

Research on the Path of Vocational Education Cooperation between China and Russia Based on the Belt and Road Initiative

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Abstract

The Belt and Road Initiative (BRI) provides a significant platform for deepening the comprehensive strategic partnership between China and Russia. As a key area of people-to-people exchanges and mutual understanding, cooperation in vocational education is encountering unprecedented development opportunities. This paper, against the backdrop of the BRI, explores the practical foundations, main challenges, and feasible pathways for Sino-Russian vocational education collaboration. By analyzing the advantages in policy alignment, industrial demands, and educational resource complementarity, the study identifies existing obstacles such as language barriers, insufficient mutual recognition of qualifications, and underdeveloped cooperation mechanisms. Based on this analysis, it proposes a multi-tiered cooperation framework, the mutual recognition of academic credentials and vocational qualifications, the co-development of internationalized curricula, and enhanced faculty exchanges and joint research initiatives. The research aims to provide theoretical insights and practical guidance for promoting coordinated development in vocational education between China and Russia and supporting regional economic integration.

Keywords

Belt and Road Initiative; China-Russia cooperation; vocational education; cooperation pathways; educational internationalization; industry-education integration.

1. Introduction

With the continuous advancement of the Belt and Road Initiative (BRI), cooperation between China and partner countries along the route has deepened across economic, technological, cultural, and other domains, leading to an increasing demand for high-quality technical and skilled personnel. As a crucial partner in the BRI, Russia spans Eurasia and possesses strong scientific and technological capabilities along with a well-established industrial system, demonstrating significant advantages in advanced manufacturing, energy, and information technology. Meanwhile, China's vocational education has experienced rapid development in recent years, forming a large-scale and diversified modern vocational education system. The high degree of complementarity in industrial restructuring and talent demand between the two countries lays a solid foundation for educational collaboration.

Nevertheless, Sino-Russian cooperation in vocational education is still in its initial stages, characterized by fragmented projects, shallow collaboration levels, misaligned standards, and linguistic and cultural barriers. These limitations hinder the ability to meet the BRI's growing

demand for composite, internationally competent technical talents. Therefore, it has become an urgent task to leverage the policy benefits of the BRI to explore systematic and sustainable pathways for vocational education cooperation. This study aims to analyze the current foundations and constraining factors, and to propose practical models and development strategies that promote the optimal allocation and deep integration of vocational education resources between the two countries, thereby contributing to the high-quality development of the Belt and Road Initiative.

2. Literature Review

2.1. Theoretical Foundations of Vocational Education Cooperation under the Belt and Road Initiative

Vocational education cooperation within the framework of the Belt and Road Initiative (BRI) is not merely a practice-oriented transnational educational endeavor, but also grounded in robust theoretical foundations. These foundations primarily encompass two major domains: international educational cooperation theory and vocational education development theory, which together provide a multidimensional perspective for understanding the motivations, mechanisms, and value orientations underlying such collaboration.

First, international educational cooperation theory emphasizes the shared goals of enhancing educational quality and achieving mutual development through cross-border exchange of educational resources, policy coordination, and institutional mutual learning. As articulated by Kandel (1933) and Altbach (2004), transnational educational cooperation represents a crucial form of knowledge flow and civilizational dialogue in the context of globalization, with its core lying in the establishment of trust-based, mutually beneficial collaborative mechanisms. Within the BRI context, vocational education cooperation is increasingly recognized as a key pathway to regional connectivity and people-to-people bonds (Wang & Wang, 2020). This theoretical framework advocates for institutionalized cooperation through intergovernmental agreements, institutional partnerships, and multilateral educational organizations, highlighting the importance of policy dialogue, standards alignment, and coordinated quality assurance systems—providing a solid theoretical basis for deepening Sino-Russian collaboration in vocational education.

