School-Enterprise Cooperation and its Influence on Student Development in Secondary Vocational Education: An Assessment

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ABSTRACT

This study explored the impact of school-enterprise cooperation on student outcomes in secondary vocational education. Specifically, it assessed students' perceptions of cooperation between educational institutions and enterprises in providing vocational education opportunities across academic knowledge, technical skills, and employability skills. It also evaluated students' self-assessment of their personal development within their programs in terms of diverse talent, technical skills, employability, and entrepreneurship, and examined the significant relationship between these two aspects. Employing a descriptive correlational design, data were collected from 340 students engaged in school-enterprise partnerships at a vocational college in China, using Likert scale questionnaires. Statistical analyses included Spearman's Rho. Findings indicate that students generally perceive school-enterprise cooperation as effective ("Good") in delivering academic knowledge, technical training, and employability support, though specific gaps were identified in curriculum-practice alignment, faculty technical expertise, and soft skills development. Students also reported "Good" progress in diverse talent, technical skills, employability, and entrepreneurship, but highlighted the need for enhanced cross-cultural exposure, soft skills training, and business management knowledge. Crucially, a significant positive relationship was found between students' assessments of school-enterprise cooperation and their perceived personal development across all dimensions. The study concludes that school-enterprise cooperation significantly contributes to student development and career readiness, emphasizing the need for optimized mechanisms to improve educational quality and address identified areas for enhancement.

Keywords: School-enterprise cooperation, vocational education, student development, academic knowledge, technical skills, employability skills, entrepreneurship

INTRODUCTION

School-enterprise cooperation represents a strategic partnership between educational institutions and businesses, designed to align academic training with industry requirements. This collaboration, evolving from informal engagements to structured frameworks, integrates real-world experiences into the educational process through activities such as internships, apprenticeships, curriculum development, and joint research projects (Hu et al., 2023; Zhang, X., & Zur, R., 2022). Such partnerships are crucial for bridging the gap between theoretical knowledge and practical application, thereby equipping students with skills directly relevant to the job market (Hu et al., 2023). The symbiotic relationship benefits schools through access to industry expertise and resources, while businesses gain a pool of trained and potentially future employees (Liu et al., 2022).

The increasing demand for skilled labor and rapid technological advancements underscore the necessity for education systems to adapt to a dynamic labor market. School-enterprise cooperation is a key strategy to address the skills mismatch, providing students with hands-on experiences that enhance their practical skills and better prepare them for the workforce (Hu et al., 2023). Recent educational reforms in China, for instance, highlight the importance of these collaborations to modernize vocational education and align it with labor market demands, encouraging multifaceted and sustainable education and training systems (Xinhua, 2022; Cina Daily, 2023).

This study aimed to explore the impact of school-enterprise collaboration on student outcomes in secondary

vocational education. Specifically, it sought to assess students' perceptions regarding the cooperation between educational institutions and enterprises in providing vocational education opportunities, particularly in terms of academic knowledge, technical skills, and employability skills. Furthermore, the study aimed to evaluate students' self-assessment of their personal development within their program, focusing on diverse talent, technical skills, employability, and entrepreneurship. Finally, it investigated whether there is a significant relationship between respondents' assessments of school-enterprise cooperation in providing vocational education opportunities and their perceived development within their program.

The findings of this study are significant for policymakers, educators, and industry stakeholders, offering valuable insights for developing more effective educational practices and policies that strengthen the foundation of vocational education and better prepare students for their future careers.

METHODOLOGY

Population, Sample, and Sampling Technique

The study's population comprised students enrolled at a vocational college in China, ranging from 18 to 24 years old. A sample of 340 students was selected. Purposive sampling was employed to specifically select third-year and fourth-year students with direct experience in school-enterprise collaboration, allowing for detailed and relevant insights into the influence of these partnerships on student outcomes.

