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Research on the Construction of On-Campus Productive Training Bases for International Trade in Higher Vocational Colleges under the Integration of Industry and Education

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Abstract: New business forms such as cross-border e-commerce and digital trade have imposed new requirements on the competency structure of international trade talents. Traditional classrooms can hardly provide authentic operational environments, and on-campus productive training bases have become an important vehicle for meeting the demands of new competencies. Based on an analysis of the value and existing problems of international trade training base construction, this paper proposes a systematic scheme from the aspects of functional positioning, operational mechanisms, construction paths, and case evaluation. The study argues that scenario reconstruction is the foundation, mechanism innovation is the key, technological empowerment is the support, and evaluation and continuous improvement are the guarantee.

Keywords: Integration of industry and education; Higher vocational international trade; Productive training base; Scenario reconstruction; Mechanism innovation; Technological empowerment

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1. Construction value

1.1. Industry demand-driven

New business forms such as cross-border e-commerce, digital trade, and Chinese enterprises going global have fundamentally changed the competency structure of international trade talents. Enterprises no longer merely require traditional skills such as documentation and customs declaration; they place greater emphasis on digital platform operation, cross-border data analysis, application of international rules, and cross-cultural communication capabilities [1]. Traditional classrooms can hardly provide authentic operational environments, and on-campus productive training bases precisely fill this gap, becoming a key node connecting the education chain and the industry chain.

1.2. Educational model innovation

A productive training base is not an ordinary laboratory, but an educational field integrating teaching, production, research and development, and entrepreneurship. Its core function lies in two "transformations": transforming classroom knowledge into job competencies, and transforming simulated tasks into real projects. Only when students hone their skills in real business operations can they truly achieve the integration of work and learning and the unity of knowledge and action, thereby resolving the chronic problem of "disconnection between learning and application" in vocational education [2].

1.3. Regional economic empowerment

The Guangdong-Hong Kong-Macao Greater Bay Area and the Guangdong region host numerous small and medium-sized foreign trade enterprises, which generally face pain points such as a shortage of digital talents and insufficient operational capabilities [3]. The base can provide regional enterprises with talent supply, business consulting, cross-border e-commerce operation support, and employee training, while real enterprise projects feed back into teaching, forming a virtuous interaction of "schools serving industry and industry feeding back into teaching," thereby facilitating high-quality regional economic development.

2. Current situation and problems

2.1. Existing problems

The international trade major involves multidisciplinary content such as economics, management, law, foreign languages, data, and platform operation. However, existing training resources are mostly concentrated on a single foreign trade software or simulation platform, and support for training capabilities such as cross-border data analysis, application of international rules, and cross-cultural communication is insufficient [4]. In school-enterprise cooperation, the problems of "more agreements signed, less deep participation" and "more plaques hung, less actual operation" are prevalent. The introduction of real enterprise projects is insufficient, and equipment and platform updates lag behind the industry frontier. Existing evaluations mostly focus on classroom performance, software operation, and written reports, and rarely adopt industry evaluation methods such as enterprise standards, job performance, customer feedback, and project outcomes, making it difficult to truly reflect students' professional competencies.

2.2. Quantitative analysis

Five higher vocational colleges offering international trade/cross-border e-commerce majors were selected for a horizontal comparison across four dimensions: equipment investment, enterprise participation, number of real projects, and proportion of dual-qualified teachers. The data were obtained from publicly available construction plans, quality reports, and performance materials of each college.

Table 1. Operational Data of Training Bases

College	Equipment Investment (million yuan)	Enterprise Participation	Number of Real Projects	Proportion of Dual-Qualified Teachers
A College	8	Relatively high	Medium	Approx. 70%
B College	26	Medium	Medium	87%
C College	6	Medium	Relatively few	Approx. 60%
D College	5.5	Relatively high	To be built/insufficient	Approx. 55%
E College	3–5	Relatively low	Generally insufficient	50%–6

The data show that equipment investment is severely polarized. The total equipment value of leading colleges can reach over 26 million yuan, while most colleges are concentrated in the range of 3–5 million yuan, which can only sustain basic simulation software operation. Enterprise participation exhibits the characteristic of "high signing rate, low operation rate," and the proportion of enterprises deeply participating in talent cultivation and providing real projects is less than 30%. Real projects are generally scarce, and most training still relies primarily on simulation software operation. The proportion of dual-qualified teachers is "easy to meet standards, difficult to achieve practical experience," and the proportion of teachers with genuine cross-border e-commerce operational experience is limited, constraining the improvement of teaching quality [5].

3. Core elements and operational mechanisms

3.1. Functional positioning

The base should undertake professional competency training functions such as foreign trade business, documentation preparation, customs declaration and inspection, international settlement, market research, and cross-border e-commerce operation, covering the full-process job cluster of foreign trade, enabling students to complete progressive training from individual skills to comprehensive business competencies in an environment interweaving simulation and reality. Meanwhile, by introducing real enterprise projects, business simulations, and entrepreneurship workshops, students are encouraged to progress from "being able to operate" to "being able to innovate and start businesses," forming a progressive path of "training–incubation–entrepreneurship." The base should also provide social services such as training, consulting, livestream e-commerce, and cross-border platform agency operation for regional foreign trade enterprises, making the base a public service node for enhancing regional foreign trade capabilities.

3.2. Operational mechanism design

The school-enterprise co-construction and co-management model should clarify the rights and responsibilities of four parties: the school, enterprises, teachers, and students, and design systems for equipment investment, project revenue, intellectual property, student management, and safety assurance [6]. The school provides venues and teaching management; enterprises invest in equipment, platform accounts, and real projects; teachers are responsible for teaching transformation and process supervision; and students participate in operations and project execution. Revenue is distributed according to agreed proportions, intellectual property ownership is determined through negotiation based on contribution, and student management implements a dual-subject responsibility system between school and enterprise.

