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Internationalization of Vocational Education Certification and Its Empowerment of Talents' International Competitiveness

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ABSTRACT

Against global industrial restructuring and booming interdisciplinary innovation, China's vocational education is advancing toward internationalization. International vocational qualification certification links domestic education to global industrial standards and helps cultivate globally competitive skilled talents. Interdisciplinary innovation erases major boundaries, demanding students to master diverse skills, innovative thinking and global adaptability. Aligning with international criteria and optimizing curricula and assessments can enhance learners' abilities in cross-border employment, innovation and cross-cultural communication. Currently, vocational colleges encounter hurdles including inappropriate introduction of overseas certifications, disjointed curricula and standards, flawed interdisciplinary teaching, insufficient international teachers and weak industry-education cooperation. Based on literature research, case analysis and logical reasoning, this paper explores their internal relations, analyzes practical dilemmas and proposes solutions. It offers theoretical and practical references for vocational institutions to foster high-caliber interdisciplinary talents with global perspectives.

1. Introduction

With the steady advancement of the Belt and Road Initiative and the global expansion of China's manufacturing and modern service industries, Chinese-funded enterprises have launched an increasing number of overseas projects, leading to a growing global demand for high-caliber compound technical talents [6]. Traditional talents with single professional skills can no longer meet the comprehensive requirements of cross-border industries and interdisciplinary science and innovation positions. Consequently, interdisciplinary science and innovation education has become a core reform direction for modern vocational education. Many vocational colleges have built science and innovation platforms focusing on cross-border e-commerce, intelligent manufacturing, international logistics and foreign-related engineering, aiming to cultivate students' abilities in

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interdisciplinary technology application, collaborative innovation and problem-solving, which fully caters to the competency demands of global industries.

The internationalization of vocational education is an inevitable choice to improve school-running quality and serve China's opening-up strategy, and international vocational qualification certification is its core carrier. By introducing international certificates, connecting with global skill standards and realizing the mutual recognition of Chinese and foreign assessment systems, vocational education can align talent training specifications with international job requirements [5]. At present, a large number of domestic vocational colleges have introduced internationally recognized credentials including IFPSM International Procurement Certification, UK ENIC Engineering Machinery Certification and Australian TAFE vocational qualifications. They have established a dual evaluation system combining domestic 1+X certificates and international certifications, which effectively broadens students' global employment channels [14].

Nevertheless, most vocational colleges fail to achieve in-depth integration between interdisciplinary science and international certification. Some schools introduce international certificates blindly without adjusting curricula according to their interdisciplinary development orientation. Science and innovation teaching still mainly focuses on domestic technologies while lacking international standard training. Interdisciplinary teaching teams are deficient in international teaching capabilities, and certification assessment is separated from practical innovation activities. These problems prevent international certification from giving full play to its empowering effect on students' innovative abilities and international competitiveness. From the perspective of interdisciplinary science and innovation, this paper explores the internal mechanism of how international certification improves vocational students' international competitiveness, sorts out practical difficulties, and proposes targeted optimization paths, so as to help vocational colleges build an integrated education model featuring science and innovation, certification and international development.

2. Research Background

2.1 Development Trends of Interdisciplinary Science and Innovation in Vocational Education

The new round of technological revolution has boosted the cross-industry integration. Emerging fields such as intelligent manufacturing, cross-border digital economy and green engineering are in urgent need of interdisciplinary talents with innovative abilities [2]. The Ministry of Education has issued a series of policies to guide vocational colleges to break traditional major boundaries, build interdisciplinary science and innovation platforms, and set up integrated majors and courses based on industrial and innovation chains [9].

