

Research on the Vocational Skills Training System for Belt and Road Students in the Context of Cross-Border Education Alliances

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ABSTRACT

In the context of deepening educational cooperation under the Belt and Road Initiative (BRI), vocational skills training has emerged as a strategic priority for cultivating application-oriented talent from participating countries. This study investigates the construction and optimization of vocational skills training systems for BRI students within the framework of cross-border education alliances. Drawing on policy analysis, institutional case studies, and expert interviews, the research identifies key elements that contribute to effective transnational vocational training, including curriculum alignment, industry – education integration, digital credentialing, and bilingual instruction support. It further analyzes the role of cross-border alliances in facilitating resource sharing, mutual recognition of qualifications, and student mobility. While the study highlights successful practices from Chinese vocational colleges, it also addresses challenges such as institutional disparities, cultural adaptation barriers, and fragmented governance across countries. The paper concludes by proposing a collaborative model for enhancing vocational skills training through multi-stakeholder partnerships involving governments, institutions, and enterprises. The findings provide both theoretical insights and practical guidance for advancing high-quality, inclusive, and sustainable vocational education for BRI students.

KEYWORDS

Belt and road initiative; Vocational education; Cross-border education alliance; Skills training system; International students; Transnational TVET cooperation

1 Introduction

The Belt and Road Initiative (BRI), launched by China in 2013, has significantly expanded international cooperation in trade, infrastructure, and education ^[1]. As part of this broad agenda, vocational education has emerged as a key strategy to bridge skill gaps in partner countries and support the sustainable development of local labor markets ^[6]. With the growing number of international students from BRI countries enrolling in vocational institutions, particularly in Asia, the need for a well-structured vocational skills training system has become increasingly urgent ^[3].

However, existing vocational training programs often lack the adaptability and cross-cultural relevance required to meet the diverse needs of these students ^[5]. Many BRI international students face challenges such as mismatched curricula, insufficient industry integration, lack of internship opportunities, and limited recognition of qualifications in their home countries ^[7]. Addressing these issues calls for a systemic, collaborative, and transnational approach ^[2].

In this context, cross-border vocational education alliances have emerged as a promising model for fostering institutional collaboration, curriculum co-development, and joint training mechanisms ^[4]. These alliances typically involve vocational colleges, enterprises, and educational authorities from multiple countries working together to design and deliver competency-based training programs ^[8]. They aim to enhance the international compatibility of vocational qualifications, promote mutual recognition of credits and certificates, and improve the overall employability of students ^[9].

This paper aims to explore how cross-border vocational education alliances can contribute to the development of an effective vocational skills training system for international students from Belt and Road countries. Specifically, it investigates the structural components of such a system, the role of alliances in shaping training practices, and the key challenges involved in implementation.

Three main research questions guide this study:

- (1) What are the essential elements of a vocational training system tailored to BRI international students?
- (2) How do cross-border education alliances support the creation and delivery of such systems?
- (3) What are the practical and institutional barriers to success, and how can they be addressed?

This study seeks to provide a conceptual framework and actionable insights for policymakers, educators, and alliance participants. The findings aim to inform the design of inclusive and effective training ecosystems that not only support the educational goals of BRI international students but also contribute to the broader objective of capacity-building and economic cooperation along the Belt and Road ^[10].

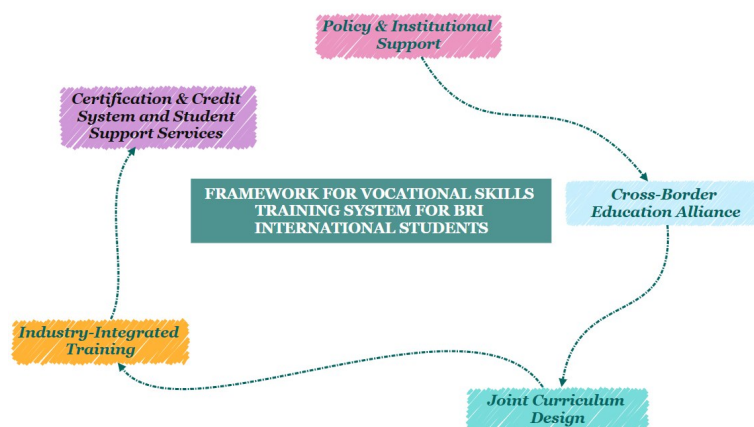


Figure 1 Framework for Vocational Skills Training System for BRI International Students

2 Literature review

2.1 The belt and road initiative and international education cooperation

The Belt and Road Initiative (BRI) is not only a geopolitical and economic strategy but also a platform for educational exchange and collaboration^[1]. The Education Action Plan for the Belt and Road Initiative released by the Chinese Ministry of Education emphasizes the cultivation of international talent and the development of cross-border educational mechanisms^[3]. Vocational education is seen as a key driver for building human capital in BRI countries, especially in regions with emerging economies that require technical skills to support infrastructure, energy, and industrial development^[6].

Several scholars have noted that BRI international students face significant gaps in terms of educational resources, practical training opportunities, and job market alignment in host countries^[3,5]. This has generated increasing interest in models that can provide more structured, demand-oriented vocational training^[7].

2.2 International students in vocational education: challenges and needs

Compared with higher education, vocational education for international students remains under-researched^[11]. However, early findings suggest that these students often encounter:

- Curriculum mismatch between training content and their home country's labor demands;
- Language and cultural barriers in workplace simulation and internships;
- Limited credential recognition across borders;
- Insufficient career guidance and industry exposure^[12].

