

Research on Practice-oriented Construction Paths of the First-class Traditional Chinese Medicine Pharmacology Course in Private Universities

Wenyu MA, Yiyue YAN, Enrui XIA, Canyan CUN, Leizhuang YANG *

Haiyuan College, Kunming Medical University, Kunming 650106, China

Abstract Based on the long-standing problems of overemphasis on theory over practice and the mismatch between teaching content and job requirements in the Traditional Chinese Medicine Pharmacology course of private universities, this study focuses on the cultivation of applied talents and practical ability, and explores the construction of the first-class course. Taking the Traditional Chinese Medicine Pharmacology course of Haiyuan College, Kunming Medical University as the carrier, a three-in-one teaching system featuring integration of posts, courses, competitions and certifications, combination of theory and practice, and collaboration of teaching, research and industry is established by redefining the course positioning, optimizing the teaching content, and innovating the model of "combining theory and practice". The practice shows that after the reform, the average score of students' practical operation assessment significantly improves, and the satisfaction rate of the course reaches over 98%. The course has been successfully approved as a first-class course at the university level, and has been awarded a provincial teaching reform project. This construction path effectively improves the quality and teaching effect of the course, and can provide practical references for the construction of core courses of traditional Chinese medicine major in similar private universities.

Key words Private universities, Traditional Chinese Medicine Pharmacology, First-class course, Practical ability, Applied talent, Teaching reform

1 Introduction

Courses are the core part of talent cultivation, and the construction of first-class undergraduate curricula is a key measure to enhance the quality of undergraduate education. In the *Implementation Opinions on the Construction of First-Class Undergraduate Curricula*, the Ministry of Education clearly stated that it is necessary to take high-level nature, innovation, and challenge as the standards to create "golden courses" in the new era, and promote the deep integration of course teaching and practical application, so as to comprehensively improve the quality of independent talent cultivation^[1]. Local applied undergraduate universities bear the mission of cultivating high-quality applied talents for regional economic development^[2]. Under the background of first-class major construction, the construction and sustainable operation of course evaluation system of colleges and universities are of great significance for improving their quality of education^[3]. By establishing interdisciplinary training programs and training professional skills, more talents with interdisciplinary knowledge and skills will be cultivated, which will provide a powerful talent guarantee for the continuous development of the traditional Chinese medicine discipline^[4].

Under the background of the revitalization of traditional Chinese medicine and the construction of new medical sciences, Traditional Chinese Medicine Pharmacology, as the core course of the traditional Chinese medicine major, plays a crucial role in connecting theoretical teaching, experimental skills and clinical

medication, and mastering the content of traditional Chinese medicine pharmacology is of great significance for improving students' professional level and promoting the high-quality development of traditional Chinese medicine^[5]. Combining with modern research achievements of traditional Chinese medicine, traditional Chinese medicine pharmacology can help students understand the characteristics of the pharmacological effects of traditional Chinese medicine, the mechanism and material basis of its disease prevention and treatment, which is conducive to students' expansion and extension of the knowledge domain of traditional Chinese medicine and plays an important role in the cultivation of knowledge and abilities of students majoring in traditional Chinese medicine^[6].

Education and teaching not only involve the dissemination of knowledge but also should focus on scientific methods^[7]. Currently, private universities generally emphasize theory but neglect practice in the teaching of traditional Chinese medicine pharmacology. The teaching content is not closely integrated with job requirements, and the practical teaching system should be improved. Besides, evaluation methods are relatively simple. This makes it difficult to meet the requirements of the industry for practical and application abilities^[8]. Aiming to cultivate applied talents, Haiyuan College, Kunming Medical University focuses on the teaching reform of the traditional Chinese medicine major, thereby meeting the demands of the biomedicine and big health industries in Yunnan. In recent years, the college, relying on the construction of first-class curricula, has carried out explorations such as optimizing practical teaching, innovating teaching models, and reforming the evaluation system in the Traditional Chinese Medicine Pharmacology course. It has initially formed a teaching

Received: February 6, 2026 Accepted: April 15, 2026

Wenyu MA, master's degree candidate, probationary teaching assistant.

* Corresponding author. Leizhuang YANG, bachelor's degree, teaching assistant.

approach that suits the characteristics of private universities. However, it still needs to be further systematized and standardized to better align with the standards of "gold courses" and job requirements of the industry. In this paper, focusing on the cultivation of applied talents and practical ability, Haiyuan College, Kunming Medical University is as an example to explore the construction ideas and implementation paths of the first-class Traditional Chinese Medicine Pharmacology course in private universities. By optimizing teaching content, innovating teaching methods, improving the practical system, and reforming the evaluation mechanism, the quality of the course and the educational effect are improved. This study provides a reference for the construction of similar courses in private universities.

