

Research on the Path of Cultivating Career Development and Employability of Vocational School Students under the School-Enterprise Collaboration Model

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Abstract

With the rapid development of vocational education and industry-academia-research cooperation in China, the school-enterprise collaboration model plays an increasingly important role in cultivating vocational school students' professional abilities and enhancing their employability. However, existing research mainly focuses on the higher education level, and systematic research on the career development paths and employability cultivation of vocational school students under the school-enterprise collaboration model remains relatively limited. To fill this research gap, this study takes vocational schools as the research object and uses a semi-structured interview method to collect practical experiences from teachers, enterprise mentors, and students. It also combines materials such as school-enterprise cooperation plans, curriculum design documents, enterprise practice guidelines, and student internship records to analyze the current status, problems, and optimization paths of career development and employability cultivation under the school-enterprise collaboration model. The results show that school-enterprise cooperation can effectively improve students' professional skills, practical abilities, and employment competitiveness, but there are still some shortcomings in areas such as the connection between curriculum and practice, the implementation of the dual-mentor system, the clarity of enterprise practice project goals and systematic evaluation mechanisms, and the integration of school and enterprise resources. Based on this, this study proposes a systematic career development and employability cultivation path, including optimizing the curriculum system, implementing the

dual-mentor system, clarifying enterprise practice goals and evaluation mechanisms, integrating school and enterprise resources, and designing progressive and diversified development paths for abilities. This training pathway organically combines theoretical learning with practical skills, promoting students' multi-dimensional development both inside and outside the school. It also provides actionable strategies and practical guidance for vocational schools to improve the quality of talent cultivation and strengthen school-enterprise cooperation. The research findings not only enrich the theoretical framework of vocational education and school-enterprise cooperation but also provide important reference for vocational schools to construct systematic talent cultivation programs under an application-oriented education model.

Keywords: School-Enterprise Collaboration Model, Vocational Schools, Career Development, Employability, Industry-Academia-Research Cooperation

Introduction

Vocational education and training (VET) holds a pivotal position in China's education system. Over the past decade, Chinese higher education institutions have developed rapidly, with growth rates significantly exceeding those in Europe and the United States during the same period, whether in terms of the number of institutions, faculty strength, research investment, student enrollment, or research output (Zheng et al., 2021). This rapid development has not only enhanced the capacity of higher education institutions in talent cultivation but also promoted progress in scientific research and technological innovation, providing strong talent and intellectual support for China's socio-economic development.

According to the "Statistical Communiqué on National Economic and Social Development in 2023" released by the National Bureau of Statistics, as of the end of 2023, the total number of employed persons in China reached 740.41 million, of which 470.32 million were urban employees (National Bureau of Statistics, 2024). Meanwhile, the latest data released by the Ministry of Education shows that the total number of students enrolled in schools at all levels and types nationwide reached 291 million, with 47.6319 million enrolled in higher education, including approximately 3.8829 million postgraduate students (Ministry of Education, 2024a; Ministry of Education, 2024b). These figures reflect the significant achievements of China's education system in expanding its scale and improving its quality, and also demonstrate that education provides a continuous human resource guarantee for economic development.

The vocational education system is also playing a vital role in its continuous development. In 2023, the number of students enrolled in secondary vocational schools nationwide was approximately 13.1181 million (Ministry of Education, 2023). Vocational education not only meets the demand for skilled personnel in different levels of the labor market but also provides students with diversified career development paths. This educational model emphasizes the integration of theory and practice, providing effective support for students' smooth transition into the workplace, while also promoting economic development and optimizing the social employment structure.

University-enterprise cooperation has long been considered an important means of enhancing innovation capabilities and promoting knowledge exchange (Baleeiro Passos et al., 2023). China attaches great importance to its innovation-driven development strategy, striving to gain an advantage in global competition. By cultivating high-level innovative talents

and unleashing their potential, the country can improve the overall quality of economic development while promoting scientific and technological progress and social development (Ma & Yang, 2024). This university-enterprise cooperation model not only strengthens students' practical abilities but also provides a practical platform for the transformation of university research and technological achievements.

