

Research on the Improvement of Teaching Effectiveness in Higher Vocational Education from the Perspective of School-Enterprise Cooperation

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Abstract: *This paper explores the improvement of teaching effectiveness in higher vocational education from the perspective of school-enterprise cooperation. Through analyzing the mode of school-enterprise cooperation, it delves into the positive impact of school-enterprise cooperation on teaching in higher vocational education. By examining relevant cases and data, it reveals the advantages of school-enterprise cooperation in enhancing students' practical abilities, promoting teaching innovation, and expanding educational resources. The article also discusses the challenges that may be encountered in implementing school-enterprise cooperation and proposes some suggestions and countermeasures. Through this research, the aim is to provide more effective teaching methods and models for vocational education.*

Keywords: *school-enterprise cooperation, vocational education, effective teaching, practical abilities, teaching innovation*

1. Introduction

Vocational education, as a crucial means of cultivating high-quality and highly skilled professional talents, simultaneously serves as the supply side of the labor market, effectively supporting industrial upgrading and high-quality employment. It plays an important role in realizing the comprehensive education mechanism of "multiple positions in one" to promote industrial upgrading and high-quality regional development.

In the teaching process of higher vocational education, how to better integrate the supply and demand of industries, regions, enterprises, and schools, improve teaching effectiveness, and comprehensively enhance students' comprehensive abilities, especially practical abilities, has always been the focus of attention for higher vocational education practitioners. School-enterprise cooperation, as a new model, is widely recognized as an effective way to enhance educational quality. This paper takes school-enterprise cooperation as the perspective to deeply study effective teaching in higher vocational education, explore the advantages of school-enterprise cooperation in enhancing students' practical abilities, promoting teaching innovation, and proposes some suggestions and countermeasures based on this, providing useful references for the development of higher vocational education.

2. Analysis of the School-Enterprise Cooperation Model

2.1 Concept and Characteristics of School-Enterprise Cooperation

School-enterprise cooperation is a model of close collaboration between education and industry. Through the collaborative efforts of schools and enterprises, it facilitates the organic integration of education and the professional field. School-enterprise cooperation not only includes joint training programs between educational institutions and enterprises but also emphasizes multi-level cooperation such as practical education and the integration of production, learning, and research. This cooperative model aims to better equip students to meet the practical demands of the workplace and bridge the gap between traditional education and professions.

The characteristics of school-enterprise cooperation lie in its emphasis on practice-oriented training and alignment with the actual workplace. By closely collaborating with enterprises, educational institutions can better understand industry needs, adjust curriculum offerings, and ensure that students acquire skills and knowledge that align with market demands. Such a collaborative model not only

makes students more competitive but also enables enterprises to acquire talent that better meets actual work requirements.

2.2 Development Status of School-Enterprise Cooperation at Home and Abroad

The development status of school-enterprise cooperation domestically and internationally is a crucial topic in this chapter. Through comparing and analyzing various cases of cooperation between educational institutions and enterprises worldwide, we can reveal common trends and unique experiences in school-enterprise cooperation in different countries and regions. In China, with the continuous upgrading of the economic structure and the diversification of talent demand, school-enterprise cooperation is becoming an important direction for the development of higher education.^[1] Many schools closely collaborate with enterprises to jointly promote talent cultivation and research innovation.

School-enterprise cooperation abroad has also achieved remarkable success. In developed countries, the close connection established between universities and enterprises has effectively promoted technological innovation and industrial upgrading. For example, universities in some European and American countries collaborate with renowned enterprises in joint research projects, provide internship opportunities for students, and jointly promote technological progress.

