

A Comparative Study of Vocational Education in China and Germany

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Abstract: Vocational education is the main way to improve the quality of national skills. In developed countries in the world economy, all are placed in an important position, but specific methods have their own characteristics. The dual system of vocational education in Germany is quite distinctive, and it is also extremely advanced. Today, it is particularly important to learn from the advanced experience of foreign countries when carrying forward the spirit of craftsmen in a great country. Vocational education between China and Germany differs greatly from eight aspects of culture, vocational education concepts and values, legal systems, vocational education models, as well as the construction of the teaching staff and the implementation process of education and teaching. Therefore, Chinese vocational education cannot replicate the German model. It must be based on China's national conditions and learn from German vocational education experience, from improving laws and regulations, strengthening the construction of "dual-teacher" faculty, standardizing the construction of curriculum systems and curriculum standards, and forming an industry-enterprise participation mechanisms and other aspects, carry out practical reforms and innovations to promote the healthy and orderly development of China's vocational education and serve the sound development of the social economy.

Key words: vocational education; dual system; comparison; enlightenment

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I. Comparison of Vocational Education between China and Germany

1. Comparison of Vocational Education Culture between China and Germany

In China, the traditional cultural concept of "learning and excellence" and the value orientation of "official standard" make Chinese people have no idea that who wants to train themselves as skilled workers. Chinese parents and children are committed to experts, scholars or civil servants. They look down on vocational education. At present, due to the rapid development of industry, agriculture, information industry, etc., thousands of senior skilled workers are urgently needed. The state has issued policies to strengthen vocational education, but the traditional forces of habit are still stubborn. High school graduates are still vying for undergraduate universities and are unwilling stepping into a vocational college to learn a skill and becoming a skilled worker, Chinese vocational colleges have always been the choice of those who fail the college entrance examination. Because of this, there are many students who do not like to study in Chinese vocational colleges. Choosing vocational education is basically because of the helplessness of failing the college entrance examination. They treat the school as a vocational intermediary, and they don't think they can seek for their own lives here and pursuit of a certain value or a certain meaning.

But in Germany, in the eyes of the general public,

receiving vocational education is not a helpless choice, but an active requirement, which is equal to other education. German traditional culture fully respects individual choices. The ideological concepts of ordinary Germans formed by this tradition have to a large extent strengthened the determination and courage of German youth to choose vocational education. According to statistics from authoritative organizations, there are 60% in Germany ~80% of school-age young people choose to receive vocational education after secondary education, and only about 20% go to university. ^[1] German students in vocational colleges are not just learning a means of earning a living or finding a job, but more importantly, learning a certain skill, and this skill gives him a very important meaning in life.

2.Comparison of vocational education concepts and values between China and Germany

Chinese society generally despises vocational education. Many employers often use academic qualifications, diplomas, and prestigious schools as the criteria for hiring talents. For example, power plant central control room operators and maintenance workers must be under graduates or even graduate students; a letters and calls bureau recruits 4 receptionists, nearly 10,000 applicants, and the final recruits were all master students from prestigious universities. The abnormal consumption of highly educated students in all walks of life has become a common phenomenon. When many vocational college graduates participate in the competition, it is often difficult to obtain the “entry certificate” for the job position. For example, the civil service examinations of state agencies and village officials are not allowed to participate in for the vocational college graduates. Obviously, unfair social identity dominates the people’s choice to a large extent, causing China’s vocational education to become a helpless choice for disadvantaged groups, and determining the situation in which vocational education has become an education “depression”.

^[2] At the same time, in China, due to the low degree of m

echanization in the manufacturing and construction industries, the harsh working environment, and the low corporate efficiency, the generally low wage income, and the difficulty of realizing personal value, young people are reluctant to engage in low-level technical jobs at the front line of the company. The students of secondary vocational schools are all reluctantly diverted to vocational schools due to poor grades when they graduate from junior high school. Students who enter higher vocational colleges have to choose higher vocational colleges due to poor college entrance examination results. The overall quality of students is poor, the social recognition is low, and it is not welcomed by enterprises.

