Structural Bottlenecks and Pathways for Chinese Language Teaching in Traditional Chinese Medicine
Analysis Based on the Six-dimensional Model of "Standard Textbook Teacher Teaching Culture Technology"

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ABSTRACT

As an important branch of Chinese for Specific Purposes (CSP), the research on Traditional Chinese Medicine (TCM) is still in its early stages and presents fragmented characteristics. Existing research mostly focuses on textbook and vocabulary analysis, lacking systematic exploration of core elements such as standard construction, teacher competence, and curriculum system. There are significant deficiencies in both theoretical depth and practical innovation. This study proposes for the first time a "six-dimensional structural bottleneck model" for teaching Chinese in traditional Chinese medicine, revealing the adverse effects of the interactive mechanisms of missing standards, insufficient textbooks, weak teaching staff, fragmented teaching, cultural disconnection, and technological lag on Chinese language teaching in traditional Chinese medicine. On this basis, it is necessary to draw on the "dialectical treatment" thinking of traditional Chinese medicine, and construct an integrated solution, including curriculum standard design, dynamic corpus development, and teacher training certification system optimization, in order to provide reference for the theoretical construction and paradigm transformation of Chinese language teaching in traditional Chinese medicine.

Keywords: *Chinese language teaching in Traditional Chinese Medicine, Structural bottleneck, Pathways.*

1. INTRODUCTION

As a treasure of the Chinese nation, traditional Chinese medicine is increasingly gaining global recognition for its profound cultural heritage and excellent therapeutic effects. Statistics show that traditional Chinese medicine has long been among the top popular majors for studying abroad in China and remains an important direction for international students. With the spread of traditional Chinese medicine to more than 190 countries and regions, China has signed cooperation agreements on traditional Chinese medicine with over 40 foreign governments and international organizations, and successfully incorporated traditional Chinese medicine into multiple international free trade agreement frameworks. Its globalization process has entered a new stage of systematic promotion. During the National People's Congress and Chinese People's Political Consultative Conference in 2025, Premier Li Qiang further emphasized in the government work report the need to "improve the mechanism for the inheritance, innovation, and development of traditional Chinese medicine", highlighting the sustained strategic support of the national level for the development of traditional Chinese medicine.

In this context, the importance of teaching and researching Traditional Chinese Medicine (TCM) Chinese, as an important branch of Chinese for Specific Purposes (CSP), continues to be highlighted.

Traditional Chinese Medicine Chinese is a professional language course designed for international students studying for a degree in Traditional Chinese Medicine in China, aimed at cultivating the language skills required for their

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professional learning. It serves as a bridge between General Chinese and professional courses.[1] Professor Zhang Li from Beijing Language and Culture University pointed out that specialized language teaching should select relevant language knowledge and skills for targeted teaching based on learners' professional needs.[2]

However, the current Chinese language teaching in traditional Chinese medicine faces challenges brought about by systemic structural bottlenecks, which are mainly reflected in six dimensions: curriculum standard construction, textbook resource development, teacher team structure, language professional collaboration, cultural connotation integration, and application of digital technology. The six-dimensional structural bottlenecks are interrelated and mutually restrictive, forming a complex structural problem of "infrastructure construction - teaching implementation - development support" nested in three layers, which seriously restricts the effectiveness of teaching and the quality of talent cultivation. Therefore, analyzing the structural bottlenecks of Chinese language teaching in traditional Chinese medicine and proposing a comprehensive solution not only has urgent practical significance for improving the quality of Chinese medicine education for international students, but also provides necessary academic support for the international dissemination of Chinese medicine and the construction of cross-cultural identity.

2. ANALYSIS OF BOTTLENECKS IN CHINESE LANGUAGE TEACHING IN TRADITIONAL CHINESE MEDICINE

Firstly, there is a lack of curriculum standard system and delayed construction of teaching system, and a need to establish Chinese Medicine curriculum standards and evaluation system as soon as possible.