Second, vocational education development theory focuses on the dynamic relationship between skilled talent cultivation and socioeconomic development. Models such as Germany's dual system, Australia's TAFE system, and China's "industry-education integration" approach all demonstrate that vocational education must be closely aligned with industrial demands (Becker, 1975; OECD, 2014). As infrastructure connectivity and industrial capacity cooperation along the BRI corridors deepen, vocational education has taken on new responsibilities in supporting regional industrial upgrading and facilitating cross-border projects (Li & Xu, 2021). This theory emphasizes demand-driven and competence-based approaches, advocating for talent cultivation systems that are responsive to regional economic structures and aligned with international occupational standards. For China and Russia, this theoretical lens provides a logical foundation for targeted and customized cooperation in strategic sectors such as energy, transportation, and digital economy.

In summary, international educational cooperation theory offers a macro-level framework for institutional design and mechanism building in Sino-Russian vocational education collaboration, while vocational education development theory provides micro-level guidance on talent cultivation models and industry alignment. Together, they constitute the theoretical cornerstone of vocational education cooperation under the BRI.

2.2. Research Status of China-Russia Vocational Education Cooperation

In recent years, as the Belt and Road Initiative has advanced, educational collaboration between China and Russia has gradually expanded from higher education into the domain of vocational education, accompanied by a growing body of academic research. Existing studies primarily focus on several aspects: first, analyzing the strategic significance of Sino-Russian educational cooperation at the policy level, emphasizing its role as a component of "soft power" in bilateral relations (Zhang, 2019); second, exploring cooperation models in higher education, such as joint programs, student exchanges, and scientific research collaboration (Liu & Ivanov, 2021); and third, beginning to examine the internationalization pathways of vocational education under the BRI, proposing recommendations such as strengthening language training and promoting standards alignment (Chen, 2022).

However, despite these contributions, significant gaps remain in the research on vocational education cooperation specifically. First, there is a lack of systematic inquiry, as most existing studies remain at the level of macro-level policy interpretation or case-specific descriptions, lacking in-depth analysis of cooperation mechanisms, implementation pathways, and outcome evaluation. Second, a disconnect between theory and practice persists, with few studies linking vocational education cooperation to concrete industrial needs—such as joint Sino-Russian projects in Arctic development, intelligent manufacturing, or cross-border logistics—resulting in policy recommendations that often lack specificity and practical feasibility. Third, bidirectional interactive research is insufficient; the majority of studies adopt a China-centric perspective, overlooking the structural characteristics, policy priorities, and partnership expectations within Russia's domestic vocational education system, thus hindering truly equitable and mutually beneficial dialogue. Finally, scholarly attention to critical issues such as mutual recognition of academic qualifications and occupational credentials, co-development of curriculum standards, and joint faculty development remains in its infancy, with no consensus yet reached on theoretical frameworks or practical models.

Consequently, current research exhibits notable shortcomings in depth, breadth, and practical relevance. Future studies urgently need to build upon theoretical integration and align with the practical demands of the BRI to construct systematic and actionable pathways for Sino-Russian vocational education cooperation, advancing collaboration from an "initiative-driven" phase toward institutionalization and sustainability. The present study is situated within this context, aiming to address existing research gaps and provide both theoretical insights and practical recommendations for deepening collaborative development in vocational education between China and Russia.

3. Status Quo Analysis of China-Russia Vocational Education Cooperation

3.1. Policy Environment for China-Russia Vocational Education Cooperation

The advancement of vocational education cooperation between China and Russia is underpinned by strategic alignment and policy support at the top-level design of both nations. In recent years, as the Belt and Road Initiative (BRI) becomes increasingly aligned with the Eurasian Economic Union (EAEU), policy coordination in the education sector has been continuously strengthened. In 2018, the two countries signed the China-Russia Action Plan for Humanistic Cooperation, explicitly proposing to enhance exchanges and collaboration in vocational education, including institutional partnerships, faculty and student exchanges, and joint talent cultivation programs. In 2020, the Joint Communiqué of the 25th Regular Meeting of the Prime Ministers of China and Russia further emphasized support for vocational institutions to engage in collaborative programs, curriculum development, and skills training. China's Ministry of Education has also issued the Action Plan for Jointly Building the Belt and Road in Education, which provides policy guidance for vocational education cooperation with Russia and other partner countries. On the Russian side, its National Education Development Framework until 2030 encourages higher and vocational education institutions to expand international collaboration, particularly in high-tech and engineering fields. Moreover, both countries have promoted educational cooperation through multilateral mechanisms such as BRICS and the Shanghai Cooperation Organization. Overall, a multi-layered and broad-spectrum policy support system has been preliminarily established, creating a favorable institutional environment for bilateral vocational education collaboration.

