

Research on the Internationalization Path of Medical and Health Vocational Education Under "the Belt and Road" Initiative

Theoretical Construction and Practical Verification Based on Chongqing Medical and Pharmaceutical College

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ABSTRACT

In the context of "the Belt and Road" initiative and the "Healthy Silk Road" construction, the internationalization of vocational education has become an important path to alleviate the shortage of medical and health talents in China along the route. Taking the "Bayu Shizhen College" of Chongqing Medical and Pharmaceutical College as an example, based on the theories of resource dependence and cross-cultural adaptation, this paper explores the practical path of international cooperation in vocational education through case study. The school innovates the "education chain - industry chain" dual drive model through the "government-school-industry-enterprise" collaborative mechanism, builds a digital resource center, and integrates traditional Chinese medicine cultural exchanges. It has trained a total of 170 international students and developed 11 professional standards. Research has shown that internationalization of vocational education requires a balance between internationalized integration and cultural adaptation.

Keywords: "The Belt and Road Initiative", Internationalization of vocational education, Medicine and health, Collaborative education, Cultural integration.

1. INTRODUCTION

1.1 Research Background

Since "the Belt and Road" initiative was put forward in 2013, it has gradually deepened from "hard connectivity" in infrastructure to "soft connectivity" in education, health and other fields. The "2023 Global Health Human Resources Report" of the World Health Organization (WHO) points out that "the Belt and Road" built jointly by countries, such as Southeast Asia and Africa, generally face the shortage of medical and health resources. Taking Laos as an example, there are 0.33 practicing (assistant) physicians and 1.18 nurses and midwives per thousand population[1], indicating a lack of talent supply. At the same time, China's vocational education, relying on the advantages of industry education integration, has gradually become a key force in promoting

international technical and skills cooperation. The "Implementation Plan for National Vocational Education Reform" clearly proposes to support vocational colleges to "go global" and cultivate technical and skilled talents with international competitiveness. In this context, international cooperation in vocational education in the field of medicine and health is not only a strategic requirement to serve the "Healthy Silk Road", but also an important lever to enhance the global influence of Chinese vocational education.

1.2 Research Problems and Significance

Although research on the internationalization of vocational education is becoming increasingly abundant, existing achievements are mostly focused on fields such as equipment manufacturing and information technology, and empirical research in the field of medicine and health is relatively scarce.

For example, the promotion path of "internationalization of vocational education" proposed by Zhou Wang and others emphasizes top-level design, school-enterprise symbiosis, professional quality, etc., but does not involve specific paths for cross-cultural integration;[2] Lv Jingquan et al. used the "Luban Workshop" as an example to analyze the internationalization and innovation practices of vocational education, but their research focuses on technological output and ignores the deep role of cultural identity in talent cultivation.[3]

Based on the theoretical gaps and practical needs mentioned above, this study aims to answer the following questions:

- How to integrate policies, industries, and educational resources through the "government-school-industry-enterprise" collaborative mechanism in the internationalization process of medical and health vocational education?
- How to build a dual chain driving model of "education chain - industry chain" to effectively connect vocational education with local industry needs?
- How can traditional Chinese medicine culture be transformed into internationally recognized cultural capital through cross-cultural adaptation pathways, thereby enhancing the cultural identity and competitiveness of vocational education brands?

1.3 Theoretical Framework and Method Design

Based on the theories of resource dependence and cross-cultural adaptation, this study constructs a collaborative mechanism between government, schools, industries and enterprises, emphasizing that the internationalization of vocational education requires the integration of policies, industries, and cultural resources to form a symbiotic relationship. On the theoretical level, extending Bourdieu's "cultural capital theory" to the field of traditional Chinese medicine, proposing the path of "capitalization of traditional Chinese medicine culture", and filling the theoretical gap in the internationalization research of medical and health vocational education; At the practical level, taking the "Bayu Shizhen College" of Chongqing Medical and Pharmaceutical College as a case study, the operability of the collaborative path is verified,

providing a paradigm reference for Chinese vocational education brands to go global.

