

A Cross-Strait Perspective: A Study on the Development of New-Generation Vocational Education Teacher Training and Faculty Team Building — A Comparative Analysis between Mainland China and Taiwan, China

Tingyun Luo^{1*}, Hongbo Ma², Zhongjie Wei³

¹School of Design, Fujian University of Technology; Fuzhou 350118, China

²Business School, Jinhua University of Vocational Technology, Jinhua 321000, China

³Cross-Strait Vocational Education Integration Development Research Center, Fujian Polytechnic of Information Technology, Fuzhou 350003, China

*Corresponding author: *Tingyun Luo*, 61202408@fjut.edu.cn

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: This study examines the development of vocational education teachers and the construction of teaching staff across the Taiwan Strait. Utilizing expert interviews and a structural equation model (SEM) for mixed-method analysis, it seeks to uncover the causal relationships among policy support, teacher training, teacher professionalism, and school-enterprise collaboration. The research reveals that while both sides of the Taiwan Strait emphasize “dual abilities” and the “integration of industry and education”, they differ in institutional logics regarding teacher qualification recognition, training models, and resource allocation. The SEM model results indicate that policy support significantly enhances the effectiveness of teacher training and development. Teacher training serves as a mediator between teacher professionalism and overall effectiveness. However, the direct link between teacher professionalism and school-enterprise collaboration is not significant, suggesting that organizational structure and environmental factors are crucial moderating variables. Theoretically, this study addresses Schultz’s “human capital theory” and Rauner’s “dual-ability model”, further developing a comparative analysis framework of “policy-ability-effectiveness”. Practically, it is recommended that both sides of the Taiwan Strait establish cross-border teacher certification and digital teaching and research platforms to foster regional knowledge exchange and teacher mobility. This approach aims to achieve the digital transformation and sustainable empowerment of vocational education teachers, ultimately realizing the educational vision of common prosperity in industry and education and the co-creation of value.

Keywords: Cross-strait culture; Vocational education; Teacher training; Teaching staff; Integrated development

Online publication: Apr 7, 2026

1. Introduction

Over the past decade, digital transformation and industrial upgrading have significantly reshaped the global education system. Vocational education, serving as a vital link between talent cultivation and economic growth, directly influences regional competitiveness and innovation through the quality of teacher training and faculty development ^[1]. In this new era, vocational education prioritizes “integration of industry and education, practice orientation, and lifelong learning”. Given the shared culture and complementary economies across the Taiwan Strait, exploring the similarities, differences, and collaborative potential in teacher training paths is worthwhile ^[2].

“Vocational education teacher training” involves developing educators with teaching skills, industry experience, and innovative thinking through structured education, hands-on training, and professional certification. This concept includes various elements such as pre-service education, in-service training, enterprise practice, and cross-domain collaboration ^[3,4]. In contrast, “teacher team building” emphasizes optimizing teacher composition, establishing professional development mechanisms, and designing incentive policies, focusing on enhancing both individual capabilities and group effectiveness ^[5]. While both sides of the Taiwan Strait adhere to the principle of being “people-oriented and serving the industry”, distinct practice models have developed due to differences in policy orientation, social needs, and resource allocation ^[5-7].

Research highlights three core issues in the development of vocational education teachers:

(1) Accelerated knowledge iteration

Teachers must evolve from “knowledge transmitters” to “learning guides”, mastering tools like AI-assisted teaching and virtual reality technology ^[8].

(2) Cross-domain integration requirements

For instance, Chinese Taiwan’s “New Southbound Industry-Academia Special Class” aims to cultivate industrial talent in Southeast Asia, necessitating teachers to possess language, cultural skills, and industrial insights.

(3) Sustainable development orientation

Integrating green skills and the circular economy into curricula demands teachers have interdisciplinary integration abilities. The Taiwan Strait presents divergent policy paths: Mainland China emphasizes “top-level design” with national-level teacher training bases and standardized certification, while Chinese Taiwan prioritizes “local innovation”, tailoring teacher cultivation programs to regional industrial characteristics ^[9,10].