Successful cases of school-enterprise cooperation inject vitality into the education systems of various countries and provide effective paths for enhancing students' practical abilities and promoting the deep integration of industry, academia, and research. By deeply exploring and summarizing these successful experiences, we can better learn from international advanced experiences and provide valuable theoretical and practical references for the further development of school-enterprise cooperation in China.^[2]

2.3 The Significance of School-Enterprise Cooperation for Vocational Education

School-enterprise cooperation in vocational education is not only about achieving integration between academia and industry, but also about improving the quality of vocational education teaching, meeting the needs of industries, regions, and enterprises, and cultivating highly skilled practical talents. According to the White Paper on the Competitiveness of Chinese Higher Vocational Colleges (2023), data shows that the cooperation rate between schools and enterprises in 900 higher vocational colleges nationwide has reached 87%, with more than 91% of colleges rated B++ or above in cooperation projects. Among the competitiveness indicators such as alumni employment cities, employment positions, and nature of employment units, for colleges rated below B++, school-enterprise joint projects, the proportion of enterprise experts, and the proportion of joint talent training programs jointly account for 70% of the total proportion. This is mainly due to the fact that through cooperation with enterprises, colleges can more accurately adjust their curricula to ensure that students acquire practical knowledge and skills that meet industry standards. This helps students better adapt to the requirements of their careers. Furthermore, school-enterprise cooperation emphasizes the cultivation of students' vocational literacy. Through direct contact with practical enterprises, students can better understand job skills, workplace culture, and teamwork, thereby enhancing their overall literacy. This makes talent delivery and training objectives more closely aligned with actual job requirements and has a positive effect on serving local industries and delivering high-skilled talents.^[3]

3. The Impact of School-Enterprise Cooperation on the Improvement of Students' Practical Abilities

3.1 Concept and Importance of Practical Abilities

Practical ability refers to the comprehensive literacy of vocational education students in successfully dealing with various practical problems and tasks in their professional careers, and it is one of the core objectives of vocational education. Its connotations include proficient application of professional knowledge, ability to solve practical problems, and skills in teamwork and communication, among other aspects. Currently, in the higher vocational education system, practical ability is considered the fundamental ability of students.

The constituent elements of practical ability cover various aspects including professional skills, innovative thinking, problem-solving ability, etc. According to the "2023 Annual Report on the Quality

of Vocational Education in China", the proportion of majors offered by higher vocational schools corresponding to the primary, secondary, and tertiary industries is 6.24%, 40.84%, and 52.92%, respectively, which basically conforms to the proportion of the national industrial structure. In terms of reforming teaching models to enhance students' practical abilities, Shanghai Industrial Technology School cooperates with state-owned enterprises to explore new forms of "Internet+" and "smart+" virtual simulation training teaching, creating a "5G+ smart training dark factory". By using three-dimensional animation, virtual simulation, MR, and other digital technologies to build interactive teaching resources, students can learn courses and intuitively understand abstract teaching content through UI interaction, whether offline or online, significantly improving teaching efficiency. Through literature review and case analysis, it is found that the school-enterprise cooperation model can deeply understand the specific requirements of different industries and industries for practical abilities, providing theoretical support for the specific implementation of subsequent school-enterprise cooperation practices. The cultivation path of practical abilities needs to be combined with specific professional fields and actual work scenarios. Through school-enterprise cooperation, students can come into contact with and apply the knowledge they have learned in real professional environments, further enhancing their practical abilities and laying a solid foundation for a successful future career.^[4]

3.2 Construction and Optimization of Practical Ability Assessment System

The assessment of practical abilities is a crucial link in achieving educational goals and monitoring quality. To align with the school-enterprise cooperation model, it is necessary to construct a practical ability assessment system from a diversified and multi-level perspective. When exploring assessment standards for practical abilities in different levels and fields, a deep analysis of successful school-enterprise cooperation cases can provide assessment criteria that are closer to reality, ensuring the scientific and practical nature of the assessment system.

The optimization of the practical ability assessment system is essential to ensure its effectiveness. Strategies can be proposed, such as regularly updating assessment indicators to adapt to industry developments, establishing a multidimensional assessment framework to comprehensively assess student abilities, and involving professionals from both schools and enterprises in the assessment process. Through these optimization strategies, the assessment system can more accurately reflect the actual experiences and skill levels students gain through school-enterprise cooperation.

In conclusion, through in-depth discussions on the construction and optimization of the practical ability assessment system, our aim is to provide specific practical guidance for school-enterprise cooperation, ensuring its better service in cultivating students' practical abilities, and contributing to the continuous optimization and improvement of the vocational education system.