2 Precise positioning: establishing a three-dimensional curriculum goal of "foundation-skills-position"

This research takes the Traditional Chinese Medicine Pharmacology course of Haiyuan College, Kunming Medical University as the carrier for teaching reform. It consistently adheres to the fundamental direction of cultivating applied talents in private universities, and closely aligns with the actual employment standards of grassroots medical positions in Yunnan Province, the core examination points of the pharmacy practitioner examination for Traditional Chinese Medicine, and the core tasks of the first-class professional construction of the college's Traditional Chinese Medicine major. The curriculum goals are further refined into three levels: "adequate basic theory, excellent practical skills, and precise career adaptation", making the direction of curriculum construction clearer and the positioning more closely aligned with local industries and job requirements (Fig. 1). In the overall design, the improvement of practical ability is always regarded as the core assessment orientation of curriculum construction. It is clearly stipulated that the proportion of practical operation, experimental skills, and position application in the overall assessment should not be less than 50%. The concept of curriculum construction focusing on practical education and ability cultivation is highlighted from the top-level design, ensuring that the curriculum reform does not deviate from the main line of cultivating applied talents.

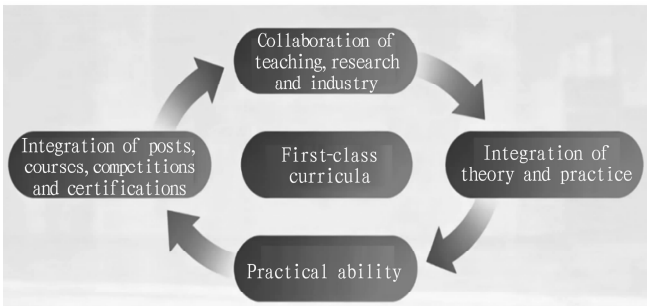


Fig. 1 "Three-in-one" construction framework of the Traditional Chinese Medicine Pharmacology course

3 Optimizing the teaching content system based on the requirements of the position and the examination

According to the job tasks of grassroots medical positions and the core requirements of the licensed pharmacist examination, the original teaching content of Traditional Chinese Medicine Pharmacology is comprehensively reviewed and restructured, namely deleting the overly abstract, highly theoretical, and less relevant to practical application explanations of pharmacological mechanisms, and highlighting practical, position-specific, and exam-oriented content. Besides, the overall teaching content is integrated into four major modules: basic knowledge of commonly used traditional Chinese medicine pharmacology, application of local and high-quality medicinal materials, guidance on rational drug use at the grassroots level, and specialized question banks for core exam points of licensed pharmacists (Fig. 2). This makes the knowledge structure clearer and the learning focus more prominent. At the same time, supporting teaching resources are built based on digital technology, and high-frequency exam question micro-lessons, real cases of rational drug use at the grassroots level, and specialized question banks for the exam types of licensed pharmacists are created for the four major modules. All of these are uploaded to the smart teaching platform to form a complete digital learning loop of pre-class autonomous preview, in-class interactive consolidation, and post-class intensive practice, thereby effectively improving students' learning efficiency and knowledge application ability, and achieving a high degree of compatibility between teaching content and position requirements, as well as professional examinations.

4 Relying on digital technology to innovate the model of "combining theory and practice"

By leveraging digital teaching methods and virtual simulation technology, a practical teaching model of "combining theory and practice" that integrates online and offline resources and links school and outside activities is constructed (Fig. 3) to continuously enrich practical teaching forms and enhance practical teaching effectiveness. In the offline practical sessions on campus, the original experimental projects are standardized, optimized, and upgraded. On the basis of retaining basic verification experiments, new comprehensive and more application-oriented practical projects such as compound formulation efficacy evaluation and cloud medicinal product pharmacological comparison are added. Uniform standardized experimental operation procedures and job-oriented training manuals are formulated to directly connect the on-campus training content with the research operations of pharmaceutical enterprises and the work norms of grassroots pharmacies. In the online virtual simulation session, a professional virtual simulation experimental system for traditional Chinese medicine pharmacology is introduced. Experiments with high costs and high risks that are difficult to conduct in physical laboratories, such as acute toxicity experiments and the entire process of drug efficacy screening, are set