Research Instruments

A multi-faceted approach to data collection utilized both demographic and evaluative instruments. The first instrument was a demographic questionnaire, gathering basic information on gender and age. The second part of the instrument assessed respondents' perceptions of school-enterprise cooperation in terms of academic knowledge, technical skills, and employability skills, consisting of 15 items (5 per dimension) and using a 4-point Likert scale (1 = Strongly Disagree, 4 = Strongly Agree). The third part evaluated students' perceptions of their personal development within their vocational program, covering diverse talent, technical skills, employability, and entrepreneurship, comprising 20 items (5 per indicator) and utilizing the same 4-point Likert scale. Scores for both evaluative instruments were interpreted as: 1.00-1.75 (Strongly Disagree, Poor), 1.76-2.50 (Disagree, Fair), 2.51-3.25 (Agree, Good), and 3.26-4.00 (Strongly Agree, Very Good). Both researcher-made instruments underwent comprehensive validity and reliability assessment, validated by three experts. A pilot test was conducted, and reliability analysis using Cronbach's alpha yielded a value greater than 0.80, indicating high internal consistency.

Data Collection and Ethical Considerations

Upon validation of the instruments, purposive sampling was used to select 340 students. Participants were contacted through official college channels and invited to participate after receiving detailed information about the study's purpose, procedures, and confidentiality. All study materials, including consent forms and questionnaires, were translated into Mandarin to ensure accuracy and clarity for participants. Data collection was conducted using both online and paper-based methods, with the researcher and trained assistants overseeing the process and providing clear instructions. Confidentiality and anonymity were strictly maintained by removing personal identifiers. Participation was entirely voluntary, with the right to withdraw at any time without penalty. Measures were taken to minimize potential harm, ensuring the research design was sensitive to participants' experiences. The study received approval from the Institutional Ethics Review Committee of TUA on November 27, 2024, under Protocol Code 2024-1st-CASE-Feng-v2. Informed consent was obtained from all participants, detailing objectives, procedures, risks, and benefits.

Statistical Treatment

Data analysis involved both descriptive and inferential statistical tools. Descriptive statistics, including means and standard deviations, were used to assess central tendency and variability for perceived cooperation and personal development. Inferential statistics included Spearman's Rho, which was used to determine the

correlation between the perceived level of cooperation and students' assessed development in their program. All statistical computations were performed using Jamovi, with a significance level set at alpha=0.05.

RESULTS

Student Assessment of Institution-Enterprise Vocational Cooperation

Table 1 presents the respondents' assessment of the cooperation between educational institutions and enterprises in providing vocational education opportunities in terms of academic knowledge.

Table 1. Respondents' Assessment of the Cooperation Between Educational Institutions and Enterprises in Providing Vocational Education Opportunities in terms of Academic Knowledge

INDICATORS	Mean	SD	Interpretation
1. The educational institution provides sufficient academic knowledge to prepare students for vocational training.	2.99	1.00	Agree
2. The enterprise provides relevant academic support to enhance vocational learning.	2.98	0.96	Agree
3. The collaboration ensures that academic knowledge is aligned with industry needs.	3.03	0.97	Agree
4. The academic curriculum effectively complements the vocational training provided by the enterprise.	2.96	0.98	Agree
5. The academic and vocational components of the program are well integrated.	3.03	1.00	Agree
Overall: Academic Knowledge	**3.00**	**0.84**	**GOOD**
Scale Range: 3.26–4.00 (Strongly Agree, Very Good), 2.51–3.25 (Agree, Good), 1.76–2.50 (Disagree, Fair), 1.00–1.75 (Strongly Disagree, Poor).			

The overall mean score for academic knowledge was 3.00 (SD = 0.84), interpreted as "Good," indicating general agreement on the effectiveness of collaboration in delivering academic knowledge. The highest mean scores were for "The collaboration ensures that academic knowledge is aligned with industry needs" and "The academic and vocational components of the program are well integrated" (both M = 3.03), suggesting strong alignment and integration. The lowest mean score was for "The academic curriculum effectively complements the vocational training provided by the enterprise" (M = 2.96), indicating room for improvement in seamless theoretical-practical connection.

Table 2 presents the respondents' assessment of the cooperation between educational institutions and enterprises in providing vocational education opportunities in terms of technical skills. This assessment is crucial for understanding the effectiveness of current educational models and identifying areas for improvement to better align vocational training with industry demands.

