

Revitalizing Heritage through Digital Innovation: A Culturally Responsive Framework for Traditional Chinese Music Education

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Abstract – Traditional Chinese Music (TCM), a cultural practice deeply rooted in Confucianism, Taoism, and Buddhism, faces marginalization in Chinese higher education due to the long-standing hegemony of Western music pedagogies. While educational technology is increasingly promoted as a tool for heritage preservation, its application in TCM education remains superficial, creating a "technological-cultural disconnect" that fails to honor TCM's unique epistemology and "Kouchuan Xinshou" (oral-heart transmission) tradition. This study aims to address this gap by developing a culturally responsive framework—TCM-TPACK—integrating TCM's philosophical foundations, traditional transmission methods, educational technology, and teacher professional development. Adopting a qualitative phenomenological approach, data were collected through semi-structured interviews, focus groups, and document analysis with TCM inheritors, college music educators, students, and administrators in Chongqing, China. The findings present a four-layered framework: a philosophical core grounded in the "Three Teachings"; digital adaptation of Kouchuan Xinshou; contextually aligned technological affordances; and teacher professional development as a mediating agent. This framework resolves the epistemological conflict between Western technical rationality and TCM's aesthetic intuition, positioning technology as a cultural mediator rather than a mere tool. The study contributes to heritage education globally by offering a model for balancing digital innovation with cultural authenticity, ensuring the sustainable transmission of indigenous musical traditions.

Keywords – Traditional Chinese music (TCM); Cultural heritage; Educational technology; TPACK; Culturally responsive pedagogy; Oral transmission

I. INTRODUCTION

Research Background

Chinese music education has undergone profound transformation since the early 20th century, marked by the systematic adoption of Western music pedagogical models—characterized by standardized notation, technical proficiency assessment, and a focus on individual performance (Ho & Law, 2006; Liu, 2024).

This shift was driven by efforts to modernize education and align with global academic standards, yet it inadvertently marginalized Traditional Chinese Music (TCM), a holistic cultural system intertwined with China's philosophical, ethical, and social fabric (Tu, 2001). TCM is not merely a

musical genre but a repository of cultural values shaped by the Three Teachings (Confucianism, Taoism, Buddhism) (Chen & Boonsrianun, 2024).

Historically, TCM has been transmitted through "Kouchuan Xinshou" (oral-heart transmission), a tradition that prioritizes implicit knowledge, master-disciple mentorship, and experiential immersion (Xiaoyu & Zhenwei, 2022). However, in contemporary higher education, TCM is often relegated to elective courses or extracurricular activities, with curricula designed around Western music theory and performance (Ren, Tong & Rao, 2023). College music educators, predominantly trained in Western traditions, lack the cultural competence and pedagogical resources to teach TCM's philosophical essence, reducing instruction to technical skill acquisition (Luo, 2018). This marginalization threatens not only TCM's survival but also the transmission of China's cultural heritage (Zhang et al., 2023).

Against this backdrop, China's national "Education Digitalization" strategy (Duan et al., 2025) and "National Cultural Digitalization Strategy" (2022) have positioned educational technology as a critical tool for cultural preservation and pedagogical innovation. Digital tools such as virtual instruments, MOOCs, and AI-assisted feedback offer unprecedented opportunities to enhance TCM's accessibility and scalability (Wu, 2023; Chen, 2024). Yet, their current application in TCM education is largely decontextualized, focusing on technical replication rather than cultural transmission—failing to address TCM's reliance on oral transmission, interpersonal connection, and philosophical depth (Wang, 2021).

The Problem: Technological-Cultural Disconnect

The core challenge facing TCM education is a technological-cultural disconnect—a misalignment between the technical application of digital tools and the cultural, philosophical, and epistemological foundations of TCM. This disconnect manifests in three interrelated ways:

First, epistemological conflict: Western music education is rooted in "technical rationality," emphasizing standardization, notation, and measurable outcomes (Westerlund, 1999), while TCM is grounded in "aesthetic intuition," prioritizing implicit knowledge, and cultural immersion (Jin, 2012). Digital tools designed for Western music fail to accommodate TCM's heterophonic textures (Edgar, 2014), reinforcing Western epistemological dominance.

Second, superficial digital adaptation: Existing technological applications in TCM education focus on accessibility (e.g., virtual instruments) and preservation (e.g., digital archives) but neglect TCM's "Kouchuan

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Xinshou" tradition—oral transmission of cultural nuance, master-disciple mentorship, and experiential learning (Pramono & Puspasari, 2023). This reduces TCM to a set of technical skills, eroding its cultural authenticity.

