

# A Competency-Oriented Framework for Integrating Professional Skills Training and Cross-Cultural Adaptation in International Medical Education in China

Liu Chen'ang, Xia Meng, Wang Ying, and Wei Ren'xiong\*

Zhongnan Hospital of Wuhan University/Second Clinical Hospital of Wuhan University, Wuhan, Hubei, China

Email: 1005947@qq.com (L.C.); renxiong.wei@whu.edu.cn (W.R.)

\*Corresponding author

**Abstract**—Against the background of the Belt and Road Initiative and the continuous deepening of China's opening-up in higher education, the scale of medical education for international students in China has continued to expand, and international medical students have become an important component of the internationalization of China's medical education and international cooperation in public health. Influenced by differences in cultural background, educational systems, and language environments, international medical students in China face numerous challenges in professional skills learning, participation in clinical practice, and cross-cultural adaptation, highlighting the urgent need to establish scientific, systematic, and targeted training mechanisms. Based on the highly practice-oriented, highly standardized, and strongly humanistic characteristics of medical education, this study reviews policies and related research on the education of international medical students in China and, combined with institutional practices in medical education, analyzes the current status of professional skills training and cross-cultural adaptation among international medical students, systematically summarizing key problems in the existing training process, including insufficiently targeted training objectives and programs, limited alignment between curricula and practical teaching, and inadequacies in cross-cultural support systems. On this basis, a competency-oriented training mechanism is proposed to promote the coordinated development of professional skills and cross-cultural competence by optimizing medical talent training pathways, deepening curriculum and instructional reform, strengthening the integration of clinical practice and medical humanities education, and improving teaching management and emotional support systems, thereby enhancing the professional competence and cross-cultural competence of international medical students in China. This study aims to provide theoretical reference and practical insights for universities to improve training systems for international medical students and to enhance the quality of the internationalization of medical education in China.

**Keywords**—international students in China, medical education, professional skills training, cross-cultural adaptation, training mechanism

## I. RESEARCH BACKGROUND

With the continuous advancement of the Belt and Road Initiative and the ongoing expansion of China's opening-up in higher education, education for international students in China has become an important component of national strategic implementation. Particularly in the context of the Healthy China strategy and global health cooperation, the internationalization of medical education is not only a practical requirement for improving the quality of medical talent cultivation, but also a key pathway for building a global public health governance workforce. According to enrollment plans and institutional lists released by the General Office of the Ministry of Education, a number of universities nationwide have been approved to recruit international undergraduate students in clinical medicine through English-taught programs, reflecting the state's macro-level planning and strict regulation of both the scale and quality of medical education for international students. Medical education is characterized by a complex knowledge system, high practical demands, and strong professional norms; its talent cultivation emphasizes not only solid theoretical foundations and proficient clinical skills, but also the development of medical ethics, physician-patient communication, and humanistic care [1]. Compared with domestic students, international medical students in China differ substantially in terms of language background, cultural cognition, learning approaches, and understanding of healthcare systems. These differences are further amplified in medical education contexts, directly affecting learning outcomes in professional skills and participation in clinical practice. In particular, insufficient cross-cultural understanding, communication barriers, and limited familiarity with China's healthcare system and medical culture often become major constraints on

the professional competence development of international medical students.

Existing research and practice indicate that Chinese universities have accumulated a certain level of experience in educating international students; however, training models specifically designed for international medical students remain largely generic or experience-based. Systematic training mechanisms that are highly aligned with the distinctive characteristics of medical disciplines have yet to be fully established in terms of training objectives, curriculum design, practical teaching arrangements, and cross-cultural support systems [2]. On the one hand, some institutions continue to apply domestic medical education models or adopt simplified “English-medium” instructional approaches, overlooking differences in students’ academic foundations and cross-cultural adaptation needs. On the other hand, professional skills training and cross-cultural competence development are often treated as separate processes, lacking integrated and coordinated design, which undermines the sustainability of training outcomes. International medical students in China are not only learners of medical knowledge and technology, but also important bridges for the exchange of medical concepts and international health cooperation. The quality of their training is directly related to the international reputation of China’s medical education and the depth and breadth of medical and humanistic exchange. Therefore, it is necessary to systematically examine the real challenges faced by international medical students in professional skills learning and cross-cultural adaptation from the perspectives of medical education principles and cross-cultural education theory, and to explore more scientific, rational, and operational training mechanisms.