Curriculum standards are the fundamental basis for teaching activities and the logical starting point for system operation. However, to date, there have been no national or industry level curriculum standards or teacher competency standards for teaching Chinese in traditional Chinese medicine. The “Provisional Regulations on Quality Control Standards for Medical Undergraduate Education (English taught) for International Students in China”, issued by the Ministry of Education in 2007, explicitly require the inclusion of Chinese and medical Chinese in the curriculum system. [3]However, this regulation mainly targets Western clinical medicine majors, and the education of traditional Chinese medicine majors for international students in China has long lacked similar institutional guarantees. Although the World Chinese Language Teaching Association established a specialized committee for Chinese language education in 2023, it has not set up a branch for Chinese medicine and has not introduced relevant standards. The "World Core Curriculum of Traditional Chinese Medicine" has not included the Chinese of Traditional Chinese Medicine in the core system, but only serves as a supplementary course set up by each university. The bottleneck of the lack of a curriculum standard system, as a structural defect at the source of the system, has caused multiple derivative problems: Firstly, the curriculum is set arbitrarily, and there are significant differences in teaching objectives and content selection among different universities, resulting in uneven teaching quality; Secondly, there is a lack of standardization in the construction of teaching staff, and there is no unified admission standard and evaluation system for the training of "dual qualified" teachers; Thirdly, the scientificity of teaching evaluation is insufficient, and there is a lack of an internationally credible Chinese proficiency level scale for traditional Chinese medicine like HSK.

Pathways: Based on the national strategy for the development of traditional Chinese medicine, it is necessary to organize experts to develop and issue the "Chinese Language Curriculum Standards for Traditional Chinese Medicine" and the "Chinese Language Teacher Competency Standards for Traditional Chinese Medicine" as soon as possible, clarify their status as compulsory courses in the profession, establish a curriculum framework that is linked to the "World Undergraduate Education Standards for Traditional Chinese Medicine", develop the Chinese Language Proficiency Scale for Traditional Chinese Medicine (TCM-CSL), and provide institutional guarantees for achieving standardized teaching quality.

Secondly, the spectrum of teaching materials is scarce, and the adaptation to diverse needs is insufficient; there is an urgent need to develop diversified Chinese medicine Chinese teaching materials and a teaching resource library.

Textbooks serve as the core medium of teaching activities, and their quality directly impacts the effectiveness of instruction. The development of

Chinese medical Chinese textbooks has gone through three stages: the initial phase in the early 1980s (represented by “Chinese Medical Chinese”), the slow development period in the late 1990s, and the relatively active phase after 2008. However, compared to other specialized branches of Chinese, such as business Chinese, the development of teaching materials for Chinese in traditional Chinese medicine lags significantly behind. The existing issues in teaching materials are prominently manifested as follows: First, the variety is limited, with fewer than 10 officially published textbooks currently available, making it difficult to meet the teaching needs of diverse educational systems and proficiency levels. Second, the content is constrained, excessively focusing on vocabulary and grammar explanations while neglecting the integration of Chinese cultural context, philosophical thinking, and clinical practice skills. Third, the hierarchy is unclear, lacking a tiered textbook system tailored to junior, intermediate, and advanced Chinese proficiency levels for international students. The shortage of teaching materials is not only a direct consequence of the absence of standards but also deeply exacerbates the dual dilemma of teaching and learning. Research indicates that existing Chinese TCM instructors need to supplement extensive teaching materials on their own, while international students commonly report weak clinical relevance and insufficient cultural depth in textbooks.

Pathways: It is imperative to establish a systematic three-tiered textbook hierarchy of "fundamentals-professional-clinical", with each level supported by textual materials, audiovisual resources, and digital assets, develop a large-scale Chinese corpus based on authentic traditional Chinese medicine data to provide empirical foundations for textbook compilation, implement a dynamic textbook update mechanism to promptly incorporate cutting-edge integrative Chinese-Western medicine content, and enhance digital infrastructure by actively developing AR/VR immersive teaching resources to improve textbook interactivity and contextualization.

Thirdly, it is the weak professional foundation of teaching staff, the limited improvement of teaching quality, and the necessity to implement a dual teacher training program and establish a teacher certification system.