Chongqing Medical and Pharmaceutical College is located in the hub of the "Land Sea New Corridor" in Chongqing, relying on regional biopharmaceutical industry clusters (such as Chongqing International Biotech City), and has the synergistic advantage of "policy-industry-education". Starting from 2023, the school carries out medical and health talent training through the "Bayu Shizhen College", gradually radiating to Southeast Asia, Africa and other regions. This study adopts a case study method to explore the construction logic and practical effectiveness of collaborative paths through qualitative interviews, quantitative data analysis, and policy text analysis.

2. LITERATURE REVIEW

2.1 The Current Research Status of Internationalization of Vocational Education

Internationalization of vocational education is a hot topic in educational research against the background of globalization. In its "Vocational Education and Training Strategy (2022-2029)", UNESCO points out that the internationalization of vocational education is not only the output of technical skills, but also a two-way interaction between educational concepts and culture. From an international perspective, Germany's "dual system" model has become a model of vocational education internationalization through school enterprise cooperation and standardized curriculum output; The Australian TAFE system emphasizes "competency-based" training and is committed to building an integrated industry education ecosystem, providing targeted vocational education based on the digital literacy skills required for relevant professions.[4] Chinese research focuses on "the Belt and Road" vocational education cooperation. Huang Meixue and Li Jun discussed the practical needs and practical paths of non-production capacity cooperation in vocational education services.[5] Kang Hui emphasized the importance of enhancing internationalization concepts, improving institutional mechanisms, and building distinctive brands from the perspective of internationalization in higher vocational education.[6] These studies collectively provide theoretical support and practical guidance for the internationalization of vocational education in China.

However, there are two limitations to existing research: firstly, the research focuses on industries such as equipment manufacturing and information technology, with insufficient attention paid to the medical and health fields; Secondly, most achievements focus on one-way "standard co-construction" and ignore the deep role of cultural integration in talent cultivation.

2.2 The Theoretical Basis of "the Belt and Road" Education Cooperation

The theoretical framework of "the Belt and Road" education cooperation can be traced back to the cross-cultural adaptation theory and resource dependence theory. The theory of cross-cultural adaptation emphasizes that educational cooperation needs to balance cultural differences and commonalities. For example, when spreading traditional Chinese medicine culture overseas, it is necessary to enhance acceptance through localized translation and adaptation to practical scenarios. The resource dependence theory points out that the internationalization of vocational education requires the integration of multiple resources such as government, industry, and enterprises to form a synergistic effect. Chongqing Medical and Pharmaceutical College has verified the applicability of this theory by combining policy support, industry demand, and educational resources through the "government-school-industry-enterprise" collaborative mechanism.

In addition, the theory of digital empowerment provides a new perspective for the internationalization of vocational education. The reports of international organizations such as UNESCO and the World Bank often emphasize the important role of digital resources in promoting educational equity, improving educational quality, and reducing educational costs. Especially in international cooperation and exchange, digital resources can break geographical boundaries, allowing more people to enjoy high-quality educational resources, thereby reducing the cost of international cooperation. For example, the provincial-level medical digital resource center established by Chongqing Medical and Pharmaceutical College serves tens of thousands of overseas students through online courses and virtual training modules, demonstrating the integration potential of "digital resources + vocational education going global".

2.3 Research Gap in Internationalization of Vocational Education in the Field of Medicine and Health

Although medicine and health are the core areas of the "Health Silk Road", research on the internationalization of vocational education is still in its infancy. Existing literature mostly focuses on higher education in clinical medicine, with insufficient attention paid to the cultivation of skilled talents at the vocational level. In recent years, Chinese scholars have attempted to fill this gap, such as Liu Jia and others proposing the "Four-dimensional, Three-body, and Two Features" path for the internationalization of higher vocational education in medicine,[7] but a systematic theoretical framework has not yet been formed.

2.4 Supplementary Perspective of Cultural Capital Theory

Bourdieu's theory of cultural capital suggests that cultural resources can be transformed into social capital through education. In the cooperation of medical and health vocational education, traditional Chinese medicine culture is not only a technical carrier, but also a cultural capital. For example, Chongqing Medical and Pharmaceutical College has integrated "Shizhen Culture" into its curriculum design, and through the "Six-into Project" (into plans, standards, courseware, classrooms, textbooks, and activities), it enhances international students' cultural identity with traditional Chinese medicine, thereby enhancing their professional competitiveness and social influence.