4. School-enterprise cooperation promotes teaching innovation

4.1 Concept and Connotation of Teaching Innovation

Teaching innovation refers to the process of adopting new concepts, methods, means, and technologies in educational practices with the aim of continuously improving teaching quality and effectiveness. Its connotation covers various aspects of the education field, including curriculum design, teaching methods, assessment systems, and more. Teaching innovation is not only a renewal of ideas but also a continuous exploration and application of new teaching methods in practice to meet evolving learning needs.

In the current information age, teaching innovation is closely linked to the continuous development of technology. Introducing new technological means, such as online education platforms and virtual laboratories, has become a powerful tool for driving teaching innovation. This innovation not only enhances the flexibility of teaching but also expands students' learning experiences, making education more attractive and effective.

4.2 Practical Experience of School-Enterprise Cooperation in Promoting Teaching Innovation

School-enterprise cooperation, as an important approach to promoting teaching innovation, provides valuable insights and references from various industries. By delving into these cases, we can uncover the positive impact of school-enterprise cooperation on teaching methods, curriculum design, and assessment systems.^[5]

The emergence of new teaching models is one of the significant innovations brought about by school-enterprise cooperation. In 2022, more and more vocational schools are exploring how to integrate digital technology into practical teaching scenarios and improve the "course-work-competition-certification" comprehensive education model, ensuring that skills training runs through the entire process of education and teaching to enhance students' vocational skills. Schools, through cooperation in specific industries, have explored project-based teaching methods with greater practicality, emphasis on problem-solving, and teamwork. For instance, Henan Vocational and Technical College is actively exploring a classification-based training and education model based on big data, creating a "career matching big data analysis platform" and developing three major systems: "vocational orientation assessment," "growth portrait learning navigation," and "smart and precise employment." According to Wen Daojun, Party Secretary of Henan Industrial Vocational and Technical College, the school has progressively developed modules such as AI experience, fun programming, handicraft production, and 5G+MR popular science, which are adapted to students' needs and physical and mental levels at corresponding age stages, using artificial intelligence, big data, virtual simulation, and other information technology means to construct a "modular + progressive" curriculum system.

This innovative model is more closely aligned with actual job requirements, stimulating students' interest and participation in learning. By participating in real projects, students not only learn theoretical knowledge but also develop practical problem-solving skills, enhancing their overall quality.

The application of educational technology is also an important component of innovative practices in school-enterprise cooperation. In some cases, schools collaborate with enterprises to develop online education platforms, introduce virtual laboratories, and smart-assisted teaching systems, expanding teaching methods and improving teaching effectiveness. Students can learn more flexibly through the use of advanced educational technology, and personalized learning experiences make education more attractive, enhancing students' motivation and effectiveness in learning.

In summary, school-enterprise cooperation provides rich practical experience for promoting teaching innovation. By drawing lessons from these successful cases, schools can better adjust teaching models, expand the application of educational technology, make education more closely aligned with actual needs, and cultivate talents with a more innovative spirit.

4.3 Integration and Sharing of Teaching Resources

Integration and sharing of teaching resources play a crucial role in supporting teaching innovation, particularly within the framework of school-enterprise cooperation. In the model of school-enterprise cooperation, it is essential to explore how to integrate various teaching resources, including practical venues provided by enterprises, industry professionals, and advanced technological equipment.^[6]

The integration of teaching resources encompasses not only tangible assets but also intangible resources such as knowledge and experience. Enterprise practice venues serve not only as places for student practice but also as platforms for experiencing real work environments. Industry professionals act not only as mentors but also as important guides in practice, imparting practical skills and industry insights. Advanced technological equipment not only provides essential tools but also broadens students' disciplinary horizons.

For instance, as mentioned in the "2023 Annual Report on the Quality of Vocational Education in China" regarding the construction of industrial colleges, both schools and enterprises can share teaching resources through shared platforms. By establishing mechanisms for platform construction, usage norms, information exchange, etc., efficient circulation and utilization of resources between schools and enterprises can be realized. This efficient sharing mechanism provides robust support for teaching innovation. Through resource sharing, schools and enterprises can better leverage their respective advantages, achieve complementary strengths, and thereby enhance teaching quality. Meanwhile, students can gain comprehensive exposure to the latest developments and practical experiences in the industry, providing richer support for their career development. This co-construction and sharing model not only promotes teaching innovation but also lays a solid foundation for cultivating talents with practical application capabilities.