Based on this background, this study draws on the practical experience of training international medical students in China and, through a review of relevant policies and research findings, analyzes the current status and existing problems of international medical student education from two core dimensions: professional skills development and cross-cultural adaptation capacity. It further proposes the construction of coordinated training mechanisms and optimization pathways that integrate professional competence and cross-cultural competence, with the aim of providing reference for universities to improve training systems for international medical students and to enhance the quality of the internationalization of medical education.

## II. ANALYSIS OF THE CURRENT STATUS OF PROFESSIONAL SKILLS LEARNING AND CROSS-CULTURAL ADAPTATION AMONG INTERNATIONAL MEDICAL STUDENTS IN CHINA

### A. *Characteristics of International Medical Student Groups and Their Academic Foundations*

From the perspective of group composition, international medical students in China between 2020 and 2025 have been mainly concentrated in countries along the Belt and Road Initiative, with a source structure characterized by relative regional concentration and

pronounced internal diversity. South Asian countries have long constituted the primary source regions, with Pakistan, Bangladesh, Nepal, and India representing major contributors to the population of international medical students in China; meanwhile, the number of medical students from some Southeast Asian, African, and Middle Eastern countries has remained stable or shown modest growth. To some extent, this source structure reflects the continuous expansion of English-taught medical programs in China and the increasing attractiveness of China’s medical education in developing countries. In terms of age distribution, international medical students in China are predominantly young adults, although variations exist across countries of origin. In particular, students from some Middle Eastern countries tend to enter medical programs at relatively older ages, most commonly between 21 and 25 years, which is higher than the average entry age of students from some South Asian countries. Such differences are often closely associated with national education pathways, pre-medical or bridging systems, and broader sociocultural backgrounds, and they exert varying influences on students’ learning motivation, professional identity formation, and adaptation processes.

With regard to academic foundations, international medical students generally possess a background in science or medicine upon entry; however, their levels of academic preparation and language proficiency vary considerably. Although most international medical students are enrolled in English-taught programs, English proficiency is far from homogeneous across source countries. Students from countries where English has long been used as a medium of instruction or an official language tend to demonstrate relative advantages in academic reading and written expression, whereas students from non-English-based education systems encounter greater challenges in understanding medical terminology, engaging in in-depth classroom discussions, delivering case presentations, and producing academic writing [3]. These differences do not simply reflect variations in general English proficiency, but rather reveal shortcomings in academic language competence and clinical communication skills required for medical learning. At the same time, substantial differences in medical education systems across countries result in unequal starting points in terms of systematic basic medical knowledge, standardized laboratory skills, and clinical reasoning training, further intensifying adaptation difficulties in the process of professional skills acquisition.

### B. *Actual Performance and Challenges in Professional Skills Learning*

International medical students in China are generally able to adapt to the pace of classroom instruction in basic theoretical courses. Foundational medical courses are predominantly delivered in English or through bilingual instruction, and their content structures are relatively stable; after an initial adjustment period, most students are able to complete course requirements and pass

stage-based assessments. However, more prominent problems emerge in laboratory teaching and clinical practice, which emphasize standardized procedures and comprehensive competence development. Influenced by factors such as language proficiency, mastery of medical terminology, cultural differences, and limited understanding of China's healthcare system, some students encounter difficulties in laboratory operation standards, comprehension of clinical workflows, physician-patient communication, and the application of medical ethics [4]. At the same time, due to considerations related to patient safety and instructional management, their depth of participation and opportunities for hands-on practice during clinical clerkships and internships are relatively limited, which further constrains the systematic development of clinical skills. A certain degree of disconnection remains between theoretical learning and practical competence training, and the continuity and integrity of professional skills development require further strengthening.

