social environment for the dual VE model.

The core feature of dual system in Germany lies in its dual-track parallel education system. On the one hand, students receive systematic theoretical knowledge education in vocational schools and master the professional foundation; On the other hand, students practice in enterprises or cross-enterprise training centers, deepen their understanding of theoretical knowledge and improve their practical application ability through field operation and experience accumulation. This educational model not only pays attention to imparting knowledge, but also emphasizes the cultivation of skills and the shaping of professional quality. In addition, the dual VE model in Germany also emphasizes the close cooperation between enterprises and schools [6]. Enterprises provide practice bases and teaching resources for schools, and also participate in curriculum design and teaching quality evaluation. Schools provide theoretical guidance and personnel training services for enterprises. This mode of cooperation ensures the efficient use of educational resources and the pertinence of personnel training.

The dual VE model in Germany is a comprehensive, systematic and efficient education model. By combining theory with practice, it has trained a large number of talents with professional quality and practical ability, and provided a solid talent base for Germany's economic development and industrial upgrading.

3. Analysis of the present situation of VE in China

3.1. The development course and present situation of VE in China

After years of development, China's VE has gradually formed a multi-level and multi-form education system covering secondary VE, higher VE and vocational training. In recent years, with the country's emphasis on VE and increasing investment, the scale of VE has been expanding, and the professional settings have gradually become rich and diverse, covering many fields such as machinery, electronics, computers, medicine and health, business and tourism. However, with the rapid development, China's VE is also facing some challenges. On the one hand, educational resources are unevenly distributed, and the teaching facilities and teachers in some areas and schools are relatively weak, which affects the teaching quality. On the other hand, due to the

influence of traditional ideas, the social recognition of VE needs to be improved, and some students and parents have prejudice against VE, which leads to its lack of appeal [7].

VE also has some problems in docking with enterprises and practical teaching. The cooperation between some schools and enterprises is not close enough, and the practical teaching link is weak, so it is difficult to meet the actual demand of enterprises for skilled talents. At the same time, the curriculum of VE and the updating speed of teaching materials are relatively backward, which can't keep up with the pace of industry development in time. While China's VE has made remarkable progress, it still needs to further strengthen connotation construction, improve teaching quality, and strengthen cooperation and exchanges with enterprises in order to better meet the needs of social and economic development and cultivate more high-quality skilled talents.

3.2. The main problems in China's VE at present

At present, some VE institutions in China pay too much attention to theoretical teaching and neglect the cultivation of students' practical operation ability. This bias leads many graduates to master rich theoretical knowledge, but it is difficult to apply it in practical work and lack practical experience. VE needs teachers with both theoretical knowledge and practical experience. However, at present, there are relatively few teachers with this dual ability in VE in China. This leads to uneven teaching quality and affects the all-round development of students. Some areas are rich in VE resources, while others are relatively scarce. This imbalance leads to the inequality of educational opportunities, which makes some students unable to receive high-quality VE.

In the dual system model of Germany, the participation of enterprises is a crucial link. However, in China, the cooperation between enterprises and VE institutions is not close, and many enterprises have reservations about participating in VE, which limits the practicality and application of VE. Due to historical and cultural reasons, the recognition of VE in our society is relatively low. Many parents and students prefer traditional academic education to VE, which limits the development space of VE to some extent.

China's VE still needs to be improved, especially in the combination of theory and practice, the construction of teachers, the balanced distribution of educational resources, the participation of enterprises and the improvement of social recognition, etc., and practical and effective measures need to be taken to promote the sustained and healthy development of VE.

3.3. The difference between China's VE and Germany's dual system

There are significant differences between China's VE and Germany's dual system in many aspects, which are mainly reflected in the education system, teaching mode, enterprise participation and social recognition (Table 1).

Table 1 The obvious differences between China's VE and Germany's dual system in many aspects

Contrast term	VE in China	Dual system education in Germany
Education system	The type of education, which has the same important position as general education, is an important part of the national education system and human resources development. Including vocational school education and vocational training.	Dual-system university education mode is a learning mode that combines university study in colleges or vocational colleges with vocational training or practice in enterprises.
model of instruction	Employment-oriented, pay attention to the combination of theory and practice, and emphasize skill training. More than 1,300 specialties and more than 120,000 specialty points have been set up, basically covering all fields of the national economy.	Practicality is the core of dual education, including two learning places: universities and enterprises. Students spend about two-thirds of their study time in enterprises.
Enterprise participation	The degree of enterprises' participation in VE is relatively shallow, which is mainly reflected in the provision of internship posts and part-time teachers. School-enterprise cooperation is still in its infancy.	Enterprises' deep participation in VE is an important part of dual education. Enterprises and schools jointly make teaching plans, provide internship positions, and participate in student assessment.
Social acceptance	Social recognition of VE needs to be improved. VE is often regarded as an inferior type of education.	Dual education enjoys high social recognition in Germany and is the "golden signboard" of German VE.