The objectives of this study are as follows:

(1) Encourage dialogue and complementarity between the vocational education knowledge systems across the Taiwan Strait. For instance, Taiwan’s community-based school model and the Chinese mainland’s group-based school model can serve as mutual sources of inspiration.

(2) Encourage the digital transformation of vocational education teachers’ professional development by designing a competency growth map that integrates both virtual and real environments.

(3) Investigate innovative strategies for collaborative teacher development across the Taiwan Strait, including the joint establishment of cross-domain certification standards, the creation of an industrial tutor talent pool, and the development of a digital teaching and research platform.

The research framework diagram is shown in **Figure 1**.

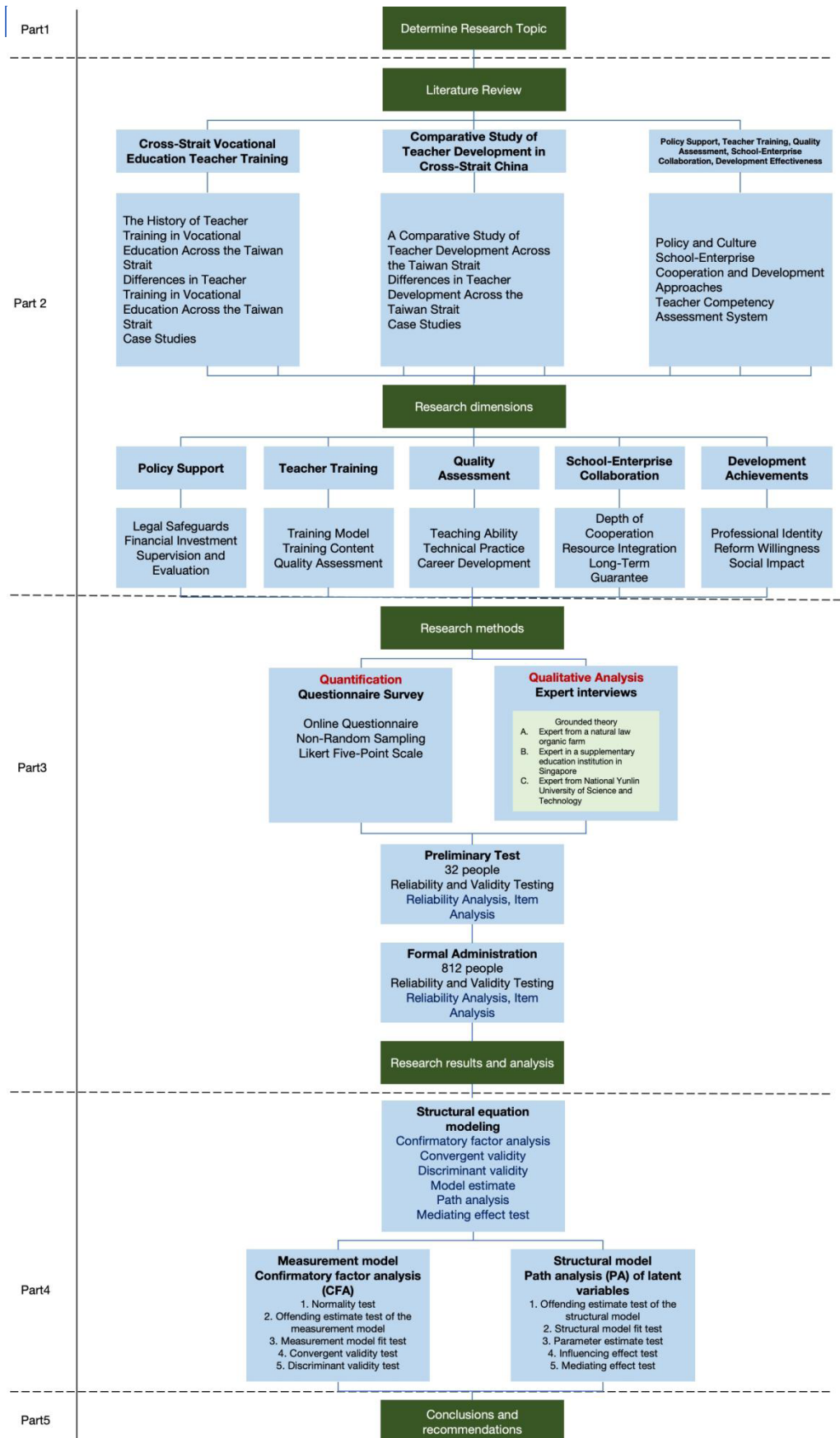


Figure 1. Research framework diagram.