### *C. Cross-Cultural Adaptation and Its Impact on Medical Learning*

International medical students in China commonly face challenges in language communication, cultural cognition, and social interaction during the process of cross-cultural adaptation, which to some extent affects their learning participation and integration into teaching environments [5]. Influenced by cultural background differences, some students have limited interaction with domestic students and faculty members in daily life and tend to socialize primarily within groups sharing similar national or cultural backgrounds, which restricts the development of cross-cultural communication skills and environmental adaptability. In medical education contexts, deficiencies in cross-cultural adaptation become particularly pronounced [6]. Clinical teaching relies heavily on physician-patient communication and teamwork, and international students often experience difficulties in understanding China's healthcare system, diagnostic and treatment procedures, and patterns of physician-patient interaction. Combined with language barriers, these challenges result in relatively low levels of participation in clinical observation and instructional activities, placing some students in marginalized learning positions. Such adaptation difficulties in both daily life and clinical teaching not only hinder the development of professional competence and cross-cultural competence among international medical students, but also, to a certain extent, constrain the overall improvement of training quality in international medical education in China.

## III. PRACTICAL CHALLENGES IN THE TRAINING MECHANISMS FOR INTERNATIONAL MEDICAL STUDENTS IN CHINA

### *A. Insufficient Systematic Design of Training Objectives and Implementation Pathways*

In the training practice of international medical students in China, insufficient systematic design of

training objectives and implementation pathways constitutes a key practical challenge constraining the improvement of training quality. On the one hand, when formulating training objectives for international medical students, some universities still primarily refer to domestic medical talent cultivation models, giving inadequate consideration to differences in students' educational backgrounds, developmental needs, and future career trajectories. As a result, training positioning remains unclear, making it difficult to establish targeted competency development frameworks. Moreover, professional skills training objectives lack organic alignment with requirements related to cross-cultural adaptation and international medical competence, leading to fragmented implementation of training objectives in practice.

On the other hand, training implementation pathways for international medical students lack systematic and stratified design. Students from different countries of origin, with varying language proficiency levels and at different stages of study, are often subject to relatively uniform management and instructional models in terms of coursework, practical training, and support services, which fails to adequately reflect principles of differentiated training. At the same time, insufficient coordination exists among instructional arrangements, practical training, and assessment methods throughout the training process. Professional competence development and cross-cultural competence enhancement tend to be addressed separately at the implementation level, undermining the overall coherence of the training process and the sustainability of training outcomes.

### *B. Insufficient Adaptation of Teaching Resources*

The overall framework of the medical curriculum system is relatively well established and is institutionally capable of supporting international medical students in completing both basic medical and clinical medical education. However, at the level of practical implementation, the operation of the curriculum remains insufficiently adapted to the needs of international students, and teaching resources and practical support fail to adequately match their learning demands [7]. At present, international medical students in China often share textbooks and instructional materials with domestic students, while systematically developed medical textbooks and supporting resources tailored to the characteristics of international students are lacking. Existing teaching materials are primarily designed for domestic students in terms of language difficulty, modes of knowledge presentation, and case-based contexts, resulting in limited alignment with international students' language foundations, educational backgrounds, and cognitive approaches, which affects their understanding and application of professional knowledge.

In practical teaching and clinical training contexts, this lack of adaptation becomes even more pronounced. Medical laboratory teaching and clinical practice impose high requirements for standardized operations, safety awareness, and procedural understanding. Influenced by multiple factors such as language communication

barriers, instructional management constraints, and patient safety considerations, international medical students experience relatively limited scope and depth of participation in laboratory teaching, clinical observation, and internships, leading to insufficient opportunities for hands-on practice [8]. At the same time, existing medical teaching cases are predominantly based on domestic healthcare contexts, while comparative cases across cultures or healthcare systems are relatively scarce, making it difficult for international students to connect acquired knowledge with the medical practice environments they may encounter in the future. The contradiction between a “well-structured” curriculum system and “insufficiently adapted” teaching resources, to a certain extent, constrains the systematic development of professional skills and the effective enhancement of practical competence among international medical students in China.

