

# Problems with Rural Vocational Education in China and Countermeasures: Learning from the Experience of German Dual-System Vocational Education

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## ABSTRACT

The purpose of the current study was to provide possible solutions to the problems present in rural vocational education in China; they include limited participation, insufficient educational investments, and the widespread despising for vocational education. Therefore, innovation and reform of rural vocational education become necessary, through close cooperation among stakeholders, optimizing the mechanism of supply of funds, and improving admission criteria of vocational training. Such measures can provide strong support for rural development and revitalization in the new era.

**Keywords:** *Rural vocational education; Germany; dual system; coping strategy*

## 1. INTRODUCTION

Focusing on developing rural vocational education is an important measure to achieve rural revitalization, which is of great significance in putting an end to the intergenerational transmission of poverty. This is because the subpar level of education and practical skills are the main contributors to the continuation of poverty. Therefore, it becomes necessary to examine the current issues regarding rural vocational education under the status quo. Generally, vocational schools in China are not recognized on a societal level, offer unsatisfactory education, and have low participation in all stakeholders as a whole. The present study reviews existing literature on the analyses of these problems and identifies the causes. Subsequently, by analyzing the German dual-system vocational education, which is globally renowned to be successful, this paper offers suggestions for the improvement of rural vocational education in China. Although there has been extensive research on the development of rural vocational education in China as well as the German dual-system education, few studies concentrate on the betterment of Chinese vocational training using the experience of Germany.

## 2. LITERATURE REVIEW

The existing literature on rural secondary and primary vocational education has examined the inadequacies of the current education in various ways. The problem firstly lies in the schools' excessive focus on the percentages of students who enter university or college; the said

phenomenon not only does not help students learn practical skills in production, but also deteriorates the confidence of students who have relatively lower grades, and consequently presses them to drop out of school. However, few authors put forward specific methods of educational reform. For example, Peng You-yuan [1] mentions that the design of educational models ought to be in accordance with the local natural and economic environment in different rural areas; secondary education is the stage with the highest dropout rate, meaning if students can use knowledge learned in their hometowns to obtain better economic benefits, the demand for rural education will largely increase which could greatly promote rural economic growth.

Statistics published by the Ministry of Education in 2018 demonstrate that compared with the previous year, there is a 4.14% decrease in secondary vocational schools in China, resulting in a total of 10,229. Among them, 3,322 are general secondary vocational schools, 1,097 are for adults, 3,431 are vocational high schools and 2,379 are technical schools. The number of students enrolled in secondary vocational education amounted to 15.55 million, 2.34% fewer than the previous year; the figure accounts for 39.53% of all students enrolled in senior high school. There were 1.07 million staff in secondary vocational schools, which had decreased by 1.24% compared to 2017 [2]. As illustrated by the table, the number of students in secondary vocational education in the past decade has been gradually decreasing. With 17.7985 million students in 2009 and 12.1363 million in 2018, the decrease was by 31.81%, almost reaching one third. To conclude, the scale of secondary vocational institutions has reduced.

Table 1. Number of students and faculty in secondary vocational schools in China[2]

<b>Year</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Number of students in secondary vocational schools	12758604	12542893	12136280
Number of admissions in secondary vocational education	5933000	5824000	5570000
Number of graduates in secondary vocational education	5336000	4969000	4873000
Faculty in secondary vocational education	840000	839000	—

Source: Ministry of Education of the People's Republic of China

Unlike the large decline in the number of students in school, the number of full-time teachers in secondary vocational schools tends to remain stable in the past years. From 2009 to 2017, the number of full-time teachers decreased by only 3.16%, in sharp contrast to the decline of nearly one-third of the number of students. The graduation rate in secondary vocational schools has steadily increased from 61.44% in 2009 to 79.19% in 2017, which is by 28.89% [3]. Meanwhile, the number of students enrolled in higher vocational institutions has increased. In 2019, higher vocational colleges enrolled 726,900 students from poor areas, an increase of 245,500 compared to 2015, with an average compound annual growth rate of 10.85% [4]. To a certain extent, this entails that the quality of secondary vocational education has been steadily improving, and the level of education has progressed.

Since the report of the 19th National Congress of the Communist Party of China put forward the rural revitalization strategy, Premier Li Keqiang clearly stated in 2019 that 100 billion yuan will be allocated from the balance of the unemployment insurance fund to carry out vocational skills training. The government plans to train 15 million people in 2019 and more than 50 million in the coming three years, to train talents who are "practical, down-to-earth and adaptive" [5]. Such evidence indicates that the Central Committee of CPC attaches great importance to rural vocational education.

The German dual-system vocational education may provide insight into how to administrate a successful vocational education system. Chen Yu [6] analyzed the critical success factors for the German dual-system from various aspects, and E Tian and SU Yong-chang [7] similarly examined vocational education curriculum in Switzerland -- both to propose some suggestions for Chinese rural vocational education; nonetheless, there remains a lack of systematic advice that takes into account the existing problems in China. Zhang Weisha [8] suggests drawing lessons from the German dual-system for the secondary vocational education in Liangshan ethnic Yi regions but does not apply to other regions in China.