2. Research methods

2.1. Expert interview method

This study utilized semi-structured expert interviews to examine teacher training and team building in vocational education across the Taiwan Strait. Experts from three key fields, academic research, educational practice, and industry collaboration were invited to participate. Each interviewee engaged in a 30-minute in-depth interview, discussing core topics such as policy systems, teaching models, and industry-academia collaboration mechanisms. The goal was to identify key differences, collaborative potential, and innovative approaches in teacher training across the Taiwan Strait, thereby offering an empirical basis and strategic direction for the research framework.

2.2. Structural equation modeling

This study utilizes Structural Equation Modeling (SEM), incorporating Confirmatory Factor Analysis (CFA) and Path Analysis, to systematically quantify the multi-dimensional interactions among “policy support, teacher training, teacher professionalism, school-enterprise collaboration, and development effectiveness” in the cultivation of vocational education teachers and the construction of teaching staff across the Taiwan Strait. By developing a cross-domain comparison model, the study examines how institutional differences across the Taiwan Strait impact the effectiveness of teacher cultivation and assesses the adaptability and explanatory power of the theoretical framework.

3. Research and analysis

3.1. Analysis of expert interviews

This study examined the essential components of vocational education teacher training and team building across the Taiwan Strait through expert interviews. By integrating insights from three experts, scholars, education department heads, and vocational school principals from both sides of the Taiwan Strait, five core qualitative dimensions were identified as distinguishing and collaborative elements of the teacher training systems across the region. The elements derived from the expert interviews are detailed in **Table 1**.

Table 1. Elements summarized from expert interviews

No.	Dimension	Key focus area and elements
1	Training Mechanisms and Policy Support	Policy and Legal Support: Mainland China strengthened the target ratio for dual-qualified teachers through revisions to the Vocational Education Law, while Chinese Taiwan promoted industry-academia faculty exchange mechanisms via the Technical and Vocational Education Act. Systematized Training Models: Mainland China emphasizes tripartite collaboration among universities, enterprises, and government (e.g., modern apprenticeship programs), while Taiwan Region establishes a dual-track system of “teaching practice and industrial training” through science and technology universities. Unified Qualification Certification: Mainland China implements a national unified teacher qualification examination, while Taiwan Region adopts a dual-standard system of “teacher qualification certification + industry experience certification”.
2	Industry-Education Integration and Practice Orientation	Depth of Industry Linkage: Mainland China strengthens skill iteration through “school-enterprise co-built teacher practice bases” (e.g., vocational colleges aligning with “Made in China 2025”), while Taiwan Region requires teachers to regularly participate in corporate R&D through “industry-academia collaboration programs”. Practical Competency Evaluation: Mainland China incorporates corporate service outcomes into professional title evaluations, while Taiwan Region teachers must submit “industry technical reports” as promotion requirements. Dual-qualified Teacher Ratio: Mainland China has set a quantitative target for dual-qualified teachers to exceed 60% by 2025, while Taiwan Region flexibly supplements this through a system of “part-time instructors from industry experts”.