### *C. Weaknesses in Cross-Cultural Support Systems*

Within the field of medical education, the advancement of curriculum-based ideological and political education has continued, achieving positive outcomes in value guidance and the cultivation of medical humanities; however, such content is primarily designed to meet the training needs of domestic students, and its cross-cultural transformation and integration for international medical students in China remain insufficient. In some medical courses, the presentation of medical ethics, professional norms, and value concepts lacks systematic explanation of differences across cultural backgrounds and healthcare systems, resulting in obstacles for international students in understanding and identifying with these values, and making it difficult for them to effectively internalize value guidance from the curriculum into stable professional cognition and behavioral norms.

At the same time, the corresponding student affairs systems and learning support mechanisms for international medical students in China remain underdeveloped, and greater relevance is needed in areas such as academic guidance, psychological support, and developmental counseling. During processes of learning adaptation, emotional regulation, and career planning, international medical students lack sustained and systematic support channels, making related issues difficult to identify and intervene in a timely manner [9]. Interaction mechanisms between domestic and international students in medical coursework and clinical practice are not sufficiently well established, and international students’ participation in classroom discussions, laboratory teaching, and clinical instruction remains relatively limited, often placing them in passive listening or observational roles. The combined effects of inadequate transformation of value-oriented content and the absence of effective support systems gradually marginalize some international medical students within teaching and clinical environments, adversely affecting the development of their professional competence and cross-cultural competence and, to a certain extent, constraining the overall improvement of training quality.

## **IV. CONSTRUCTION OF A COORDINATED TRAINING MECHANISM FOR PROFESSIONAL SKILLS AND CROSS-CULTURAL COMPETENCE AMONG INTERNATIONAL MEDICAL STUDENTS IN CHINA**

### *A. Clarifying Orientation: Reconstructing Training Objectives and Implementation Pathways with Medical Competency as the Core*

The training objectives for international medical students in China should be restructured from a focus on course completion and credit accumulation toward the achievement of medical competency as the core, while simultaneously integrating requirements for cross-cultural and global competence throughout the entire training process [10]. At the level of objective setting, clear and assessable training requirements should be established for international medical students based on the fundamental competency framework expected of clinical medical professionals. These requirements should include mastery of basic medical knowledge, standardized clinical skills training, physician–patient communication competence, and medical ethical awareness, while also emphasizing adaptability in providing medical services within multicultural healthcare contexts, avoiding the simple replication of domestic medical training objectives or reliance on abstract principles.

In designing implementation pathways, stratified and progressive training routes should be constructed in accordance with differences in countries of origin, language foundations, and stages of study among international medical students. During the initial stage of enrollment, priority should be given to strengthening systematic training in medical academic English, comprehension of professional terminology, and fundamental norms of China’s healthcare system, thereby narrowing disparities in learning starting points. During the basic and clinical medical education stages, competency requirements should be explicitly embedded into course objectives and instructional activities, with clinical reasoning and operational standards reinforced through case analysis, skills-based training, and scenario-based teaching. During clinical clerkships and internships, clear expectations should be defined regarding levels of participation and competency attainment at different stages, and cross-cultural communication ability and adaptation to medical practice contexts should be incorporated as key components of practical training, avoiding the reduction of practice experiences to passive observation.

Throughout the training process, global competence requirements should be operationalized within specific instructional and assessment practices. By incorporating differences in disease profiles across countries and regions, comparisons of healthcare systems, and parallel clinical case analyses into course content, international medical students can be guided to develop transferable professional capabilities grounded in an understanding of China’s medical practice. In terms of assessment, the proportion of single written examinations in overall evaluation should be gradually reduced, while clinical

skills assessments, case analyses, communication performance, and process-based evaluations are incorporated into quality assessment systems, ensuring alignment among training objectives, instructional implementation, and evaluation methods.

*B. Resource Adaptation: Improving Curricula, Teaching Materials, and Practical Teaching Systems for International Medical Students*

While maintaining the overall stability of the existing medical curriculum framework, it is necessary to further enhance the adaptability of course content for international medical students and to improve the precision of instructional support through information-based approaches. By developing digital teaching platforms oriented toward international medical students, course syllabi, core knowledge points, key and difficult concepts, and clinical application scenarios can be structurally integrated, enabling students to form continuous and coherent learning pathways before, during, and after class. Drawing on learning process data and stage-based performance, intelligent analytics and recommendation mechanisms can be introduced to deliver targeted supplementary explanations, case videos, and operational demonstrations, supporting personalized reinforcement of learning in areas of weakness.

