

Digital Empowerment, Dual-Track Talent Cultivation, Inheritance and Innovation -- Teaching Reform of Intelligent Classrooms for Traditional Chinese Medicine in Higher Vocational Colleges

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ABSTRACT

Against the backdrop of a digitalized and aging society, vocational education in Traditional Chinese Medicine (TCM) is confronted with unprecedented opportunities and challenges. The teaching team of TCM courses in our college has conducted an in-depth analysis of the teaching drawbacks characterized by "four neglects and four emphases" in traditional teaching. By leveraging digital technology, the team has fully demonstrated the dual values of TCM as a discipline, namely its medical and humanistic values. Firstly, based on the principles of "integration of two lines, interconnection of three stages, and mutual reflection of virtual and real elements", the team has built intelligent learning spaces and digital resources for TCM courses. This has enabled the creation of a deep learning environment that supports the implementation concept of "simultaneous cultivation of professional skills and moral integrity". The ubiquitous learning resources present a "panoramic" display of the profound connotations of TCM culture, guiding learners to get "close to" TCM. Secondly, relying on the intelligent learning environment and abundant digital resources, a multi-dimensional and three-dimensional teaching model featuring "convergence of four points, advancement along dual tracks, and linkage of four types of classes" has been developed. This model coordinates the mutual promotion of the four elements, namely knowledge, abilities, qualities, and values, guiding learners to step "into" TCM.

KEYWORDS

Digitalization; Vocational education in Traditional Chinese Medicine (TCM); Intelligent classroom; Multi-dimensional and three-dimensional educational model

1 Introduction

At present, China is the country with the fastest aging population in the world and also the country with the largest elderly population. The Party and the government attach great importance to the elderly care issue. Traditional Chinese Medicine (TCM) is a precious treasure accumulated by China in thousands of years of medical practice, and it possesses comprehensive values in health and elderly care, including preventive, medical, health-care, and cultural values. In the "14th Five-Year Plan for Healthy Aging" jointly issued by 15 departments including the Ministry of Education and the National Administration of Traditional Chinese Medicine, the task of cultivating compound, application-oriented, and innovative TCM elderly care talents has been elevated to a strategic height. Against the background of an aging society, how to carry out high-quality TCM course teaching and realize the effective inheritance of TCM syndrome differentiation thinking and health-care diagnosis and treatment capabilities has become a hot issue in the teaching reform of various types of medical colleges and universities. However, the traditional TCM classroom has the problems of "emphasizing the system while neglecting positions", "emphasizing technology while neglecting thinking", "emphasizing memorization while neglecting perception", and "emphasizing knowledge while neglecting application", which makes it difficult to meet the needs of modern TCM talent cultivation. The introduction of the digital concept has provided new ideas and methods for the reform of TCM classrooms.

2 Teaching reform

Traditional Chinese Medicine (TCM) is a medical discipline established based on philosophical thinking. The abstract and obscure TCM philosophical theories have diminished learners' enthusiasm for learning and their perception of cultural value, while the scarce and single teaching resources fail to help learners comprehend the connotations of TCM. To ensure the effectiveness of the teaching practice of TCM courses that adheres to the concept of "simultaneous cultivation of professional skills and moral integrity", the course team has taken measures to assist learners in understanding TCM theories in an intuitive, vivid and systematic manner, perceiving traditional culture, and inspiring innovative ideas.

2.1 Integration of two lines

It refers to the integration of online and offline channels to construct an intelligent learning space. The intelligent learning space consists of an online cloud platform and an offline intelligent classroom. The construction of the cloud platform promotes the personalization of teaching. Relying on its powerful background functions, it can effectively monitor students' learning progress and resource usage, which frees the ideological and political education in courses

from the constraints of time and space and better meets students' personalized needs. The application of the intelligent classroom enables the precision of teaching. The intelligent classroom can conveniently and accurately collect students' in-class learning data, allowing teachers to quickly understand the implementation effect of ideological and political education in courses and promptly adjust the subsequent implementation strategies of ideological and political education in courses.

2.2 Interconnection of three stages

It refers to the mutual coordination of the three stages (pre-class, in-class, and post-class) to form a teaching closed loop with the support of the integration of the two lines. Pre-class guidance to set the tone: Before class, the intelligent learning space pushes learning resources, and students' learning tasks mainly include previewing the key points of theoretical knowledge, understanding the application scenarios of skills, refining operating procedures, and reflecting on safety issues. Based on the primacy effect in learning, beneficial extensions are made to the knowledge and skill points. Teachers check the progress of students' learning tasks through the cloud platform and adjust teaching strategies in a timely manner. In-class research-based learning to implement measures: In-class research-based learning is the main stage of learning. Centering on the educational tone set before class, and targeting different knowledge and skill points, the ideological and political elements are infiltrated from the four aspects of the connotation of traditional medical ethics, namely "benevolence, harmony, sincerity, and proficiency", so as to conduct imperceptible education for students. The intelligent learning space undertakes the functions of establishing disease profiles, facilitating the exchange of syndrome differentiation ideas, and demonstrating the procedures and details of treatment operations. Post-class extended learning to check effects: In the post-class extended learning stage, the course content is expanded, transferred, and practically internalized through social practice and innovative practice. The intelligent space undertakes the functions of publishing reflections on social practice, inspiring, designing and displaying innovative works, organizing thematic discussions, and matching and pushing extended resources.