Third, inadequate teacher capacity: College music educators lack professional development programs that integrate TCM's philosophical foundations, traditional transmission methods, and technological skills (Rajan, 2017). Teachers trained in Western pedagogies struggle to leverage technology to transmit TCM's cultural essence, perpetuating the technological-cultural disconnect.

Research Objectives and Questions

There are three research objectives:

- To identify the epistemological and pedagogical roots of the technological-cultural disconnect in TCM education.
- To develop a culturally responsive framework (TCM-TPACK) that integrates TCM's philosophical foundations, "Kouchuan Xinshou" tradition, and educational technology.
- To validate the framework's theoretical coherence and practical applicability for TCM education and teacher professional development.

And there are three research questions:

RQ1: How do Western pedagogical hegemony and TCM's epistemological uniqueness contribute to the technological-cultural disconnect?

RQ2: What constitutes a culturally responsive framework for TCM education that resolves this disconnect through digital innovation?

RQ3: How can technology act as a cultural mediator rather than a technical tool to support TCM's "Kouchuan Xinshou" tradition?

II. LITERATURE REVIEW

The Hegemony of Western Pedagogy in Chinese Music Education

The dominance of Western music pedagogical models in China dates back to the early 20th century, when educational reforms aimed to modernize China's education system by adopting Western curricula and methods (Ho & Law, 2012). Western music education is characterized by three core principles:

- (1) Standardized notation and theory, which prioritize written scores and systematic technical training (Law & Ho, 2009);
- (2) Individual performance orientation, which values solo proficiency over communal harmony (Wu & Lee, 2021);
- (3) Outcome-based assessment, which measures success through technical precision and measurable outcomes (Ward et al., 2025).

TCM, by contrast, is often framed as "traditional" or "folk," with limited core curriculum time and resources (Ren, Tong & Rao, 2023). Western pedagogical hegemony

has created an epistemological hierarchy, where Western music is positioned as "universal" and "modern," while TCM is marginalized as "particular" and "outdated" (Yang & Welch, 2016).

Critically, Western pedagogical tools and methods are ill-suited to TCM's unique characteristics. For example, Western music notation struggles to capture TCM's expressive nuances and heterophonic textures (Liu, 2024). Western assessment systems, which prioritize technical precision, fail to evaluate TCM's cultural and emotional dimensions (Zhu & Sornyai, 2024).

Philosophical Foundations: The "Three Teachings" Shaping TCM

TCM's epistemology and pedagogical practices are deeply shaped by three foundational philosophies—Confucianism, Taoism, and Buddhism (collectively known as the "Three Teachings")—which converge to emphasize harmony, naturalism, and mindfulness.

Confucianism positions music as a tool for moral education and social cohesion, with core values of "he" (harmony) and "li" (ritual propriety) (Tu, 2001). TCM's structured compositions, ensemble performance, and respect for musical lineage reflect Confucian ideals of social order and self-cultivation (Casas-Mas et al., 2014). The master-disciple relationship, a cornerstone of Confucian transmission, involves hierarchical mentorship where disciples learn not just music but also life principles and cultural values (Ho, 2010).

Taoism emphasizes alignment with the Dao (the natural way) and "wu wei" (effortless action), shaping TCM's improvisational styles and aesthetic of naturalness (Lee et al., 2019). Taoist naturalism influences TCM's pedagogical approach, which emphasizes experiential learning and imitation of natural processes (Li et al., 2024; Kim, 2023). For example, learning to play the erhu involves imitating the natural flow of "qi" (energy), with teachers guiding students to achieve a state of "wu wei" where performance feels effortless and authentic (Liu & Bhengsri, 2024).

Buddhism contributes a contemplative dimension to TCM, emphasizing mindfulness and non-attachment to outcomes (Bhattacharjya & Zhaohui, 2017). Mindfulness practices in TCM training—such as meditative listening and breath-synchronized performance—enhance attentional control and emotional resonance, critical for conveying TCM's subtle expressive qualities (Ankaç, Eren & Sülün, 2024).

The Evolution of Kouchuan Xinshou (Oral Transmission)

"Kouchuan Xinshou" is the core tradition of TCM inheritance, encompassing three interrelated elements:

- (1) oral transmission of melodies, techniques, and cultural narratives;
- (2) heart-to-heart communication of implicit knowledge, emotional expression, and philosophical insights;
- (3) experiential immersion in cultural contexts (Xiaoyu & Zhenwei, 2022).

