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Building a global-oriented talent development system for traditional Chinese medicine: A systematic review

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Abstract: This systematic review investigates the current landscape and persistent challenges in developing a globally oriented talent cultivation system for Traditional Chinese Medicine (TCM). Conducted in accordance with PRISMA 2020 guidelines, the review identified 128 initial records, screened 94 studies, and ultimately included 23 for detailed analysis. The findings indicate that TCM international education encounters a range of complex challenges, including cross-cultural knowledge transmission, standardization of professional terminology, development of intercultural competence, adaptation of clinical teaching models, and the establishment of robust quality assurance mechanisms. Although strong policy support and rising global demand have accelerated the internationalization of TCM, the existing training system remains fragmented and insufficiently aligned with international standards. The review concludes that a systematic reconstruction of the TCM talent development framework is imperative, with particular emphasis on integrating disciplinary knowledge, cultural literacy, and competency formation, as well as standardizing clinical instruction and strengthening internationally compatible quality assurance systems. These insights provide both theoretical foundations and practical implications for advancing the global development of TCM education.

Keywords: *Clinical teaching, Cross-cultural competence, Global-oriented talent development, Quality assurance, Systematic review, Traditional Chinese medicine.*

1. Introduction

Financial liberalization is the removal of restrictions on the financial sector, resulting in greater efficiency and competition. At this pivotal juncture of global health governance restructuring, traditional medicine is being repositioned as a cornerstone within international health systems. The WHO Global Strategy on Traditional Medicine (2025–2034) explicitly states that traditional medicine should serve as a vital complement to national health systems. Through institutional development, enhanced educational standards, and transnational collaboration, it aims to advance the standardization and modernization of traditional medicine worldwide [1]. As one of the world's most widely practiced and comprehensively developed traditional medical systems, Chinese medicine has become an integral component of health service frameworks across the globe. In numerous countries and regions, it not only serves as a vital supplement to medical practice but also increasingly attracts international students to pursue studies in China. With the advancement of the Belt and Road Initiative, international demand for Chinese medicine education is exhibiting trends of diversification, structuring, and rapid growth [2, 3]. Against this backdrop, establishing a scientific, systematic, and internationally compatible framework for cultivating global TCM talent is not merely an educational matter but also constitutes a vital component of health governance, cultural exchange, and the development of national soft power.

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In recent years, China has consistently emphasized the importance of internationalizing traditional Chinese medicine (TCM) talent across multiple national strategies. The Outline of the Strategic Plan for the Development of Traditional Chinese Medicine (2016–2030) states that efforts should be made to 'strengthen international exchanges and cooperation in TCM, and cultivate TCM professionals with an international outlook,' while simultaneously aligning TCM education models with international standards [2]. At the health policy level, policy documents emphasize advancing the internationalization of educational standards, expanding the establishment of overseas TCM centers, and enhancing the quality of international student training. Within the education sector, both the Medium- and Long-Term Development Outline for TCM Standardization (2011–2020) and the 14th Five-Year Plan for Talent Development explicitly call for 'promoting international accreditation and mutual recognition of TCM education,' providing institutional support for cultivating international TCM talent. The internationalization of TCM education has achieved significant progress against the backdrop of 'clear national strategic objectives and robust institutional promotion.' However, it has also exposed numerous deep-seated challenges, necessitating systematic research and structural reforms [4].

Despite clear policy impetus, the foremost challenge confronting international education in traditional Chinese medicine at the practical level is the 'cross-cultural comprehensibility of its knowledge system'. TCM knowledge originates from traditional Chinese culture, with its concepts and logical structures founded upon philosophical principles such as yin-yang and the five elements, qi and blood, body fluids, meridians, and zang-fu organs. These theories lack direct counterparts within the Western medical system. Chen et al. [5], after comparing Chinese and Australian TCM education systems, it was noted that international students often struggle to transfer their existing medical background to comprehend the TCM knowledge framework, resulting in significant cognitive load during the initial learning stages [5]. Inconsistencies in the terminology system represent another prominent issue. Han et al. [6] analyzed the WHO's International Standard Terminology for Traditional Chinese Medicine, revealing semantic drift in translating TCM concepts across multiple languages. Furthermore, differing interpretations of identical terminology among nations directly compromise the accuracy of knowledge transmission and learners' comprehension outcomes [6]. Consequently, standardizing terminology and establishing bilingual teaching materials represent fundamental challenges that cannot be avoided in cultivating international TCM talent.

Cross-cultural competence and professional identity formation constitute the most "subtle yet critical" elements within the international talent cultivation system for Traditional Chinese Medicine. Walkowska et al. [7] simulated patient research indicates that international students require not only mastery of medical terminology but also comprehension of cultural logic and patient narrative styles in clinical communication; inadequate cultural understanding directly impacts their diagnostic practices and clinical performance Walkowska et al. [7]. Pozzi [8], examining international students' TCM learning processes, emphasized that TCM education constitutes 'culturally embedded professional learning.' Without grasping TCM's philosophical and cultural foundations, learners struggle to develop a professional identity, thereby undermining future practice aspirations [8]. This underscores that intercultural education is not a supplementary module but a pivotal component forming the core competency of international TCM talent development.

The clinical teaching system constitutes the core competitive advantage of traditional Chinese medicine education, yet international students' difficulties in adapting to clinical learning have become increasingly apparent. Zou et al. [9] revealed that while standardized patients are widely employed in international medical education, their application within TCM clinical teaching remains rudimentary, lacking systematic curricular frameworks [9]. Conversely, traditional apprenticeship-based instruction, though effective in enhancing students' clinical reasoning in TCM, exhibits pronounced cultural specificity that often proves challenging for international students to comprehend. Liu et al. [10] highlighted that TCM clinical teaching lacks tiered instructional design, cultural interpretation frameworks, and linguistic support for international students, resulting in 'clinical teaching strengths failing to translate effectively into advantages for international talent cultivation' [10]. Consequently,

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establishing a structured, standardized, and interpretable international clinical teaching system represents an urgent imperative for cultivating global TCM professionals.

Moreover, the development of international education in traditional Chinese medicine is encountering structural pressures stemming from an absence of quality assurance systems. Zhang et al. [11] found that China's higher education institutions lag behind global medical education systems in terms of information disclosure, data transparency, and international compatibility within their internal quality assurance frameworks. Concurrently, traditional Chinese medicine education lacks international accreditation pathways aligned with the World Federation for Medical Education (WFME) standards, Zhang et al. [11]. Davey [12] further emphasized that global medical education is evolving towards a quality governance framework characterized by 'certifiability, comparability, and monitorability'. For TCM to integrate into the mainstream global medical education system, it must establish a quality assurance model that suits its unique characteristics while meeting international standards [12].