Teachers are the key active factors in the teaching system, and the professional structure of the teaching staff directly determines the success or failure of teaching. The teaching of Chinese in traditional Chinese medicine urgently needs "dual teacher" teachers who are proficient in international Chinese education and have a systematic understanding of traditional Chinese medicine knowledge. Yan Shengguang (2014) pointed out in "The Construction of the Teaching Staff of Medical Chinese from the Perspective of ESP" that medical Chinese teachers need to possess both language education and professional medical knowledge,[4] and Chinese medicine teachers need to be even more so. However, the current situation is not optimistic: research shows that the proportion of "double-qualified" teachers in most universities is low, and the temporary collaborative teaching mode of "language teachers+traditional Chinese medicine teachers" will cause poor curriculum connection. This structural defect is mainly reflected in two aspects: language teachers lack professional competence such as "basic theory of traditional Chinese medicine", and traditional Chinese medicine teachers lack teaching abilities such as "teaching Chinese as a foreign language". The structural defects of this teaching staff are a key weakness that affects the construction of teaching staff and the implementation of teaching, directly leading to rigid teaching models and fragmented knowledge transmission.

Pathways: It is necessary to establish a dual certification system of "Traditional Chinese Medicine Practitioner Qualification+International Chinese Teacher Certificate" to standardize teacher access at the institutional level; Promoting joint training and teacher recruitment between traditional Chinese medicine colleges and foreign language and teacher training universities, Ye Yinjun's (2022) empirical research shows that systematic teacher training can significantly improve teaching effectiveness,[5] improve the professional title evaluation and incentive mechanism, and establish a sequence of teaching positions for "Traditional Chinese Medicine Chinese", as well as developing a modular teacher training curriculum system, with a focus on strengthening the Chinese language teaching ability and cultural literacy of traditional Chinese medicine teachers.

Fourthly, there is a lack of integration between language and profession, and obstruction in the connection of knowledge system, and a need to focus on the functional positioning of traditional Chinese medicine and integrate language and expertise.

Traditional Chinese Medicine (TCM) serves as a bridge between general Chinese language and professional learning, with its core function being the transformation of language skills into professional abilities. However, current teaching practices indicate a serious disconnect between language foundation and professional needs. Data shows that international students from traditional Chinese medicine colleges face significant reading barriers when entering their professional studies after completing the study of general Chinese language. They find it difficult to understand ancient philosophical concepts such as the phrase "positive qi exists within, evil cannot invade" in classics such as the Yellow Emperor's Inner Canon; The misuse rate of terminology is high, such as confusing core concepts such as "promoting blood circulation" and "supplementing blood". The root cause lies in: firstly, the basic knowledge of ancient Chinese among international students is generally weak; Secondly, the general Chinese language curriculum rarely involves introductory teaching of core TCM terms such as "yin and yang, qi and blood"; thirdly, the existing Chinese textbooks on traditional Chinese medicine do not systematically introduce philosophical foundations such as the thinking of traditional Chinese medicine images, yin and yang, and the five elements. The weak foundation of Chinese language among students and the deficiencies in the existing teaching model collectively lead to a serious disconnect between language learning and professional knowledge, making it difficult for students to transform language skills into professional abilities.

Pathways: Firstly, it is necessary to reconstruct the curriculum system based on its functional positioning, adopting a "three-level curriculum chain" model: the first stage is to solidify the basic Chinese, the second stage transitions to medical Chinese, and the third stage delves into traditional Chinese medicine classics and clinical literature; Secondly, there is a must to vigorously promote the "double-qualified teacher collaborative teaching" model. The World Federation of Chinese Medicine Societies (2023) suggests promoting "dual teacher collaborative teaching",[6] where language teachers and clinical physicians teach together; Finally, the system establishes a Chinese English comparative database of core TCM terminology that is aligned with the WHO Medical Terminology Standard (ICD-11), providing fundamental support for achieving deep integration of language and expertise. Only by smoothly connecting language teaching with professional learning can we cultivate international traditional Chinese medicine talents who are proficient in both Chinese and medical ethics, and truly achieve the educational goal of "using language to understand medical theory and culture to carry medical ethics".

Fifthly, it is the insufficient integration of cultural genes hinders the construction of cultural identity, and an urgent need to explore the cultural characteristics of traditional Chinese medicine and construct a cultural experience system.

