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Research on the Teaching Reform of Vocational Undergraduate Cooperative Education Curriculum

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Abstract **Review Article**

Germany's sound and high-level vocational education is widely regarded as the cornerstone of its growing economic and innovative capabilities. Germany's experience in vocational education has demonstrated basic patterns and provided valuable reference for other countries. Starting from the introduction of vocational education in Germany, this article explores the reform of vocational education and the student-centered concept in vocational education, and analyzes the teaching reform methods of vocational education cooperative education.

Keywords: Teaching Reform, Cooperative Education, Vocational education, Curriculum.

1. German Vocational Education

The scientific research on vocational education in Germany, just like its driving force for the economy, has attracted worldwide attention and always holds a leading position in the world. If the secret weapon of Germany's economic takeoff is Germany's dual vocational education, then these secret weapons are manufactured by Germany's high-level vocational education teacher team, and the theoretical basis for promoting the development, reform, and innovation of vocational education teacher training in Germany is the scientific research of vocational education in Germany. In Germany, where the world famous philosophers such as Hegel and Kant and the great founders of scientific socialism such as Marx and Engels were born, the tradition of speculation had a great impact on the scientific research of vocational education. It is in this speculative soil that many theoretical achievements with distinctive characteristics of vocational education have emerged, highlighting the laws of vocational education itself [1-10].

Throughout the world today, only some countries in the German speaking cultural circle (Germany, Austria, Switzerland) have regarded vocational education as an independent discipline in universities, gathering a large number of experts and scholars specializing in vocational education research, establishing high-level research institutions, and fully utilizing the university's function of combining teaching and research since Humboldt University, cultivating a large number of high-level vocational education teachers, We have also achieved many internationally influential research achievements in vocational education. Vocational education teacher training institutions and corresponding vocational education research institutes have been established in 24 research-oriented universities, including the renowned Dresden University of Technology, Aachen University of Technology, Berlin University of Technology, Darmstadt University of Technology, Munich University, Hamburg University, and Humboldt University, providing strong theoretical support for the development and innovation of vocational education in German vocational schools and enterprises [11-20].

According to the Basic Law of Germany, each state has cultural sovereignty, including education. Therefore, the basic characteristics of the German vocational education system are: all levels and types of schools are national facilities at the state level, and vocational education in the form of schools is the responsibility of each state, implemented in accordance with the provisions of the state's School Law; Off campus vocational education, especially in the form of enterprises, is the responsibility of the federal government and is implemented in accordance with the provisions of the Federal Vocational Education Law (handicraft enterprises are subject to the handicraft regulations).

The most important laws in German vocational education include the Federal Vocational Education Act (1969), the Federal Vocational Education Promotion Act (1981), the Handicraft Regulations (1965), the Federal Labor Promotion Act (1969), the Enterprise Constitution (1972), and the Federal Youth Labor Protection Act (1976). On April 1, 2005, the Federal Vocational Education Act was merged with the Federal Vocational Education Promotion Act, and a new Federal Vocational Education Act was promulgated and implemented after revision [21-30].

The management institutions of vocational education include:

Federal level: The Federal Ministry of Education and Research and relevant federal professional departments, such as the Federal Ministry of Economy and Labor, are the competent authorities for legislation and coordination of vocational education. The Federal Institute of Vocational Education, established in 1970, is a decision-making and scientific research institution established at the federal level to assist the Federal Ministry of Education and Research in addressing fundamental and global issues related to vocational education.

At the state level: the state department of culture and education, as well as the state vocational education committee composed of employers, employees, and representatives of the state government. The coordinating body for education in each state is the Joint Conference of Ministers of Culture and Education of each state, which includes the Vocational Education Committee.

At the regional level: Industry associations, including industrial and commercial associations, handicraft industry associations, agricultural associations, lawyer associations, doctor associations, and other economic organizations, are the most important self-management institutions in German vocational education. They have eight important responsibilities: identifying the qualifications of educational enterprises, reviewing and managing educational contracts, organizing and implementing graduation exams, revising and approving educational deadlines, establishing professional decision-making bodies, mediating and arbitrating educational disputes, and consulting and supervising the educational process Develop and promulgate educational regulations [31-40].

According to the new Federal Vocational Education Law, which came into effect on April 1, 2005, vocational education includes vocational preparation education, vocational education, vocational continuing education, and vocational change education The goal of vocational preparation education is to acquire the basic content of vocational action ability through teaching, so as to have the qualification to receive vocational education recognized by the state Vocational education aims to impart the necessary vocational skills, knowledge, and abilities (vocational action abilities) for engaging in qualified vocational activities through standardized educational processes in response to the constantly changing labor environment, and to acquire necessary vocational experience Vocational continuing education should provide the possibility of maintaining, adapting, or expanding vocational mobility and career advancement Vocational education should impart the ability to engage in another profession.

The German Federal Vocational Education Law only regulates the enterprise part of "dual system" vocational education equivalent to high school.

From a hierarchical perspective, vocational education in Germany is mainly based on secondary vocational education, with over 70% of young people aged 16-19 receiving vocational education. However, since the 1970s, the "dual system" vocational education has gradually extended to higher education, with the emergence of "vocational colleges" and some "vocational colleges" that adopt the "dual system" model, which can be included in the category of higher vocational education.