However, modern higher education's large class sizes, standardized curricula, and time constraints have made this model impractical (Ren, Tong & Rao, 2023). Additionally,

the aging of TCM masters and declining interest among young generations threaten the survival of oral transmission (Li, 2022).

Digital innovation offers a path to evolve Kouchuan Xinshou without abandoning its core. Early attempts at digitalization have preserved some aspects of oral transmission but fail to capture heart-to-heart communication and experiential immersion (Wang, 2021). Recent advancements in VR/AR, AI, and video conferencing hold promise for scaling Kouchuan Xinshou by replicating interpersonal connection and cultural context (Quin, 2022). However, these tools must be designed to align with TCM's philosophical foundations and transmission needs, rather than merely replicating Western digital pedagogies.

TPACK and Culturally Responsive Pedagogy (CRP): Theoretical Foundations

The Technological Pedagogical Content Knowledge (TPACK) framework (Koehler et al., 2013) provides a theoretical foundation for integrating technology, pedagogy, and content. TPACK posits that effective technology integration requires the synthesis of three core knowledge domains: Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK). However, TPACK has been criticized for neglecting cultural context, particularly in indigenous and heritage education (Celik, 2023). Traditional TPACK applications in music education focus on Western music content and pedagogies, failing to address the cultural uniqueness of TCM.

Culturally Responsive Pedagogy (CRP) (Ladson-Billings, 1995) addresses this gap by emphasizing the integration of students' cultural backgrounds, values, and experiences into teaching. In TCM education, CRP involves centring TCM's philosophical foundations, Kouchuan Xinshou tradition, and cultural values in curriculum design and technology use.

Integrating TPACK and CRP, this study develops a TCM-TPACK framework with a fourth core domain: Cultural Knowledge (CuK) of TCM's philosophy, Kouchuan Xinshou and cultural values. TCM-TPACK emphasizes the dynamic interplay between TK, PK, CK, and CuK. This framework addresses the limitations of traditional TPACK and CRP by grounding digital innovation in TCM's unique cultural and philosophical context.

III. METHOD

Research Design: Phenomenology

This study adopts a qualitative phenomenological research design to explore the lived experiences of stakeholders involved in TCM education and technology integration. Phenomenology is ideally suited for this research because it focuses on understanding the "essence" of human experiences and subjective realities—critical for exploring the technological-cultural disconnect, which is shaped by stakeholders' perceptions, values, and practices (Creswell & Poth, 2018).

The study is grounded in the interpretivist paradigm, which posits that reality is socially constructed through

human interaction and meaning-making (Patton, 2015).

The phenomenological approach involves three key steps: bracketing the researcher's assumptions to avoid bias; collecting rich, descriptive data about stakeholders' experiences; analyzing data to identify thematic patterns and the essence of the technological-cultural disconnect.

Sampling and Data Collection

The study is conducted in Chongqing, China, selected for three key reasons: Chongqing is home to diverse TCM forms (e.g., Chuanjiang Haozi, Tujia folk songs, guqin music), representing distinct philosophical and transmission traditions (Hu, 2023); Chongqing has 15+ higher education institutions with music programs, reflecting the broader trends of Western pedagogical dominance and varying levels of TCM integration (Hu, 2023);

Purposive sampling is used to select 15 information-rich participants across four stakeholder groups (Table 1), ensuring representation of diverse perspectives on TCM education and technology integration. Sampling criteria prioritize participants with direct experience of the technological-cultural disconnect, such as educators who have attempted to integrate TCM and technology, and TCM inheritors who have collaborated with universities.

TABLE I: CRITERIA AND STAKEHOLDER GROUPS

Stakeholder Group	Sampling Criteria	Sample Size
TCM Inheritors	Officially recognized by Chongqing ICH Protection Centre; ≥10 years of practice; experience transmitting TCM to university students	3
College Music Teachers	Currently teaching TCM-related courses; ≥3 years of experience; Western/TCM/hybrid academic background	3
Music Education Students	Enrolled in undergraduate/graduate music education programs; completed ≥1 TCM course; diverse academic years (1st–4th year)	7
Administrators/Policy makers	Involved in music curriculum design or teacher training; ≥5 years of experience; familiarity with national/regional cultural digitalization policies	2

Three complementary data collection methods ensure triangulation and depth: Semi-structured Interviews: Conducted with TCM inheritors, college music teachers, and administrators (45–60 minutes each). Interviews explore stakeholders' experiences with TCM education, perceptions of technology integration, and perspectives on the technological-cultural disconnect. Interview protocols are tailored to each group (Appendices I–III), with open-ended questions designed to elicit narrative depth (e.g., "How has

your experience with technology changed your understanding of Kouchuan Xinshou?").

