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Nurturing "Double-Qualified" Teachers in Vocational Colleges Using Campus Resources

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Abstract: Teachers are an important resource for the development of vocational education and a key force in supporting the reform of vocational education in the new era. Teachers who are capable of teaching theory and guiding students to do hands-on work are called "double-qualified" teachers. Building a high-level and professional double-qualified teacher team is one of the key tasks of vocational institutions. In this paper, we study the double-qualified teacher team from the perspective of using resources in schools. Firstly, the importance of the construction of double-qualified team is explained in terms of national policies and the findings of previous scholars. Secondly, we analyze the objective problem of teachers' difficulty in learning in enterprises under the new epidemic. Thirdly, the idea of faculty construction based on on-campus resources is proposed. The relevant analysis is then launched from three dimensions: the construction of practical training base projects, school-enterprise research cooperation and skills competition participation. In view of the Covid-19 epidemic, it is necessary to make full use of the campus resources to enhance the practical ability of teachers in vocational institutions. Highly qualified and professional teachers are the important support for high-quality development of vocational institutions and should be highlighted among school leaders.

Keywords: Double-qualified; Campus resources; Vocational education; Teachers

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1. Introduction

Higher vocational education is an important part of the whole vocational education system and vigorously developing higher vocational education is the guiding policy of China's education. Since the reform and liberation, vocational education has provided strong talent support for China's economic and social development and delivered many high-quality technical workers to various industries. As China enters a new stage of development, industrial upgrading and economic restructuring are accelerating, the demand for technically skilled talents in various industries is becoming more and more urgent, and the important status and role of vocational education is becoming more and more prominent [1]. Teachers are the foundation of education. The professional level of teachers directly affects the quality of talent cultivation in vocational education. The purpose of vocational education is to provide qualified skilled talents to enterprise production lines. In recent decades, the technology iteration of enterprise production lines has accelerated, and the skill requirements of jobs have been evolving. Take the automobile industry as an example. At present, new energy vehicles have occupied a considerable proportion in the market, and the demand for graduates in the job market is relatively strong. However, there is a shortage of teachers who can competently teach new energy technology, corresponding to a somewhat surplus of teachers who

explain fuel technology. This trend has forced a shift in the teaching system and content of the relevant vocational colleges. If teachers in vocational colleges continue to teach old technologies, graduates will not be able to meet the needs of companies, thus affecting employment rates and students' career prospects. In order to improve the quality of human resources training, vocational institutions now attach great importance to school-enterprise cooperation and use various measures to encourage teachers to learn new technologies in the production line of enterprises [2]. In this context, the concept of "double-qualified" teachers is proposed. Teachers who have both theoretical knowledge and production line technology and who can guide students in hands-on practice are called double-qualified teachers. Vigorously developing double-qualified teachers and increasing the proportion of double-qualified teachers is a priority for many vocational institutions. According to the data of the Ministry of Education, in 2018, there were 498,000 full-time teachers in higher vocational institutions in China, of which 191,400 were double-qualified teachers, accounting for 39.70% of full-time teachers. In 2021, the proportion of double-qualified teachers in secondary schools will reach 56%, and the proportion of double-qualified teachers in both senior vocational colleges and senior vocational undergraduates will reach 59% [3-5].

Although the faculty construction in vocational colleges has made great progress in recent years, there is still a big gap with the demand of enterprises for talents, especially the demand of high-level talents. Most teachers in vocational colleges still lack practical ability and professional skills, which has become an important factor affecting the high-quality development of schools. Therefore, how can a double-qualified faculty be developed? This is a problem that all vocational colleges are facing.

2. Research status

Scholar Guo [6] identified the problem of the general lack of practical teaching skills among young teachers. He suggests that universities should create opportunities for off-campus training of young teachers. Scholar Cong [7] suggests that vocational schools should collaborate with enterprises to improve teachers' comprehensive abilities through the school-enterprise cooperation model. Scholar Chi [8] uses metal manufacturing teacher training as a case study and points out that training skilled teachers is an important guarantee for the development of vocational education. Scholar Deng [9] analyzed the characteristics and significance of school-enterprise cooperative double-qualified teachers from the current situation of domestic and foreign research and proposed a strategy for the construction of school-enterprise cooperative double-qualified teachers. He argues that building a double-qualified team that can adapt to the development of vocational education has become a priority task for vocational institutions. Scholar Cui [10] believes that school-enterprise cooperation is the main way to promote the construction of a double-qualified teacher team. The training of double-qualified teachers can serve as a bridge for cooperation and a breakthrough for development, achieving a win-win situation for both enterprises and schools. By analyzing the in-depth cooperation between schools and enterprises in Guangzhou Railway Vocational Technical College, scholar Peng [11] believes that the double-qualified teacher team is an important guarantee for the survival and development of higher education institutions. She believes that higher vocational institutions should vigorously promote the construction of double-qualified teacher team through school-enterprise cooperation and effectively improve the overall quality of teachers. Zhuang [12] really proposes that the professional development path of vocational colleges has two main characteristics: the special knowledge content and type required for specialization; the special organizational environment in which specialization takes place. He suggests that higher vocational institutions should create a field practical training model for professional teacher training and establish a sound internal and external system for teacher professional development. Scholar Zhang [13] took the computer major as an example to analyze the role of skills competition in promoting the construction of teachers' teams in secondary vocational and technical schools. Wang [14] believes that guiding students to participate in various skills competitions can

promote the construction of the teaching staff of vocational colleges. Scholars have explored the importance of teacher team building from different perspectives. However, many factors need to be considered and there are many challenges in the development of the teaching staff.