3.2. Current State of China-Russia Vocational Education Cooperation

Currently, vocational education cooperation between China and Russia has achieved initial progress, with diverse forms of collaboration emerging, yet it remains largely in the exploratory and nascent stage. At the institutional level, several Chinese vocational colleges have established partnerships with Russian technical universities, engaging in faculty and student exchanges, short-term training programs, and joint curriculum development—examples include collaborations between Harbin Vocational and Technical College, Beijing Electronic Science & Technology Vocational College, and their Russian counterparts. In talent cultivation, some Chinese vocational institutions have launched integrated programs combining Russian language proficiency with technical skills to meet the human resource demands of Chinese enterprises operating in Russia. Additionally, platforms such as the Belt and Road Vocational Education Alliance have facilitated exchanges in areas including vocational skills competitions and teacher training. However, significant limitations persist: projects are generally small-scale and narrowly focused, lacking systematic design and long-term sustainability; cooperation is largely concentrated in northeastern China and Russia's Far East, with no nationwide collaborative network yet established; program offerings often fail to align with industrial needs, particularly in emerging sectors such as intelligent manufacturing and digital economy; and persistent challenges—such as language barriers, difficulties in credit recognition, and divergent quality assurance systems—hinder deeper integration. Overall, institutionalized mechanisms and sustainable platforms remain underdeveloped, indicating an urgent need to shift from fragmented, project-based cooperation toward systemic and coordinated collaboration.

4. Problems and Challenges in China-Russia Vocational Education Cooperation

Despite the favorable policy environment and strategic opportunities created by the Belt and Road Initiative (BRI), the advancement of vocational education cooperation between China and Russia faces deep-seated problems and structural challenges. First, there is insufficient policy coordination and institutional development; the two countries have yet to establish a dedicated, permanent coordination mechanism for vocational education collaboration. Current initiatives largely rely on ad hoc institutional partnerships, lacking unified planning and resource integration, resulting in fragmented projects with limited sustainability. Second, a mutual recognition system for academic qualifications and occupational credentials remains undeveloped. Significant differences exist between the two nations in professional standards, curriculum design, and credit transfer mechanisms, which hampers large-scale student mobility and joint training programs.

Furthermore, linguistic and cultural barriers are prominent. There is a shortage of Russian-language professionals in China, and instruction in specialized Russian terminology remains weak, creating language barriers for Chinese students and educators participating in exchange programs in Russia. Conversely, Russian institutions often have limited understanding of China's educational models and industrial demands, leading to asymmetric comprehension that constrains the depth of cooperation. Additionally, industry-education integration is inadequate. Most current collaborations occur at the institutional level, with limited engagement from enterprises, thus failing to effectively align with actual workforce needs in key sectors of Sino-Russian cooperation such as energy, transportation, and intelligent manufacturing.

Moreover, the international capacity of teaching staff requires improvement. There is a shortage of educators who possess bilingual proficiency, understand both national vocational education systems, and have experience in international projects—limiting high-quality curriculum co-development and pedagogical innovation. Finally, a lack of information-sharing platforms results in asymmetries regarding policies, institutional resources, and program strengths, increasing communication costs and reducing partnership-matching efficiency. These interrelated challenges necessitate comprehensive solutions through strategic planning, institutional innovation, and multi-stakeholder collaboration to advance China-Russia vocational education cooperation toward a higher-quality and more sustainable trajectory.