The German society with a strong nationalist ideology attaches great importance to vocational education as a whole, because the dominance of this kind of thinking makes the German people believe that the manufacture of products is closely related to the strength of the nation, and then vocational education is connected with the strength of the country, which is regarded as a relationship with the future of the country. Therefore, all walks of life in German society recognize the graduates receiving vocational education as well, and they are even willing to provide more jobs and funds to students receiving vocational education. Germans generally believe that academic qualifications and diplomas are only a sign of a person’s level of education, and the degree of social contribution is the only criterion for measuring the social value of various talents. What they admire are those who contribute to the survival and development of enterprises or departments, who made great contributions. ^[3] Obviously, the pragmatic nature of German society makes them pay great attention to the practicality of education, and also makes people think that vocational education is a very natural education in one’s life. This determines the very developed situation of vocational education in Germany. In addition, Germany’s industrial economy is dominant, with developed industrial technology, industrial mechanization and high degree of automation, it needs a large number of

skilled workers with the ability to apply high-end technology, and its advanced manufacturing industry has created a large amount of economic income. Therefore, to engage in first-line technical work in Germany, the working environment is not bad, and the income is high. Students study in vocational schools, and in the future enter the production workshops of enterprises to engage in first-line production work, or enter the vocational colleges to engage in technology development and product design after graduation. It is a good choice for young people.

3.Comparison of Vocational Education Models between China and Germany

The classification of China's vocational education model is concise and clear, and can generally be summarized as secondary vocational education and higher vocational education. Secondary vocational education is after junior high school, including secondary vocational, vocational high school and technical school, and higher vocational education is after high school education.^[4] China's vocational education is basically a monistic model, that is, the school is fully responsible for the training tasks, and the education costs are mainly borne by the parents, the school and the country. The enterprise is only a pure employer and beneficiary. China's vocational education theory learning and skill training can only be completed in schools, and the school system training model objectively keeps students away from the front line of production. Therefore, it is much more difficult for China's vocational education to achieve the goal than Germany, because the ivory tower-style education is out of actual production, and sufficient vocational training cannot be guaranteed, let alone the accumulation of professional experience and the experience of work emotions. China's vocational education has learned and reformed over the years, and its educational goal is essentially the same as that of Germany, that is, the learning of theoretical knowledge + the training of vocational skills.

The German vocational education model is relatively finely divided and complicated, and it is not the same in each state. German vocational education is mainly for junior high school graduates, and most of them are dual system models, that is, training companies and vocational schools are jointly undertaken. Higher vocational education in Germany, with reference to the connotation of higher vocational education in China, there are two major categories: The first category is technical (vocational) colleges, with a two-year school system, recruiting liberal arts high school graduates who have signed a training contract with a company or those who have achieved the same educational background through training will cultivate higher-level practical technical talents in accordance with the dual system model; the second category is colleges and universities, with a four-year school system, including 2 internship semesters, and recruits with at least 3 months of business experience Liberal arts high school graduate. Graduates of dual system training can also apply to enter colleges and universities through tutoring courses in liberal arts and sciences to reach the level of high school graduation.^[5] Various vocational education models in Germany have their own different characteristics and pertinence, but one thing is the same, that is, they place great emphasis on practical education. The German economic and business administration circles refer to graduates of vocational education as "bridge-style vocational talents" who transform theoretical knowledge into practical application technologies. The goal of vocational education is to provide students with necessary basic theoretical education and sufficient professional skills, training to make it a professional talent with the ability to independently engage in professional activities in a certain field.^[6] In Germany, vocational education has the extensive participation of enterprises. Most large enterprises have their own training bases and teachers. Small and medium-sized enterprises that cannot independently provide vocational training in accordance with the training regulations will also pass cross-enterprise training and supplementary training or commissioning by schools and factories.

Other enterprises participate in vocational education by means of training and other methods. These methods can ensure that students complete theoretical study in school and complete practical education in the enterprise. The sufficient vocational training is completed in the actual operation of the front line of production.

4. Comparison of the dual system model of vocational education between China and Germany

In China, in order to meet the needs of economic and social development, vocational education on the one hand strengthens the practical skills of vocational schools and training institutions, on the other hand, it is actively exploring and experimenting with school-enterprise cooperation. However, due to specific national conditions and various objective conditions, the dual system of vocational education in China is not yet mature, the selection of training projects is blind, and there is a mismatch and imbalance between training students and market demand.