Traditional Chinese Medicine is not only a medical system, but also an important carrier of Chinese civilization. Its core concepts such as "Yin Yang" and "Five Elements" are deeply rooted in ancient Chinese philosophy, and cultural teaching should be the soul of traditional Chinese medicine Chinese language teaching. However, the current situation is that cultural education is severely marginalized and superficial. According to the “International Report on the Development of Chinese Language Education (2022)”, even in general cultural textbooks, the content of traditional Chinese medicine is highly fragmented.[7] What is even more serious is that even for specialized textbooks for traditional Chinese medicine colleges, the average proportion of cultural modules is insufficient, leading to a serious lack of understanding among students of the philosophical ideas of traditional Chinese medicine, making it difficult for them to comprehend its overall concept, dialectical treatment, and other core thinking. Cultural disconnection is a deep-seated bottleneck that restricts the depth and development potential of teaching, and it, together with technological backwardness, constitutes a weakness at the level of "development support".

Pathways: It is necessary to deeply explore the cultural genes of traditional Chinese medicine, develop a series of reading materials that run through the national standard of "Traditional Chinese Medicine Cultural Foundation", integrate unearthed medical slips, philosophical classics, and clinical case, and innovatively adopt the "contextual reduction method" in teaching methods, such as synchronously linking the "nourishing qi" theory in Mencius, the theory of "qi mechanism" in traditional Chinese medicine, and modern immunological functions when explaining the concept of "qi"; there is also a necessity to focus on building a virtual simulation cultural experience platform to digitally reproduce intangible cultural heritage skills such as acupuncture and moxibustion bronze figures and genuine medicinal materials

processing, so as to realize the situational and immersive dissemination of culture; Ultimately, it is also necessary to incorporate cultural interpretation and practical abilities into the teaching evaluation system and develop standardized measurement scales. Only by integrating cultural teaching into traditional Chinese medicine Chinese language teaching can we enhance the cultural identity of international students in traditional Chinese medicine, improve their learning engagement and practical confidence, and lay a foundation for subsequent traditional Chinese medicine learning and practice.

Sixthly, the construction of a digital intelligence foundation is lagging, limiting the optimization of teaching effectiveness, and it is necessary to establish a smart teaching system for Chinese herbal medicine to empower education.

Against the global backdrop of educational digital transformation, the digital and intelligent development of traditional Chinese medicine and Chinese language teaching remains in its early stages, lagging overall. This bottleneck is prominently manifested as a "three-no" situation: the first is that there is no high-quality specialized platforms: there are few professional teaching platforms or apps in the market that can deeply integrate traditional Chinese medicine knowledge graphs, the principles of Chinese language learning, and intelligent technologies (such as AR and VR); the second is that there is no systematic support: including core functional modules such as smart lesson preparation, personalized learning path recommendations, simulated diagnosis and treatment training, cross-cultural communication virtual scenarios, and intelligent assessment of learning outcomes are severely lacking; the third is that there is no collaborative ecosystem, where resource development, technological application, and teacher development remain disconnected. Technological lag fundamentally constrains the innovation of teaching models and the large-scale improvement of teaching efficacy, while also interacting with insufficient cultural education, collectively impeding the transformation of the teaching system toward an "intelligence empowerment" paradigm.

Pathways: It is imperative to elevate digital and intelligent development to a strategic level, creating an integrated smart teaching platform for Chinese medicine and Chinese language that combines "teaching, learning, practice, assessment, evaluation, and management." The China-ASEAN Center for Language Cooperation and Exchange explicitly proposed in the "Report on the Development of 'Chinese + Vocational Skills' Education (2023)" the need to accelerate the digital transformation of "Chinese + Vocational Skills" education.[8] In accordance with the requirements of the "International Chinese Language Education Digital Action Plan (2021-2025)",[9] a clear "Four-Layer Three-Stage" digital and intelligent construction system for Chinese medicine and Chinese language (see “Figure 1”) (which includes the foundational resource layer, core teaching layer, technological empowerment layer, support system layer, and three-phase specific construction objectives) must be established. Priority should be given to developing distinctive applications such as VR acupuncture simulation training, AR herbal identification, and intelligent diagnosis dialogue systems, leveraging technology to enhance clinical scenario language proficiency training, thereby completely breaking the spatiotemporal and resource constraints of traditional classrooms.