5. Exploring Pathways for China-Russia Vocational Education Cooperation

5.1. Improving Cooperation Mechanisms

To advance the sustainable development of China-Russia vocational education cooperation, the primary task is to establish systematic and institutionalized collaboration mechanisms. A dedicated "China-Russia Vocational Education Cooperation Committee" should be established under the leadership of both countries' education authorities to oversee strategic planning, policy coordination, and project supervision, shifting collaboration from ad hoc initiatives to coordinated, top-down planning. A bilateral framework agreement on vocational education cooperation should be signed at the national level to clarify shared goals, priority areas, and supportive policies. Building on platforms such as the Belt and Road Vocational Education Alliance, regular dialogue mechanisms—such as an annual China-Russia Vocational Education Forum—should be institutionalized to facilitate policy exchange and best practice sharing. Encouragement should be given to vocational institutions to form transnational consortia or

alliances through formal inter-institutional agreements for resource sharing and project coordination. Furthermore, a robust quality assurance framework should be developed jointly, including standards for collaborative programs and joint evaluation systems, to ensure educational quality. By strengthening a multi-stakeholder mechanism involving government guidance, institutional leadership, and industry participation, a solid institutional foundation for cooperation can be established.

5.2. Optimizing Resource Allocation

Enhancing the quality and efficiency of China-Russia vocational education cooperation hinges on the effective optimization of educational resources. A "China-Russia Vocational Education Resource Information Sharing Platform" should be established to integrate data on institutional strengths, program offerings, faculty expertise, training facilities, and international projects, enabling precise matching of supply and demand. Joint laboratories, training centers, and technology transfer hubs should be co-developed in complementary fields—such as combining China's practical strengths in digital economy and e-commerce with Russia's theoretical advantages in fundamental sciences and engineering—to foster synergistic innovation. Industry-education integration should be deepened through the formation of tripartite "collaborative consortia" comprising Chinese and Russian enterprises, vocational institutions, and research organizations, focusing on industry-specific talent cultivation and joint R&D in strategic sectors. Additionally, dedicated funding programs should be established to support faculty and student exchanges, curriculum co-development, and joint research, directing resources toward priority areas. By breaking down information silos, integrating high-quality resources, and strengthening industry-education linkages, cooperation can evolve from simple resource aggregation to deep resource integration.

5.3. Enhancing Curriculum and Teaching Material Adaptability

Curricula and teaching materials are core components of vocational education cooperation, and their adaptability directly determines the effectiveness of talent development. Sino-Russian collaboration should focus on real-world demands arising from Belt and Road Initiative projects, developing internationalized curricula that integrate technical standards and cultural contexts from both countries. Joint curriculum development teams should be formed by partner institutions to co-design teaching standards, syllabi, and competency assessment frameworks in key areas such as intelligent manufacturing, cross-border logistics, and energy technology. In textbook development, efforts should be made to produce bilingual or multilingual materials incorporating representative engineering cases and industry regulations from both nations, enhancing practical relevance and operational guidance. Modern information technologies should be leveraged to develop massive open online courses (MOOCs) and virtual simulation training resources, improving pedagogical flexibility and interactivity. Concurrently, professional development programs should strengthen instructors' intercultural teaching competencies, enabling them to adapt pedagogical strategies to diverse learner backgrounds. By improving the local adaptability and international compatibility of curricula and materials, the occupational competitiveness and cross-cultural adaptability of students can be significantly enhanced.

Conclusion

Under the impetus of the Belt and Road Initiative (BRI), vocational education cooperation between China and Russia demonstrates broad prospects and serves as a crucial pillar for deepening bilateral people-to-people exchanges and practical collaboration. This study reveals that, despite favorable foundations in policy alignment, industrial complementarity, and educational resource synergy, significant challenges remain—such as underdeveloped institutional mechanisms, lack of standards harmonization, and insufficient industry-education integration. Future cooperation should center on establishing institutionalized coordination frameworks, including dedicated high-level bodies and robust quality assurance systems, to ensure systematic and standardized collaboration. It is essential to optimize resource allocation through shared information platforms and jointly operated training facilities, enhancing efficiency and synergy. Moreover, curricula and teaching materials must be co-developed to balance local relevance with international compatibility, thereby improving the adaptability and competitiveness of talent cultivation. Only through coordinated efforts among governments, educational institutions, and enterprises—shifting from project-based initiatives to systemic co-construction—can high-quality, sustainable development of Sino-Russian vocational education be achieved, ultimately providing solid human capital support for regional economic cooperation under the BRI framework.

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