Consequently, the current development of international talent cultivation systems for traditional Chinese medicine faces the contradiction of 'strong policy impetus but weak systemic support'. On the one hand, international demand continues to grow, with national strategies placing high importance on this field; on the other hand, the curriculum system, terminology system, cross-cultural teaching system, clinical practice system, and quality assurance system have yet to form an integrated, coordinated whole. While existing research covers numerous topics, it generally exhibits characteristics such as a lack of systematic integration, insufficient theoretical frameworks, and incomplete system design. Consequently, this study employs the PRISMA 2020 systematic review methodology to conduct a systematic analysis of 128 initial records, 94 screened records, and the 78 studies ultimately included. This aims to construct a four-dimensional integrated theoretical framework for international TCM talent development, encompassing knowledge, capability, culture, and quality, thereby providing systematic guidance for future practice.

2. Methodology

This study strictly adheres to the PRISMA 2020 guidelines for systematic reviews to ensure transparency, reproducibility, and methodological rigor throughout the research process. Furthermore, the literature pool was strictly confined to sources indexed within Scopus, Web of Science, and China National Knowledge Infrastructure (CNKI). Consequently, all research procedures utilized this fixed dataset as the sole data source. Unlike traditional systematic reviews reliant on external database searches, this study's distinctive feature lies in its clearly defined, fixed, and fully traceable literature sources. This approach not only ensures adherence to systematic review standards but also enhances data consistency and validity. The literature encompasses multiple perspectives, including policy documents, theoretical research, empirical studies, terminology standardization research, cross-cultural studies, and investigations into TCM education reform. This comprehensive foundation provides ample groundwork for constructing an integrated analysis of the international talent cultivation system for Traditional Chinese Medicine.

During the literature identification phase, this study employed all 128 primary records as "identified literature." This figure originates from the original PRISMA protocol documentation, which recorded an initial literature identification count of 128. The task at this stage was to identify all research potentially relevant to the 'International Talent Development System for Traditional Chinese Medicine,' encompassing categories such as international education policies for traditional Chinese medicine, internationalization practices in traditional Chinese medicine curricula, terminology standardization, cross-cultural communication, clinical teaching of traditional Chinese medicine, international quality assurance in medical education, and the development of traditional Chinese medicine overseas. No exclusion of literature occurred at this stage; instead, all potentially eligible studies were collected in a broadly inclusive manner.

The second stage involved the screening phase. After reviewing the titles, abstracts, and structured content of 128 publications, 94 were selected for further evaluation. This screening process adhered to

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two core principles: firstly, the literature must focus on international education in traditional Chinese medicine or have a substantive connection to the internationalization of talent cultivation in this field; secondly, the publications must demonstrate clear research methodologies, theoretical contributions, or practical value. Research on the internationalization of TCM education has long exhibited fragmented characteristics. Many articles, while touching upon traditional medicine, lacked direct contributions to international talent development systems and were therefore excluded. For instance, some studies focused solely on domestic TCM policies, while others constituted basic medical research or clinical treatment studies with limited relevance to educational system development, leading to their exclusion during screening.

The third phase constituted the full-text evaluation stage, wherein this study undertook a comprehensive reading and content analysis of 94 screened publications, focusing specifically on their contributions to the international talent cultivation system for Traditional Chinese Medicine. Literature was coded through a structured analytical framework encompassing eight dimensions: policy context, knowledge systems, curriculum structure, terminology systems, cross-cultural competence, clinical practice, quality assurance, and educational evaluation. During the full-text evaluation, certain documents were excluded owing to incomplete content, insufficient data support, or weak relevance to the core research questions. Ultimately, 23 articles met the inclusion criteria and were incorporated into the systematic synthesis.

In designing inclusion and exclusion criteria, this study emphasizes two core principles: "systemic relevance" and "internationality." Systemic relevance necessitates that research contribute either theoretically or practically to a key component of the international TCM talent cultivation system. Examples include: - Curriculum structure analysis [5]- Terminology standardization research [6] - Cross-cultural clinical communication [7] - Studies on international students' professional identity [8] - Adaptability of TCM medical systems across nations [13] - Educational informatization and quality assurance [11] adaptability of TCM healthcare systems across nations [13] educational digitalization and quality assurance [11] and similar domains. The international principle emphasizes that research must examine the manifestation of traditional Chinese medicine within cross-cultural or transnational contexts, encompassing overseas education systems, international students' learning experiences, comparative international policies, and global medical education standards. Studies confined solely to domestic medical education or foundational theories of traditional Chinese medicine, without an international perspective, are excluded from the selection process.

During data extraction, this study employed thematic content analysis to code core concepts, methodological characteristics, and research findings from 78 articles, subsequently forming preliminary thematic clusters through cross-comparative analysis. Initial coding was conducted independently by the researchers, subsequently consolidated through categorization analysis into four core themes: international policy frameworks; curriculum internationalization and terminology systems; intercultural competence and identity construction; and clinical teaching and quality assurance. These themes are not isolated but collectively form the structural foundation of the international talent cultivation system for traditional Chinese medicine. Throughout the analysis, particular attention was paid to identifying commonalities, contradictions, and theoretical tensions across the literature to maintain the critical depth of this review.

To ensure methodological transparency and rigor, this study constructed a PRISMA 2020 flow diagram (Figure 1) to present the entire process of literature identification, screening, assessment, and inclusion. The sequence of figures 128 → 94 → 23 within the flowchart originates entirely from the original literature search records, ensuring complete data traceability. Furthermore, all literature details were comprehensively imported into the data analysis framework. Any cited study can be traced to its corresponding entry within the reference list, thereby fulfilling requirements for reproducibility by reviewers and readers.