3. RESEARCH METHODS

This study adopts the case study method, selects "Bayu Shizhen College" of Chongqing Medical and Pharmaceutical College as a typical case, and deeply analyzes its development path of internationalization of medical and health vocational education under "the Belt and Road" initiative. To comprehensively reveal its experience and effectiveness in international education practice, a mixed research method is comprehensively applied to conduct in-depth exploration from both qualitative and quantitative dimensions.

3.1 Qualitative Analysis

3.1.1 Sample Selection

Using purposive sampling strategy, 12 key informants are accurately selected, including 4 school administrators, 3 representatives from partner hospitals, and 5 international students. The selected samples have rich practical experience and in-depth insight ability, which can provide multidimensional and high-quality information for research.

3.1.2 Interview Design and Implementation

The researchers carefully design interview outlines around core topics such as collaborative education mechanisms, cultural conflict response, and development and utilization of educational resources. Through face-to-face interviews, interviewers guide respondents to share their personal experiences and genuine insights, in order to obtain first-hand information for research. The entire interview is recorded and transcribed word for word to ensure the completeness and accuracy of the data.

3.1.3 Data Analysis

Nvivo12 software is used to perform topic coding analysis on transcribed interview texts. Through open coding, axial coding, and selective coding, key core categories such as "policy driven" and "cultural adaptation" are gradually extracted, and the essential laws and inherent connections behind the data are deeply explored, providing strong support for the construction of theoretical frameworks.

3.2 Quantitative Analysis

3.2.1 Data Collection

The system collects data related to international cooperative education of Chongqing Medical and Pharmaceutical College from 2019 to 2024, covering multiple dimensions such as changes in the scale of international students, the number of vocational standard developments, and the progress of bilingual course development. The data mainly comes from the authoritative and detailed "Annual Quality Report of Chongqing Medical and Pharmaceutical College".

3.2.2 Data Processing and Analysis

Excel software is used to organize, clean, and preliminarily process the collected data. By constructing a trend analysis model and drawing intuitive bar and line charts, the development trend and change trajectory of key indicators of international cooperative education can be clearly presented. This not only helps to accurately grasp the development trend of international cooperative education, but also provides a solid basis for quantitatively evaluating research hypotheses.

3.3 Policy Text Analysis

3.3.1 Text Selection

The text selection focuses on important policy documents closely related to the research theme, such as the "Action Plan for the Community of Shared Future between China and Laos (2024-2028)", the "Implementation Plan for National Vocational Education Reform", and the "14th Five-Year Plan for the Development of Vocational Education in Chongqing". These documents clarify the direction and focus of vocational education internationalization from the national to local levels, providing macro policy background and guidance for research.

3.3.2 Content Analysis

It is necessary to conduct in-depth and detailed interpretation and analysis of selected policy texts, accurately extract key content related to international cooperation in medical and health vocational education, such as "health cooperation" and "vocational education going global". By comparing the target requirements in policy documents with the specific practice of Chongqing Medical and Pharmaceutical College's "Bayu Shizhen College", the conformity of its international education path and model with policies is verified, highlighting the scientific, rational, and forward-looking nature of its practice.

4. PRACTICE PATH ANALYSIS

Against the background of "the Belt and Road" initiative, Chongqing Medical and Pharmaceutical College actively explores the practical path of internationalization of medical and health vocational education, and provides valuable practical experience for the development of internationalization of medical and health

vocational education by building a multi-dimensional collaborative system, innovating talent training mode, using digital technology to empower education, and deeply integrating cultural elements.