Teaching materials, case resources, and supporting instructional content designed for international students also require systematic enhancement and coordinated development with digital platforms. Centered on English-taught clinical medicine programs such as MBBS programs, comprehensive and well-structured textbook systems aligned with training plans should be progressively established, reducing the language burden and comprehension deviations caused by long-term reliance on materials designed for domestic students. In the configuration of case resources, digital case repositories and virtual simulation technologies can be utilized to introduce clinical scenarios with cross-cultural and cross-healthcare system characteristics [11]. Supported by artificial intelligence-assisted retrieval and recommendation functions, appropriate cases can be dynamically delivered according to students' learning stages and course progress, facilitating comparative understanding of medical knowledge and enhancing the ability to transfer learning across contexts.

The development of practical competence should be effectively linked with course-based learning, and, under the premise of ensuring instructional safety and regulatory compliance, the depth of international students' participation in laboratory teaching and clinical training should be progressively expanded. Through practical teaching management platforms, laboratory operations, skills training, and clinical observation tasks can be modularized, with clear specifications for practical competency requirements at different stages of study. Targeted practice tasks and improvement suggestions can be delivered through system-based support. At the same time, continuous tracking and analysis of performance can be conducted using virtual simulation training, procedural records, and intelligent evaluation tools,

providing evidence for instructor guidance and student self-adjustment, thereby forming a practical teaching support system aligned with the training objectives for international medical students.

*C. Integrated Support: Building a Support System for Value Guidance, Student Affairs Coordination, and Integrated Development between Domestic and International Students*

Curriculum-based ideological and political education for international medical students should be integrated into professional teaching contexts in ways that are understandable and participatory. Medical ethics, medical humanities, and China's medical practice experience can be implemented through concrete instructional designs, such as incorporating cross-cultural medical case discussions into basic and clinical medical courses, situating physician-patient communication, ethical dilemmas, and diagnostic decision-making within authentic or adapted Chinese healthcare scenarios, and guiding international students to engage in analysis and expression. In addition, incorporating case-based written reflections or group presentations into course assessments can encourage students to actively engage with Chinese medical value concepts during the learning process, rather than passively receiving them, thereby enhancing value identification and internalization.

The construction of support systems should focus on the practical learning and developmental needs of international medical students and establish stable operational mechanisms [12]. Class-level mentor systems can be introduced for international medical students, with mentors who possess experience in medical education and cross-cultural engagement responsible for academic guidance, monitoring learning progress, and coordinating practical training components. Dedicated administrative staff can be assigned to handle daily coordination, cross-departmental communication, and issue feedback, forming a collaborative support network among mentors, administrators, and course instructors. On this basis, stage-based academic guidance can be implemented through mentor and course leader systems, combined with regular communication and counseling mechanisms to identify and address learning difficulties and adaptation challenges in a timely manner. Institutionalized arrangements for mixed grouping of domestic and international students in laboratory courses, case discussions, and clinical clerkships can further clarify collaborative tasks and assessment requirements, preventing international students from remaining in long-term observational roles. Through coordinated efforts across teaching, administration, and student services, sustained and authentic participation opportunities can be provided, gradually alleviating the marginalization of international medical students in medical teaching and clinical practice contexts.

## V. CONCLUSION

Against the background of the Belt and Road Initiative and the continuous deepening of China's opening-up in

higher education, the cultivation of international medical students in China has become an important component of the internationalization of medical education and global health cooperation. Medical disciplines place strong emphasis on practical competence, professional norms, and humanistic care, and talent cultivation relies not only on well-developed curricula but is also profoundly influenced by the level of cross-cultural adaptation and the effectiveness of support mechanisms. Comprehensive analysis indicates that international medical students in China generally adapt well to basic theoretical coursework; however, they continue to face challenges in laboratory teaching, clinical practice, and integration into teaching environments, including insufficient resource adaptation, limited depth of participation, and inadequately developed support systems. These factors, to some extent, constrain the coordinated development of professional competence and cross-cultural competence. As national policy increasingly emphasizes the transition of international education in China from expansion in scale to improvement in quality, advancing quality enhancement and efficiency in international student education, strengthening quality assurance systems, and reinforcing whole-process management have become clear priorities, placing higher quality demands on the training of international medical students. Looking ahead, under continued policy guidance, further exploration is required in institutional development and teaching practice to optimize training mechanisms, enhance the adaptability of teaching resources, and improve integrated support systems, while ensuring the quality and safety of medical education, in order to better serve China's education opening-up strategy and the goals of the Belt and Road Initiative.