Different from traditional single-discipline teaching, interdisciplinary science and innovation education has two prominent characteristics. First, it integrates multiple types of knowledge including machinery, electronics, information technology, foreign languages and cross-border services to adapt to compound job demands. Second, it highlights innovation and practicality, taking real enterprise projects and technical problems as teaching carriers to conduct technological improvement, scheme design and practical implementation. Interdisciplinary education requires vocational colleges to move beyond simple skill training and attach equal importance to technical ability, innovative thinking, job adaptability and comprehensive literacy. Although most vocational colleges have built interdisciplinary training rooms and school-enterprise joint innovation centers, their talent evaluation and standard formulation are still limited to domestic systems, and international construction lags behind [15].

2.1.1 Current situation and policy orientation of vocational education certification international

Vocational qualification certification is the core evaluation standard for vocational education quality. Promoting the internationalization of certification is a key part of China's strategy for vocational education to go global [3]. In recent years, the state has vigorously promoted the mutual recognition between domestic 1+X certificates and international vocational qualifications, supported colleges to introduce international skill standards and assessment modes, and encouraged the export of high-quality Chinese vocational education standards and certificates.

In practice, three mainstream models have been formed. The first is certificate mutual recognition, which is widely applied in logistics and supply chain majors where domestic 1+X certificates are exempted from examinations and recognized by IFPSM certification. The second is standard introduction, learning from the apprenticeship system in the UK and the Australian TAFE system to revise courses and assessment rules [8]. The third is joint certification, where Chinese and foreign colleges together with multinational enterprises formulate assessment standards and carry out segmented training and joint certification [12]. Overall, international certification has expanded from pilot programs to large-scale promotion, but most colleges only focus on obtaining certificates and fail to integrate certification into the whole process of science and innovation teaching [13].

2.1.1.1 Connotation and training requirements of talents' international competitiveness

The international competitiveness of vocational talents refers to the comprehensive strengths of technical workers in the global labor market, which consists of four core dimensions: international job adaptability, interdisciplinary innovation ability, cross-cultural communication competence and sustainable career development ability [1]. Interdisciplinary science and innovation provides the foundation for ability cultivation, while international certification acts as the standard and evaluation benchmark. The combination of the two is essential to enhance talents' overall competitiveness. However, current academic researches and institutional practices usually study the two fields separately, and mature integrated models are still scarce [11].

3. Research Questions

This paper mainly puts forward four research questions: First, clarify the internal logical relations between interdisciplinary science and innovation, international vocational certification and talents' international competitiveness, and define the empowering dimensions of international certification. Second, explore the practical difficulties and underlying causes of promoting international certification in interdisciplinary vocational education. Third, summarize the specific paths for international certification to empower talents' competitiveness under the guidance of international standards and interdisciplinary teaching rules. Fourth, propose feasible optimization strategies from curriculum, faculty, evaluation, industry-education cooperation and policy perspectives.

4. Research Objectives

4.1 General Objective

From the perspective of interdisciplinary science and innovation, this paper analyzes the empowering mechanism of international vocational certification, summarizes existing problems, constructs an integrated education framework, and puts forward systematic schemes to help vocational colleges cultivate global-oriented compound technical talents.

4.1.1 Specific objectives

This research intends to define core concepts and sort out the linkage logic of the three elements; summarize practical problems and causes through case analysis; conclude multiple empowering paths of international certification; and put forward multi-dimensional supporting measures for integrated development.

5. Research Significance

5.1 Theoretical Significance

This research enriches the theoretical system of vocational education internationalization by combining interdisciplinary innovation, international certification and talent competitiveness [2]. It clarifies the internal empowering mechanism and provides theoretical references for the creative development of traditional vocational education models. Meanwhile, it expands the perspective of comparative vocational education and offers ideas for the export of Chinese vocational education standards [10].

5.1.1 Practical significance

It helps vocational colleges select appropriate international certificates rationally and optimize curriculum and teaching modes. It also broadens students' cross-border employment channels, improves the overall competitiveness of Chinese vocational talents in the global market, and enhances the international influence of China's vocational education [7].

6. Research Methods

This research adopts three main methods. First, literature research, sorting out relevant monographs, papers and policy documents to build the theoretical framework. Second, case analysis, taking typical vocational colleges with international certification practices as examples to summarize experience and deficiencies. Third, logical reasoning, dialectically analyzing the relations and contradictions between research objects and deducing targeted strategies.