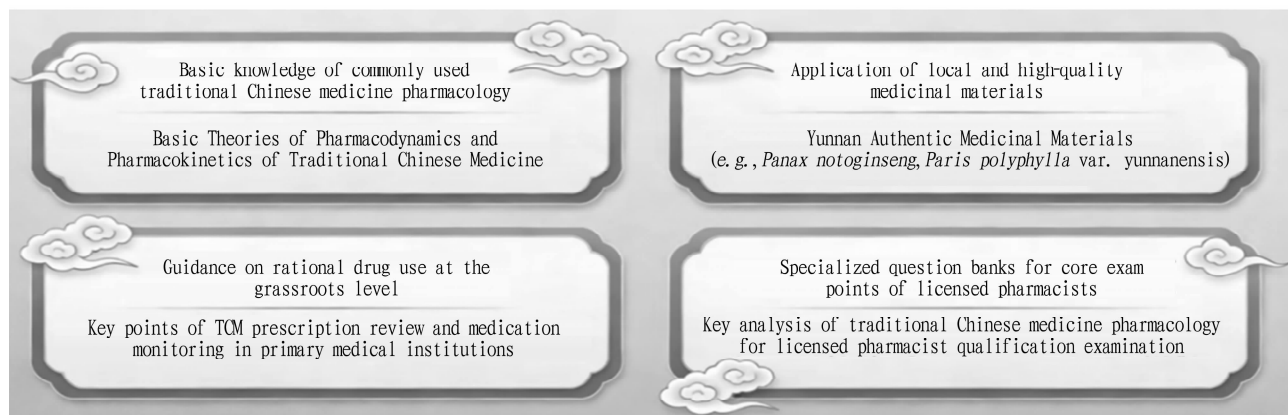


Fig.2 Modular teaching content system of Traditional Chinese Medicine Pharmacology

up. Students are required to complete multiple rounds of online simulation operations and pass the assessment before entering laboratories to conduct real experiments, thereby significantly improving the success rate of experiments and the standardization of students' operations. At the same time, it is needed to continuously promote collaborative education integrating teaching, research and industry. Stable practical teaching points are established at local traditional Chinese medicine enterprises and grassroots hospitals. Students are organized in batches to enter enterprises and hospitals to participate in real job tasks such as drug efficacy screening and medication guidance of traditional Chinese medicine, directly converting industry real operational tasks into course practical assignments, and further enhancing students' job adaptability.

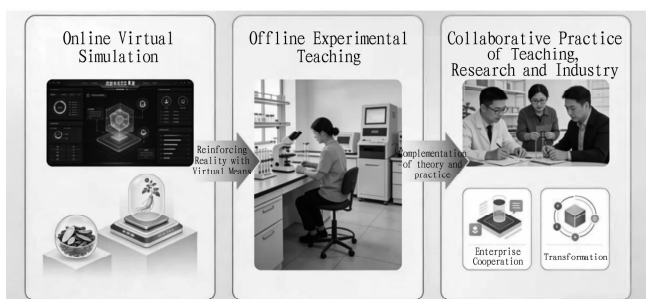


Fig.3 Schematic diagram of the teaching model of "combining theory and practice"

5 Focusing on practical abilities and improving the diversified evaluation mechanism

A complete and diversified course evaluation system is built centered on practical abilities, completely changing the traditional evaluation method that emphasized theory but neglected practice. An evaluation model that combines process assessment with final assessment is established, and the assessment weights are reasonably allocated. In the process assessment, the focus is on students' practical abilities, covering online virtual operations, offline experimental practices, and on-site practical performance, *etc.*, and students' skill mastery and comprehensive performance during the

learning process are comprehensively recorded. The final assessment content also adheres to the position orientation and examination orientation, and theoretical written tests are conducted mainly in the form of comprehensive analysis questions for licensed pharmacists and actual application cases of Yun medicine. Assessment of practical skills adopts a combination of on-site operations and experimental scheme design, and all questions are derived from real scenarios of grassroots positions and practical tasks of enterprises. At the same time, digital technology is fully utilized to empower the evaluation process, and students' online learning and virtual operation data are automatically recorded by the intelligent teaching platform. The offline practical assessment adopts full video recording, and a joint scoring mechanism of school teachers and enterprise mentors is introduced, ensuring that the evaluation results are more objective, true, and accurate, and more in line with industry standards and job requirements.