In Germany, the so-called “dual system” vocational education refers to a mode in which enterprises (usually private) cooperate with part-time vocational schools (usually public) for vocational education.^[7] Trainees receive vocational skills and corresponding knowledge training in the enterprise as apprentices to better master “how to do”; at the same time, as students in vocational schools, they receive professional theories and general cultural knowledge related to the profession education to understand “why do this” in practice skills operations. In the cooperation between enterprises and schools, enterprises dominate. The dual system of vocational education has become the main form after the implementation of the German Vocational Training Act in 1968. In terms of content, enterprises and vocational schools are the two main bodies of education. The trainees are both apprentices of enterprises and students of vocational schools, and they are supervised by the Federal Government and the State Ministry of Culture

and Education. In terms of effectiveness, focus on practice and highlight skill training. The ratio of theory to practice is about 3:7 or 2:8. About 2/3 of the employed persons have received vocational training in the form of apprentices, and dual system training became the backbone of the Federal German production system.

5. Comparison of the construction of vocational education teachers in China and Germany

Most of the professional teachers in China’s higher vocational colleges come from undergraduate colleges. They enter the school from school. They have no corporate work experience and engineering practice experience, and lack professional practical ability. It is difficult to carry out the design and teaching of work-study courses. At the same time, due to the influence of traditional higher education thinking, professional teachers in China’s higher vocational colleges do not have a deep understanding of vocational education.^[8] They think that vocational education is a lower type of education, and do not realize the important role of vocational education in national economic development. To a certain extent, it has affected the development of China’s higher vocational education. In addition, in China, the teachers for vocational education and skills training are in charge of who pay, and most public vocational schools and training institutions are in charge of the education administrative department, and a small number of them are managed by sections.

Professional teachers in German vocational schools are mainly corporate technical personnel with many years of practical experience. They generally have more than 10 years of work experience, and some come from engineering and technical universities. They also need to have certain corporate experience. German teachers take pride in imparting vocational knowledge and skills to students. They believe that vocational education is education that “helps people live better”. In teaching, teachers not only impart the skills and experience they have accumulated over the years to students, but also

continue to strengthen the connection with enterprises and expand their knowledge fields. In Germany, the vast majority of the teaching team is under the government's supervision and unified into the scope of civil service management. Only a few schools run by enterprises are included in the corporate management system. All public teachers in Germany are civil servants, and their income level is higher than that of other public officials, but teachers must be graduates with teacher qualifications. Coupled with Germany's convenient transportation facilities and complete and equal allocation of public resources, it is very beneficial to both the improvement of the quality of the citizens and the cultivation of skills.

6. Comparison of the implementation process of vocational education and teaching between China and Germany

In recent years, China's vocational and technical schools have made great efforts in teaching reforms, and they have paid more and more attention to the training of students' skills. Many professional courses have borrowed from the German action-oriented curriculum concept and implemented a teaching process integrating "science and practice", namely "learning by doing". The design is quite good, but it is difficult to implement and promote. There are several reasons: First, the lack of funds makes the practical equipment unable to meet the complete work flow, so when the students are at the stage of hands-on operation, only partial training or drills are available; the second is school does not have the training standards formulated by the company, so it is often just a trial to know what is going on. The lack of a real training process prevents students from gaining all experience in the work process; third, there is no strict assessment standard, and no produce economic benefits, training is just a formality. For example, some railway vocational colleges invited the on-site enterprises to help us build the entire railway and put locomotives or vehicles on it. Students can watch it, but it is impossible to realize the hands-on operation.

Vocational education and training in Germany are carried out in the form of productive labor in terms of procedures. Before the productive labor, the teacher arranges tasks in the training site in combination with physical objects, and teaches safety knowledge, task content, tools used, operating procedures, standards and results, and then demonstrate the operation, then the student group will implement it by itself, the teacher will supervise and guide, and finally check the results to see if it meets the standards. This inspection link is very strict. It is based on the standards issued by the enterprise or industry. If the standards are not met, they must be renewed. This teaching implementation process does not seem to be special, but the important thing is that in the implementation process, "standards" have always restricted the entire course of action; in addition, Germany has sufficient education funds, and the quantity and quality of training equipment can be guaranteed.^[9] Students fully complete practical learning. In Germany, vocational training schools have training programs set up in accordance with professional skills requirements. These programs are arranged in order of ability level from low to high, and then practical training is carried out in chronological order. Finally, a practical comprehensive task is completed. For example, for civil engineering majors, students have to build a road to complete their courses, and for railway engineering majors, students have to lay a railway to complete their courses. The standards are consistent with the actual enterprise.