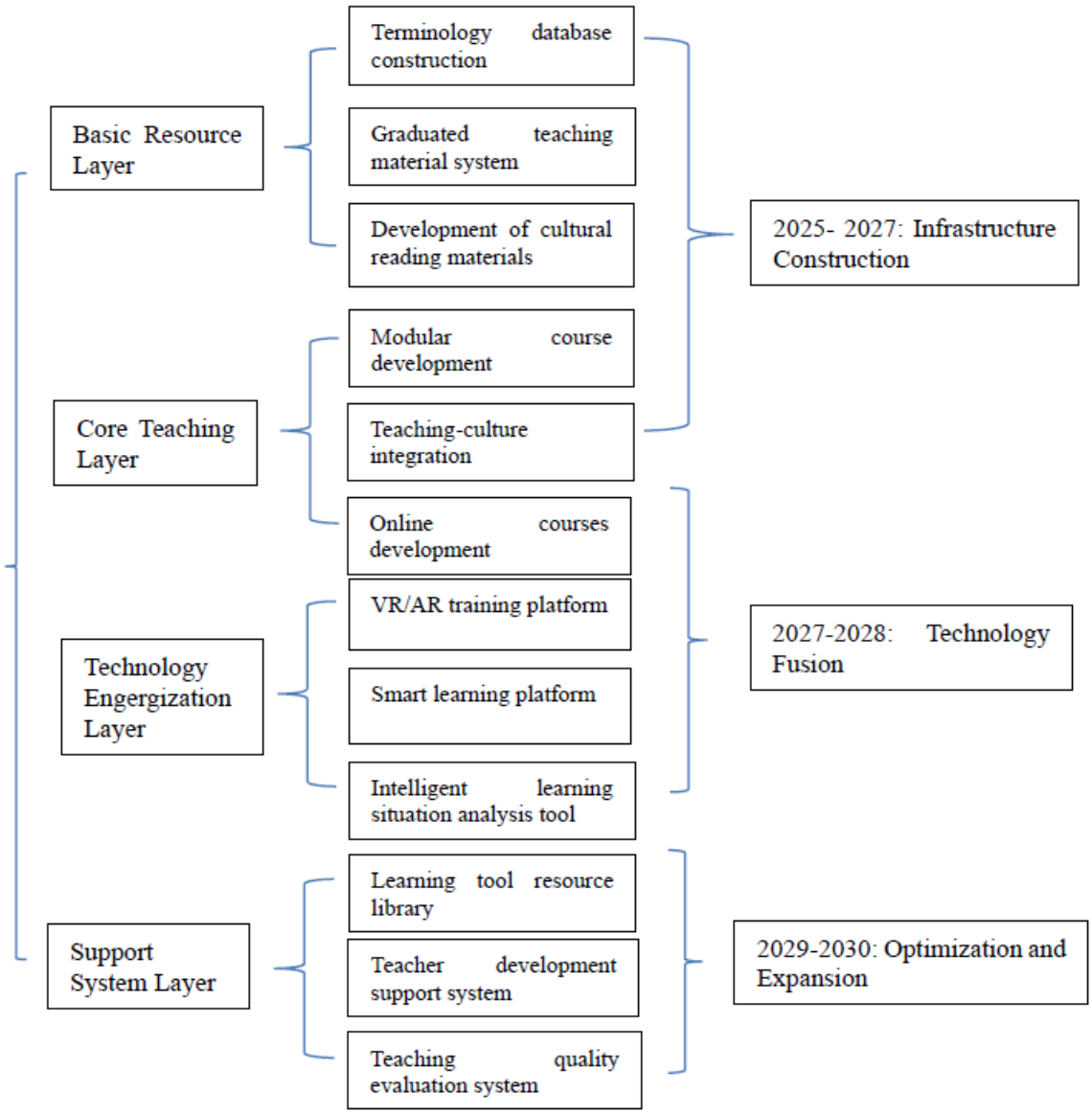

Figure 1 The "Four Layers and Three Stages" digital intelligence construction system for Chinese language teaching in Traditional Chinese Medicine.