Table 1 (Continued)

No.	Dimension	Key focus area and elements
3	Teacher Competency Standards and Evaluation System	<p>Core Competency Dimensions: Mainland China emphasizes a three-dimensional standard of “teaching ability + technical skills + ideological and political education”, while Taiwan Region focuses on “teaching innovation + cross-domain integration + international mobility”.</p> <p>Dynamic Adjustment Mechanism: Mainland China has established a “five-year cycle” comprehensive training system for all faculty, while Taiwan Region implements a “Teacher Professional Development Passport” system that accumulates training hours.</p> <p>Differentiated Evaluation Weighting: In mainland vocational college faculty assessments, practical teaching accounts for no less than 40% of the evaluation criteria. In Taiwan Region’s technical and vocational education system, research achievements can be converted into industry-academia collaboration performance metrics.</p>
4	Teacher Development Support System	<p>Training Resource Integration: Mainland China provides standardized courses through the “National Vocational Education Smart Education Platform”, while Taiwan Region offers regional workshops via the “Vocational Education Teacher Professional Development Center”.</p> <p>International Exchange Channels: Mainland China exports vocational education standards through the “Luban Workshop” initiative, while Taiwan Region encourages teachers to participate in the “New Southbound Vocational Education Cooperation Program”.</p> <p>Psychological and Career Support: Mainland China piloted “dynamic adjustment of vocational school teacher staffing quotas”, while Taiwan Region promoted “teacher professional communities” to alleviate occupational burnout.</p>
5	Institutional Innovation and Cross-Regional Collaboration	<p>Policy Experimentation Mechanisms: Mainland China pilots “Overseas Vocational Teacher Certification” in free trade zones, while Taiwan Region breaks traditional hiring restrictions through “Key Industry Academies”.</p> <p>Cross-Strait Collaboration Pathways: Fujian’s “Cross-Strait Vocational Education Teacher Collaborative Innovation Center” promotes mutual recognition of qualifications, while Taiwan Region’s universities incorporate mainland China’s “1+X Certificate” training modules.</p> <p>Digital Transformation Support: Mainland China incorporates “AI + Education” into mandatory teacher training, while Taiwan Region enhances digital teaching capabilities through “Smart Learning Factories”.</p>

3.2. Structural equation modeling

This study employs Structural Equation Modeling (SEM), a crucial multivariate analysis tool, to validate the hypotheses. SEM examines the relationships between features using the covariance matrix of feature variables. Consequently, both the relationships between factors and their internal structures are subject to change. The structural model diagram is depicted in **Figure 2**.

(1) Policy support → Teacher training (H01)

Standardized Estimate (SE): 0.159

Non-standardized estimate (Estimate): 0.196

Significance (P): ($p < 0.01$)

Conclusion: Valid.

Interpretation: Policy support significantly enhances teacher training. A one-unit increase in policy support results in a 0.196-unit rise in the level of teacher training.

(2) Policy support → Teacher professionalism (H02)

Standardized estimated value (SE): 0.301

Non-standardized estimate (Estimate): 0.030

Significance (P): 0.535 (not significant)

Conclusion: It does not hold.

Interpretation: Policy support does not have a significant direct impact on teachers’ professional development. However, it may exert an indirect influence through mediating variables like teacher training.

(3) Policy support → University-enterprise collaboration (H03)