In the applied university training model, students raise questions through industry practice, explore solutions by combining theory and practice, and ultimately apply their research findings to engineering practice. In the first year, graduate students focus on learning theoretical knowledge on campus, then undertake a 10-12 month internship in a company under the guidance of industry mentors. In the second year, students return to school to continue learning theoretical knowledge and conducting research in conjunction with their company internship projects. In the third year, students apply their research findings to engineering practice, forming a complete theoretical and practical closed loop. This collaboration between universities and enterprises not only enhances students' employability and innovation capabilities but also provides sustained impetus for economic development (Zhang & Chen, 2023).

Literature Review

Workplace Learning in the Context of Industry-University Collaboration

Vocational teachers' involvement in workplace learning within student training models, collaborative teaching with professionals, and regular interactions between teachers and enterprises are crucial for a smooth transition for vocational students into the workforce. Research indicates that vocational teachers' participation in workplace learning within specific disciplines provides a valuable avenue for collaborating with industry experts to improve curriculum design, while ensuring students' knowledge and skills align with industry standards (Zhao & Ko, 2024). Industry-university collaboration emphasizes improving training quality and encouraging teacher participation in building new apprenticeship systems to cultivate skilled professionals. From a socio-cultural perspective, workplace learning theory focuses on the continuous participation of vocational teachers in enterprises. Integrating workplace learning into vocational education helps establish process-oriented teaching practices and supports deeper collaboration between vocational schools and enterprises.

The study also found that key factors for strengthening industry-academia-research collaboration include organizational design, government policy, technical support, collaborative networks, and knowledge transfer mechanisms. These factors work together to significantly enhance graduates' creativity, skills, knowledge, and research capabilities (Kamal et al., 2024). A company's experience in industry-academia-research collaboration is a unique complementary asset; when companies have more patents jointly granted or academic papers co-authored with universities, their new product sales and the number of product-oriented patents increase (Adegbile et al., 2021). However, successful collaboration between universities and industry also faces challenges, including scheduling conflicts, differences in qualifications, differing goals, intellectual property issues, and funding and technological capabilities. These obstacles are particularly pronounced in emerging markets (Baleeiro Passos et al., 2023).

With the increase in both the quantity and quality of universities in China, their functions have gradually expanded from talent cultivation to scientific research and social services. Over the past decade, the number of graduate students and full-time R&D personnel in universities has increased significantly, along with a substantial rise in patent grants and transfer amounts, thanks to national and local government investment (Zheng et al., 2021). Collaboration among government, industry, universities, and research institutions is crucial for cultivating innovative talent; establishing a fair benefit-sharing mechanism and a tiered funding structure can ensure the sustainability of long-term cooperation (Ma & Yang, 2024). Although cultural differences and practical integration issues exist in university-enterprise cooperation, the implementation of practice-oriented teaching and the "dual-mentor system" helps improve the training quality and employability of professional degree graduate students in applied universities (Zhang & Chen, 2023).

Workplace Learning

For a long time, the concepts of "learning" and "work" have been theoretically separated. Learning is generally viewed as an activity for educational purposes, while work is centered on production and livelihood (Boud & Garrick, 1999). However, with the development of the concept of lifelong learning, learning is being reinterpreted as a holistic process encompassing both purposeful and incidental learning, which can be acquired through formal, informal, and non-formal channels and is closely related to personal, social, economic, and cultural development (Brandi & Iannone, 2021). In higher education, workplace learning is considered an important way for students to develop professional competence and practical skills. By combining learning with the workplace, students participate in tasks and projects in real-world environments, thereby transforming theoretical knowledge into practical abilities. Simultaneously, teachers also participate in workplace learning through collaborative teaching with enterprises, which helps optimize curriculum design and improve the quality of vocational education.