3. Challenges faced

In recent decades, consumers' demand for product quality has become higher and higher, and the competition among enterprises has become increasingly fierce. Companies have begun to invest more in R&D and focus on technological innovation. After the technological iteration of production lines, the job skill requirements have changed. The original procedures and technologies cannot keep up with the increasingly fierce market competition. If teachers in vocational colleges still teach old technologies, the skills students learn will not be able to meet the job requirements of enterprises, which will certainly affect the career prospects of students.

While the importance of a double-qualified faculty is clear, there are still many challenges to building it. In particular, the virus Covid-19 pandemic has severely restricted the opportunities for teachers to go to enterprises for training and learning. Due to the pandemic, companies are reluctant to allow teachers into their workshops in order to reduce the risk of infection of personnel. In the same way, schools also do not recommend teachers to have frequent contact with enterprise personnel in order to reduce the risk of an epidemic. Under this circumstance, the research team proposed the solution idea of using campus resources to promote teacher training.

4. Targeted advice

4.1. Using practical training base project construction to promote faculty development

The Ministry of Education has discovered the reasons for the poor condition of existing practical training bases in vocational colleges and universities, the obsolete equipment, and the insufficient and incompetent practical training teachers. In recent years, the Ministry of Education and the Ministry of Finance have decided to use central financial funds to guide the construction of vocational education practical training bases around the country to promote the continuous deepening of vocational education reform. Local governments at all levels have recognized the need to effectively strengthen the construction of practical training bases and strive to improve students' practical skills and comprehensive vocational abilities. The construction of practical training base projects provides a good environment for the construction of teachers. During the project validation of the practical training base project, the teachers should have more technical exchanges with relevant enterprises. With the rapid development of science and technology, the process and technology of enterprise industrial sites are constantly iterated and upgraded. Through research and discussion, teachers can grasp the development direction of new processes and technologies, and then improve the quality of teaching.

Secondly, during the construction of the practical training base, teachers should seriously learn from the technicians of the construction unit, do more communication, and get a solid grasp of the operation process and precautions for use. The training bases provide vocational education classrooms with scenes close to the real site of enterprises and provide hardware facilities for the cultivation of skilled talents. Vocational institutions should focus on system construction and incentives to encourage teachers to learn and grow their skills in the process of base construction.

Lastly, in the process of upgrading the training base project, teachers should research more industrial production lines and put forward clear upgrading demands. In the upgrading process, teachers learn from technicians of project construction units to master the latest technology and methods to improve teaching quality.

In conclusion, both the Ministry of Education and college education departments are vigorously

promoting the construction of practical training bases in vocational colleges, which provides a good platform and foundation for the construction of teachers. Leaders of vocational colleges should promote the construction of relevant systems and increase the guidance so that more teachers can actively participate in the process of practical training base construction and improve their abilities in all aspects.

4.2. Enhance practical ability through school-enterprise cooperation

School-enterprise cooperation and integration of industry and education is one of the important features of vocational colleges. At present, there are two main modes of school-enterprise cooperation. One is that vocational colleges and universities import talents to enterprises. The second type is that vocational colleges and universities provide further education for employees of enterprises. However, it is very rare for schools to cooperate with enterprises in research and development. It is necessary to effectively improve the research ability of teachers and advance the development of vocational institutions. Vocational institutions currently have a common problem of emphasizing on teaching and neglecting research. Teachers have high workload, thus having no time for scientific research. The leaders of vocational institutions put more emphasis on the construction of research teams. Vocational colleges and universities can consider conducting pilot projects in a small scale to explore the feasibility of building specialized research teams. The close ties between enterprises and schools acts as a bridge for the construction and development of research teams because they are constantly sending employees to enterprises.

The main focus of the enterprises is on production, and they need external help for their technical research, and the research teams of vocational colleges can help these enterprises. On one hand, it solves the technical problems of the enterprises and improves their production efficiency. On the other hand, it effectively exercises the teachers' ability and advances the faculty building of vocational colleges.

4.3. Exercise practical ability through guiding skills competition

Compared to general education, vocational education places more emphasis on the development of students' practical skills. Skills competitions, as an important part of vocational education, are an important platform for students to exercise and improve their practical skills. It is not only an arena for students to compete in, but also a place for teachers to improve their own skills. For example, after guiding students to participate in the mechanical innovation competition, teachers should incorporate the content of their works into the teaching resources of the mechanical design course. In this was the students' interest can be improved and the quality of teaching can be improved. In the process of optimizing the traditional teaching content, the teachers' teaching skills are enhanced, and their expertise is expanded. Materials from innovative skill competitions can be compiled and distributed to students as reading materials in class. These materials can stimulate students' learning initiatives and develop their creative thinking. Teachers should also set up skill competition clubs so that more students understand the rules and learn about the competition. Besides, teachers should organize competitions on equipment operation skills. It will be a good idea to set up a team to guide the school-enterprise competition. Engineers from companies are more knowledgeable about new processes and technologies, which is something that teachers in schools lack.

In order to better prepare for the competition, teachers should pay attention to the development and technological innovation of society, industry and enterprises, and deliver various latest information to students at the right time. Teachers should also actively encourage and support students' new ideas and concepts, and help them complete the transformation from conceptual innovation to practical exploration. In this process, teachers' innovation ability will also be enhanced, and their mastery of professional knowledge will also be improved.

5. Conclusions

In recent decades, there has been a rapid increase in demand for technical and skilled talents in various industries. Therefore, vocational education must constantly deepen its reform to meet the needs of the market. The professional capabilities of teachers directly affects the quality of vocational education personnel training. Hence, it is one of the key tasks of all vocational colleges to vigorously promote the construction of the double-qualified teacher team.

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Author contributions

Shang Wang and Qinsong Zhu conceived the idea of the study and wrote the first draft of the paper. Xueyi Zheng revised the format of the article.

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