Table 2. Respondents' Assessment of the Cooperation Between Educational Institutions and Enterprises in Providing Vocational Education Opportunities in terms of Technical Skills

INDICATORS	Mean	SD	Interpretation
1. The enterprise provides adequate facilities and equipment for technical skills training.	3.15	0.88	Agree
2. The educational institution's faculty has the necessary technical expertise to guide students.	3.08	0.95	Agree

3. The collaboration ensures that technical skills are taught using industry-standard practices.	3.12	0.91	Agree
4. The students are able to acquire the technical skills required by the industry.	3.10	0.93	Agree
5. The technical skills training is relevant to the students' career goals.	3.10	0.95	Agree
Overall: Technical Skills	**3.11**	**0.78**	**GOOD**
Scale Range: 3.26–4.00 (Strongly Agree, Very Good), 2.51–3.25 (Agree, Good), 1.76–2.50 (Disagree, Fair), 1.00–1.75 (Strongly Disagree, Poor).			

The overall mean for technical skills was 3.11 (SD = 0.78), interpreted as “Good,” indicating effective support for technical skill development. The highest-rated aspect was "The enterprise provides adequate facilities and equipment for technical skills training" (M = 3.15), highlighting the value of industry resources. The lowest-rated indicator was "The educational institution’s faculty has the necessary technical expertise to guide students" (M = 3.08), suggesting perceived gaps in faculty expertise. These findings underscore the need for continuous professional development for educators to ensure they remain current with industry standards and technologies. Specifically, targeted training programs and industry secondments for faculty could bridge this expertise gap, enhancing the quality of technical instruction. This, in turn, would better prepare students for the practical demands of their chosen fields. Addressing this disparity is crucial for maintaining the "Good" rating and striving for excellence in vocational technical skill development.

Table 3 presents the respondents' assessment of the cooperation between educational institutions and enterprises in providing vocational education opportunities in terms of employability skills. This assessment sheds light on the effectiveness of current collaborative efforts and highlights areas where partnerships can be strengthened to better equip students with the necessary skills for the workforce.

Table 3. Respondents’ Assessment of the Cooperation Between Educational Institutions and Enterprises in Providing Vocational Education Opportunities in Terms of Employability Skills

INDICATORS	**Mean**	**SD**	**Interpretation**
1. The collaboration helps students develop essential employability skills like communication and teamwork.	2.98	0.89	Agree
2. The enterprise provides opportunities for students to gain practical work experience.	3.06	0.95	Agree
3. The educational institution and enterprise work together to prepare students for job interviews.	2.99	0.94	Agree
4. The students feel confident in their ability to secure employment after completing the program.	3.06	0.93	Agree
5. The program effectively bridges the gap between academic learning and workplace requirements.	3.03	0.97	Agree
Overall: Employability Skill	**3.02**	**0.79**	**GOOD**
Scale Range: 3.26–4.00 (Strongly Agree, Very Good), 2.51–3.25 (Agree, Good), 1.76–2.50 (Disagree, Fair), 1.00–1.75 (Strongly Disagree, Poor).			

The overall mean for employability skills was 3.02 (SD = 0.79), interpreted as “Good,” suggesting effective support for employability skill development. The highest-rated aspects were "The enterprise provides opportunities for students to gain practical work experience" and "The students feel confident in their ability to secure employment after completing the program" (both M = 3.06), emphasizing the importance of practical training. The lowest-rated indicator was "The collaboration helps students develop essential employability

skills like communication and teamwork" (M = 2.98), indicating room for improvement in soft skills training. These findings suggest that while practical experience boosts confidence, there's a clear need to enhance the development of crucial soft skills to fully prepare students for the demands of the modern workplace. Addressing this gap could involve integrating more collaborative projects and communication exercises directly into the curriculum, potentially through workshops or industry mentorship programs. Such targeted interventions would ensure a more comprehensive skill set, making graduates even more competitive in the job market.

Student Assessment of Personal Development in Program

Table 4 presents the respondents' assessment of their personal development within their program in terms of diverse talent. This evaluation provides insights into how well the program fosters a wide range of skills and abilities beyond core academic knowledge, contributing to a more holistic student development. It further helps in identifying the specific areas where students feel they have grown most in their multifaceted capabilities.