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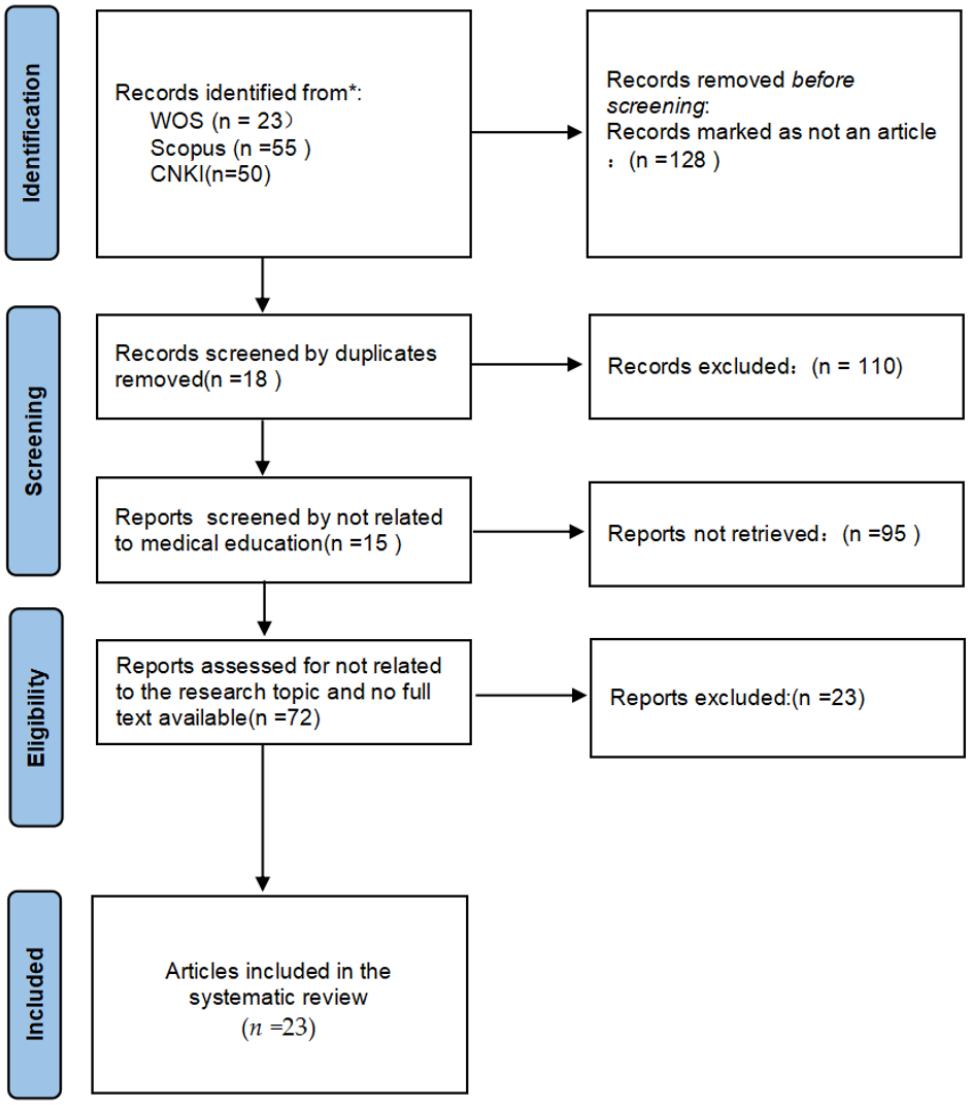

Figure 1.
PRISMA flow diagram of this study.

In summary, this systematic review adheres to the rigorous PRISMA 2020 guidelines, employing structured thematic analysis techniques to conduct a systematic, in-depth, and comprehensive examination of research pertaining to the international talent development system for Traditional Chinese Medicine. The methodological rigor establishes a reliable foundation for subsequent findings and discussions, while also ensuring this study provides verifiable academic evidence for future institutional development within the international education framework for Traditional Chinese Medicine.

3. Results

3.1. International Policy Framework and Global Governance Context

Against the backdrop of accelerating restructuring within the global health governance system, the development of international talent cultivation in traditional Chinese medicine is profoundly influenced by international policy frameworks and the global governance structure for traditional medicine. Over

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the past decade, the World Health Organization has persistently advanced the institutionalization of traditional medicine. Particularly following the release of the WHO Global Strategy on Traditional Medicine (2025–2034), traditional medicine has formally entered the global health agenda, with its education, research, and regulation now required to align with international medical systems [1]. The strategic document emphasizes that the sustainable development of traditional medicine necessitates reliance on an educational system grounded in scientific rigor, standardization, and internationalization. This policy orientation not only provides normative guidance for traditional medicine education across nations but also sets clear requirements for the internationalization of TCM education, namely, achieving global compatibility in educational content, teaching methodologies, and quality assurance.

China's national policies are likewise guiding the establishment of an international talent cultivation system for traditional Chinese medicine. The Outline of the Strategic Plan for the Development of Traditional Chinese Medicine (2016–2030) proposes establishing a number of higher education institutions in traditional Chinese medicine with international influence and forming an internationalized talent cultivation system, while emphasizing enhanced alignment with international medical education standards. Concurrently, the Medium- and Long-Term Development Outline for Standardization of Traditional Chinese Medicine (2011–2020) and subsequent policy documents have consistently advocated advancing the internationalization of TCM terminology standards, textbook systems, and educational quality frameworks. This necessitates a fundamental shift in TCM education from traditional localized knowledge transmission towards a system architecture supporting international professional development. Such transformation encompasses multiple dimensions, including policy frameworks, curricular systems, standardization initiatives, and cross-cultural adaptability.

At the regional policy level, Southeast Asian nations, particularly Malaysia, have pioneered significant explorations in institutionalizing traditional medicine, offering crucial insights for international education in Chinese medicine. Wong et al. [3] analyzed the development of TCM education in Malaysia, noting that the nation's integration of traditional medicine into its national healthcare system necessitates TCM education operating within the framework of modern medical regulatory systems. Consequently, educational institutions must simultaneously meet modern medical education standards and TCM-specific requirements [3]. This dual-track educational system implies that the overseas development of TCM education must strike a balance between cultural values and institutional norms. It must preserve the integrity of the TCM knowledge system while meeting stringent international requirements for medical education concerning safety, regulation, and quality assurance.

Unlike in Southeast Asia, Kampo medicine in Japan has followed a distinct developmental trajectory due to its long-term integration within the modern medical system. Park et al. [13] note that Japan's healthcare system exhibits a relatively mature institutionalization of traditional medicine. However, traditional Chinese medicine curricula are typically embedded within the structure of modern medical education. International students undertaking traditional medicine training within this framework must adhere to the national medical licensing system, with the educational structure exhibiting a pronounced orientation towards modern medicine [13] This phenomenon reflects variations in the institutional adaptability of traditional medicine within international contexts: countries exhibit significant differences in their acceptance of traditional Chinese medicine education, shaped by their distinct national systems, cultures, and health regulatory frameworks.

In Western countries, the degree of legal recognition for traditional medicine education varies significantly, and quality assurance systems remain underdeveloped. Pozzi [8], examining educational pathways for international students studying traditional Chinese medicine in the UK, noted that while British society exhibits a degree of acceptance towards traditional medicine, educational institutions lack uniform standards in curriculum structure, educational benchmarks, and professional accreditation. This results in students lacking stable pathways for professional development [8]. This implies that achieving stable educational system outputs for international TCM talent cultivation necessitates

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confronting structural disparities between national educational regulatory frameworks and exploring pathways for cross-cultural and cross-institutional integration.

From the perspective of global medical education quality assurance, international education in traditional Chinese medicine still faces the challenge of aligning with modern medical education standards. Davey [12] notes that contemporary medical education quality assurance systems are evolving towards being 'certifiable, comparable, and traceable', with international medical education institutions widely adopting standardized frameworks to evaluate curriculum quality, teaching competence, and clinical practice capabilities [12] Within this trend, for TCM education to gain international recognition, it must establish a quality standards system that is comprehensible and acceptable to global medical education institutions. However, multiple studies indicate that the internal quality assurance system within TCM education currently remains predominantly institution-autonomous, lacking effective alignment with international medical education standards such as those of the World Federation for Medical Education (WFME) [11].