From a content perspective, German vocational education includes both pre vocational education (preparatory education, vocational education) and post vocational education (vocational continuing education, vocational change education).

2. Vocational Education Reform

Enhance the key educational capabilities of vocational schools. Prioritize the organization of renowned experts, industry elites, and outstanding teachers in professional fields such as modern manufacturing, modern service, and modern agriculture, to create a group of core courses, high-quality textbooks, teacher teams, and practical projects, and timely introduce new methods, technologies, processes, and standards into educational and teaching practices. Expand and strengthen the national vocational education smart education platform, build a vocational education professional teaching resource library, high-quality online open courses, virtual simulation training bases and other key projects, expand the sharing of high-quality resources, and promote the transformation of education teaching and evaluation methods. Widely carry out technical skills training for new business formats, new professions, and new positions, serving the lifelong learning of the whole nation and the construction of a skilled society.

Strengthen the construction of a "dual teacher" teaching team. Strengthen the construction of teacher ethics and conduct, and effectively improve the ideological and political quality and professional ethics

level of teachers. Relying on leading enterprises and high-level higher education institutions to build a batch of national vocational education "dual teacher" teacher training bases, develop a curriculum system for vocational education teacher training, and carry out customized and personalized training. Carry out the action of improving the academic qualifications of teachers in vocational schools, and carry out targeted training of professional degree graduates of teachers in vocational schools. Implement the training plan for renowned teachers (craftsmen) and principals in vocational schools. Set up flexible employment mechanisms, adopt a combination of fixed and mobile positions, and support vocational schools to openly recruit industry enterprise business backbone, excellent technical and management talents for teaching; Set up a number of special posts for industrial mentors, hire engineering and technical personnel, highly skilled talents, management personnel, skilled craftsmen, etc. of enterprises according to regulations, and take part-time teaching, cooperative research, participation in projects and other ways to work at the school.

Build an open regional industry education integration practice center. Benchmark the forefront of industrial development and build an open regional industry education integration practice center that integrates practical teaching, social training, real production, and technical service functions. Build a new batch of public practice centers through government led and multi-channel fundraising; Promote enterprises, especially small and medium-sized enterprises, and parks to improve their ability to integrate production practice resources through government procurement of services, financial support, and other means, and support a group of enterprise practice centers; Encourage schools and enterprises to jointly establish a group of practice centers through the methods of "school in school factory" and "factory in school", to serve vocational school students' internship and training, enterprise employee training, product pilot testing, process improvement, technology research and development, etc. The government invests in maintaining the public welfare attribute, and those built in enterprises enjoy preferential policies such as educational land and public utility fees according to regulations.

Expand the channels for students' growth and success. Building a group of high-level vocational schools and majors that meet the needs of economic and social development and the cultivation of technical and skilled talents, with secondary vocational schools as the foundation, vocational colleges as the main body, and vocational undergraduate courses as the traction; Explore the development of comprehensive high schools and support the educational reform and development of technical schools. Support high-quality secondary vocational schools and higher vocational schools to jointly carry out five-year consistent education, and carry out the integration and cultivation of secondary vocational education and vocational undergraduate education. Improve the vocational education college entrance examination system, improve the enrollment method for the "cultural quality+vocational skills" exam, and expand the enrollment scale of applied undergraduate schools in the vocational education college entrance examination. The enrollment plan is coordinated and arranged by various regions in the annual enrollment scale approved by the state. Improve the methods for undergraduate schools to recruit vocational school graduates with work experience. Based on the characteristics of vocational school students, we will improve the examination methods and training methods for college to undergraduate education, support high-level undergraduate schools to participate in vocational education reform, and promote the integration and coordinated development of vocational education.

3. Vocational Education Reform

An important factor for students to engage in meaningful learning is that the learning content must be linked to their experiences. When students are learning new knowledge, it is difficult to form a new cognitive structure in their minds without a link to past knowledge and experience, and the knowledge they have learned is easily forgotten. Teachers may have encountered such pain in their teaching practice that no matter how they explain a knowledge point, there are still many students who do not understand or understand it, and they can never master it. In the end, students can only be taught to use a "rote memorization" method to cope with exams. I don't know if the teacher has reflected on what went wrong in the classroom that made students drowsy and confused. In fact, besides some frustrating classrooms, many teachers also have many successful experiences. Teachers sometimes find that some students are very active and interested in the classroom, and the entire classroom is filled with a "happy learning" atmosphere. One important reason behind these successful and unsuccessful teaching methods is whether the learning content is related to students' lives.

In a student-centered classroom, teachers should try to draw inspiration from student shields to attract and promote active thinking and participation from students. Teachers closely connect classroom learning with extracurricular practical life, which not only stimulates students' interest in learning, but also effectively promotes the application of students' knowledge.

One important way for teachers to learn to draw inspiration from students' lives is to understand their lives.

A student-centered classroom should give students some autonomy, and students no longer rely

solely on teachers to complete learning tasks. At the same time, teachers need to encourage and promote students to acquire effective learning strategies and skills through reflection and communication, providing strong support for students' autonomous learning.