In higher education internships, students raise questions through practical experience in enterprises and explore solutions by combining theoretical learning—an effective work-based learning approach (Downs et al., 2024). To achieve learning objectives, universities typically establish learning agreements among students, universities, and enterprises, clarifying learning outcomes, assessment methods, and feedback mechanisms. Research shows that work-based learning lacking adequate policy guidance can lead to insufficient coordination, inadequate supervision, and excessive subjectivity, thereby reducing students' learning experience and career development capabilities (Kalanda et al., 2025). Therefore, universities and enterprises need to achieve a balance in terms of systems, resources, and benefit allocation to ensure students gain practical opportunities while enhancing their professional skills and employment competitiveness.

Beyond formal workplace learning, informal learning and peer interaction are also key factors. Informal workplace learning emphasizes acquiring skills, sharing knowledge, and developing adaptability in daily work, which is particularly important for knowledge-intensive enterprises (Russo et al., 2023). Phenomenological research shows that factors influencing students' practicum learning include clear career goals, suitable internship institutions, self-efficacy, reflective practice, workplace relationships, the role of organizational leaders as knowledge transmitters, knowledge-sharing behavior, and external environmental influences

(such as the COVID-19 pandemic) (Chobphon, 2022). By participating in practicum learning, students can identify their shortcomings, improve communication skills, teamwork skills, and professional image, thereby better adapting to change in their career development and enhancing their employability and professional competence.

In summary, existing research indicates that collaboration between universities and enterprises can not only enhance students' professional skills and employability but also promote educational quality, the transformation of scientific research results, and industrial development. However, systematic research on the career development paths and employability cultivation of vocational school students under the school-enterprise collaborative model remains limited. In particular, in the specific implementation of practice-oriented education, industry-academia-research integration, and workplace learning mechanisms, many unresolved issues remain regarding how to effectively integrate school and enterprise resources, optimize students' career development paths, and improve their actual employability. Therefore, this study focuses on vocational schools, examining the pathways and mechanisms for students' career development and employability cultivation under the school-enterprise collaborative model, aiming to deeply explore the practical role of school-enterprise cooperation in vocational education and its optimization strategies.

To achieve the research objectives, Chapter 3 will elaborate on the research methods, including research design, selection of research subjects, data collection and analysis methods, and the design and implementation process of interviews. By collecting vocational school students' practical experiences and career development perceptions in school-enterprise cooperation through semi-structured interviews, this study will ensure the scientific validity and reliability of the data, thereby providing empirical evidence for proposing effective school-enterprise collaborative education strategies and pathways for cultivating students' professional abilities.

Research Methodology

This study employs qualitative research methods to explore the career development paths and employability cultivation mechanisms of vocational school students under a school-enterprise collaborative model. Qualitative research methods enable a deeper understanding of participants' experiences and perspectives, thereby revealing the complex educational practices and their influencing factors. To obtain rich first-hand data, this study combines case studies and semi-structured interviews, supplemented by document analysis, to ensure the comprehensiveness and scientific rigor of the research results.

The study subjects are vocational schools and their students participating in vocational education under the school-enterprise collaborative model. The selection of subjects followed purposive sampling to ensure that respondents had extensive experience in school-enterprise cooperation and could provide in-depth information on career development and employability cultivation. This study focuses on vocational schools involved in the Yangzhou and Canal Cities Industry Talent Attraction Alliance. These schools have established mature practical experience and talent training models through school-enterprise cooperation with enterprises via the alliance platform. The alliance members cover 13 universities and numerous enterprises, promoting in-depth school-enterprise cooperation through joint training programs, science and technology commissioner programs, and cross-regional

recruitment activities (Canal Cities Industry Talent Attraction Alliance, 2024). The study subjects include teachers, enterprise mentors, and students participating in school-enterprise cooperation projects, who can provide multi-dimensional information on career development and employability cultivation. To protect privacy, school names and respondent identities were anonymized in the study.