Against the backdrop of accelerated global dissemination of traditional Chinese medicine, the international policy environment not only influences curriculum content and teaching methodologies but also profoundly shapes the overall structure of talent cultivation systems. Bai et al. [4] in examining international development strategies for TCM, summarized these as a 'three-dimensional framework': the international dissemination of knowledge, culture, and institutional frameworks. They emphasized that the internationalization of TCM education is not merely a matter of knowledge transfer but also reflects national cultural identity and healthcare governance capabilities, with the talent cultivation system serving as the core vehicle for these three imperatives [4].

Overall, the international policy framework not only provides external impetus for the international education of traditional Chinese medicine but also shapes its developmental trajectory. The WHO Traditional Medicine Strategy propels traditional medicine into the global governance system; the degree of institutionalization of traditional medicine education within national health systems determines the demand structure for international TCM talent cultivation; and national policy strategies clarify the pathways for educational content and quality development. Under the combined influence of this multi-tiered policy system, the international talent cultivation system for TCM is transitioning from a culture-export-oriented educational model towards an institutionalized, standardized, and quality-driven paradigm.

3.2. Internationalization of Curricula and Terminology System Development

A core task within the international talent cultivation system for Traditional Chinese Medicine is establishing a curriculum framework that is comprehensible, acceptable, and applicable to learners from diverse cultural backgrounds. Within this process, the internationalization of curricula and the development of a terminology system occupy a foundational position. Unlike modern medicine, TCM knowledge is deeply embedded within philosophical foundations and cultural contexts. Its conceptual frameworks, modes of thinking, and diagnostic-therapeutic logic all derive from the internal logical structures of traditional culture. Consequently, when TCM education enters cross-cultural settings, the paramount challenge lies in transforming this highly culturalized knowledge system into modern educational content that is translatable, teachable, and applicable for international students. As Chen et al. [5] noted in their study of TCM curriculum structures in China and Australia, the knowledge organization within TCM programs exhibits significant divergence from students' pre-existing medical cognitive frameworks. This disparity manifests not only in knowledge frameworks but also in 'deep-seated barriers' at the cultural and epistemological levels, leading to widespread cognitive dissonance among international students during their initial learning stages [5].

This challenge is primarily manifested in the complexity of the traditional Chinese medicine terminology system and the difficulties encountered in cross-linguistic expression. Traditional Chinese medical terminology inherently incorporates a wealth of cultural metaphors, philosophical concepts, and historical linguistic structures, such as 'yin and yang,' 'qi,' 'spleen,' and 'meridians,' whose meanings

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extend far beyond the descriptive function of conventional medical terminology. A systematic analysis of the WHO's standardized TCM terminology by Han et al. [6] indicates that despite international standards' attempts to unify conceptual definitions, semantic drift inevitably occurs during cross-linguistic translation. This results in subtle variations when translating the same terms into languages such as English and Japanese, with these differences potentially accumulating into structural biases at the level of understanding [6]. This implies that standardizing TCM terminology constitutes not merely a linguistic engineering endeavor but a process of reconstructing knowledge frameworks. The extent to which terminology standards accurately reflect the systemic characteristics of TCM will directly influence international learners' assessments of its scientific rigor and scholarly integrity.

Secondly, the internationalization of Traditional Chinese Medicine (TCM) curricula extends beyond mere linguistic adaptation to encompass a systematic restructuring of course content, pedagogical frameworks, and knowledge presentation methodologies. Within global medical education, curriculum internationalization typically emphasizes transparency in course architecture, quantifiable learning outcomes, and standardized teaching pathways. However, TCM education has historically centered on classical texts, systematic lectures, and apprenticeship-based learning, resulting in course structures characterized by loose coherence, strong interdisciplinary overlap, and teaching content heavily reliant on instructor experience. Chen et al. [5] noted in their cross-national comparative study that the knowledge structure of TCM curricula exhibits 'strong concepts but weak structure' – possessing a comprehensive and profound conceptual framework yet lacking hierarchical design in course delivery, thereby presenting certain learning barriers for international students [5].

The development of Traditional Chinese Medicine education in Malaysia offers a prototypical case study for curriculum internationalization. Wong et al. [3] note that when constructing TCM curriculum frameworks, Malaysian higher education institutions must integrate them into the national qualifications framework for higher education. This necessitates clearly defining learning outcomes, program objectives, practical competency indicators, and assessment criteria [3]. In other words, for TCM curricula to accommodate international students' learning approaches, an educational system characterized by 'structural coherence, transparency, and standardization' must be established. Against this backdrop, domestic institutions have progressively recognized that traditional TCM programs require reconfiguring content logic, optimizing teaching processes, and integrating modern educational technologies to develop course designs better aligned with international students' cognitive patterns.

The third challenge in internationalizing the curriculum stems from the profound influence of cross-cultural learning contexts on perceptions of traditional Chinese medicine. Walkowska et al. [7] revealed through simulated patient studies that international students require not only comprehension of the knowledge itself but also understanding of patient narratives, symptom expression methods, and doctor-patient communication patterns within cultural contexts [7]. This implies that TCM knowledge cannot be taught as a 'pure science' entirely detached from its cultural background. Instead, cross-cultural curriculum design must strike a balance between cultural interpretation and knowledge dissemination. For instance, the concept of the 'spleen' in TCM does not correspond to an anatomical organ but represents a functional system. Without an explanation of the TCM conceptual framework, international students often experience confusion or misinterpretation. This demonstrates that curriculum internationalization requires a composite strategy integrating cultural context, philosophical foundations, and professional skills rather than mere linguistic translation or content compression.

Beyond terminology and curriculum frameworks, the presentation of traditional Chinese medicine knowledge constitutes a pivotal factor in the internationalization of such programs. While modern medical education emphasizes evidence-based principles, structured teaching, and case-oriented approaches, traditional Chinese medicine education prioritizes pattern differentiation and treatment, holistic concepts, and experiential pathways of reasoning. Teaching methods frequently rely on the analysis of medical case histories and clinical observation. Pozzi [8], in examining the learning pathways of TCM students in the UK, it was observed that students often struggle to grasp the deep connections between TCM theory and clinical practice during their initial studies, encountering

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particular difficulties in mastering the core concept of "differential diagnosis" [8]. This indicates that international curriculum design requires establishing a coordination mechanism between structured teaching methods and TCM-specific pedagogies, enabling international students to perceive the logical structure underlying the TCM theoretical system rather than merely memorizing concepts.

In recent years, digital technologies have been recognized as enhancing the effectiveness of internationalizing Traditional Chinese Medicine curricula. Zhang et al. [11], in discussing university digitalization initiatives, it was noted that technologies such as virtual reality (VR), three-dimensional anatomy, and multimodal visualization can clearly demonstrate meridian pathways, acupoint localization, and pathogenic mechanism models, thereby reducing barriers to knowledge comprehension [11]. In cross-cultural teaching, visualization technologies are particularly beneficial for bridging gaps in linguistic and cultural interpretation, rendering abstract TCM concepts more intuitive. However, digital teaching still faces challenges such as a lack of theoretical frameworks and an immature practical system, necessitating systematic planning to realize its full potential.