#### CONFLICT OF INTEREST

The authors declare no conflict of interest.

#### AUTHOR CONTRIBUTIONS

Liu Chen'ang conducted the research, analyzed the literature, and wrote the original draft; Xia Meng contributed to the policy review and theoretical framework development; Wang Ying collected and organized the data and assisted with manuscript revision; Wei Ren'xiong conceptualized the study, supervised the project, and reviewed the manuscript; all authors had approved the final version.

#### FUNDING

This study was supported by the Research Project on the Construction of a Quality Assurance System for Medical Education of International Students in China, International Medical Education Branch of the China Education Association for International Exchange (JXY2025-012), and the Special Project on International Cooperation and Exchange of the China Association of College Graduates Employment (GJX25Z3018).

#### REFERENCES

- [1] M. R. McGrail, B. G. O'sullivan, and D. J. Russell, "Rural work and specialty choices of international students graduating from Australian medical schools: Implications for policy," *International Journal of Environmental Research and Public Health*, vol. 16, no. 24, 5056, 2019.
- [2] L. Tang and C. Zhang, "Global research on international students' intercultural adaptation in a foreign context: A visualized bibliometric analysis of the scientific landscape," *SAGE Open*, vol. 13, no. 4, 21582440231218849, 2023.
- [3] W. Li, C. Liu, S. Liu *et al.*, "Perceptions of education quality and influence of language barrier: Graduation survey of international medical students at four universities in China," *BMC Medical Education*, vol. 20, no. 1, 410, 2020.
- [4] Q. Jiang, H. Horta, and M. Yuen, "International medical students' perspectives on factors affecting their academic success in China: A qualitative study," *BMC Medical Education*, vol. 22, no. 1, 574, 2022.
- [5] J. Li, E. Xue, Y. Wei *et al.*, "Interactive effects and mediating roles of multiple factors that influence learning adaptive growth of international students: Evidence from China," *Behavioral Sciences*, vol. 13, no. 8, 682, 2023.
- [6] H. Sun, S. Liu, A. Nagai *et al.*, "Cross-cultural adaptation for international nursing students from the Belt and Road Initiative in China: A follow-up survey study," *Heliyon*, vol. 9, no. 11, 2023.
- [7] L. Yang, J. Sun, R. Wang *et al.*, "Cross-cultural adaptation and validation of the clinical learning evaluation questionnaire with Chinese clinical interns," *BMC Medical Education*, vol. 25, no. 1, pp. 1-7, 2025.
- [8] S. Zhu, J. Wang, Y. Han *et al.*, "Survey on the current status of international students educational management in China," *BMC Medical Education*, vol. 25, no. 1, 923, 2025.
- [9] Y. Xie, K. P. Fadahunsi, P. Flynn *et al.*, "Barriers and facilitators of international health care students' well-being in higher education: Protocol for a systematic integrative review," *JMIR Research Protocols*, vol. 13, no. 1, e59927, 2024.
- [10] S. Kim, S. Y. Kyung, I. B. Park *et al.*, "Analysis of the perceptions, competencies, and educational needs for global health among Korean medical students," *Korean Journal of Medical Education*, vol. 36, no. 1, 1, 2024.
- [11] P. Y. Lu and A. S. C. Hsu, "Cross-cultural care in medical education: Students' perceptions, challenges, and the path forward," *Medical Teacher*, vol. 48, no. 2, pp. 299-309, 2025.
- [12] M. Withers, H. H. Lin, T. Schmidt *et al.*, "Establishing competencies for a global health workforce: Recommendations from the Association of Pacific Rim Universities," *Annals of Global Health*, vol. 85, no. 1, 47, 2019.

Copyright © 2026 by the authors. This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited ([CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)).