4.1 Construction and Operation of the Collaborative Education System Among Governments, Schools, Industries, and Enterprises

Chongqing Medical and Pharmaceutical College has successfully established a four party collaborative mechanism with the platform of "Bayu Shizhen College", which includes "government leadership, school leadership, industry participation, and joint construction between institutes and enterprises". This mechanism integrates policy, industry, and educational resources, forming a cluster effect of cross disciplinary integrated development. For example, the school has cooperated with the Banan District Government of Chongqing to jointly establish the "Chongqing Biomedical Industry Education Alliance", and introduced enterprises such as Shandong Digital Human to develop virtual simulation training resources, achieving seamless integration between industrial chain demand and educational resource supply.

The resource dependence theory states that organizations need to obtain critical resources through external cooperation. The collaborative model of Chongqing Medical and Pharmaceutical College has validated this theory - the government provides policy support (such as the "14th Five-Year Plan for the Development of Vocational Education in Chongqing"), enterprises contribute technical equipment (such as the virtual simulation system of Shandong Digital Human), schools output educational services, industry sets standards, and forms a symbiotic relationship. In the "International Management Training for Traditional Chinese Medicine and Health Care" project, the school collaborated with seven tertiary hospitals to develop a "5+1" course package (core skills + traditional Chinese medicine culture), covering the entire process of prevention, diagnosis and treatment, rehabilitation, etc. The project has trained a total of 40 grassroots medical staff and management personnel in Laos through the "on-campus and off-campus linkage, integration of theory and practice" model. This practice not only meets the local medical needs, but also promotes the exchange and dissemination of traditional Chinese medicine culture in Southeast Asia. ("Figure 1")

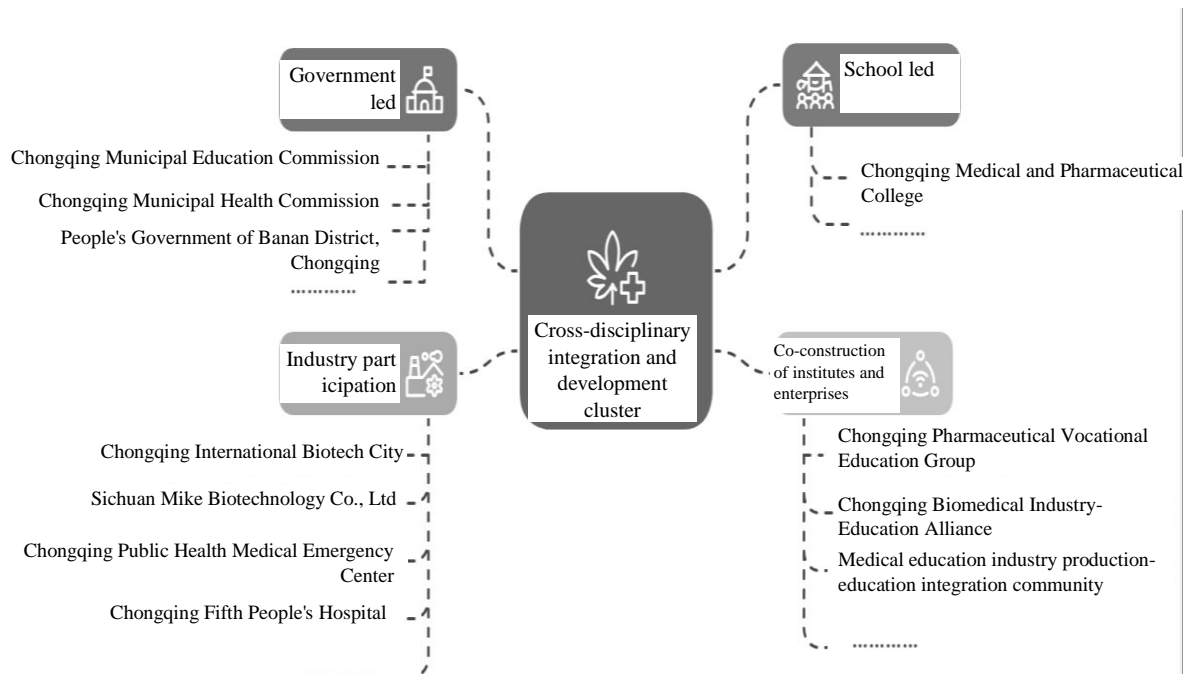


Figure 1 Cross-disciplinary integration development cluster diagram.