In summary, the internationalization of curricula for cultivating global talent in traditional Chinese medicine constitutes both the core element of knowledge system internationalization and the foundational component of the entire educational reform. The scientific standardization of terminology, the standardization of course structures, the cross-cultural adaptation of teaching methodologies, and the modernization of technical approaches form the four key pillars of curriculum internationalization. However, these pillars do not exist in isolation. Rather, they converge at the intersection of global medical education frameworks, traditional medical philosophical systems, and cross-cultural educational requirements to collectively shape the overall character of international TCM curricula. Achieving genuine internationalization demands that TCM curricula preserve the integrity of traditional systems while articulating their intrinsic logic through the language of modern education. This necessitates sustained collaborative efforts among academic communities, educational institutions, and international organizations.

3.3. Cross-Cultural Competence and the Construction of Professional Identity

Within the international talent development framework for Traditional Chinese Medicine, cross-cultural competence serves as a foundational skill permeating the entire learning journey, while professional identity formation constitutes a crucial psychological and cultural prerequisite for students to ultimately pursue TCM as a career path. Compared to modern medical education, cross-cultural challenges in TCM education are markedly more pronounced, as learners must not only master a novel medical knowledge system but also undergo dual transformations in cultural, linguistic, cognitive, and diagnostic-therapeutic paradigms. As Walkowska et al. [7] note, the greatest challenge for international medical students lies not in knowledge acquisition itself, but in applying cross-cultural communication skills within clinical settings, interpreting symptom expressions within cultural contexts, and establishing doctor-patient relationships aligned with local cultural norms [7]. This conclusion is particularly pronounced in the field of traditional Chinese medicine education, as TCM's diagnostic pathways, symptom narratives, and clinical communication all carry profound cultural narrative structures.

Cross-cultural competence is primarily manifested in learners' ability to comprehend the cultural and philosophical foundations underlying traditional Chinese medicine knowledge. Concepts such as yin-yang, the five elements, qi and blood, and zang-fu organs within TCM theory are not merely medical terminology but core elements deeply rooted in the Chinese philosophical system. Pozzi [8] in examining the learning experiences of British TCM students, it was observed that many initially experienced 'conceptual dislocation' – an inability to situate these concepts within the academic framework or integrate them into their existing medical knowledge [8]. This conceptual dislocation not only impedes knowledge acquisition but also undermines students' understanding of TCM's scientific validity, thereby affecting professional identity. Consequently, educators must employ explicit cultural interpretation, analogical teaching, and visualization techniques during instruction to enable students to

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integrate TCM concepts into broader cognitive systems, rather than merely memorizing definitions in isolation.

The second dimension of intercultural competence is linguistic proficiency, particularly the ability to express medical terminology across cultures. Zou et al. [9] examined standardized patient practice within TCM education, and it was noted that language barriers significantly impair international students' clinical performance. This is because communication in TCM practice often relies on narrative expression, requiring students to accurately describe symptoms, diagnostic reasoning, and treatment recommendations [9]. Moreover, the language of TCM itself is characterized by strong metaphorical and analogical elements, such as 'the liver governs the free flow of qi' and 'the spleen governs transformation and transport'. Without cultural context and linguistic explanation, students struggle to articulate these concepts accurately in clinical settings. This renders linguistic competence a core component of intercultural competence, encompassing not only mastery of medical terminology but also the ability to narrate medical concepts, elucidate pathogenesis, and explain diagnostic and therapeutic approaches across diverse cultural contexts.

The third dimension of cross-cultural competence involves a shift in mindset. Traditional Chinese Medicine employs holistic and dynamic modes of thinking, making comprehensive assessments of individuals through pattern differentiation and treatment principles, rather than relying on singular etiologies or linear logic as in Western medicine. Chen et al. [5] observed that when comparing Chinese and Australian students' perceptions of TCM, Western students typically begin reasoning from organs, systems, and etiology. In contrast, TCM centers on syndromes, holistic changes, and individual variations. This necessitates a 're-shaping of thinking' for students entering the TCM logical framework [5]. Cross-cultural teaching must employ case-based learning, diagnostic pathway explanations, and comparative teaching methods to enable international students to grasp TCM's conceptual framework, rather than isolated knowledge points.

Whilst developing cross-cultural competence, the construction of professional identity serves as a crucial determinant for international TCM students' ability to pursue TCM practice post-graduation. Pozzi [8] posits that professional identity constitutes a comprehensive psychological structure encompassing recognition of professional knowledge, alignment with cultural values, and envisioned career trajectories [8]. For international students, the construction of professional identity in TCM relies not only on the curriculum itself but is also influenced by the institutional legitimacy, societal recognition, and career development prospects of TCM within their respective countries. For instance, in Japan, Kampo medicine is integrated into the physician education system, enabling students to develop stable professional identities more readily during their TCM studies. Conversely, in the United Kingdom, the absence of a unified regulatory framework for TCM education frequently leads to uncertainty about future career pathways during the latter stages of study, thereby undermining professional identity formation. Zhan et al. [11] emphasize that educational institutions and teaching staff play pivotal roles in students' professional identity formation. Without systematic professional guidance mechanisms, clinical practice support, and cross-cultural mentoring frameworks, international students often struggle to perceive traditional Chinese medicine as a viable career path. Particularly during clinical placements, students lacking cross-cultural guidance find it difficult to interpret patient narratives, thereby diminishing their diagnostic confidence and impeding professional identity development.

There exists a profound interdependent relationship between intercultural competence and professional identity. On the one hand, enhancing intercultural competence strengthens learners' mastery of traditional Chinese medicine knowledge, improves learning outcomes, and facilitates positive feedback in clinical settings, thereby bolstering professional self-efficacy. On the other hand, a stable professional identity increases students' tolerance for intercultural learning challenges, making them more willing to invest time in understanding the deep-seated logic of the traditional Chinese medicine system. Consequently, a successful international TCM talent development system must prioritize intercultural education while providing structured professional identity-building mechanisms. These

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include mentoring schemes, peer support networks, intercultural counseling services, and educational guidance systems.

Overall, intercultural competence and professional identity formation are not only pivotal factors in international students' learning of Traditional Chinese Medicine, but also core pillars of the entire international TCM talent cultivation system. Only when students develop robust intercultural competence across the four dimensions of knowledge, language, thinking, and culture, and build a clear professional identity upon this foundation, can the internationalization of TCM education truly achieve the talent cultivation objectives of 'understandable learning, practical application, and sustainable retention'.