7. Research Results and Analysis

7.1 Core Concepts and Linkage Logic

Interdisciplinary science and innovation in vocational education means breaking major boundaries to carry out integrated teaching and practical training. Vocational education certification internationalization refers to connecting domestic qualification systems with international standards, including standard, assessment and certificate mutual recognition [6]. Talents' international competitiveness covers international skills, innovation ability, cross-cultural literacy and career potential.

The three elements form a closed-loop system: interdisciplinary science and innovation is the carrier for ability cultivation; international certification serves as the standard and evaluation tool; improving talents' international competitiveness is the ultimate training goal.

7.1.1 Main practical dilemmas

Five prominent problems exist in current integrated development. Firstly, many colleges introduce international certificates blindly, leading to mismatches between certificates and interdisciplinary teaching content [5]. Secondly, curricula are divided, and international standards are not integrated into innovation courses and practical training. Third, compound teachers with interdisciplinary abilities, international experience and foreign language skills are seriously insufficient [8]. Fourth, international industry-education cooperation is inadequate, and students lack overseas practical opportunities. Fifth, the dual assessment systems of innovation training and international certification operate independently, without a unified comprehensive evaluation mechanism.

7.1.1.1 Core empowering paths

International certification empowers talent competitiveness through five paths. First, standard empowerment: revise talent training plans according to international standards [1]. Second, curriculum empowerment: build interdisciplinary integrated courses combining certification knowledge and innovation content. Third, practice empowerment: build cross-border training bases with multinational enterprises and certification institutions. Fourth, evaluation empowerment: establish a compound assessment system combining process and result evaluation. Fifth, literacy empowerment: integrate cross-cultural education into teaching to cultivate students' professional ethics and communication abilities [6].

8. Conclusions and Suggestions

8.1 Main Conclusions

Interdisciplinary science and innovation, international vocational certification and talents' international competitiveness are closely linked. At present, blind certificate introduction, disjointed curricula, insufficient teachers, weak international cooperation and imperfect evaluation systems restrict the integrated development. International certification can effectively improve students' comprehensive abilities via standard, curriculum, practice, evaluation and literacy paths. The in-depth integration requires joint efforts of governments, colleges, enterprises and certification institutions.

8.1.1 Optimization strategies

Colleges shall select international certificates matching their interdisciplinary majors and promote certificate mutual recognition [14]. They need to restructure curricula and develop bilingual teaching resources. A high-quality compound teaching team should be built through training and external recruitment. It is necessary to deepen international industry-education cooperation and launch overseas internship and innovation projects [12]. Besides, a diversified evaluation system covering innovation performance, certification results and cross-cultural abilities should be established.

8.1.1.1 Supporting measures

Relevant government departments shall issue supportive policies on funds and foreign exchange [4]. Colleges shall set up special funds for internationalization construction. A multi-party cooperation platform should be built to connect all stakeholders. Regular quality supervision and dynamic optimization mechanisms are also required.

9. Research Limitations

This study is mainly based on theoretical analysis and case study, lacking large-scale questionnaire data. The proposed strategies are universal and not differentiated for different majors. Follow-up researches can conduct empirical investigations and formulate targeted plans for various interdisciplinary fields.

10. Summary

Under the background of globalization and interdisciplinary development, international vocational certification is crucial for vocational colleges to cultivate talents with global competitiveness. Vocational colleges should address existing problems, select international certificates rationally, optimize teaching systems, strengthen teacher teams and deepen international cooperation. Through multi-party efforts, the empowering effect of international certification can be fully exerted, so as to cultivate high-quality technical talents for the global market and promote the steady development of China's vocational education in the international arena.