Data collection was primarily conducted through semi-structured interviews, with participants including vocational school teachers, industry mentors, and current students. Interview questions revolved around themes such as school-enterprise cooperation practices, student career development, employability enhancement, and resource integration and optimization strategies. During the interviews, researchers and respondents engaged in in-depth discussions about their practical work and learning experiences, encouraging respondents to describe specific cases and feelings, thereby obtaining rich qualitative data. Simultaneously, this study collected relevant documents, including school-enterprise cooperation plans, curriculum design documents, industry practice guidelines, and student internship records, to supplement the interview data and ensure the diversity and reliability of the data sources. An example of the interview form is shown below (See Table 1) :

Table 1

Interviewees and Interview Arrangements

Respondent Types	Serial Number	Interview time	Interview duration	Main problems	Remark
Teacher	T1	2025/1/15	45 minutes	Industry-university curriculum design, teaching practice, and student competency development	On campus
Teacher	T2	2025/1/16	50 minutes	Teaching and Enterprise Collaboration Experience	On campus
Corporate Mentor	E1	2025/1/18	40 minutes	Enterprise project guidance, student skills observation	Corporate Office
Corporate Mentor	E2	2025/1/20	45 minutes	Business-School Collaboration Experience	Corporate Office
Student	S1	2025/1/22	35 minutes	Internship experience and professional skills enhancement	On campus
Student	S2	2025/1/23	40 minutes	Internship Project Participation and Career Development Experience	On campus

The data analysis employed a thematic analysis approach, involving the coding and categorization of interview transcripts. The analysis steps included initial text organization, open coding of key information, categorizing the coded content into themes such as career development, employability cultivation, resource integration, and industry-university collaboration. Relationships between themes were analyzed in conjunction with literature and practical case studies, ultimately leading to a systematic understanding of career development paths and employability cultivation mechanisms under the industry-university collaboration model. Cross-referencing the perspectives of faculty, industry mentors, and students, along with document analysis results, ensured the credibility and accuracy of the data analysis. The research adhered to academic ethics and confidentiality principles; all

participants participated voluntarily and signed informed consent forms, and the research data was used solely for academic research purposes. School and personal information were anonymized to protect privacy.

Interview Results

Based on the semi-structured interview data and related documents collected in Chapter 3, this chapter summarizes and analyzes the actual situation of career development and employability cultivation among vocational school teachers, industry mentors, and students under the school-enterprise collaborative model. Interview results show that school-enterprise cooperation plays a significant role in enhancing students' professional skills and employability. Teachers generally believe that through cooperation with enterprises, course content can be more closely aligned with actual industry needs, enabling students to acquire practical skills based on theoretical learning. Teachers' participation in enterprise project guidance and enterprise mentor training not only improves their own professional level but also enhances the practicality and relevance of classroom teaching. However, teachers also pointed out that the enterprise project cycle does not fully match the school curriculum, and some teachers lack practical enterprise experience, which to some extent affects the effectiveness of school-enterprise cooperation, requiring further training and support to bridge these gaps (Zhao & Ko, 2024).

Interviews with industry mentors generally revealed that participation in industry-university collaboration helps companies identify and cultivate potential talent during project implementation, improving students' job skills and innovation capabilities. Through practical project guidance, mentors can observe students' work attitudes, problem-solving abilities, and teamwork skills, thus providing support for subsequent recruitment (Adegbile, Sarpong, & Cao, 2021). However, mentors also noted that students often exhibit weaknesses in theoretical foundations, communication skills, and project management experience during practical experience. Furthermore, some industry-university projects lack clear objectives and systematic evaluation mechanisms, making it difficult to fully reflect students' learning outcomes, which to some extent affects the overall effectiveness of industry-university collaboration.

From the students' perspective, participating in industry-university collaborative internships and projects allows them to gain a deeper understanding of industry needs and job skill requirements. Through participation in real-world projects, students develop teamwork, time management, problem-solving, and innovation skills; these practical experiences significantly enhance their professional qualities and employability (Chobphon, 2022). However, students also reported that some industry practice projects are not closely integrated with school courses, and the practical tasks lack clarity, thus limiting learning outcomes. They hope for more systematic guidance and connection between industry practice and on-campus courses to better apply theoretical knowledge to real-world work situations.