6 Conclusions and prospects

Through the implementation of teaching reform in the Traditional Chinese Medicine Pharmacology course at Haiyuan College, Kunming Medical University, with the support of digital technology, a three-in-one teaching system featuring integration of posts, courses, competitions and certifications, combination of theory and practice, and collaboration of teaching, research and industry is established and systematically optimized from four aspects of course positioning, teaching content, practical mode, and evaluation mechanism. Remarkable teaching effects are achieved. In terms of students' ability, students' practical operations become more standardized, and the quality of experimental completion is significantly improved. Their knowledge application ability and job adaptability are significantly enhanced. The satisfaction rate of course learning remains above 98%, and students' learning initiative and participation are significantly increased after the reform. In terms of course construction, the quality of the Traditional Chinese Medicine Pharmacology course continues to improve. The course has been successfully approved as a first-class undergraduate course at the university level. The course system and teaching mode are more in line with the requirements for the cultivation of

The construction of the Traditional Chinese Medicine Pharmacology course is centered around the goal of cultivating applied talents, forming a complete teaching system with clear positioning, practical content, solid practice, and scientific evaluation. It has advantages of clear reform concept, feasible implementation path, and obvious educational effect. It provides a reference practical model for the high-quality construction of core courses in the traditional Chinese medicine major in private universities.

[1] ZHANG B, ZHANG XM, LIN ZJ, *et al.* Exploration of integrated construction of first-class course, ideological and political education and vir-

- [27] VAN DE POEL I. Embedding values in artificial intelligence (AI) systems[J]. AI & Society, 2020, 35: 811–825.
- [28] JIA K, JIANG YH. Three basic issues of AI governance: From the perspective of urban governance[J]. Chinese Public Administration, 2017 (12): 40–44. (in Chinese).
- [29] European Parliament and Council. Regulation (EU) 2024/1689 laying down harmonised rules on artificial intelligence[S]. Official Journal of the European Union, 2024.
- [30] Cyberspace Administration of China *et al.* Interim measures for the management of generative artificial intelligence services [S]. 2023. (in Chinese).

- [2] XIANG D, BAO R, LI Z, *et al.* Exploration and practice of "AI + X" talent cultivation in local application-oriented universities[J]. Computer Education, 2026(3): 260 – 265. (in Chinese).
- [3] LI ZF, SONG BS, JIN XC. Research on the construction strategy of university course evaluation system under the background of first-class major construction[J]. Journal of Tianzhong, 2026, 41(1): 136 – 141. (in Chinese).
- [4] ZHANG JW, QIAO YJ. Construction and development of a discipline system for the science of Chinese Materia Medica from the perspective of systems science[J]. Journal of Beijing University of Traditional Chinese Medicine, 2025, 48(12): 1671 – 1681. (in Chinese).
- [5] XU ZC, LI YF, ZHOU K, *et al.* Exploration on efficacy-oriented teaching method of Chinese materia medica pharmacology[J]. The Light & Textile Industries of Fujian, 2026(3): 68 – 70, 80. (in Chinese).
- [6] PANG XB, ZHEN BX, ZHAN KX, *et al.* Exploration of student-centered diversified teaching mode of optional courses in colleges and universities: Taking the course of Pharmacology of Chinese Materia Medica as an example[J]. Chinese Medicine Modern Distance Education of China, 2025, 23(22): 43 – 45. (in Chinese).
- [7] CHEN HF, PU YZ, HAO JJ, *et al.* Taking clinical chinese medicine as an example, the construction of university courses helps first-class majors [J]. Chinese Journal of Ethnomedicine and Ethnopharmacy, 2022, 31(18): 116 – 118. (in Chinese).
- [8] JIANG CY, XUE C, FENG Y, *et al.* Get students involved and make the classroom lively: Exploration and practice in the construction of the first-class course on welding metallurgy[J]. Journal of Lanzhou Institute of Technology, 2026, 33(1): 155 – 160. (in Chinese).

- [31] Ministry of Science and Technology *et al.* Measures for ethical review of science and technology (trial)[S]. 2023. (in Chinese).
- [32] General Office of The CPC Central Committee, General Office of The State Council. Opinions on strengthening the governance of science and technology ethics[S]. 2022. (in Chinese).
- [33] National Committee of Governance For The New Generation Of Artificial Intelligence. Ethical norms for the new generation of artificial intelligence[S]. 2021. (in Chinese).
- [34] XU ZY, YUE YL. A study of personal health information protection under automated decision making by intelligent medical algorithms[J]. Medicine and Philosophy, 2025, 46(1): 30–34. (in Chinese).

Learn more about AGRIS, please login <http://www.fao.org/agris/>