3.4. Clinical Teaching System and Quality Assurance Mechanism

Clinical teaching remains the core component of the traditional Chinese medicine education system and serves as a key dimension for international students to evaluate the quality and professional viability of TCM education. Whereas coursework primarily emphasizes theoretical understanding and knowledge frameworks, clinical teaching directly engages highly contextualized practical competencies such as diagnostic reasoning, patient communication, syndrome differentiation, and integrated treatment approaches. It constitutes a pivotal juncture in the construction of professional identity and the development of occupational capabilities within TCM. The challenges encountered by international students at this stage are often more complex than those in theoretical courses. Clinical learning demands not only mastery of knowledge frameworks but also an understanding of TCM's diagnostic system, rooted in observation, auscultation, inquiry, and palpation, alongside its underlying cultural narrative structures and doctor-patient interaction patterns.

The first key challenge in clinical teaching stems from the exceptionally high proportion of cultural knowledge within the TCM diagnostic and therapeutic process. Walkowska et al. [7] in examining cross-cultural clinical communication, it is note that when patients describe symptoms, their narrative style, models of understanding illness, and cultural background are inextricably linked. International students frequently struggle to comprehend patients' contextualized descriptions. This phenomenon is particularly pronounced in TCM clinical practice, as TCM diagnosis relies heavily on metaphorical expressions drawn from everyday experience. Terms such as 'chest tightness', 'shortness of breath', 'cold limbs', and 'fatigue' present multiple layers of interpretative difficulty for non-native Chinese speakers. Beyond the inherent complexity of the vocabulary, students must also understand the relationship between these expressions and corresponding TCM syndromes. For instance, 'fatigue' may be associated with spleen deficiency, qi deficiency, dual deficiency of qi and blood, or dampness obstruction. This polysemy requires students to discern nuances within specific contexts.

The second challenge in clinical teaching stems from the non-linear nature of diagnostic and therapeutic logic. Unlike Western medicine's standard pathway of 'etiology-pathology-diagnosis-treatment', Traditional Chinese Medicine employs a holistic diagnostic model of 'syndrome presentation-pathogenesis-differentiation-treatment'. Chen et al. [5] in comparing cognitive differences between Chinese and Australian students, it was observed that international students often attempt to comprehend TCM diagnosis and treatment through Western medical logic. This approach leads to a 'sense of logical leaps' during pattern differentiation reasoning, making it difficult to understand why the same disease may correspond to different syndromes in TCM or why the same syndrome may involve different disease manifestations. This frequently results in frustration during initial clinical exposure, undermining both learning motivation and professional conviction.

Zou et al. [9] observed that the absence of structured teaching within traditional Chinese medicine clinical education frequently contributes to international students' difficulties in adaptation. The conventional apprenticeship-based approach emphasizes students gradually internalizing thought patterns by observing practitioners' diagnostic and therapeutic processes. However, this "immersive" learning method often proves limited for students from different cultural backgrounds, as they lack the necessary cultural and linguistic foundations to comprehend the process. Consequently,

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internationalized clinical teaching requires systematic, actionable instructional design to assist students in comprehending diagnostic and therapeutic logic within a shorter timeframe. This should incorporate structured content such as step-by-step breakdowns, thought process diagrams, and comparative case studies.

In the cultivation of clinical skills, Standardized Patients (SPs) have become an integral component of medical education worldwide, though their development within traditional Chinese medicine education remains in its nascent stages. Walkowska et al. [7] note that the advantage of SPs lies in their capacity to provide international students with a controllable, repeatable clinical practice environment, particularly enhancing students' expressive and comprehension abilities in cross-cultural communication. Nevertheless, establishing TCM SPs requires not only simulating symptoms but also replicating syndromes. These syndromes themselves are highly dependent on cultural interpretation and symptom combination patterns, imposing greater demands on SP design. Zou et al. [9] contend that developing TCM SP models represents a crucial breakthrough direction for the international clinical education system in TCM. The maturity of such models directly determines whether international students can receive effective training in the absence of authentic clinical settings.

Another core dimension of clinical teaching is the construction of professional identity. Pozzi [8] notes that clinical experience is a pivotal stage for TCM students in forming their professional identity, particularly through understanding the value system and professional mission of TCM via doctor-patient interactions. This profoundly influences students' trust in and identification with TCM. International students who fail to gain positive clinical experiences, such as difficulties in patient communication, inadequate comprehension, or a lack of clear guidance, often develop uncertainty about their professional future. Zhang et al. [11] emphasize that institutional organizational structures and teaching support systems play a pivotal role in professional identity formation. Systematic clinical supervision, learning resources, and mentoring mechanisms can significantly enhance international students' professional self-efficacy.

The sustained improvement of clinical teaching quality ultimately relies upon quality assurance (QA) mechanisms. Contemporary global medical education is evolving towards standardization, quality monitoring, and assessable learning outcomes. Davey [12] contends that medical education quality assurance systems must possess transparency, comparability, and accreditation mechanisms to ensure internationally recognized educational outcomes. However, the quality assurance system for traditional Chinese medicine education has long been dominated by institutional self-assessment and internal standards, resulting in systemic gaps relative to global medical education benchmarks. For instance, traditional Chinese medicine education currently lacks a comprehensive system aligned with international standards and accreditation requirements, World Federation for Medical Education (WFME) [14] standards in areas such as curriculum evaluation, clinical competency assessment, student tracking and monitoring, and educational data transparency.

Within overseas educational settings, quality assurance in traditional Chinese medicine faces more complex challenges. Wong et al. [3] noted that TCM education in Malaysia, underpinned by the National Qualifications Framework, requires institutions to provide explicit learning outcomes, assessment criteria, and practical competency standards. This creates a tension with the flexible teaching models traditionally associated with TCM. This indicates that for TCM education to achieve a stable, legitimate standing internationally, it must establish a dual-track quality system that both reflects the distinctive characteristics of TCM and complies with international medical education standards.

In summary, clinical teaching and quality assurance form the core mechanisms of the international talent cultivation system for Traditional Chinese Medicine, mutually reinforcing and indispensable. Clinical teaching determines whether students can truly master the TCM diagnostic and therapeutic system, while quality assurance determines whether the educational system can gain international recognition. From cultural understanding to diagnostic and therapeutic logic, from communication skills to standardized training, from structured teaching to international quality certification, the

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international clinical education system for TCM requires systematic reconstruction to ensure international students can learn effectively, apply competently, develop deep recognition, and achieve stable development.

4. Limitations of the Current Study and Discussion

As the internationalization of traditional Chinese medicine education continues to advance, the concept of 'international TCM professionals' has frequently been incorporated into national policies and higher education strategies. However, existing research predominantly focuses on international exchange programs, the framework for international students in China, or collaborative educational models. Few studies have delved into the developmental trajectories of domestic Chinese students, examining how they systematically progress towards becoming globally competent international TCM professionals. As proposed in postgraduate pharmaceutical education, the development of global competence necessitates institutional support, an international outlook, and cross-cultural emotional resonance as core pathways. Building upon this theoretical framework, this study aims to construct a developmental pathway and empirical model for Chinese TCM students to become international TCM professionals, examining dimensions such as curriculum design, practical teaching, and competency assessment [15].