In the education system, the dual VE model in Germany emphasizes the close cooperation between schools and enterprises, forming a dual-track parallel education system, that is, students learn theoretical knowledge in vocational schools and practice in enterprises in parallel, and the two complement each other. In China, although the combination of theory and practice is emphasized, in fact, the cooperation between schools and enterprises is not as close as that in Germany, and there is often a problem that theory and practice are out of touch. In the teaching mode, the dual system in Germany pays attention to the cultivation of students' practical operation ability, and the practical teaching links occupy an important position, and the teaching content is closely related to the professional needs. In contrast, although China's VE also includes practical teaching, it tends to focus more on theoretical teaching, and the teaching content is not closely connected with professional needs [8]. In terms of enterprise participation, German enterprises actively participate in VE, provide students with practice bases and employment opportunities, and work out teaching plans and training programs together with schools. However, in China, the participation of enterprises is relatively low, and many enterprises have limited investment and support for VE, which limits the practicality and application of VE to some extent. In terms of social recognition, German society has a very high recognition of VE, and skilled workers are widely respected and recognized. In China, due to historical and cultural reasons, the social recognition of VE is relatively low, and many parents and students prefer to choose traditional academic education.

There are significant differences between China's VE and Germany's dual system in education system, teaching mode, enterprise participation and social recognition. These differences reflect the differences in the concept and practice of VE between the two countries, and also provide useful reference for the reform and development of VE in China.

4. Enlightenment of dual system in Germany to VE in China

4.1. Strengthen government guidance and support, formulate relevant policies and regulations

Drawing lessons from the successful experience of dual VE mode in Germany, our government should strengthen the guidance and support for VE. First of all, it is necessary to formulate and improve relevant policies and regulations, clarify the important position of VE, and ensure that it receives sufficient resources and attention. The government should promote the deep cooperation between vocational schools and enterprises, encourage enterprises to actively participate in VE through tax incentives and financial support, and provide practice bases and teaching resources. At the same time, establish a strict monitoring and evaluation system of VE quality to ensure the teaching quality and improve students' professional quality and practical ability. These measures can effectively promote the development of VE in China and cultivate more high-quality skilled talents that meet the needs of society.

4.2. Deepen school-enterprise cooperation and realize resource sharing and complementary advantages

The core of the dual VE model in Germany lies in the close cooperation between schools and enterprises. This mode of cooperation has important implications for China's VE, that is, we should deepen school-enterprise cooperation, make full use of the respective advantages of schools and enterprises, and realize resource sharing and complementary advantages. Specifically, vocational schools can provide theoretical knowledge support and personnel training services for enterprises, and help enterprises improve the quality of employees and solve technical problems; Enterprises can provide schools with information such as practice bases, teaching equipment and the latest developments in the industry, helping students to better transform theoretical knowledge into practical operation ability. Through in-depth cooperation, the two sides can jointly make teaching plans, develop courses and organize practical training, thus ensuring that the content of VE is closely linked with the needs of the industry.

Deepening school-enterprise cooperation is also helpful to solve the problem of separation between theory and practice in VE in China. Enterprises participating in the teaching process can

enable students to study and practice in the actual working environment, so as to better understand and apply what they have learned. This mode of cooperation can not only improve students' vocational skills and employment competitiveness, but also promote technological innovation and personnel training in enterprises, and achieve a win-win situation between schools and enterprises. Therefore, it is an important direction for the development of China's VE to learn from the experience of Germany's dual VE model and deepen school-enterprise cooperation. Through resource sharing and complementary advantages, we can cultivate more high-quality skilled talents that meet the needs of society.

4.3. Reform the curriculum design and pay more attention to the cultivation of practical skills

The success of Germany's dual education model lies in its teaching method which closely combines theoretical study with practical work. In this mode, students not only receive theoretical knowledge education in school, but also carry out practical operation training in enterprises. This educational model ensures that students can have immediate combat power when they graduate and adapt to the workplace environment quickly.