Standardized estimate (SE): 0.022

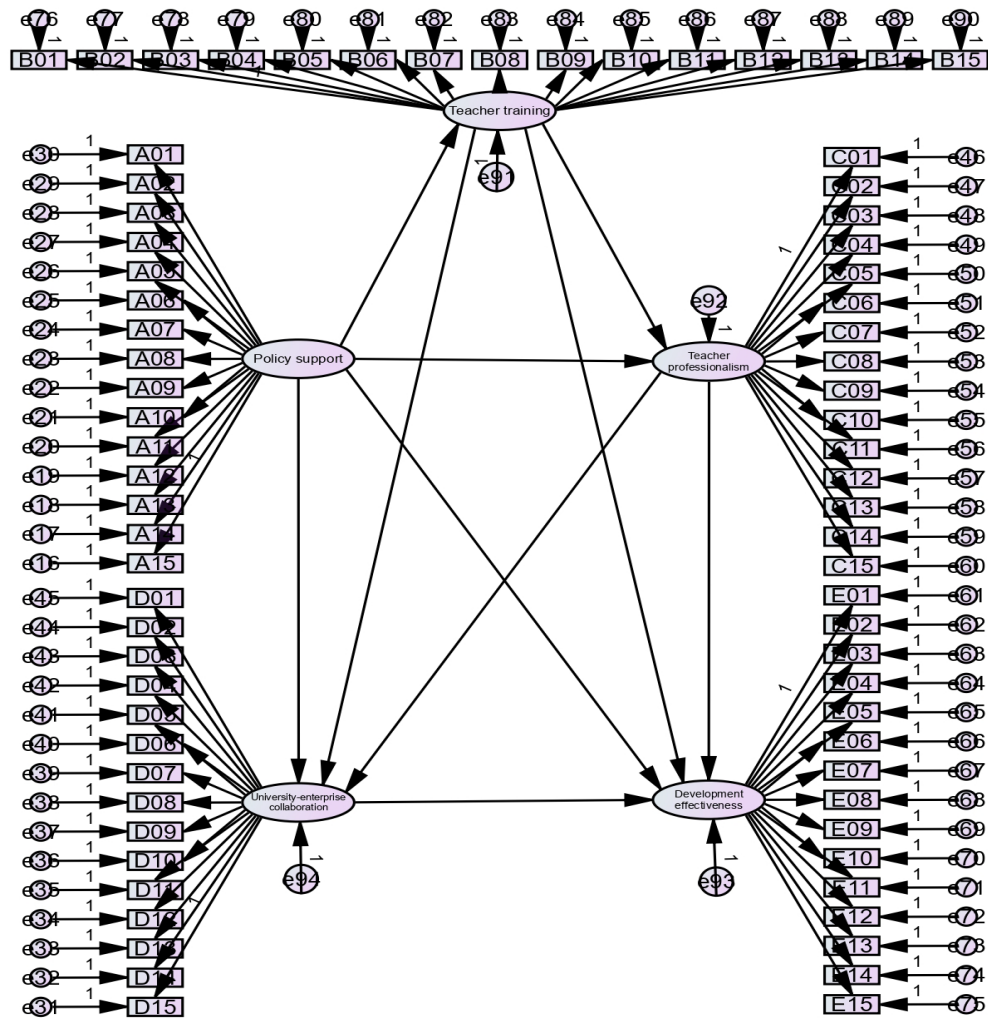


Figure 2. Structural model diagram.

Non-standardized estimate (Estimate): 0.279

Significance (P): * ($p < 0.001$)

Conclusion: Valid.

Interpretation: Policy support plays a crucial role in enhancing school-enterprise collaboration. Specifically, a one-unit increase in policy support results in a 0.279-unit rise in the level of collaboration between schools and enterprises.

(4) Policy support → Development effectiveness (H04)

Standardized estimated value (SE): -0.006

Non - standardized estimate (Estimate): 0.136

Significance (P): * ($p < 0.001$)

Conclusion: Valid.

Interpretation: Despite the standardized estimated value being negative, the non-standardized estimated value is significantly positive. This suggests that policy support directly and positively influences

development outcomes.

(5) Teacher training → Teacher professionalism (H05)

Standardized Estimate (SE): 0.217

Non-standardized estimate (Estimate): 0.334

Significance (P): * ($p < 0.001$)

Conclusion: Valid.

Interpretation: Teacher training substantially boosts professional competence. With each one-unit increase in training, professional competence rises by 0.334 units.

(6) Teacher training → School-enterprise collaboration (H06)

Standardized Estimate (SE): -0.002

Non-standardized estimate (Estimate): -0.006

Significance (P): 0.874 (not significant)

Conclusion: It does not hold.

Interpretation: Teacher training alone does not significantly impact school-enterprise collaboration; it must be combined with other factors, such as policy support, to be effective.

(7) Teacher training → Development effectiveness (H07)

Standardized estimate (SE): 0.135

Non-standardized estimated value (Estimate): 0.262

Significance (P): * ($p < 0.001$)

Conclusion: Valid.

Interpretation: Teacher training directly enhances development effectiveness. For each unit increase in teacher training, development effectiveness rises by 0.262 units.