2.3 Interaction between virtual and real elements

Virtual technology and on-site teaching complement each other to present a panoramic view of TCM connotations. The greatest advantage of introducing virtual technology into the ideological and political resources of TCM nursing courses lies in its sense of immersion and authenticity. Students will be highly focused on the current course scenarios to gain an "on-site" experience, not only responding to the characteristics of the scenarios themselves but also interpreting the meanings generated by these scenarios.

3 Digital empowerment to form a multi-dimensional and three-dimensional teaching model featuring "convergence of four points, advancement along dual tracks, and linkage of four types of classes"

3.1 Convergence of four points and digital empowerment to understand "the thinking of Traditional Chinese Medicine (TCM)"

The course team has conducted in-depth exploration of TCM medical principles, traditional culture, and value concepts, and carried out an overall design for the TCM knowledge structure, resource allocation, operation and maintenance, etc. Centering on the four core elements of traditional medical ethics—"benevolence, harmony, proficiency, and sincerity"—the team has developed large-capacity, high-quality premium digital course resources and intelligent learning spaces suitable for operation on the Internet. The abundant digital teaching resources help learners understand TCM's simple syndrome differentiation concepts and the professional belief of "sincerity of medical practitioners" in an intuitive, vivid, and systematic manner. They enhance students' ability to transfer and apply TCM philosophical knowledge in syndrome differentiation, and activate students' innovative thinking. During the learning process, students have carried out innovative designs for TCM diagnosis and treatment tools and methods, providing new ideas and approaches for TCM health maintenance and treatment technologies. High-quality digital resources are of great significance for promoting the modernization of ideological and political education in TCM courses and constructing a modern lifelong learning system for TCM.

3.2 Advancement along dual tracks and simultaneous cultivation of professional skills and moral integrity

Conduct structural learning of TCM diagnosis and treatment concepts, and carry out experiential practice inside and outside the classroom to understand "the practices of Traditional Chinese Medicine (TCM)"

The formation of TCM diagnosis and treatment skills is based on the construction of reasonable, effective, and sound declarative and procedural TCM knowledge. At the same time, the formation of TCM nursing skills also contributes to the re-integration and reconstruction of TCM knowledge. It is precisely in the process of solving problems that students deepen their understanding of TCM philosophical concepts, thereby forming a "structural" knowledge framework. The

course team refines the elements of the work processes of "syndrome differentiation" and "nursing implementation" to form the main line of "benevolent skills"; then, taking the stages of TCM syndrome differentiation, diagnosis, and treatment operations as the entry point, it integrates the ideological and political content of "micro-themes" to form the main line of "benevolent heart". The dual tracks advance in parallel for talent cultivation, guiding students to strengthen their thinking through exploration in on-campus classrooms and practical innovation in off-campus classrooms, improving their skills with "proficiency" and enhancing their ethics with "sincerity".

Before class, the series of micro-courses themed on "famous doctors, famous techniques, and famous classics" which draw on classics have enhanced the appeal of teaching. Students use videos or learning logs to record their learning experiences regarding the demeanor of famous physicians, the handed-down medical techniques, and the classic works. They enter the classroom with a sense of national pride and a sense of mission, which has improved the quality of classroom teaching and learning efficiency. During class, taking the segments of TCM operation techniques as the integration point, ideological and political elements are integrated from the four aspects of "benevolence", "harmony", "proficiency", and "sincerity", enabling students to understand the "profundity and extensiveness" as well as the "simplicity, convenience, affordability, and effectiveness" of TCM. After class, social practice and innovative design inspire students' confidence in the TCM industry and the concept of upholding integrity and pursuing innovation.

3.3 Linkage of four types of classes and integration of explicit and implicit elements

Realize the organic integration of knowledge imparting, moral cultivation, thinking inspiration, and ability development to cultivate "the sentiment for Traditional Chinese Medicine (TCM)".

Through the linkage of the four types of classes, educational channels are actively expanded to extend from in-class to after-class learning, and an ideological and political content system for courses that integrates "explicit education" and "implicit education" is established. This integrates learning into daily life, ensuring that "ideological and political education in courses" maintains normalization and continuity. In traditional classrooms, teachers integrate ideological and political elements into professional teaching content. While students acquire professional knowledge, they also internalize TCM moral values and core socialist values into their minds, promoting the realization of the "three integrations" (integration of ideological and political elements into classrooms, into teaching materials, and into students' minds). Cloud-based classrooms provide an open, interactive, flexible, and integrated "intelligent environment" and humanized "intelligent classrooms", which break the temporal and spatial boundaries of traditional education and teaching, and build a new ecologically sustainable application system for ideological and political education in courses. Social practice classrooms have a significant impact on teaching effects and students' learning initiative: students enhance their social practice capabilities and establish the belief of serving the motherland and devoting themselves to the frontline of clinical work. Supported by digital resources, innovative classrooms improve students' ability to transfer TCM philosophical knowledge and apply it in syndrome differentiation, and stimulate students' innovative ideas. During the learning process, students have carried out innovative designs for TCM diagnosis and treatment tools and methods, providing new ideas and approaches for TCM clinical work. Two works – the "Five-Element Music Headphones" and the "Moxibustion Device" – have been purchased and developed by TCM health management enterprises, and the finished products have been put into application in clinical settings and communities.

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