Table 4. Respondent's Assessment of their Personal Development Within their Program in Terms of Diverse Talent

INDICATORS	Mean	SD	Interpretation
1. The program has helped me develop a diverse set of skills and talents.	2.97	1.01	Agree
2. I feel confident in my ability to adapt to different situations.	2.98	1.03	Agree
3. I have been exposed to a variety of perspectives and experiences.	2.96	1.00	Agree
4. The program has helped me discover my strengths and weaknesses.	2.97	1.02	Agree
5. I feel more well-rounded as a person.	2.99	0.98	Agree
Overall: Diverse Talent	**2.98**	**0.79**	**GOOD**
Scale Range: 3.26–4.00 (Strongly Agree, Very Good), 2.51–3.25 (Agree, Good), 1.76–2.50 (Disagree, Fair), 1.00–1.75 (Strongly Disagree, Poor).			

The overall mean for diverse talent was 2.98 (SD = 0.79), interpreted as "Good," suggesting that respondents generally agree their program contributed to diverse skills and self-awareness. The highest-rated statement was "I feel more well-rounded as a person" (M = 2.99), indicating holistic growth. The lowest-rated indicator was "I have been exposed to a variety of perspectives and experiences" (M = 2.96), suggesting a need for more diversified learning experiences. This highlights an opportunity to enrich the curriculum with broader cultural and interdisciplinary content. Enhancing exposure to varied perspectives could significantly boost students' adaptability and global awareness. Such improvements would ensure a more comprehensive development of diverse talent, preparing students for a multifaceted future. Furthermore, incorporating real-world case studies and collaborative projects with diverse teams could provide invaluable practical exposure, directly addressing the identified gap in varied experiences. This holistic approach would not only enhance personal development but also better equip students for complex, globalized professional environments. Consequently, cultivating this breadth of talent is essential for fostering well-rounded individuals capable of thriving in dynamic and interconnected professional landscapes. This broader exposure could lead to more innovative thinking and improved problem-solving skills, which are highly valued in today's workforce. Therefore, prioritizing these diversified learning experiences is paramount for holistic student success.

Table 5 presents the respondents' assessment of their personal development within their program in terms of technical skills. This evaluation provides crucial insights into how effectively the program enhances practical

abilities and prepares students for industry demands. It highlights the perceived growth in their hands-on expertise and proficiency with relevant tools and technologies.

Table 5. Respondent's Assessment of their Personal Development Within their Program in Terms of Technical Skills

INDICATORS	Mean	SD	Interpretation
1. I have acquired the technical skills necessary for my chosen career path.	2.87	1.09	Agree
2. I feel confident in my ability to apply my technical knowledge to real-world problems.	2.90	1.04	Agree
3. The program has provided me with hands-on experience in using relevant technologies.	2.92	1.01	Agree
4. I am satisfied with the quality of technical instruction I have received.	2.91	0.99	Agree
5. I feel prepared to take on technical challenges in the workplace.	2.88	1.04	Agree
Overall: Technical Skill	**2.90**	**0.89**	**GOOD**
Scale Range: 3.26–4.00 (Strongly Agree, Very Good), 2.51–3.25 (Agree, Good), 1.76–2.50 (Disagree, Fair), 1.00–1.75 (Strongly Disagree, Poor).			

The overall mean for technical skills was 2.90 (SD = 0.89), interpreted as "Good," indicating that students generally agree their program equipped them with necessary technical skills. The highest-rated statement was "The program has provided me with hands-on experience in using relevant technologies" (M = 2.92), highlighting the value of practical training. The lowest-rated indicator was "I have acquired the technical skills necessary for my chosen career path" (M = 2.87), suggesting a need for better alignment with industry needs. This discrepancy points to a crucial area for program enhancement, particularly in tailoring technical training more precisely to specific career demands. While the hands-on experience is commendable, the slight dip in confidence regarding direct career applicability suggests that curriculum developers should engage more closely with industry partners to identify and integrate the most current and essential technical proficiencies. Bridging this gap would not only boost student confidence but also ensure graduates are immediately ready to contribute effectively in their chosen fields, ultimately enhancing the overall impact and relevance of the vocational program.

Table 6 presents the respondents' assessment of their personal development within their program in terms of employability. This assessment offers valuable insights into how effectively the educational experience fosters skills and attributes crucial for future career success. It specifically examines students' perceptions of their readiness for the job market, including their confidence in securing and maintaining employment. This detailed perspective helps to identify the program's strengths and areas for improvement in preparing students for real-world professional challenges.