7. Comparison of assessment and evaluation of vocational education between China and Germany

The completion assessment of Chinese students is entirely carried out by the school or even a teacher, that is, school training and school assessment are completely unilateral and lack supervision. In addition, Chinese vocational education still lacks strict examination standards and implementation standards. Rapid development has made many companies urgently need a large number of skilled workers, so they are eager to recruit and employ people for quick success.

ess and instant benefits. As a result, no matter how poor their academic performance is, students are recruited by units that urgently need employment. The pursuit of a higher employment rate for schools is also halfway. The student's completion assessment is in vain. Its vicious impact is that many students learn passively or even not, which has caused the low efficiency or ineffectiveness of teaching in vocational colleges in our country. The teaching function can not be well exerted, and it has a continuous impact on vocational education.^[10]

The German vocational education examination includes the study period examination and the final examination. The examination format includes written examination and practical skills assessment. It is presided over by a special industry examination committee. The examination committee is organized by autonomous organizations in the economic circle, such as the Chamber of Commerce and Industry and similar units. Responsible for the establishment, the members include employers and employee representatives and vocational school teachers. Germany has passed the "Examination Regulations", "Vocational Education Act" and other legal regulations to regulate vocational education examinations, including examination content, scope and standards. The student's assessment result is not determined by the school or a teacher, but by a third-party agency, which ensures the fairness and justice of the vocational education evaluation. The result is strictly linked to the company's employment decision. If the assessment fails, the cancellation of employment contracts signed with students has forced students to study consciously in free time, ensuring the quality of vocational education.

8. Comparison of Vocational Education Management between China and Germany

Vocational education in China is managed by the government and education authorities, with too much government intervention and too little participation by enterprises a

nd industries. Of course, more government intervention can promote the extended development of vocational education. The development of connotation also depends more on the participation of enterprises and industries. China has always emphasized the importance of the development of vocational education, but the effectiveness of vocational education has not been significant.

Vocational education in Germany is jointly managed by the Federal Ministry of Education, the Ministry of Economy and Trade and major industry associations. The German Federal Ministry of Education plays a comprehensive and coordinating role. It is responsible for the revision of the Vocational Education Law, formulating major vocational education policies, supervising the implementation of a series of education regulations, and is responsible for issuing training teachers related education qualification regulations and vocational continuing education Regulations. The Federal Ministry of Economics and Trade is responsible for determining the types of training occupations, unifying the training specifications, content, requirements, qualifications and practices of training teachers, principles of organizing training, matters needing attention, and related examinations after training in various industries. The trade association is the main member of the local competent authority of vocational education. It is responsible for reviewing, supervising and assessing corresponding vocational education activities. It is an important link between vocational education and enterprises and the most important self-management institution for vocational education in Germany.^[11] It has 8 responsibilities: confirming the qualifications of education enterprises, organizing the implementation of final examinations, reviewing management education contracts, revising and approving education deadlines, consulting and monitoring the education process, establishing professional decision-making institutions, mediating and arbitrating education disputes.

II.The Enlightenment of German Vocational Education to China

Through the above comparison, it is found that there is a big gap in vocational education between China and Germany. Combining with China's reality, drawing on and learning from the successful experience of German vocational education in national legislation, government coordination, school-enterprise cooperation, professional setting, teacher training, teaching mode, etc., will help promote the further development of China's vocational education reform.

1.Improve laws and regulations and promote school-enterprise cooperation

From the perspective of laws, regulations and policies, China should learn from the German vocational education experience. The government should issue corresponding laws, regulations and policies, vigorously support and encourage enterprises to actively participate in vocational education, and mobilize the enthusiasm and initiative of enterprises to participate in vocational education with various preferential measures and conditions. At the same time, vocational colleges should also combine their own resource advantages and their own conditions to actively carry out technical consultation and technical services for enterprises, participate in the scientific and technological development and technological transformation of enterprises, and provide technical training and capacity enhancement for enterprise employees.^[12] Only in this way can we truly achieve deep-level cooperation between schools and enterprises, establish a high-quality training base, and cultivate more technical and skilled talents.