(8) Teacher professionalism → School-enterprise collaboration (H08)

Standardized estimate (SE): 0.319

Non-standardized estimate (Estimate): -0.002

Significance (P): 0.957 (not significant)

Conclusion: It does not hold.

Interpretation: The direct influence of teachers' professional level on school-enterprise collaboration is not significant. It may exert an indirect effect through other avenues, such as policy support.

(9) Teacher professional → Development effectiveness (H09)

Standardized Estimate (SE): 0.263

Non-standardized estimate (Estimate): 0.194

Significance (P): * ($p < 0.001$)

Conclusion: Valid.

Interpretation: The results indicate a notable enhancement in teachers' professional levels. For each one-unit increase in their professional level, the development outcome improves by 0.194 units.

(10) Industry-university collaboration → Development effectiveness (H10)

Standardized estimated value (SE): 0.281

Non-standardized estimated value (Estimate): 0.221

Significance (P): * ($p < 0.001$)

Conclusion: Valid.

Interpretation: Collaboration between schools and enterprises significantly enhances development

effectiveness. Specifically, for each one-unit increase in such collaboration, development effectiveness improves by 0.221 units.

4. Discussion

4.1. Differences and commonalities in teacher training policies and qualification systems

In recent years, the Chinese mainland has actively revised the Vocational Education Law and supporting policies, setting clear standards for vocational school teacher qualifications and emphasizing the development of a “dual-qualified” teaching team, skilled in both teaching and practical applications ^[11]. In contrast, Vocational and Technical Education Act (or related plans) of Taiwan Region encourages schools to hire industry experts for collaborative teaching, while maintaining academic qualification and teacher training requirements for full-time teachers. The Chinese mainland employs a unified teacher qualification certification standard and a publicly funded teacher training program, whereas Taiwan Region relies more on local and school-initiated industry-university cooperation programs. Both regions prioritize industry connection and enhancing teachers’ professional practical skills. However, they differ in the degree of central-led legalization and the sources of funding for teacher training ^[12].

4.2. Supply-demand structure of the teaching staff and human capital demand

Both sides of the Taiwan strait are grappling with a shortage of vocational education teachers. In Taiwan Region, the “warning of teacher shortage” in secondary and higher vocational schools has caught the attention of the Control Yuan. They noted a significant decline in teaching hours for industry teachers and identified the Ministry of Education’s cultivation capacity as insufficient ^[13,14]. On the Chinese mainland, research reports reveal a high student-teacher ratio, with some vocational schools not meeting the requirement of having at least 60 full-time teachers. Both regions are concerned about the quality of teaching staff, but the Chinese mainland faces a larger and more diverse demand. The proportion of “dual-qualified” teachers on the mainland is increasing annually, signaling an expansion in employment scale. In contrast, Taiwan Region’s is concentrating on adjusting the teaching staff structure and enhancing incentives.

4.3. Teacher training models and requirements for dual competencies

The Chinese mainland encourages vocational school teachers to further their education, take temporary positions in enterprises, or engage in dual-qualification teacher training. It also implements assessment criteria that align with both vocational and teaching qualifications. In Taiwan Region, the pre-service qualification for secondary vocational school teachers has been elevated to the postgraduate level, with enhanced in-service training and industry involvement. Both regions have established industry-academia cooperation platforms to improve practical training. However, the Chinese mainland focuses on government-led systematic training programs, such as renowned teacher studios and base construction, while Taiwan Region relies on policy incentives, like the industrial college plan, to promote joint cultivation by schools and enterprises. A shared emphasis on teachers’ practical experience exists: the Chinese mainland refers to it as “enterprise training”, and Taiwan Region calls it “industry teacher participation” ^[15].

5. Conclusion

This study provides an in-depth comparison and empirical analysis of teacher training and team development in vocational education across the Taiwan Strait. Despite differences in institutional designs, both regions focus on the core principles of “human capital accumulation”, “strengthening dual abilities”, and “promoting industry-education collaboration”. The findings indicate that policy support significantly enhances teacher training, school-enterprise collaboration, and overall development effectiveness, underscoring the critical role of the macro-policy environment in driving teacher development. This will facilitate the comprehensive transformation of vocational and technical education, shifting its focus from merely cultivating talents to educating individuals, and from simply imparting skills to creating value.