Table 6. Respondent's Assessment of their Personal Development Within their Program in Terms of Employability

INDICATORS	Mean	SD	Interpretation
1. The program has helped me develop essential employability skills like communication and teamwork.	2.98	1.00	Agree
2. I feel confident in my ability to secure a job in my chosen field.	3.03	0.97	Agree
3. I have gained valuable work experience through internships or co-op placements.	3.00	1.04	Agree

4. The program has helped me prepare for job interviews and networking.	3.01	0.97	Agree
5. I feel confident in my ability to adapt to different work environments.	3.02	0.99	Agree
Overall: Employability	**3.01**	**0.85**	**GOOD**
Scale Range: 3.26–4.00 (Strongly Agree, Very Good), 2.51–3.25 (Agree, Good), 1.76–2.50 (Disagree, Fair), 1.00–1.75 (Strongly Disagree, Poor).			

The overall mean for employability was 3.01 (SD = 0.85), interpreted as "Good," indicating that students generally agree their program prepared them for employment. The highest-rated statement was "I feel confident in my ability to secure a job in my chosen field" (M = 3.03). The lowest-rated indicator was "The program has helped me develop essential employability skills like communication and teamwork" (M = 2.98), suggesting a need for greater emphasis on soft skills. This disparity between job-seeking confidence and the development of interpersonal skills highlights a critical area for curriculum enhancement. While students feel prepared to find employment, their perceived weakness in communication and teamwork could hinder long-term career success and adaptability in diverse work environments. Therefore, integrating more collaborative projects, presentations, and interactive workshops specifically designed to cultivate these essential soft skills would significantly bolster students' overall employability and equip them for the multifaceted demands of the modern workforce. Addressing this specific gap is paramount to ensuring graduates are not only technically competent but also well-rounded professionals.

Table 7 presents the respondents' assessment of their personal development within their program in terms of entrepreneurship. This assessment is vital for understanding how effectively the educational environment cultivates innovative thinking, risk-taking, and the foundational skills necessary for launching and managing new ventures. It provides a comprehensive overview of students' perceived growth in areas such as creativity, problem-solving, and the ability to identify and capitalize on opportunities, all of which are essential for fostering an entrepreneurial mindset.

Table 7. Respondent's Assessment of their Personal Development Within their Program in Terms of Entrepreneurship

INDICATORS	Mean	SD	Interpretation
1. The program has sparked my interest in entrepreneurship.	2.92	1.02	Agree
2. I have gained knowledge about business planning and management.	2.84	1.04	Agree
3. I feel confident in my ability to start my own business.	2.96	1.01	Agree
4. The program has provided me with opportunities to develop entrepreneurial skills.	2.94	1.03	Agree
5. I feel inspired to contribute to economic growth.	2.92	1.02	Agree
Overall: Entrepreneurship	**2.92**	**0.89**	**GOOD**
Scale Range: 3.26–4.00 (Strongly Agree, Very Good), 2.51–3.25 (Agree, Good), 1.76–2.50 (Disagree, Fair), 1.00–1.75 (Strongly Disagree, Poor).			

The overall mean for entrepreneurship was 2.92 (SD = 0.89), interpreted as "Good," suggesting that students generally agree their program fostered entrepreneurial skills. The highest-rated statement was "I feel confident

in my ability to start my own business" (M = 2.96). The lowest-rated indicator was "I have gained knowledge about business planning and management" (M = 2.84), indicating a need for more in-depth business planning and management training. This divergence highlights a crucial area for program refinement: while students feel a nascent confidence in their entrepreneurial potential, there's a clear gap in the foundational knowledge required to translate this confidence into concrete ventures. To truly empower future entrepreneurs, the curriculum should intensify its focus on practical business planning, financial management, market analysis, and legal aspects of starting a business. Integrating hands-on simulations, mentorship from successful entrepreneurs, and opportunities to develop comprehensive business plans would significantly enhance this crucial aspect of their entrepreneurial journey, moving beyond mere confidence to demonstrable capability and fostering a more robust entrepreneurial ecosystem within the program.