2.Strengthen the construction of "dual-qualified" teaching staff and improve teachers' practical ability

In addition to professional theoretical knowledge,

teachers engaged in vocational education must also have higher practical abilities, and they should be updated regularly and keep pace with the times in their careers. When recruiting teachers, schools should comprehensively consider two aspects of knowledge theory and practical experience, create opportunities in daily work, formulate regulations, encourage teachers to participate in social practice, and exercise teachers' practical ability. In addition, vocational colleges can hire part-time teachers outside cooperative enterprises to make up for the shortage of practical teachers. Part-time teachers not only participate in teaching, but also participate in assessment.

Facing the shortcomings of the lack of practical ability of teachers in vocational colleges in our country, an important task at present and for a period of time in the future is to increase the intensity of master training and focus on cultivating teachers' practical ability.^[13] When introducing teachers, they should not only be academics, but should pay attention to his business experience and practical skills. Cultivating a team of high-quality teachers with both profound theoretical knowledge and proficient practical skills is the foundation for the prosperity of China's vocational education.

3.Standardize the construction of curriculum system and curriculum standards

At present, the curriculum system and curriculum standards of many vocational colleges are basically prepared by the teachers themselves and reviewed and implemented by the schools themselves. In fact, this is under-standard. The construction of any professional curriculum system and curriculum standards must be checked by a specialized agency such as a nationally certified industry steering committee. Government departments must clarify their responsibilities after guiding or leading the construction of various industry steering committees, and ensure that its members are

composed of industry experts and teaching experts, so that it has a certain degree of authority.^[14] Each industry guidance committee should go deep into the industry and enterprises at regular intervals to examine the changes in equipment, technology and job content, and then refer to the national professional standards to regulate and update the curriculum system and curriculum standards in a timely manner, including teaching content standards and operations skill training standards, assessment and evaluation standards, and enterprise employment standards. Vocational schools then formulate teaching plans based on these standards of the Guiding Committee of the People's Republic of China to ensure the alignment of course content with professional standards.

4. Give full play to the role of industry associations and form an evaluation mechanism for industry enterprises to participate

The German trade association is the leader in regulating and guaranteeing dual vocational education. In addition to representing the fundamental interests of enterprises in political and economic aspects, German industry associations also provide companies with legal policy consulting services and human resources services. Talent training and reserve are also important functions of industry associations. Chinese industry associations can learn from German experience and serve as the backing of enterprises and the bridge between schools and enterprises.

In Germany, the vocational qualification certificate has a high gold content, which can guarantee the career development of students and is also a statutory certificate for students to complete vocational education. China's implementation of the 1+X certificate system reform can promote the separation of teaching and examination, and guide vocational schools to adopt richer teaching methods such as corporate practice, simulation, training room operation, and real operation; develop work manual-style teaching materials to enable students change from passive to active; at the same time,

increase the amount of practical teaching hours so that students can master professional knowledge and skills more solidly through repeated exercises.^[15] At the same time, the company participates in the preparation of test papers and assesses the professional abilities of students from the perspective of the actual work of the company. During the student's practice in the enterprise, the corporate tutor observes or evaluates the student's business performance.

III. Conclusion

By comparing the differences in vocational education models between China and Germany, there is still a lot of room for development in Chinese vocational education in many aspects. We can fully learn from the essence of the German vocational education model, combine the national conditions, innovate and develop vocational education, improve the level of vocational education, improve and perfect China's vocational education model, and cultivate outstanding talents for society and enterprises. In the future development of vocational education, the top-level design must pay special attention to social orientation. Employment accounts for the majority, and vocational education and skill training are universal education. Vocational education legislation should not only pay attention to operability, but also prevent the fragmentation of policy systems. The dual system of vocational education has been successful in Germany, but the differences in the level of economic development and culture between China and Germany should be fully considered, and the problem of "unacceptable" should be resolved. To clarify responsibilities and give full play to the role of social forces, the government must not be overwhelming; the construction of a stable, high-quality teaching team that matches the goals and tasks of vocational education must be placed in a prominent position. Vocational education and skill training should effectively solve the problem of combining theoretical teaching and practical teaching. To establish a scientific and practical evaluation system for vocational

education and skills training, schools and enterprises must regard the upgrading of skills as the life of vocational education. In the process of vocational education and skill training, one should not rush for success.

The successful practical experience of German vocational education has given us profound inspiration. Chinese vocational education has its own political, economic and cultural characteristics and development background. We must learn from them in a targeted manner according to the national conditions, but cannot imitate them mechanically. As long as we can keep pace with the time to develop vocational education, be determined to reform, and actively explore, China's vocational education will surely bloom beautiful flowers.

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