4.2 Innovation of Talent Cultivation Model Driven by Double-chain

Chongqing Medical and Pharmaceutical College has innovatively developed a "double-chain driven" talent training model, connecting the education chain with the industry chain and enhancing the core competitiveness of international students through the "dual docking and three progression" system. The course content is aligned with the job requirements and professional qualifications of Chinese and foreign positions, ensuring that international students have the ability to engage in cross-border employment; Through the phased training of "unit training - simulation practice - key position internship", skills can be transitioned from basic to advanced levels. For example, clinical medicine students who complete

unit training and simulated practice in school need to undergo a 10 month clinical rotation at the First Affiliated Hospital of Chongqing Medical and Pharmaceutical College to participate in clinical diagnosis and treatment work.

The integration of education chain and industry chain is the core logic of vocational education internationalization. Chongqing Medical and Pharmaceutical College embeds industry demand into curriculum design through "double-chain drive". For example, customized "Chinese + traditional Chinese medicine health care" courses for overseas employees of China Railway Construction engineering group, covering acupoint therapy, health culture, and other content, with a satisfaction rate of 92%, helping traditional Chinese medicine culture to "take root" overseas. ("Figure 2")

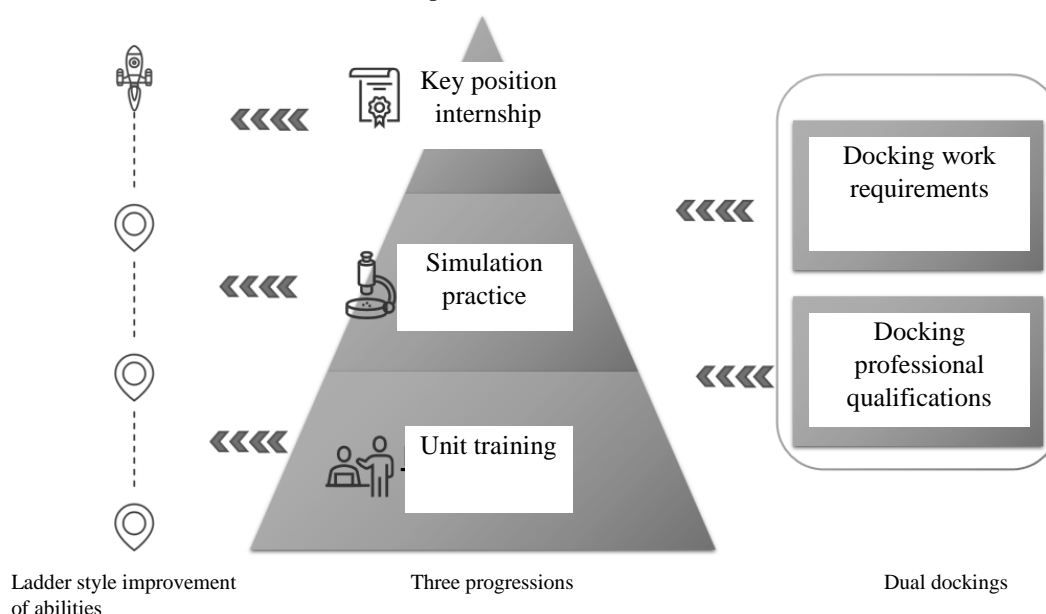


Figure 2 The pioneering "dual docking and three progression" training system diagram.

4.3 Empowering International Education Ecology with Digital Resources

Relying on three national professional teaching resource databases, the school has built a "four space" digital teaching center (online teaching, virtual training, professional information, and standard system), dynamically released more than 3,000 medical and health resources, served more than 10,000 students in Laos and other countries, and promoted it to "the Belt and Road" member countries such as Thailand, Tanzania, and Ethiopia. For example, the bilingual course of "Traditional Chinese Medicine Rehabilitation Technology"

adopts the technology of "virtual anatomy + 3D case library", and Laos students can simulate acupuncture and moxibustion operation through VR equipment, and the pass rate of practical examination has increased from 65% to 89%.