On balance, rural vocational education in China has received attention from the central government, trained talents for rural construction, provided cultural and technical support, promoted the coordinated growth of regional economies, and played a role in achieving rural revitalization; yet, problems persist in the development of

rural vocational education, the causes of which will be further analyzed in the following section.

### **3. CAUSE OF THE PROBLEM**

#### ***3.1. Limited participation of stakeholders***

Schools, being the only participant in vocational education, have not achieved satisfactory results in carrying out such training. The report of the 19th CPC National Congress proposed that we ought to "perfect the vocational education and training system, ameliorate integration of the production process into education, and enhance school-enterprise cooperation". However, at present, the school-enterprise cooperation model that focuses on practice has not yet been formed. The enthusiasm of enterprises to participate in teaching is low, and there are disparities between the curriculum and professional standards, as well as the teaching and the production process. Overall, the problem of "emphasizing theory and neglecting practice" is widespread [9]. Without a beneficial cooperative training mechanism with employers, many students fail to seek employment after graduation and eventually engage in menial jobs that require little expertise; this exacerbates the conventional view that vocational education is a waste of time. Only by actively advancing school-enterprise cooperation can we provide professional and skilled personnel that fulfill the needs of enterprises, assist the development of vocational education schools, and realize the rural revitalization strategy.

In comparison, in the German dual-system, the federal government formulates standardized laws and regulations on vocational education and incentivizes enterprises to participate. State governments provide financial support such as facilities and teachers. In addition, the government entrusts German trade associations to set training qualifications, supervise training processes, and carry out completion examinations. "Dual-system" refers to the vocational education completed by enterprises and vocational schools. Among them, the enterprise imparts occupational skills, teaches in the real working environment, and bears most of the cost of vocational education; meanwhile, vocational schools teach theory and comprehensive skills including leadership, operation

process design, etc. After completion of the training, many students continue working in the enterprise.

### **3.2. Insufficient funding**

To develop rural vocational education, investment in education funds must be increased. In 2018, total investment in education accounted for only 4.11% of China's GDP, which is much lower than the world's average. Under such circumstances, large portions of the funds are allocated to schools in cities, resulting in a small amount for rural vocational education. The uneven distribution of educational resources is apparent in the distinction between faculty-student ratios in central and non-central towns. Some rural central schools' faculty-student ratio reached 1: 1.8, whereas a non-central school may have only 108 teachers teaching thousands of students. This unbalanced distribution indicates that students cannot practice enough [10]. Although there are corresponding increases in investment under the rural revitalization strategy, whether this situation can be effectively improved remains uncertain. The main source of funds for rural vocational education is county and municipal government funding, but education which is less profitable in the short run is often neglected by officials, who opt to invest in projects that yield high economic benefits. Moreover, students' weak ability to pay contributes to the limited development of vocational education.

By contrast, the German system is well established supported by sufficient funding. The German Vocational Training Act emphasizes that the purpose of vocational education is to give students, in a standardized and professional curriculum, the skills, knowledge, and abilities necessary in an ever-changing working environment [11]. Such occupation-oriented teaching requires students to be able to plan, decide, implement, supervise, evaluate, and report on tasks independently in the work environment context [12]. Through vocational education, students not only learn theoretical knowledge and simple skills but also acquire the ability to adapt to rapid development and change of society.

### **3.3. Admission criteria**

Vocational schools are often regarded as inferior among rural parents, which stems from the admission criteria of schools overemphasizing on grades. Under the status quo, students attending vocational schools were eliminated by the examination system and often deemed "incompetent" because they are unable to attend regular schools. As a result, most agricultural workers are unwilling to accept and do not realize the benefits of vocational education. Philip Foster believes that low social recognition is also a cause of the plight of rural vocational education. Only when vocational education is not regarded as a last resort choice for students who fail to enroll in academic schools,

can the skills they learn in vocational education bring benefits.

A major factor in the success of German vocational education is the high recognition of skilled workers in society. According to the data report of the German Federal Institute for Vocational Training (BIBB) in 2015, about 55.7% of teenagers in the German education system choose to participate in vocational education. This is due to both the encouragement from parents and the widespread acclaim dual-system receives from enterprises. Thanks to such vocational training, the graduates are likely to procure employment in enterprises they were trained in, which makes the unemployment rate of young people in Germany the lowest of all European countries.

## **4. SUGGESTIONS AND COUNTERMEASURES**

### **4.1. Cooperation among stakeholders**

The years of practical experience of developed countries have proved that school-enterprise cooperation is optimal in developing vocational education. In Germany, 430,000 enterprises (mainly large and medium-sized firms) participated in dual-system vocational training in 2017, accounting for one-fifth of the total number of firms. German enterprises are willing to actively participate because on the one hand, they demand employees, on the other hand, they benefit from a perfected working model of school-firm cooperation. We may adopt the "teaching factory". Through the combination of vocational education and production in teaching factories, teaching, learning, and practice can be integrated into the process. Taking the clothing studies of Guixi secondary vocational school as an example [13], cooperative firms provide materials or special equipment for processing clothing, students process clothing using said equipment at school, and the products are examined by firms who will offer remuneration to the students. Implementing this model in rural areas can not only solve the financial difficulties of trainees and give students hands-on production and management experiences, but also alleviate unemployment since students tend to be employed preferentially by enterprises after graduation.