Funding

2024 Open Project of the Cross-Strait Vocational Education Integration and Development Research Center of Fujian Information Vocational and Technical College (Project No.: K-LAYB2402)

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Liu Y, 2025, Research on Generative AI-Empowered Differentiated Satisfaction Strategies for Cross-Strait Vocational Education Integration. *University*, 2025(26): 68–71.
- [2] Lin L, Zheng S, 2025, Exploring New Models for Cross-Strait Vocational Colleges to Assist Rural Revitalization under the Background of “Digital Commerce Revitalizes Agriculture”—Taking Xiamen Nanyang Vocational College Zhonglian Digital Commerce Industry College as an Example. *Shanghai Business*, 2025(4): 77–79.
- [3] Chen Y, Tan M, 2025, Real Challenges and Deepening Paths of Fujian-Taiwan Education Integration under the Framework of Cross-Strait Integrated Development. *Education Review*, 2025(1): 76–83.
- [4] Ren P, Lin K, Chen H, 2024, Fujian Province Carries Out Vocational Skill Level Certification for Taiwan to Facilitate Employment of Taiwan Compatriots in Fujian. *China Training*, 2024(12): 17–19.
- [5] Tai S, 2024, “Integration of Vocational Qualifications for Taiwan Compatriots” Related Measures Promote Cross-Strait Skills Exchange and Integration Development. *Taiwan Voice*, 2024(22): 38–41.
- [6] Zheng H, 2023, Research on the Integrated Development of Vocational Education in Fujian and Taiwan—Based on the Cultivation of Scientific and Technological Innovation Talents. *Cross-Strait Lifelong Education*, 26(4): 19–24.
- [7] Editorial Department of this Journal, 2023, Deepen the Integration of Industry and Education to Promote the High-Quality Development of Vocational Education in Fujian. *Development Research*, 40(8): 14–24.
- [8] Zheng F, Ta S, Zhou X, 2023, Exploring the Path of Collaborative Training of “Dual-Qualified” Teachers in Vocational Education Across the Taiwan Strait from the Perspective of New Agricultural Science. *Journal of Mianyang Normal University*, 42(4): 24–33 + 57.
- [9] Chen M, He X, 2021, A Comparative Study on the Construction of “Dual-Qualified” Teacher Teams in Vocational Education Across Fujian and Taiwan. *Educational Science Forum*, (21): 52–56.
- [10] Wang L, Pan G, Wang T, 2021, Exploration and Practice of School-Enterprise Cooperation Model in Secondary

- Vocational Schools under the Perspective of “Same Origin Across the Taiwan Strait”—Taking Wuping Vocational Secondary School in Fujian Province as an Example. *Modern Vocational Education*, 2021(29): 22–23.
- [11] Tang X, 2020, Higher Vocational Colleges Continuously Improve the Level of Opening Up to the Outside World under the Background of “Belt and Road”—Taking Shenyang Vocational Technical College as an Example. *Contemporary Education Practice and Teaching Research*, 2020(9): 237–238.
- [12] Zhang B, 2019, Working Together to Cultivate Highly Skilled Talents—Keynote Speech at the 11th Straits Forum·Cross-Strait Vocational Education Forum. *Education and Vocation*, 2019(13): 5–8.
- [13] Li M, 2019, Research on the Innovation of Tourism Vocational Education Model of Applied Universities on Both Sides of the Strait—Based on CDIO Concept. *Journal of Huainan Vocational and Technical College*, 19(3): 71–72.
- [14] Huang W, 2019, Research on Cross-Strait Art Professions and the Protection of Zhangzhou Woodblock New Year Paintings as an Intangible Cultural Heritage. *Journal of Hubei Open Vocational College*, 32(9): 186–187.
- [15] Wang S, Song Y, 2019, A Comparative Study on the Professional Values of Some Higher Vocational Nursing Students Across the Taiwan Strait. *Health Vocational Education*, 37(5): 115–116.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.