5. Expanding Educational Resources through School-Enterprise Cooperation

5.1 Diversity and Utilization of Educational Resources

In the current higher education system, the diversity of educational resources is particularly crucial. Different types of resources, including talents, technological equipment, practical venues, etc., constitute a rich educational ecosystem. This section will delve into these diversified educational resources to provide a clear theoretical basis for subsequent chapters' research.

5.1.1 Diversity of Talent Resources

Talent resources are the core of educational resources. Through school-enterprise cooperation, schools can fully leverage the practical experience of industry practitioners to provide students with more practical training. Professionals from enterprise practice venues also directly participate in the teaching process, enabling students to better integrate into the professional environment. This cross-border collaboration not only enriches disciplinary knowledge but also provides students with opportunities to interact with real professional environments. This section will analyze in-depth how to fully tap into talent resources within enterprises and schools and achieve cross-border collaboration through exchanges, training, etc., to provide students with richer disciplinary knowledge and practical experience.

5.1.2 Diversity of Technological Equipment Resources

With the development of technology, various types of technological equipment are becoming increasingly important for vocational education. School-enterprise cooperation can introduce advanced technological equipment to schools, providing students with learning environments closer to actual work scenarios. Through the full utilization of technological equipment resources, students can practice in real work environments to enhance their practical application abilities. This section will explore how to reasonably allocate and utilize these devices across different fields to better cultivate students' practical application abilities.

5.1.3 Diversity of Practical Venue Resources

Practical venues are crucial for cultivating students' practical abilities. Through school-enterprise cooperation, schools can fully utilize enterprises' actual work venues, allowing students to practice in real professional environments. This section will delve into the practical venue resources in different industries, analyzing how to achieve resource sharing in school-enterprise cooperation so that students can fully experience various aspects of professional life. Through meticulous resource integration and utilization, students will better adapt to future career challenges, promoting the effectiveness of education and the enhancement of disciplinary practicality.

5.2 Actual Effects of School-Enterprise Cooperation on Expanding Educational Resources

School-enterprise cooperation, as a closely integrated model of education and industry, plays a significant role in expanding educational resources. Through in-depth study of practical cases and empirical research, we can gain a clearer understanding of the actual effects of school-enterprise cooperation on expanding educational resources.

5.2.1 Enhancement of Students' Practical Abilities

Through school-enterprise cooperation, students have the opportunity to engage in practical activities in real professional environments and work on actual projects, thereby enhancing their practical abilities. Specifically, students can apply classroom knowledge to solve real-world problems during enterprise practice, cultivating their capability to address practical work challenges. This enhancement is beneficial not only for the individual development of students but also for supplying enterprises with talents possessing practical experience.

5.2.2 Optimization of Curriculum Design

The actual effects of school-enterprise cooperation also manifest in the optimization of curriculum design. Through deep collaboration with enterprises, schools can more accurately adjust the content of courses to align with actual occupational demands. Empirical research indicates that through school-enterprise cooperation, schools can flexibly introduce cutting-edge technologies and emerging concepts, ensuring the timeliness and practicality of the curriculum. This optimization enables students to better adapt to industry trends during the learning process.

5.2.3 Updating of Laboratory Equipment

The updating of laboratory equipment plays a crucial role in the actual effects of expanding educational resources. School-enterprise cooperation introduces advanced technological equipment to schools, elevating the level of laboratory equipment. This not only provides students with a better learning environment but also opens up more possibilities for research and practical activities. Through empirical research, we find that the updating of laboratory equipment significantly influences the enhancement of students' practical application abilities and research levels.

Through the analysis of these actual effects, we can comprehensively understand the advantages of the school-enterprise cooperation model in expanding educational resources. This not only positively promotes the individual development of students but also provides an effective approach for the further upgrading of the entire educational ecosystem. The sustainable development of the school-enterprise cooperation model will further drive the innovation and progress of the education system.

5.3 Mechanism Construction for Co-Building and Sharing Educational Resources

In school-enterprise cooperation, the co-building and sharing of educational resources are crucial steps to deepen collaborative relationships. This section will delve into the models and mechanisms of co-building and sharing various types of educational resources, providing feasible development paths for school-enterprise cooperation.