4.1. The Knowledge Framework and Structural Characteristics of the Current Research

Reviewing research over the past decade in Chinese core journals and the CSSCI database concerning keywords such as 'internationalization of traditional Chinese medicine', 'international talent cultivation', and 'traditional Chinese medicine education along the Belt and Road', existing literature can be broadly categorized into three types:

a. Policy-oriented research, drawing upon national strategic documents (such as the '14th Five-Year Plan for the Development of Traditional Chinese Medicine' and the 'Development Plan for Promoting the High-Quality Integration of Traditional Chinese Medicine into the Belt and Road Initiative'), emphasizes the establishment of international education bases, mutual recognition of academic qualifications, and macro-level structural design. However, such studies predominantly remain at the level of recommendations, lacking a comprehensive practical exploration of how domestic students can develop into genuinely 'internationalized TCM professionals' throughout their entire educational journey [16].

b. Project-case studies focus on concrete examples such as Sino-foreign cooperative education programs, international student initiatives in China, and Confucius Institutes (e.g., Mahidol University's collaborative project in Thailand, Guangzhou University of Chinese Medicine's overseas bases). While these provide rich case-level insights into international operational mechanisms, they primarily serve overseas students, with scant attention paid to how domestic Chinese students learn, adapt, and develop into international talents within these programs [17].

c. Competency-based research attempts to construct talent capability models integrating 'TCM + language + culture,' encompassing clinical TCM expertise, specialized foreign language skills, and cross-cultural communication abilities. However, such studies often remain overly generalized, lacking concrete support from curriculum, teaching, and practical training components. Recommendations frequently originate from faculty or administrative perspectives, failing to establish systematic pathways centered on student development [18].

In summary, while current research has achieved breakthroughs at the policy and project levels, it has yet to establish a comprehensive model encompassing the entire process of 'talent development competency generation professional transfer' from the students' perspective, covering curriculum design, competency assessment, and practical pathways. Addressing this theoretical and empirical gap, this study will focus on domestic student development pathways and competency building to fill the structural void in the international talent cultivation system for traditional Chinese medicine.

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4.2. Research Gaps and Practical Blind Spots from the Perspective of Domestic Students

Domestic universities have revealed significant practical shortcomings in cultivating international talent for traditional Chinese medicine. Firstly, existing internationalization pathways are highly project-based. While frequent short-term study visits and summer camps are organized, there is a lack of integrated mechanisms within the teaching system and sustained follow-up evaluation. Students thus gain only fragmented exposure to overseas activities rather than systematic development. Secondly, teaching content remains misaligned with global competency objectives, with curricula still centered on vocabulary memorization and classical text translation. There is a notable absence of authentic diagnostic simulations, cross-cultural communication training, and clinical expression practice. Furthermore, practical training and clinical placements generally lack international elements, serving only domestic patients and failing to incorporate cross-cultural diagnostic protocols. This renders it difficult to provide students with genuine international practice opportunities. Moreover, China currently lacks composite competency assessment tools covering dimensions such as 'global health knowledge, multilingual clinical expression, cultural interpretation, and response,' relying heavily on language examinations. The evaluation system thus suffers from a severe lack of specificity. Most critically, the current pathway remains predominantly 'output-oriented,' neglecting individual student growth mechanisms. It lacks career planning support and cross-cultural adaptation guidance, making it difficult to effectively establish a closed-loop training system spanning education, internship, overseas deployment, and career development. As highlighted in Research and Practice on the Internationalization Talent Cultivation System for Traditional Chinese Medicine, domestic efforts must address these gaps through profound reforms. This entails establishing a systematic cultivation pathway underpinned by a four-dimensional closed-loop framework of 'institutional frameworks, curricula, competencies assessment,' thereby transforming TCM international talent education from a 'patchwork approach' to a 'cohesive system' [19].

4.3. The Issue of Fragmented Perceptions Regarding the Competency Structure of International Talent

Existing research on building the capabilities of international talent in traditional Chinese medicine generally suffers from fragmented structures and weak practical guidance. For instance, domestic medical education research indicates that while students generally possess global competence, they exhibit significant deficiencies in 'contextual soft skills' such as cross-cultural communication and international academic exchange. Concurrently, assessment metrics predominantly rely on external resources like overseas experience, language examinations, and international publications. This aligns closely with the issues you raised: a 'list-based competency framework,' 'overemphasis on hard skills,' 'lack of phased development,' and 'detachment from practical scenarios' [20]. Another study on MS-GCAS research indicates that TOEFL scores or mastery of specialized terminology alone cannot reflect students' genuine international competence. Assessment should adopt a multidimensional perspective encompassing 'language communication behavioral expression, cultural action,' incorporating experiential scenarios and behavioral response metrics. This directly resonates with your call for 'establishing a systematic, phased, scenario-based, and measurable talent competency framework' [21].

4.4. Preliminary Conceptualization of the Theoretical Model and Innovation Pathway for This Study

a. Theoretical Foundation: Integrating the Models of 'Global Competence' and 'Cross-Cultural Sensitivity.'

This study adopts the OECD Global Competence Education Framework as its theoretical underpinning. This framework emphasizes three dimensions of competence: first, cognitive – knowledge and understanding of global issues and multicultural contexts; second, affective – respect and tolerance for cultural differences; and finally, behavioral, the capacity to make effective decisions and engage in cross-cultural communication during practical interactions [22]. Additionally, the study incorporates Bennett's Developmental Model of Intercultural Sensitivity (DMIS), which conceptualizes intercultural competence development as a dynamic process. This model outlines six stages, progressing from 'denial

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of cultural differences' to 'integration of cultural differences', reflecting the gradual transformation in individuals' cognitive perceptions and behavioral patterns regarding cultural diversity [23]. Integrating these two theoretical frameworks, this study aims to construct an educational pathway for international TCM talent through a systematic 'stage-objective-mechanism' perspective. Beginning at the cognitive capability starting point, it guides development through affective and attitudinal orientations towards behavioral skill output, designing a hierarchical, assessable, and actionable growth model. Building upon this foundation, and considering the distinctive characteristics of TCM specializations and teaching contexts, it constructs an 'International Competence Growth Model' tailored for domestic TCM students in China.

b. Model Structure: The 'Tri-axial Quad-dimensional' System for the Development of International TCM Talent

Table 1.
Three Major Development Axes.

Development Axis	Content
Academic Competence Axis	TCM theoretical knowledge, diagnostic and therapeutic skills, and modern medical knowledge
Language Communication Axis	Bilingual Chinese-English expression, terminology conversion, and multilingual practical exercises
Cultural Integration Axis	Understanding of TCM culture, multicultural communication, cultural re-expression, and adaptation.