For China's VE, we can strengthen the cooperative relationship between schools and enterprises, jointly formulate teaching plans and curriculum standards, and ensure that the teaching content closely meets the needs of the industry. The proportion of practical courses is greatly increased in the curriculum system, so that students have more time and opportunities to study and exercise in the actual working environment. The educational institutions should cultivate and introduce 'double-qualified' teachers with both theoretical knowledge and practical experience to improve teaching quality and students' practical ability. Furthermore, they should establish and improve the training base inside and outside the school, providing teaching facilities that simulate the real working environment, so that students can study and train under similar real working conditions. In addition, educational institutions must construct an evaluation system with professional ability as the core, using students' practical ability and professional skills as important indicators to evaluate learning results.

Through the above reforms, China's VE can better meet the needs of social and economic development and cultivate more skilled and high-quality technical talents. This will not only help to enhance students' employment competitiveness, but also promote the development of VE in China to a higher level.

4.4. Strengthen the construction of teaching staff and improve teachers' teaching and practical ability

German dual system emphasizes the close cooperation between enterprises and vocational schools, which requires teachers not only to have solid theoretical knowledge, but also to have rich practical experience. In the construction of VE teachers in China, we should pay attention to encouraging and supporting the establishment of long-term and stable cooperative relations between vocational schools and enterprises, and let teachers have the opportunity to go deep into the front line of enterprises, understand the latest industry trends and technological development, and improve their practical skills and teaching level through co-construction and joint training between schools and enterprises. Attach importance to the cultivation and introduction of "double-qualified" teachers, that is, teachers have both professional theoretical knowledge and practical work experience. By regularly organizing teachers to participate in vocational skills training, industry seminars and other activities, teachers' practical ability and innovation ability can be enhanced.

In order to improve teachers' teaching and practical ability, China's VE should encourage teachers to adopt teaching methods such as project-based and case analysis, and combine theoretical knowledge with practical application to improve students' practical operation ability and problem-solving ability. At the same time, teachers should constantly update the teaching content, introduce new technologies and new processes, and keep the cutting edge of the course content. The government and educational institutions should increase investment in on-campus training bases and off-campus training bases to provide sufficient practice platforms for teachers. Through simulated or real working environment, teachers can improve their professional skills and teaching

skills in practice. The educational institution should establish a teacher evaluation mechanism with teaching quality and practical ability as the core to encourage teachers to continuously improve their own quality. At the same time, the evaluation of students, enterprises and peers is introduced to form a diversified evaluation system to comprehensively evaluate teachers' teaching effect and practical ability.

4.5. Establish a perfect teaching quality monitoring and evaluation system

The success of Germany's dual VE model is partly attributed to its strict teaching quality monitoring and evaluation system. This system ensures the quality of teaching and improves students' professional quality and practical ability. For our country, it is also very important to establish a perfect teaching quality monitoring and evaluation system.

First of all, it is necessary to set up a special teaching quality monitoring institution, which is responsible for regular inspection and evaluation of the teaching plan, teaching content and teaching methods of vocational schools. At the same time, the third-party evaluation institution is introduced to evaluate the teaching quality objectively and fairly to ensure its scientificity and effectiveness. Secondly, establish a student feedback mechanism to encourage students to participate in the evaluation of teaching quality. Students' feedback is an important basis for improving teaching. By collecting and analyzing students' opinions and suggestions, problems existing in teaching can be found and solved in time. In addition, teaching quality should be linked with teachers' performance appraisal to encourage teachers to continuously improve teaching quality. At the same time, it provides enterprises with ways to participate in teaching quality evaluation to ensure the quality of practical teaching.

Establishing a perfect teaching quality monitoring and evaluation system is the key to improve the quality of VE in China. Through various monitoring and evaluation, problems can be found in time and improved continuously, so as to cultivate more high-quality skilled talents and meet the needs of social and economic development.

5. Conclusion

By formulating policies and regulations to ensure that VE receives resources and attention, the government promotes the cooperation between vocational schools and enterprises, and draws lessons from the dual system model in Germany to solve the problem of separation between theory and practice. The university should increase the proportion of practical courses and improve students' vocational skills and employment competitiveness. The school should also improve teachers' practical ability and establish a long-term cooperative relationship between schools and enterprises. In addition, the education authority should ensure the quality of teaching and set up monitoring institutions for regular evaluation. German model provides reference for China's VE reform, and trains high-skilled talents to serve economic and social development.

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