5.3.1 Signing of Cooperation Agreements

The mechanism construction for co-building and sharing educational resources begins with the signing of clear cooperation agreements. Through carefully designed agreements, delineating the rights and responsibilities of both parties and standardizing the circulation and usage of resources, helps establish a solid cooperative foundation. Successful cases suggest that cooperation agreements should be flexible to accommodate the needs of different disciplines and industries. The signing of agreements needs to comprehensively consider aspects such as the scope of resource sharing, duration of use, and security, to ensure the legitimate rights and interests of both parties.

5.3.2 Resource Management Processes

The co-building and sharing of educational resources require the establishment of clear management processes. From resource application and review to usage and return, there needs to be clear processes and standards in place. Some successful cases have demonstrated the establishment of resource management platforms through information technology, improving resource utilization efficiency. Process construction involves not only technological aspects but also the clarification of responsibilities of relevant personnel to ensure that resources are utilized reasonably and efficiently.

5.3.3 Mechanisms for Benefit Sharing

During the process of co-building and sharing resources, benefit sharing is a shared concern for both parties. Establishing a reasonable mechanism for benefit sharing can stimulate the enthusiasm of all parties and promote the sustainable development of cooperation.

6. Enhancing the Efficacy of Higher Vocational Education Teaching from the Perspective of School-Enterprise Cooperation: Relevant Strategies and Suggestions

Through in-depth research on vocational education teaching from the perspective of school-enterprise cooperation, it has been found that the school-enterprise cooperation model has significant advantages in enhancing students' practical abilities, promoting teaching innovation, and expanding educational resources. However, despite these advantages, the efficacy of education processes under this perspective has not been sufficiently improved. Some main problems include unclear cooperation subjects leading to a lack of clear specifications for jointly formulated courses in the teaching process, resulting in deviations in teaching effectiveness; unequal levels of teaching staff between schools and enterprises leading to low teaching efficacy; a disconnection between theory and practice in the teaching process, and even the occurrence of strange phenomena such as "your theory has nothing to do with practice, and my practice has no theoretical basis", resulting in no improvement in teaching effectiveness due to shared resources and collaboration; and the need for further improvement of the curriculum system established according to curriculum and talent training plans of schools, enterprises, and regions.

To address these issues, this paper proposes a series of suggestions and strategies to further deepen the research on the school-enterprise cooperation model, continuously optimize implementation strategies, and enhance teaching efficacy to promote the development of higher vocational education.

6.1 Establishment of Long-Term Cooperation between Schools and Enterprises, Joint Formulation of Clear and Scientific Standards

Guided by government policies and regulations, schools and enterprises should establish long-term cooperation, jointly formulate clear and scientifically standardized standards for vocational education. This includes clarifying the rights and obligations of both parties to ensure equal status and clear rights and responsibilities during the cooperation process. Detailed cooperation agreements should be signed, specifying the cooperation goals, content, methods, duration, resource input, division of work and responsibilities, etc., to ensure the normativity and effectiveness of the cooperation process, laying the groundwork for education, teaching, and talent cultivation. When establishing cooperation mechanisms, schools and enterprises should establish long-term cooperation mechanisms, including regular communication, information sharing, problem coordination, etc., to ensure timely problem-solving and maintain the stability of the cooperative relationship. Establishing specialized education supervision and management agencies: Schools and enterprises can jointly establish specialized management agencies responsible for coordinating, supervising, and managing school-enterprise cooperation projects to ensure the smooth implementation of teaching.

6.2 Joint Construction of Practical Teaching Bases and Internship Bases by Schools and Enterprises to Enhance Teaching Efficacy Together