3. SYSTEMATIC COUPLING AND OVERALL PATH FOR BOTTLENECKS OF CHINESE LANGUAGE TEACHING IN TRADITIONAL CHINESE MEDICINE

The six major bottlenecks currently facing Chinese language teaching in traditional Chinese medicine do not exist in isolation, but constitute a vicious cycle system with strict logical connections. These bottlenecks form a dynamic coupling relationship at the three levels of "infrastructure construction teaching implementation development support", and there is an urgent need to establish a systematic solution.

3.1 The Hierarchical Structure and Coupling Mechanism of Six-dimensional Structural Bottlenecks

The lack of standards at the infrastructure level (bottleneck one) directly leads to a lack of basis for textbook development (bottleneck two), while also causing a lack of standardization in teacher training (bottleneck three). These three fundamental bottlenecks collectively lead to serious problems in

teaching implementation: teachers are forced to adopt the traditional teaching mode of "terminology translation+text memorization" due to a lack of professional training (bottleneck four), which is detached from cultural context and technical support and difficult to achieve deep integration of language and profession. In the process of teaching implementation, the superficiality of cultural teaching (bottleneck five) and the backwardness of technological application (bottleneck six) reinforce each other, forming a dual dilemma at the level of development support. Insufficient cultural interpretation reduces the necessity of technological development, while the lack of technological means makes it difficult for cultural teaching to achieve immersive experiences, both of which hinder the improvement of teaching effectiveness. These six bottlenecks form a closed-loop effect through two mechanisms: the lack of standards leads to inefficient textbook development, low-quality textbooks increase teaching difficulty, teaching difficulties reduce the value of technological development, and technological lag in turn increases the cost of standard implementation. (“Figure 2” and “Figure 3”)

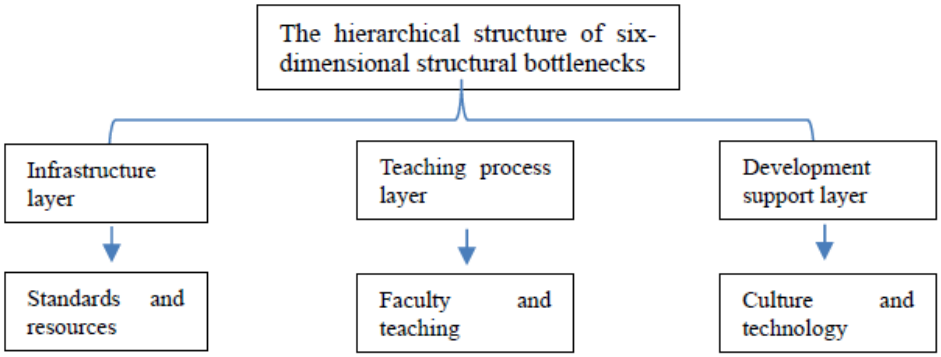

Figure 2 Hierarchical structure of "six-dimensional structural bottlenecks".

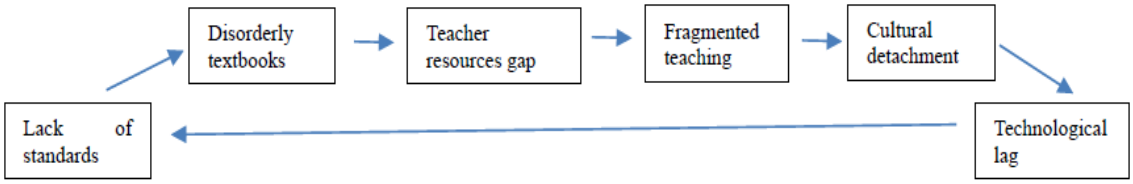

Figure 3 Dynamic coupling mechanism of "six-dimensional structural bottlenecks".

3.2 The Overall Framework and Implementation Path for Bottleneck Cracking

Based on the above coupling mechanism, this study proposes a "six-dimensional structural bottleneck" system intervention framework based on three-stage promotion (see “Figure 4”), aiming to break the vicious cycle and build a benign development ecology.