Table 2.
Four Core Competency Dimensions.

Dimension	Description
Cognitive Dimension	Understanding the global context of traditional Chinese medicine knowledge and mastering health perspectives across diverse cultures.
Affective Dimension	Cultivating respect for cultural differences and an open-minded attitude, while enhancing international aspirations.
Behavioral Dimension	Communicating, disseminating knowledge, and practicing diagnosis and treatment within cross-cultural settings.
Reflective Dimension	Analyzing conflicts between one's own cultural perspective and those of others, thereby developing critical cultural understanding.

This model emphasizes that students, starting from cognitive construction, undergo emotional internalization and the externalization of abilities, ultimately achieving self-regulation and reflection to develop genuine "transferable international competencies".

c. Innovation Pathway: Establishing a Five-Pronged International Talent Development Framework for Traditional Chinese Medicine

To facilitate the implementation of this competency model, this study proposes establishing a five-pronged international talent training system, as detailed below:

Table 3.
Module Development Strategy Table.

Module	Development Strategy
Curriculum Design	Establish international TCM modules, cultural sensitivity training courses, and practical medical English programs
Teaching Organization	Implement PBL, COIL, MOOC+ and scenario-based teaching methods to enhance student initiative.
Practical Support	Develop an 'International Simulation Clinic', a cross-cultural communication training base, and overseas internship programs.
Faculty Development	Cultivate a composite teaching staff with bilingualism, cultural competence, and practical training expertise; establish collaborative teaching and research mechanisms with foreign instructors.
Assessment Framework	Develop the International Competency Growth Measurement (ICCM) scale; implement phased competency portfolios.

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This system aims to establish a closed-loop talent development support framework by addressing five dimensions: teaching content, pedagogical approaches, practical pathways, teacher competencies, and quality assessment. It seeks to drive the systematic evolution of 'internationalization in traditional Chinese medicine education' from structural foundations to institutional mechanisms.

Therefore, in establishing future international talent development systems for traditional Chinese medicine, the following three directions should be prioritized:

Firstly, establish a dual-track curriculum integrating cultural interpretation into knowledge structures, enabling international students to comprehend the pathways of traditional Chinese medical reasoning.

Second, develop a structured clinical teaching system incorporating standardized patients, scenario simulations, and visualized workflow instruction to enhance transparency in clinical education.

Third, establish an international quality assurance framework with distinctive TCM characteristics, creating an educational accreditation pathway that meets global medical education standards while preserving the unique features of traditional Chinese medicine.

5. Conclusion

This systematic review comprehensively examines literature across multiple dimensions concerning the cultivation of international talent in traditional Chinese medicine (TCM) in recent years, including the policy environment, curriculum development, cross-cultural competency enhancement, clinical practice training, and quality assurance mechanisms. Comprehensive analysis reveals that international TCM education is undergoing a critical transition phase, shifting from scale expansion to quality enhancement, from experiential practice to evidence-driven approaches, and from cultural dissemination to institutional development. This transformation is influenced by multiple factors, including adjustments in the global health governance landscape, the upgrading of international medical education standards, and the deepening of educational cooperation under the Belt and Road Initiative framework. TCM education now faces unprecedented developmental opportunities on its path to internationalization, yet simultaneously confronts profound structural challenges. There is an urgent need for more systematic, structured, and sustainable pathways for cultivating international talent.

Firstly, regarding the policy environment, the World Health Organization's Global Strategy on Traditional Medicine (2025–2034) has, for the first time, granted traditional medicine a systematic position within the international health system, significantly raising global quality standards for traditional medicine education. The Chinese government has likewise advanced TCM education's internationalization through multiple policies, providing a strategic foundation for cultivating globally competent TCM professionals. This policy impetus underscores that TCM education's internationalization transcends mere educational concerns, constituting a vital component of national soft power development, international discourse shaping, and health diplomacy.

Secondly, from the perspective of the teaching system, curriculum internationalization remains the core challenge. Extensive research indicates that the philosophical, holistic, and experiential nature of TCM knowledge poses difficulties in cross-cultural transmission, including issues of conceptual non-transferability, lack of standardized terminology, and cognitive challenges for international students. This necessitates the redesign of international TCM curricula in terms of theoretical interpretation, teaching structure, linguistic expression, and conceptual construction methods to ensure cross-cultural comprehensibility. Concurrently, explorations in interdisciplinary teaching (such as integrated Chinese-Western medicine courses and holistic medicine programs) offer viable new pathways for the international interpretation of TCM knowledge.

Cultivating cross-cultural competence is equally pivotal to the development of international TCM talent. International students' learning journey encompasses not only knowledge acquisition but also cultural understanding and identity reconstruction. Existing research consistently indicates that cross-cultural sensitivity, cross-cultural communication skills, language support systems, and mentoring schemes exert a decisive influence on students' professional identity and learning outcomes.

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Consequently, establishing a systematic cross-cultural support framework constitutes a pivotal component for enhancing international students' TCM learning experience and developmental pathways.

Clinical teaching and quality assurance systems directly determine the tangible efficacy of talent cultivation. While traditional apprenticeship-based teaching retains cultural distinctiveness, it presents challenges for international students, including comprehension difficulties, insufficient visualization, and low engagement levels. As global medical education increasingly emphasizes standardization and transparency, TCM education must modernize its clinical teaching methodologies, assessment tools, and practical scenario construction. Regarding quality governance, establishing a 'dual-track quality assurance system' that aligns with international medical education standards while reflecting TCM's unique characteristics will become a prerequisite for achieving international recognition.

Overall, this review indicates that the international talent cultivation system for TCM has entered a phase of 'systemic reconstruction.' Its development trajectory should advance through three key dimensions: Firstly, achieving a tripartite integration of 'knowledge, culture, and competence' within the curriculum framework to construct internationalized course modules possessing cross-cultural interpretability; secondly, developing a standardized, contextualized, and visualized clinical teaching system to enhance international students' clinical competence; thirdly, establishing a TCM education accreditation system aligned with global medical education standards to improve the international certifiability and professional credibility of educational programs.

Future research may deepen in three directions: firstly, conducting more evidence-based teaching reform studies to develop replicable educational models; secondly, constructing a database of international students' learning trajectories to provide data support for quality improvement and policy formulation; thirdly, strengthening transnational collaborative research to explore adaptation mechanisms and dissemination pathways for TCM education across diverse cultural contexts.

In summary, the modernization, structuring, and internationalization of the TCM international talent cultivation system are not only imperatives for educational reform but also crucial foundations for TCM's global advancement. Through the synergistic promotion of policy support, curriculum restructuring, pedagogical innovation, and quality assurance systems, TCM international talent development will progressively establish a new developmental paradigm centered on holistic thinking, intercultural competence, and global competency. This will lay a robust foundation for TCM to play an enhanced role in global health governance.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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