Both parties need to jointly build high-quality practical teaching bases and internship bases and clarify the purposes of constructing practical teaching bases and internship bases, such as improving students' vocational skills and promoting student employment. Meanwhile, they should develop cooperation plans and long-term goals that are in line with the interests of both parties. When signing cooperation agreements, it is necessary to specify the cooperation period, rights and obligations, resource input, management mechanisms, etc. The agreement should include specific descriptions of the practical teaching bases and internship bases, including location, scale, equipment, etc. The school provides educational resources and support from professional teachers, while the enterprise offers practical work environments, equipment, technical guidance, and management experience. Both parties jointly develop suitable practical teaching courses and internship projects to ensure alignment with industry demands. Designing reasonable internship tasks and assessment systems ensures that students can learn and improve during practical experiences. In terms of faculty training, enterprises provide industry training for school teachers to help them understand the latest industry trends and technical requirements. Teachers can also regularly visit enterprises for on-site inspections and learning to enhance their practical experience. Regarding student management, a dedicated management organization or responsible person should be established to oversee the daily management and safety of students at practical teaching bases and internship bases, ensuring students' legal rights and interests, such as internship subsidies, work hours, rest time, etc. Regular assessments and supervision of the operation of practical teaching bases and internship bases should be conducted. According to feedback, cooperation plans should be adjusted promptly to ensure teaching quality and internship effectiveness. Encouraging students to apply the knowledge and skills learned during internships to actual work promotes the application of learning, and enterprises may prioritize hiring outstanding interns, realizing the closed-loop of talent cultivation and utilization.

6.3 In-Depth Scientific Research, Educational Research, and Academic Exchange between Schools and Enterprises

Schools and enterprises should conduct in-depth exchanges in scientific research, educational research, and academia, and share resources. Both parties should invest necessary funds, equipment, talents, and other resources, establish a resource sharing mechanism, such as sharing experimental equipment, databases, library materials, etc., and talent cultivation and exchange. Enterprises should dispatch technical personnel to schools for lectures and seminars to impart practical experience, while schools invite enterprise experts to participate in curriculum teaching, graduate student guidance, research projects, etc. In terms of research project cooperation, both parties jointly apply for national or local research projects and collaborate on research utilizing their respective strengths. Encouraging teachers and students to participate in enterprise research and development projects realizes the

integration of industry, academia, and research. Regularly holding academic seminars, workshops, research results exhibitions, and other activities can promote knowledge exchange, such as inviting experts and scholars from inside and outside the industry to participate expands the scope of academic exchanges. We will strengthen the transformation of research results by applying them to actual production and services. We will also protect intellectual property rights through patent applications and technology transfer, and promote the commercialization of the technology. Establishing reward and funding programs incentivizes teachers and students to participate in research cooperation. Individuals or teams that achieve significant results are rewarded both materially and spiritually.

7. Conclusion

Through the in-depth study of the effective teaching of vocational education from the perspective of school-enterprise cooperation, this paper finds that the school-enterprise cooperation mode has significant advantages in improving students' practical ability, promoting teaching innovation and expanding educational resources. However, there are still some challenges in the implementation process, such as the imperfect cooperation mechanism and the need to be further strengthened in teacher training. Therefore, this paper puts forward a series of suggestions and countermeasures, in order to provide useful reference for the development of vocational education and practical teaching. In the future research, it is necessary to further deepen the research of school-enterprise cooperation mode, and continuously optimize the implementation strategies to promote the better development of vocational education.

References

- [1] Dong, C. (2021). *Analysis of Effective Teaching of Labor Education for Agricultural Majors in Higher Vocational Colleges from the Perspective of School-Enterprise Cooperation*. *Modern Vocational Education*, (35), 50-51.
- [2] Qiang, H. (2023). *Research on the School-Enterprise Cooperation Mode of Vocational Education from a Comparative Perspective*. *Chinese and Foreign Corporate Culture*, (09), 199-201.
- [3] Lin, C. (2023). *Construction Path of "Golden Courses" in Higher Vocational Colleges from the Perspective of School-Enterprise Cooperation*. *Western Quality Education*, 9(07), 187-190.
- [4] Zhang, L. (2023). *Issues of Talent Training Quality in Higher Vocational Colleges in China from the Perspective of Policy Research*. *Modern Vocational Education*, (32), 173-176.
- [5] Mo, J. (2023). *Exploration of the Construction Path of Applied University-Enterprise Integration Type Faculty from the Perspective of Modern Industrial College*. *Journal of Tianjin Sino-German University of Applied Sciences*, (06), 65-73.
- [6] Liu, Z. (2024). *Interpretation and Reconstruction of Vocational Education-Industry Relationship from the Perspective of Community*. *Education and Occupation*, (01), 14-21.