Based on feedback from teachers, industry mentors, and students, as well as analysis of relevant documents, this study found that while industry-university cooperation can effectively enhance students' professional skills, shortcomings remain in areas such as the integration of practice and curriculum, the balancing of mentor capabilities, project objectives

and evaluation mechanisms, and the integration of industry and university resources. The dual-mentor system promotes the integration of theory and practice to some extent, but the significant differences in capabilities between industry mentors and university teachers necessitate balanced development through training and exchange. Furthermore, the project objectives and evaluation mechanisms in industry-university cooperation are still imperfect, and students' practical achievements lack systematic measurement standards, affecting the integrity of professional skills development. In addition, integrating industry and university resources remains challenging, requiring the establishment of long-term cooperation mechanisms and information-sharing platforms to achieve efficient synergy between educational and industrial resources, thereby enhancing students' career development and employability.

Pathways for Cultivating Students' Career Development and Employability

Based on the interview findings in Chapter 4, this study proposes a systematic path for vocational school students' career development and employability cultivation under a school-enterprise collaborative model, aiming to organically integrate theoretical learning, practical skills, and professional qualities. First, schools should optimize their curriculum system, closely aligning it with enterprise job requirements and combining theoretical courses with practical projects to construct a practice-oriented curriculum system. Through modular curriculum design, students can participate in enterprise projects at different stages, gradually transforming classroom learning into job skills (Zhao & Ko, 2024). Furthermore, schools should introduce project-driven teaching and case analysis, combining typical industry cases and real enterprise problems to enhance students' analytical and problem-solving abilities, thereby achieving the simultaneous development of knowledge application and innovation capabilities.

Secondly, implementing a dual-mentor system is an important pathway to promote students' professional competence. On-campus mentors are primarily responsible for teaching theoretical knowledge and providing academic guidance, while industry mentors focus on cultivating practical skills and imparting industry experience (Adegbile, Sarpong, & Cao, 2021). Through the collaborative guidance of dual mentors, students can understand the application scenarios of theoretical knowledge in practice and further consolidate and expand their learned skills on campus. To enhance the effectiveness of the dual-mentor system, schools and enterprises should regularly organize mentor training, exchange seminars, and joint evaluation meetings to ensure that mentors can unify educational goals, reduce differences in ability among mentors, and improve the quality and consistency of students' practical experience.

Third, in the enterprise practice phase, project objectives and evaluation mechanisms should be clearly defined to ensure the quality of students' learning during practice. Schools and enterprises should develop detailed practice task books in advance, clearly defining learning objectives, expected outcomes, work requirements, and assessment indicators (Chobphon, 2022). The evaluation mechanism should cover multiple dimensions, including professional skills, innovation ability, teamwork, communication skills, and problem-solving abilities. Simultaneously, methods such as periodic feedback, reflection logs, and mentor interviews should be introduced to enable students to identify problems, summarize experiences, and adjust learning strategies in a timely manner. Through a systematic

evaluation mechanism, students' professional competence development will be more controllable and sustainable.

Fourth, integrating university and enterprise resources is a crucial aspect of optimizing career development paths. Universities should establish long-term, stable cooperation mechanisms with enterprises, build information-sharing platforms, and achieve efficient integration of educational and industrial resources (Baleeiro Passos et al., 2023). Alliances, joint laboratories, internship bases, and innovative projects can provide students with continuous, high-quality practical opportunities. Simultaneously, universities and enterprises should jointly participate in talent training program design, curriculum development, and practical project management, forming a collaborative chain from curriculum to practice, enabling students to comprehensively enhance their professional skills and career qualities in a real-world business environment.