The base should undergo dynamic adjustment in accordance with industry standards, platform rules, and technological changes. An operation steering committee composed of industry experts, enterprise mentors, and core teachers should be established to regularly assess the matching degree between base functions and industry demands, and promptly update training projects, software tools, and assessment standards.

The teaching organization should organically integrate virtual simulation, physical operation, and enterprise projects. Basic skills training should primarily use virtual simulation platforms to complete standardized drills in documentation, customs declaration, settlement, and other processes; comprehensive business training should primarily use physical operations and real enterprise projects, allowing students to complete full-process operations in real platforms, real orders, and real customer communications. The two should be embedded into the teaching process according to the principle of "virtual first, real later, alternating

virtual and real."

4. Construction paths

4.1. School-enterprise ecosystem construction

Innovate the school-enterprise collaborative education ecosystem [7], and build a sustainably updatable repository of real enterprise projects covering business modules such as foreign trade documentation, customer development, cross-border e-commerce operation, international logistics, settlement and tax rebate. The project repository should be jointly maintained by both the school and the enterprise. Enterprises provide real business cases and desensitized data on a semester or quarterly basis, and teachers transform them into teachable and assessable training tasks, forming a normalized mechanism of "enterprises supplying projects, teachers transforming them, and students operating them authentically." Meanwhile, skill master studios, enterprise mentors, and 1+X certificate standards should be integrated into base operations to achieve the integration of "positions, courses, competitions, and certificates," enabling students to obtain vocational skill level certificates while completing training projects.

4.2. Teaching system innovation

Construct a progressive curriculum module of "basic skills → comprehensive training → innovative practice." The basic skills module focuses on individual operations such as foreign trade documentation, customs declaration, and settlement; the comprehensive training module uses real enterprise projects as carriers to train full-process business handling capabilities; and the innovative practice module connects with entrepreneurship incubation and project operation, guiding students to achieve a leap from business execution to scheme design. Through methods such as enterprise mentors stationed on campus, teachers rotating in enterprises, joint teaching and research, and collaborative project research, teachers' industry practical capabilities should be enhanced, promoting their transformation from "understanding teaching" to "understanding industry and being capable of practical operation."

4.3. Digital and intelligent empowerment

Build systems for international trade environment simulation, cross-border e-commerce platform simulation, and international settlement and customs clearance simulation, covering core foreign trade business scenarios. The platform should support multi-role collaboration, configurable processes, and traceable data, meeting the needs of high-frequency, low-cost, and repeatable skill training. Using learning behavior data, project completion data, and skill attainment data, personalized learning paths and precise reinforcement plans can be generated for students, identifying their weaknesses in documentation, settlement, operation, and other links, thereby achieving a shift from "uniform progress" to "teaching according to aptitude" [8].

5. Case analysis and evaluation

5.1. Innovative case analysis

A certain college jointly built a productive training base with Foshan A Machinery Co., Ltd. from 2024 to 2025. The base established 2 order-based classes, training 60 students; conducted social training for 500 person-times; achieved sales revenue of 200,000 yuan, driving economic benefits of 10 million yuan; trained 5 dual-qualified teachers; developed 3 training courses and 2 textbooks; and introduced 28 real enterprise

projects. This case demonstrates that productive training bases can achieve the superposition of multiple functions of teaching, production, and social services [9], forming a virtuous cycle of "supporting training through production and promoting production through training," and verifying the feasibility of mechanisms and paths such as school-enterprise co-construction and co-management, real enterprise project repository construction, and modular curriculum design.

5.2. Long-term evaluation and continuous improvement

Construct a school-enterprise dual evaluation model [10], with evaluation indicators set separately for the student side and the enterprise side. The student side focuses on skill attainment rate, certificate pass rate, and employment quality; the enterprise side focuses on satisfaction, job adaptability, and project contribution. The school-enterprise dual evaluation should be conducted once per academic year to form an evaluation report. A quantitative model should be constructed to measure indicators such as the ratio of school-enterprise resource investment, technology feedback rate, project conversion rate, and joint research and development outcomes. Based on evaluation results, combined with trends such as RCEP rules and digital trade, an annual optimization list should be formed, clarifying optimization items, responsible entities, and completion deadlines, ensuring that base construction continuously aligns with industrial changes and policy updates.

6. Conclusion and outlook

6.1. Research conclusions

Scenario reconstruction is the foundation. By clarifying functional positioning and the teaching operation combining virtual and real, the base can cover the full-process job cluster of foreign trade and achieve progressive training from individual skills to comprehensive business competencies. Mechanism innovation is the key. Systems such as school-enterprise co-construction and co-management, operational adjustment, and benefit distribution ensure the sustainable operation of the base. Technological empowerment is the support. Virtual simulation and big-data-driven personalized learning paths enhance the frequency, pertinence, and effectiveness of training. Evaluation and continuous improvement are the guarantee. Dual-dimensional evaluation, the quantitative model of industry-education integration, and the annual upgrade roadmap enable the base to continuously align with industrial changes and policy updates.

6.2. Future outlook

Integrate RCEP rules and digital trade standards into courses and projects, and promote the localization and transformation of international rules. Integrate school-enterprise platforms, projects, and faculty resources to build a cross-border training resource pool. Incorporate new business forms such as cross-border e-commerce and digital services into base functions, and promote the integration of digital trade standards. Promote the upgrade of the base from bilateral school-enterprise cooperation to regional multi-agent collaboration, build a regional industry-education integration community, and form a symbiotic effect between vocational education and industrial development.

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