The first stage focuses on standard construction as the core breakthrough point. It is to establish a benchmark system for textbook development and teacher training by formulating the "Chinese Language Curriculum Standards for Traditional Chinese Medicine" and the "Chinese Language Teacher Competency Standards for Traditional Chinese Medicine". It is necessary to focus on developing a core terminology library that aligns with the WHO medical terminology standards, providing a standardized basis for textbook development , and simultaneously establish a dual certification system of "Traditional Chinese Medicine Practitioner Qualification+International Chinese Teacher" to fundamentally solve the problem of weak professional foundation of teaching staff.

The second stage focuses on the reconstruction of teaching modes and the integration of cultural

technology. In this stage, there is a must to promote the "dual teacher collaboration" teaching mechanism, jointly developed and implemented by language teachers and traditional Chinese medicine experts, with a three-stage teaching chain of "terminology philosophy interpretation → clinical case analysis → cultural practice experience". Teachers can use contextual reduction method for cultural teaching, such as synchronously interpreting the concept of "qi" with the theory of nourishing qi in Mencius and modern immunological theory. At the technical level, researchers can focus on developing VR/AR clinical training modules and building a virtual simulation cultural experience platform to achieve deep integration of cultural teaching and technological applications.

The third stage focuses on building a smart education ecosystem. It is to establish a mechanism for dynamic resource updates and international collaboration based on the "four layer three-level" digital intelligence system , develop graded textbooks and corpora for the basic resource layer, and build a modular curriculum system for the core teaching layer, deploy intelligent monitoring and evaluation systems at the technology empowerment layer, and support the establishment of a teacher development and international certification network at the system layer. By regularly conducting technology application evaluations and cultural cognition measurements, the continuous optimization and healthy development of the system can be ensured.