References

- [1] Andriansyah, Eka Hendi, and Putri Ulfa Kamalia. "National Standards of Education affect the employment opportunities of vocational high school graduates." *Jurnal Pendidikan Vokasi* 11, no. 2 (2021): 112-124. <https://doi.org/10.21831/jpv.v11i2.40791>
- [2] Chen, Peng, Carsten Schmidtke, and Xinglin Jin. "Chinese technical and vocational education and training, skill formation, and national development: A systematic review of educational policies." *Vocation, Technology & Education* 1, no. 3 (2024): e24-e24. <https://doi.org/10.54844/vte.2024.0677>
- [3] Guan, Shanshan, Hui Jin, and Xiaoyong Tian. "Global trends in vocational education: 2022–2024." *ECNU Review of Education* (2025): 20965311251403494. <https://doi.org/10.1177/20965311251403494>
- [4] Hao, Tiancong, Weiping Wang, Geng Wang, Qiuyue Yang, and Kang Ma. "From "chosen ones" to "leftovers": a historical analysis of China's vocational education and training system, 1949–2023." *Education+ Training* 67, no. 3 (2025): 436-456. <https://doi.org/10.1108/ET-09-2023-0412>
- [5] Liu, Y. (2024). The role and development of vocational education in the cross-border e-commerce field. *Advances in Vocational and Technical Education*, 6, 171–177. <https://doi.org/10.23977/avte.2024.060325>
- [6] Lou, Shizhou, and Lei Zhu. "The Process, Drivers and Prospects of Internationalization Development in China's Higher Vocational Education." *World Vocational and Technical Education* 1, no. 2 (2025): 125-145. <https://doi.org/10.1515/wvte-2025-0013>
- [7] McGrath, Simon, and Shoko Yamada. "Skills for development and vocational education and training: Current and emergent trends." *International Journal of Educational Development* 102 (2023): 102853 <https://doi.org/10.1016/j.ijedudev.2023.102853>
- [8] Mende, Christian, Maria Esther Oswald-Egg, and Katherine Caves. "Vocational education and training (VET) system governance: a systematic literature review." *Journal of Vocational Education & Training* 77, no. 5 (2025): 1419-1453. <https://doi.org/10.1080/13636820.2025.2461586>
- [9] Ministry of Education of the People's Republic of China. (2024). Guidelines for the international development of vocational education. People's Education Press.

- [10] Quew-Jones, Rebecca Jane. "Degree apprenticeships in the UK higher education institutions—are they viable?: Integrative literature review." *Higher Education, Skills and Work-Based Learning* 13, no. 6 (2023): 1250-1268. <https://doi.org/10.1108/HESWBL-02-2023-0026>
- [11] Tian, Yumi, Jiayun Liu, Xin Xu, and Xueshi Wu. "Knowledge mapping of vocational education and training research (2004–2020): a visual analysis based on CiteSpace." *Scientific Reports* 13, no. 1 (2023): 22348. <https://doi.org/10.1038/s41598-023-49636-7>
- [12] Yu, Bo, Ruipu Li, Siyuan Zhang, Peng Mao, Chun Xu, Jing Shi, and Gang Wu. "Constraints, mechanisms, and strategies for industry-education integration in vocational education: An empirical study." *Plos one* 20, no. 12 (2025): e0339158. <https://doi.org/10.1371/journal.pone.0339158>
- [13] Zhao, J. (2026). Vocational education reform and innovation: Implementation path and challenges of the 1+X certificate system. *Education Insights*, 3(5), 118–124. <https://doi.org/10.70088/awy7n937>
- [14] Zhou, Yingwen, and Guoqing Xu. "Vocational school–enterprise cooperation in China: A review of policy reforms, 1978–2022." *ECNU Review of Education* 6, no. 3 (2023): 433-450. <https://doi.org/10.1177/20965311231167895>
- [15] Zhu, Guoping, Guohua Zhu, and Jay Baylon. "How China's vocational education formed its distinctive system: a five-element integration theory perspective." In *Frontiers in Education*, vol. 10, p. 1608450. Frontiers Media SA, 2025. <https://doi.org/10.3389/feduc.2025.1608450>