Meanwhile, the government as one major stakeholder could set policies to guide firms to participate in vocational education and promote school-enterprise cooperation. To improve the relevant laws and regulations on rural vocational education, we must start with the government. The main complication of the current legal system in our country is the lack of specified implementation stipulations, meaning most are principled provisions. For example, one clause in the Vocational Education Law of the People's Republic of China is that "trade organizations, enterprises, and institutions shall fulfill their obligations to implement vocational education according to law." However, there is an absence of clear provisions on the specific obligation

enterprises must undertake, the penalties given otherwise, or the incentives that should be given to firms that actively participate. In addition, the lack of supervision mechanisms is a concern. Vocational education centers can establish departments that supervise the implementation of laws by the local government and the execution of local policies by vocational schools and report the development needs to the higher government. Simultaneously, the policy of "coordinating urban and rural economic and social development" can be put into effect under such a mechanism to ensure equal pay for rural and urban teachers, share resources, and coordinate development in urban and rural regions.

#### **4.2. Optimizing supply of funds**

At present, the problem of insufficient funding for rural vocational education should be countered by expanding sources of funds and realizing multiple investment modes. On the one hand, the government should assume the responsibility and increase the allocation of funds for education. This reduces the severe imbalance between urban and rural resource allocation and improves the supervision of governments and education institutions. On the other hand, the enterprises in school-enterprise cooperation should invest in the training process of apprentices.

In Germany, the ruling party attempted to pass a law in 2004 stipulating that medium and large enterprises must provide apprenticeships for no less than 7% of their employees each year. That is to say, a medium-sized enterprise with 100 employees and less than 7 apprentices must contribute (Ausbildungsumlage) to the trade association. The amount of which is based on the average cost of training an apprentice in the industry. This training contribution will be used to subsidize enterprises that over-recruit apprentice workers. German enterprises are willing to devote themselves to vocational education both due to their need for qualified employees and the support of perfected policies.

According to data by the German Federal Institute for Vocational Training in 2015, firms bear 84% of the cost of dual-system vocational training. This appears first a loss-making business for firms, nonetheless, the value created by apprentices in the training process can fully compensate enterprises' investments. Besides, the direct training of talents by firms can not only help them obtain more loyal future employees but also save a large amount of publicity, interview, training, and other expenses for recruiting new employees from the labor market. The leading reason for the low enthusiasm of enterprises in China to participate in education is the relatively low recognition of students. For example, under the "2 + 1" model that is commonly used in vocational schools (that is, two years of study in school and one year of internship in designated enterprises in the third year), theoretical courses and practical learning are separated. The phenomenon of more academic courses and less practice in curriculum arrangement is widespread. Furthermore, some teachers

who are unfamiliar with new technology adopted by enterprises teach students outdated knowledge, rendering it difficult for students to adapt to the internship. They are thus assigned basic work with low technical skills, meaning they cannot actually learn; conversely, they may grow weary of school and aversion for the firm. In contrast, in the German dual-system, schools and enterprises jointly run schools where enterprise training is accessible throughout the process. As a result, there is time for students to study in schools and enterprises every week, respectively. The proportion of general theory and practical training is 1:2 [14]. Therefore, practice is the main focus. Students learning in such a model can gain solid theoretical knowledge and strong practical abilities, thus attracting more enterprises to participate in vocational education and contribute to funding.

#### **4.3. Improving admission criteria**

In Germany, vocational higher education and traditional colleges are different in their focuses but not in their prestige since both have strict criteria of admission. To bring concrete change, the admission criteria of schools ought to become more quality-oriented rather than examination-oriented. Well-rounded students with exceptional practical skills would be admitted to vocational schools, thus gradually alter the widespread opinion that only incompetent students enroll in such schools and raise social recognition of them. German dual-system has proven that social recognition can greatly improve young people's willingness to participate in vocational training. At the same time, school-enterprise cooperation must be strengthened which allows large firms to directly target vocational schools to employ workers. Only when there is a guarantee of jobs after graduation will rural students and parents be willing to attend vocational schools. Besides, local school rankings could incorporate different standards so as to allow fine vocational schools to rank among universities; this helps vocational education graduates to compete for jobs with university graduates.

### **5. CONCLUSION**

The development of vocational education in rural areas in China is an indispensable prerequisite for rural revitalization. Vocational education in rural construction and development bear the mission of training students, promoting regional economic growth, and achieving targeted poverty alleviation. At present, rural vocational education faces challenges; therefore, we ought to learn from the German dual-system. Through close cooperation among stakeholders, optimization of the supply of funds, and improvement of admission criteria, the reform and development of rural vocational education can be realized.

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