4.4 Enhancing Vocational Education Brand Identity Through Cultural Integration

The school will integrate the "Shizhen Culture" into the entire process of talent cultivation and implement the "Six-into Project" (into the plans, curriculum standards, courseware, classroom, textbooks, and activities). For example, in the "Yu

Jian Shizhen · Yi Lu Zhi Xing" activity, international students deepen their understanding of traditional Chinese medicine culture by making Chinese medicine sachets and learning Tai Chi. In 2024, the Laotian student team won the second prize in the provincial-level Chinese Cultural Classic Recitation and Writing Competition.

The theory of cross-cultural adaptation states that cultural identity is the foundation for

sustainable international cooperation. Chongqing Medical and Pharmaceutical College reduces cultural conflicts through the three-level integration of "language foundation - cultural empowerment - professional improvement". For example, in the textbook "Chinese for Pharmaceutical Science", the pharmacological knowledge of "Liu Wei Di Huang Wan" is integrated into Laotian folklore, making abstract theories concrete. ("Figure 3")

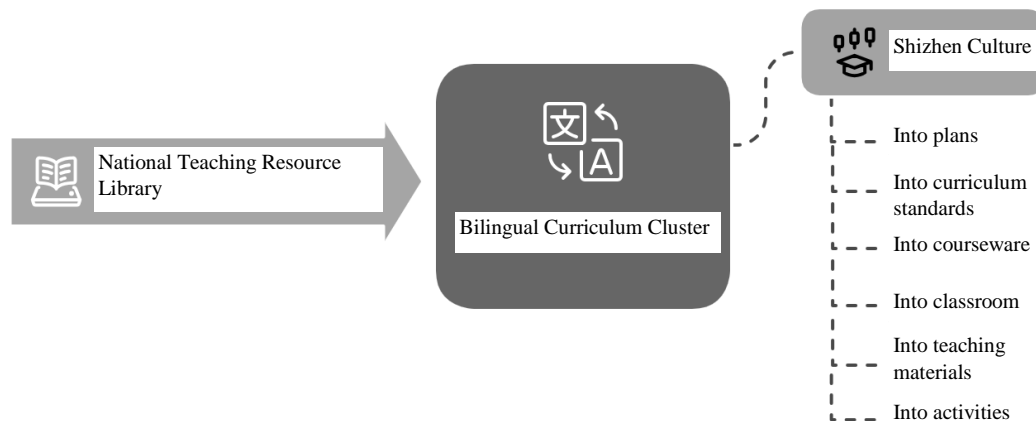


Figure 3 Integration of bilingual curriculum cluster and "Shizhen Culture".

5. ACHIEVEMENTS AND CONCLUSION

5.1 Results and Achievements

Chongqing Medical and Pharmaceutical College has achieved significant results in the internationalization of medical and health vocational education through the practical exploration of "Bayu Shizhen College". The school has cultivated a total of 170 international students from "the Belt and Road" countries, 80% of whom work in the local grass-roots medical institutions, effectively alleviating the shortage of local medical talents. At the same time, the school has developed 20 bilingual courses and 11 vocational standards, which have been adopted and incorporated into the national vocational qualification framework of countries such as Ethiopia. The "Bayu Shizhen College" made its debut at the 2024 World Vocational Education Conference, significantly enhancing its brand influence.

5.2 Conclusion

Chongqing Medical and Pharmaceutical College has established an international innovation model for medical and health vocational education that integrates "collaborative education, double-chain drive, digital empowerment, and cultural integration". This model proves that collaboration among governments, schools, industries, and enterprises is the key to resource integration, the integration of education and industry chains is the driving force for sustainable development, and cultural identity is the support for brand internationalization.

Future research can further explore the quantitative evaluation of cultural adaptability and use cultural dimension models to assess the acceptance of traditional Chinese medicine among students from different countries. At the same time, it is necessary to carry out cost-benefit analysis of digital resources, construct ROI models, and calculate the economic threshold for the development and maintenance of online courses to achieve optimal allocation and sustainable utilization of resources.

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