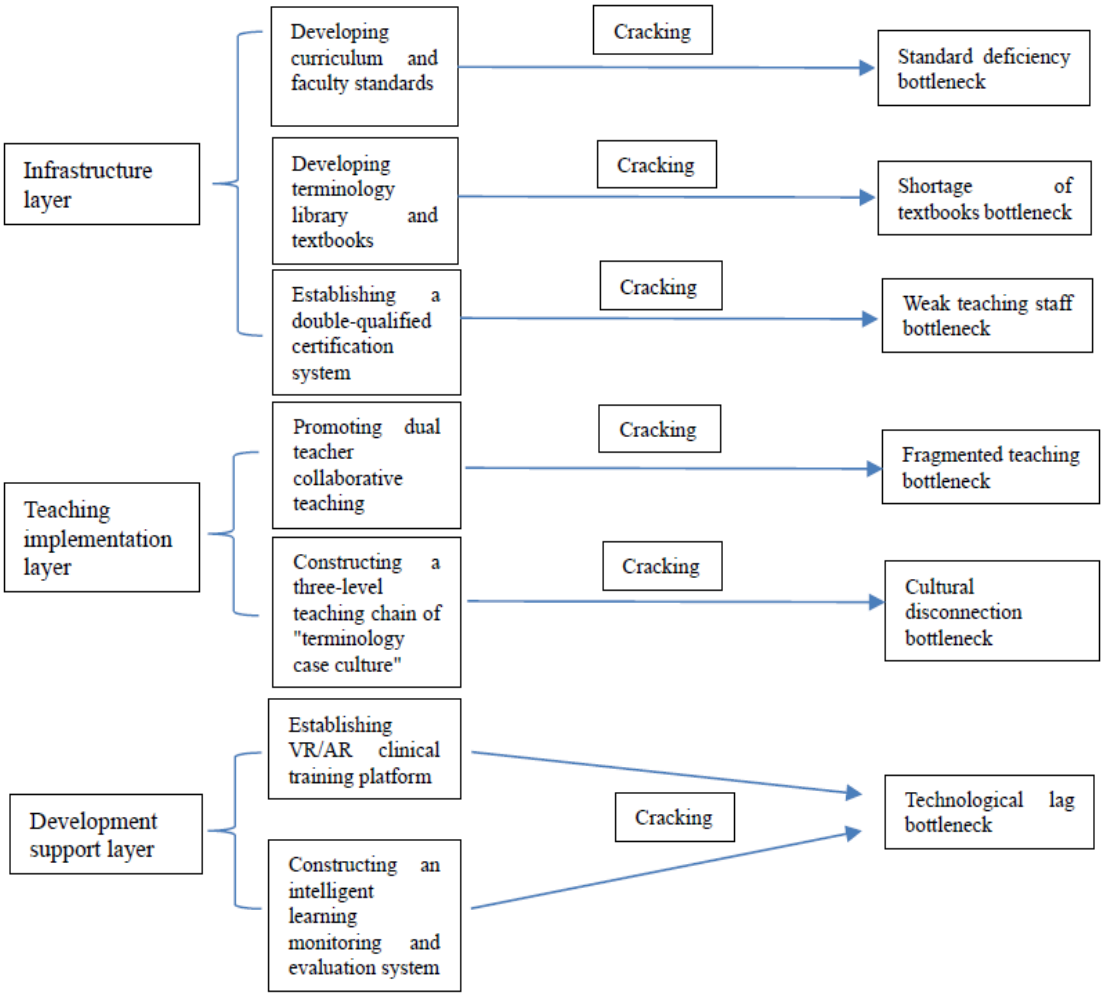

Figure 4 Schematic diagram of the intervention framework for the "six-dimensional structural bottleneck" system.

3.3 Theoretical Verification and Practical Value of System Solutions

The "Overall Framework and Implementation Path for Bottleneck Cracking" system refers to the three-dimensional matching principle of "target requirements learning content evaluation standards" in ESP teaching theory,[10] integrating the latest achievements of CSP teaching and the systematic view of educational ecology. At the technical validation level, natural language processing technology is used to achieve automatic annotation of traditional Chinese medicine terminology, and knowledge graph technology is used to construct a traditional Chinese medicine concept network to ensure the technical feasibility of the solution.

The innovative value of this system solution lies in: firstly, it is to break through the limitations of single dimensional reform and achieve coordinated promotion of multidimensional elements; Secondly, it is to establish a progressive implementation path of "standard guidance teaching innovation ecological construction"; Finally, it is to finish the closed-loop optimization mechanism of monitoring evaluation feedback. By cutting off the vicious cycle chain between the six major bottle necks, this plan can effectively promote the transformation of traditional Chinese medicine teaching from "traditional teaching" to "intelligent empowerment" paradigm, providing a systematic guarantee for cultivating compound talents who are proficient in language, proficient in medical theory, and knowledgeable in culture.

4. CONCLUSION

This study systematically reveals the structural bottlenecks in Chinese language teaching in traditional Chinese medicine across six dimensions: standards, textbooks, teaching staff, teaching, culture, and technology. For the first time, a "six-dimensional structural bottleneck model" is constructed to elucidate its dynamic coupling mechanism and vicious cycle relationship in the three-layer architecture of "infrastructure construction - teaching implementation - development support". Based on system analysis, this paper studies the integration of teaching theory and educational ecology perspectives, proposes a systematic solution path with "standards as the outline, textbooks as the tool, teachers as the basis, teaching methods as the path, culture as the soul, and technology as the wing", and advocates a three-stage promotion strategy - breaking through construction bottlenecks with the standard system, reconstructing teaching models with cultural and technological integration, and achieving sustainable development with smart ecology to break through existing difficulties.

There are still certain limitations to this study, such as the depth of cross-cultural adaptation in cultural interpretation, the empirical effects of digital technology applications, and the long-term operational mechanisms that need to be further tested. Future research should promote the establishment of a globally unified certification system for traditional Chinese medicine education, deepen the interdisciplinary intersection of linguistics, traditional Chinese medicine, and educational technology, and accelerate the construction of a new global development ecology for traditional Chinese medicine teaching that integrates standard construction, resource development, teacher training, and smart teaching. On the basis of striving to improve the level of Chinese language teaching in traditional Chinese medicine, it is aimed to enhance the quality and efficiency of international education in traditional Chinese medicine, and provide a solid foundation for cultivating international talents in traditional Chinese medicine who are proficient in language, refined in medical theory, and knowledgeable in culture, as well as promoting the dissemination and recognition of traditional Chinese medicine worldwide.

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