Correlation: School-Enterprise Cooperation and Program Development

Table 8 presents the correlation between respondents' evaluation of the cooperation between educational institutions and enterprises and their assessment of personal development in their program. This analysis helps to determine if a stronger collaboration between these entities leads to more significant personal growth among students. It highlights the extent to which external partnerships contribute to individual student development within the vocational education framework. Understanding this relationship is crucial for optimizing vocational training models, as it can reveal specific areas where improved collaboration can directly translate into enhanced student outcomes in terms of skills, confidence, and overall readiness for their careers. This deeper insight will guide strategies for fostering more effective and mutually beneficial school-enterprise alliances.

Table 8. Correlation Matrix of the Relationship Between Respondents Assessment of the Cooperation Between Educational Institutions and Enterprises and their Assessment of their Personal Development in their Program

		Academic Knowledge	Technical Skills	Employability Skills
Diverse Talent	Spearman's rho	0.50	0.54	0.53
	p-value	< .001	< .001	< .001
Technical Skills	Spearman's rho	0.38	0.4	0.33
	p-value	< .001	< .001	< .001
Employability	Spearman's rho	0.46	0.59	0.51
	p-value	< .001	< .001	< .001
Entrepreneurship	Spearman's rho	0.39	0.51	0.48
	p-value	< .001	< .001	< .001

For the Diverse Talent dimension, there were positive correlations with Academic Knowledge ($\rho = 0.50$, $p < .001$), Technical Skills ($\rho = 0.54$, $p < .001$), and Employability Skills ($\rho = 0.53$, $p < .001$). This indicates that positive evaluation of institutional-enterprise cooperation is strongly linked to perceived growth in diverse talents.

In the Technical Skills personal development dimension, positive correlations were observed with Academic Knowledge Cooperation ($\rho = 0.38$, $p < .001$), Technical Skills Cooperation ($\rho = 0.40$, $p < .001$), and Employability Skills Cooperation ($\rho = 0.33$, $p < .001$). This suggests that strong cooperation in technical training enhances students' perceived technical skill development.

For the Employability personal development dimension, strong positive correlations were found with Academic Knowledge Cooperation ($\rho = 0.46$, $p < .001$), Technical Skills Cooperation ($\rho = 0.59$, $p < .001$), and Employability Skills Cooperation ($\rho = 0.51$, $p < .001$). These results highlight that a well-integrated academic and vocational training system significantly contributes to students' employability readiness.

In the Entrepreneurship personal development dimension, positive correlations were observed with Academic Knowledge Cooperation ($\rho = 0.39$, $p < .001$), Technical Skills Cooperation ($\rho = 0.51$, $p < .001$), and Employability Skills Cooperation ($\rho = 0.48$, $p < .001$). This suggests that collaboration between educational institutions and enterprises plays a role in fostering students' entrepreneurial mindset and skills.

Overall, the findings highlight a strong positive correlation between students' perception of school-enterprise cooperation and their personal development across multiple dimensions. The significance of these correlations at the 0.01 level suggests that these relationships are unlikely to be due to chance.

DISCUSSION

The findings of this study underscore the pivotal role of school-enterprise cooperation in shaping student outcomes in secondary vocational education. Students generally hold a positive perception of these collaborations, rating them as "Good" across academic knowledge, technical skills, and employability skills. This aligns with existing literature emphasizing the importance of vocational education in bridging the gap between theoretical knowledge and practical application (Ling Shouxing, Lin Meishun, 2021; Zheng Yuye, 2022). The high ratings for alignment between academic knowledge and industry needs, and the integration of academic and vocational components, reflect successful efforts in curriculum co-development and knowledge sharing as highlighted by Fan Huali (2022) and Yang Jian, Guo Xiaofeng (2022). However, the slight dip in scores for the academic curriculum effectively complementing vocational training suggests that continuous refinement is needed to ensure seamless integration, a challenge also noted by Liu Yuanbing (2023) and Dou Jianzhi (2020) regarding structured collaboration mechanisms and resource investment.