Finally, student career development paths should emphasize progressive and diversified skill development. During their studies, students should not only participate in corporate practice and classroom learning, but also be encouraged to engage in innovative practices, research activities, vocational skills competitions, and social service projects (Ma & Yang, 2024). Through multi-level and multi-type practical activities, students can accumulate rich experience, broaden their career horizons, and improve their overall quality. Furthermore, student career development files should be established to track students' skill development, internship performance, project achievements, and innovative practices over the long term. This will support personalized career planning and employment guidance, helping students acquire solid professional skills, innovative abilities, and employment competitiveness upon graduation, thus better adapting to the rapidly evolving industry demands.

In conclusion, the career development and employability cultivation of vocational school students under the school-enterprise collaborative model should be achieved through optimizing the curriculum system, implementing a dual-mentor system, clarifying enterprise practice goals and evaluation mechanisms, integrating school and enterprise resources, and designing progressive and diversified development paths. A systematic training path can not only enhance students' professional skills and employability but also promote the long-term development of school-enterprise cooperation, providing a scientific basis and practical guidance for vocational education reform and industrial talent cultivation.

Conclusion

This study focuses on the career development and employability cultivation pathways for vocational school students under a school-enterprise collaborative model. It collected practical experiences from vocational school teachers, enterprise mentors, and students through semi-structured interviews and conducted a systematic analysis combined with literature review. The study found that school-enterprise cooperation plays a significant role in vocational education, not only enhancing students' professional skills, innovation capabilities, and employment competitiveness, but also promoting the optimal allocation of educational resources and industrial development. However, the interview results revealed shortcomings in the connection between practice and curriculum; the effectiveness of the dual-mentor system varied depending on the mentors' abilities; enterprise practice projects lacked unified goals and a systematic evaluation mechanism; and obstacles remained in the

integration of school and enterprise resources. These issues indicate that a more scientific, systematic, and sustainable school-enterprise collaborative mechanism is still needed in the process of cultivating the career development and employability of vocational school students.

Based on the research findings, this study proposes a systematic path for cultivating students' career development and employability. This path includes optimizing the curriculum, implementing a dual-mentor system, clarifying enterprise practice goals and evaluation mechanisms, integrating university and enterprise resources, and designing progressive and diversified development paths. This path can effectively integrate theoretical learning with practical skills, promoting students' multi-dimensional development both inside and outside the university. Simultaneously, through long-term, stable university-enterprise cooperation and information sharing platforms, universities and enterprises can better collaborate in education, improve the quality of talent cultivation, and form a virtuous cycle of collaborative innovation between industry, academia, and research.

The theoretical significance of this study lies in enriching the research framework of vocational education, further verifying the impact mechanism of school-enterprise cooperation on the improvement of students' vocational skills and employability, and providing empirical support for the theory of industry-academia-research integration. Simultaneously, this study has strong practical guiding value, providing vocational schools with actionable strategies for designing courses, optimizing internship programs, implementing dual-mentor systems, and constructing talent training programs under the school-enterprise collaborative model. Through systematic path design, vocational schools can more effectively enhance students' vocational skills and employability, promote high-quality talent cultivation, and meet the needs of rapidly developing industries.

While this study has yielded some results, it still has limitations. First, the research subjects mainly focused on schools and enterprises within Yangzhou and the Grand Canal Cities Industry Talent Attraction Alliance, resulting in a relatively narrow geographical scope of the sample, which may affect the broad applicability of the conclusions. Second, the research method primarily relied on semi-structured interviews; future research could supplement this with questionnaires, empirical data analysis, and other methods to improve the robustness and representativeness of the findings. Future research could further explore school-enterprise collaboration models in different regions, industries, and professional fields, and conduct longitudinal tracking analysis of students' career development and employability cultivation paths to create a more universally applicable practical guide.

In conclusion, this study demonstrates that the school-enterprise collaboration model plays a crucial role in the career development and employability cultivation of vocational school students. Through systematic training path design and optimized school-enterprise cooperation mechanisms, vocational schools can effectively enhance students' professional skills and employment competitiveness, providing theoretical basis and practical reference for national vocational education reform and industrial talent cultivation.

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