2.3 Cross-border vocational education alliances

Cross-border vocational education alliances (CBVEAs) have emerged as a solution to the above issues^[4]. CBVEAs are increasingly seen as an institutional mechanism to improve the scalability and relevance of vocational training, particularly for BRI international students who seek not only skill acquisition but also global employability^[7]. They provide opportunities to integrate local labor demands with global standards and foster trust-based cooperation among stakeholders in multiple countries^[11].

The literature identifies several effective models of vocational skills development which underscore the importance of practice-oriented, adaptive, and certifiable training structures, which are essential for BRI students facing varied employment contexts and institutional settings.

3 Methodology

3.1 Research design

This study adopts a qualitative, multiple-case study approach, suitable for exploring complex educational systems and transnational collaborations. Given the multidimensional nature of vocational skills training and the role of cross-border alliances, qualitative methods allow for a rich understanding of contextual factors, institutional practices, and stakeholder experiences. The research is both exploratory and explanatory, aiming to identify structural elements of the training system and to explain how alliances function in practice.

3.2 Document analysis

Policy papers, alliance agreements, program syllabi, internship guidelines, and certification standards were collected from each case. These documents provided evidence of structural arrangements and policy environments surrounding training systems.

3.3 Field observations

Site visits were conducted to observe classroom instruction, workshop-based training, and enterprise internship settings. Notes were taken on instructional methods, facilities, equipment usage, and student-teacher interactions.

3.4 Data analysis

All data were analyzed using thematic analysis, guided by both inductive coding and a priori categories derived from the literature (e.g., curriculum design, industry integration, certification, support services). The NVivo software was used for qualitative coding and management.

4 Findings

Curriculum development was a joint endeavor between host-country institutions and partner-country representatives, often facilitated by industry partners. Curricula were structured around competency-based modules and aligned with local industry standards while considering the employment contexts of students' home countries.

However, challenges remained in synchronizing qualification frameworks, particularly when host and partner countries operated under different credit or diploma systems.

A defining feature of the alliances was the issuance of dual or joint certificates, recognized by both participating countries. Two alliances were part of regional qualification mutual recognition pilot programs, aligning with ASEAN and Chinese national frameworks. Nevertheless, several administrators noted that recognition outside the alliance structure remained inconsistent, particularly in countries with weak TVET regulation. Students also expressed uncertainty about the portability of credentials after graduation.

Student support was a mixed-strength area. Two alliances offered structured programs including: Language instruction (Chinese, English, or local languages); Cross-cultural workshops; Legal, visa, and job placement guidance.

5 Discussion

Drawing on Skill Ecosystem Theory, the studied alliances act as regional ecosystems that integrate educational institutions, enterprises, and policy frameworks. They facilitate the co-evolution of skills and institutions, which is essential for meeting transnational labor market needs. The alliances go beyond simple bilateral cooperation; they create semi-formal governance structures that coordinate curriculum standards, facilitate resource sharing, and establish feedback loops between training providers and employers.

However, these ecosystems are still fragile and institutionally uneven. The absence of a supranational accreditation mechanism weakens the portability of vocational credentials, and not all participating countries or institutions have equal policy or financial commitment.

The research supports the notion that effective vocational skills training for BRI international students must operate on multiple interrelated levels:

- (1) Macro level: Policy coordination, international agreements, and qualification frameworks;
- (2) Meso level: Institutional cooperation via alliances, joint curriculum design, and shared standards;
- (3) Micro level: Classroom instruction, internships, student support, and assessment practices.

Many current initiatives focus on the meso and micro levels, but sustainable development requires policy-level integration across borders. National governments and regional bodies (e.g., ASEAN, SCO) have a role to play in institutionalizing mutual recognition and funding cross-border vocational initiatives.

Although cross-border alliances expand access to skill development opportunities, this study reveals persistent inequities in language access, internship eligibility, and certification recognition. These gaps disproportionately affect students from less-developed partner countries or marginalized groups. Inclusive training systems must integrate language bridging programs, career orientation services, and legal protections that allow international students to access the full benefits of vocational education. Otherwise, alliances risk reinforcing inequalities rather than resolving them.

And there are some implications for Stakeholders:

- (1)For policymakers: Invest in long-term alliance infrastructure and ensure alignment of vocational standards across borders.
- (2)For institutions: Develop holistic support systems and engage employers in program governance.
- (3)For enterprises: Partner in training delivery, offer internships to international students, and co-develop assessment tools.

6 Conclusion

This study examined how cross-border vocational education alliances can contribute to the development of an effective vocational skills training system for international students from Belt and Road countries. It identified five key components of such a system—joint curriculum design, industry integration, certification mechanisms, student support services, and policy coordination—and highlighted both the potential and limitations of current alliance models.

While the alliances studied offer promising blueprints for future cooperation, they also underscore the need for stronger institutional commitment, regulatory frameworks, and inclusive practices. Building a sustainable vocational skills training system for BRI students requires not only pedagogical innovation but also political will and cross-sector alignment.

Future research should explore longitudinal outcomes of students trained in such systems, including employment mobility, skills transferability, and return-on-investment for partner institutions and countries. Comparative studies across regions could also shed light on how different models of vocational alliances evolve in varying geopolitical and economic contexts.

Ultimately, vocational education—if properly designed and supported—can become a bridge for shared growth, mutual understanding, and human capital development across the Belt and Road.

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