In terms of technical skills development, the positive assessment is largely driven by enterprises providing adequate facilities and equipment, which is consistent with Dou Jianzhi (2020) and Cui Qi (2023) who emphasize access to modern industry-standard resources. Yet, the lower rating concerning faculty technical expertise points to a critical area for improvement. This resonates with McGrath and Yamada (2023) and Güngör (2020), who discuss the challenges vocational educators face in keeping pace with rapidly evolving industry standards and the need for continuous faculty training. The integration of innovative technologies like Virtual Reality (VR) as explored by ERIC (2021) could offer solutions, but requires addressing cost and instructor training.

Employability skills, while generally rated "Good," revealed a particular need for strengthening soft skills like communication and teamwork. Students highly value practical work experience and feel confident in securing employment, supporting Mariano and Tantoco (2023) and Rahayu et al. (2024) on the crucial role of hands-on experience in job readiness. However, the perceived gap in soft skills development aligns with Nugraha et al. (2020) and Jaafar et al. (2018), who stress the importance of these skills for career success and choice. This indicates that while vocational programs provide valuable practical exposure, a more deliberate integration of interpersonal and collaborative skill training is necessary.

Regarding personal development, students reported "Good" progress across diverse talent, technical skills, employability, and entrepreneurship. The perception of being "well-rounded" suggests a holistic approach to vocational education, supported by Zhang, X., & Zur, R. (2022) and Chen et al. (2019) on adapting talent training models and joint project development. However, the lowest score for exposure to diverse perspectives and experiences suggests a need for broader learning opportunities, potentially through global partnerships or cross-sector training as implied by Gong et al. (2023) and Liu, W.B. (2024).

The assessment of technical skills development in personal growth, while "Good," indicates that students feel there's room for greater alignment with industry needs despite valuing hands-on experience. This echoes Shukla et al. (2024) on the importance of aligning vocational training with industry and government initiatives, and Venatius et al. (2023) on the need for structured teaching frameworks. For employability, students' confidence in job security is high, but the need for enhanced soft skills is evident, reinforcing the arguments by Anwar et al. (2023) and Korber (2019) on the impact of entrepreneurship training and strong vocational policies.

Finally, in entrepreneurship, students feel inspired to pursue ventures but perceive gaps in business planning and management knowledge. This aligns with Olojuolawe et al. (2024) and Shikalepo (2019) who advocate for discipline-specific and integrated entrepreneurship education. The International Labour Organization (2023) further supports a holistic approach including mentorship and financial resources.

The study's most significant finding is the strong positive correlation between students' assessment of school-enterprise cooperation and their perceived personal development across all dimensions. This robust relationship ($p < .001$ for all correlations) confirms that effective collaboration between educational institutions and industries significantly contributes to students' overall skill development and career readiness. This reinforces the arguments of Ling Shouxing (2021), Dou Jianzhi (2020), and Zheng Yuye (2022) that school-enterprise partnerships foster well-rounded talent, improve technical competence, and enhance employability. The findings suggest that by strengthening these partnerships, vocational education can be further aligned with market needs, ensuring students are well-prepared for the demands of the modern workforce. The consistent positive correlations across diverse talent, technical skills, employability, and entrepreneurship highlight the synergistic effect of integrating industry into education, leading to comprehensive student development.

CONCLUSION

This study provides a comprehensive insight into the dynamics between school-enterprise cooperation and student development in secondary vocational education. The findings lead to several key conclusions: Students generally perceive the cooperation between educational institutions and enterprises in providing vocational education opportunities as "Good" across academic knowledge, technical skills, and employability skills. While there is strong alignment with industry needs and integration of academic and vocational components, improvements are needed in ensuring curricula fully complement vocational training, enhancing faculty technical expertise, and strengthening essential soft skills like communication and teamwork. Furthermore, students assess their personal development within their vocational programs as "Good" in terms of diverse talent, technical skills, employability, and entrepreneurship. They feel well-rounded and confident in their technical abilities and job prospects. However, there is a recognized need for greater exposure to diverse perspectives, more industry-aligned training, enhanced soft skills development, and improved knowledge in business planning and management. Finally, a significant positive relationship exists between students' assessments of school-enterprise cooperation and their perceived personal development across all dimensions (diverse talent, technical skills, employability, and entrepreneurship). This indicates that effective collaboration between educational institutions and enterprises plays a crucial role in fostering students' overall skill development and career readiness.

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