A student-centered classroom should use diverse teaching strategies to encourage students to participate in various types of learning activities and gain more learning experiences, thereby continuously mobilizing students' interest and motivation in learning and adapting to their differences in learning preferences, initial abilities, and other aspects.

A student-centered classroom should promote students' deep learning and knowledge application. Teachers guide students to deepen their thinking through constantly delving heuristic questions, provide new perspectives and inspiration through peer discussions, and gain opportunities for knowledge transfer and application by participating in learning tasks.

The "student-centered" classroom encourages students to participate in learning activities that encourage reflection, collaboration, exploration, and innovation, and consciously cultivates and develops their problem-solving, collaboration, and innovation abilities in the activities. This enables students to learn to discover, research, and solve problems, cooperate with others, help, and seek help and resources, becoming practitioners with critical and innovative spirit. Therefore, in practice, some science teachers do not directly present formulas or methods to students, but instead design activities that allow students to explore formulas themselves. There are also teachers who design diverse group learning or collaborative learning tasks based on learning content and goals, helping students learn to collaborate with others.

The "student-centered" classroom more respects students' interest and autonomy in learning, therefore, it will appropriately increase activities that highlight students' subjectivity in learning, such as discussions, collaborative tasks, and independent exploration. However, giving students a certain amount of classroom space does not mean letting them "herd sheep". Otherwise, although such a classroom may seem "lively", students do not engage in learning, and the so-called "student-centered" teaching becomes mere formality. Therefore, in a "student-centered" classroom, while highlighting students' learning subjectivity, it emphasizes the leading role of teachers in classroom teaching, and teacher guidance is also more challenging. On the one hand, in the classroom, teachers should carefully observe the performance of students in learning activities, capture valuable questions, provide clear responses to students' questions, and guide them towards their goals; On the other hand, when preparing for classes, teachers need to plan more carefully for the expected self-directed learning activities in the classroom, such as group activities and self-directed exploration activities, to provide students with effective scaffolding, preset possible problems and solutions in learning. It is very important to provide scaffolding for students in autonomous learning activities. Through scaffolding, teachers can effectively guide autonomous learning activities.

In a student-centered classroom, teachers are trusted learning partners for students. In various activities such as students' thinking, discussion, exploration, collaboration, and presentation, teachers should be meticulous observers, serious listeners, and equal interlocutors. Only in this way can they discover students' difficulties in a timely manner, provide them with learning resources, tools, methods, and other assistance, and become facilitators of learning.

In a student-centered classroom, teachers must play the role of organizers and managers of classroom activities. Teachers should naturally and smoothly carry out the classroom, effectively organize each learning activity, mobilize students' enthusiasm to participate in various learning activities, monitor the progress of each activity, and strive to ensure that every student is engaged in learning and completes the activity according to the progress. Through observation, interaction with students, and other methods, the classroom is always guided by the expected learning goals. Only by playing these two roles well can teachers balance efficiency and effectiveness in the classroom, and achieve the expected teaching objectives within the established teaching plan.

The above are the six "student-centered" teaching principles, and teachers should try to fit these principles' guidance in the practical process. Next, let's take a look at Case 2.3. In this case, the teacher creates scenarios and stimulates students' interests based on their actual situation. They create a variety of activities and provide students with abundant resources to complete learning tasks through independent exploration and group cooperation, thus cultivating students' diverse abilities while achieving learning goals.

4. CONCLUSION

The vocational education system in Germany has complete policies and legal guarantees, which help to ensure the quality and sustainable development of vocational education. When formulating vocational education policies and laws, it is necessary to consider the close relationship between vocational education and economic and social development, formulate appropriate policies and legal frameworks, and provide a solid foundation for the development of vocational education. Through practice and skill training, students can learn practical skills in the classroom and

internship, which helps them better adapt to the workplace. Therefore, strengthening the practicality and practicality of vocational education, emphasizing skill training and practical internships in curriculum design, can help students better master the skills and knowledge required for their careers. Vocational education in Germany is closely related to the industry, and students can gain a deeper understanding of the industry through classroom learning and practical internships, thereby improving their employment competitiveness. Strengthening cooperation between vocational education and the industry, establishing closer connections, understanding the needs and development trends of the industry, optimizing vocational education courses, can effectively improve students' professional literacy and competitiveness. Improve the quality and ability of teachers through vocational education teacher schools and practical teaching methods. Adopting various methods to strengthen the construction of vocational education teaching staff, including strengthening teacher training and academic research, improving teacher quality and abilities, and providing better teacher support for the development of vocational education. German vocational education has incorporated career planning and employment guidance into its curriculum design, helping students better understand their career development direction and employment opportunities, and improving their competitiveness in employment. We can continue to strengthen career planning and employment guidance, provide students with more comprehensive and personalized career counseling and counseling services, help them better plan their career development, improve employment quality and satisfaction. Drawing on the experience of vocational education in Germany, we will carry out teaching reforms in vocational education cooperation, improve the quality of vocational education, enhance students' professional literacy and competitiveness, and provide better talent support for economic and social development.

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