Focus Groups: 2 focus groups of 3-4 music education students each (90 minutes per group). Focus groups explore students' experiences learning TCM, attitudes toward technology in TCM education, and suggestions for culturally responsive digital tools. The group setting encourages interaction and reflection, revealing shared challenges and opportunities (Appendix IV).

Document Analysis: Analysis of policy documents (2018–2024), curriculum syllabi, teacher training materials, and TCM cultural records. Documents provide contextual triangulation, verifying stakeholders' experiences against institutional and policy frameworks. Key themes include TCM's curriculum status, technology-related policies, and teacher training content.

All data collection instruments were piloted with a small sample of participants (n=2) to refine clarity and cultural sensitivity.

Data Analysis and Coding

The qualitative data collected from interviews, focus groups, and documents were analyzed using NVivo (Version 12) software to manage and systematize the coding process. Following the principles of Interpretative Phenomenological Analysis (IPA), a three-stage coding process was implemented:

Initial Open Coding (Level 1): we performed a line-by-line reading of the transcripts to identify initial concepts and significant statements related to TCM pedagogy and technology use. This stage generated a large number of descriptive codes.

Axial Coding (Level 2): Axial Coding grouped open codes into sub-themes and identified connections between categories (e.g., philosophical foundations and pedagogical strategies). This helped in identifying the components of the TCM-TPACK framework.

Thematic Coding (Level 3): Higher-order themes were synthesized to form the overarching dimensions of the framework (Philosophy, Transmission, Technology, and Professional Development).

To ensure the rigor of the coding, an inter-coder reliability check was conducted with a colleague specializing in musicology.

IV. ANALYSIS AND FINDINGS

The analysis of interview, focus group, and document data revealed four interconnected layers that constitute the culturally responsive TCM-TPACK framework. These layers address the technological-cultural disconnect by grounding digital innovation in TCM's philosophical foundations, Kouchuan Xinshou tradition, and cultural values.

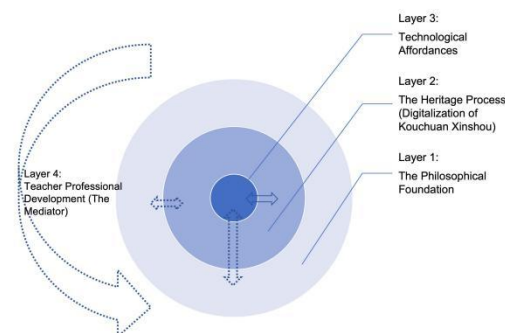


Figure 1. The TCM-TPACK Framework: A Culturally Responsive Model for Integrating Digital Innovation with Music Heritage.

Layer 1: The Philosophical Foundation

The framework's core is TCM's philosophical foundation—the "Three Teachings" (Confucianism, Taoism, Buddhism)—which shapes all other layers. Data from TCM inheritors and educators highlighted that technology integration must align with three philosophical principles:

Confucian Harmony (He): Technology should support communal learning and moral cultivation. For example, virtual ensemble platforms enable students to practice TCM's communal performance styles, while multimedia tutorials link technical skills to Confucian virtues.

Taoist Spontaneity (Wu Wei): Technology should facilitate natural, unforced learning. AI-assisted improvisation tools provide gentle guidance rather than rigid feedback, encouraging students to embody "wu wei" in performance.

Buddhist Mindfulness: Technology should enhance emotional resonance and introspection. VR meditative listening environments, for example, immerse students in TCM's cultural context, fostering mindfulness and emotional connection to the music.

Educators emphasized that neglecting these principles leads to the technological-cultural disconnect, as digital tools become mere technical aids rather than cultural mediators. As one TCM inheritor noted: "Technology without philosophy is just a toy—TCM is not about playing notes, but about playing with heart and harmony."

Layer 2: The Heritage Process (Digitalization of Kouchuan Xinshou)

The second layer adapts TCM's Kouchuan Xinshou tradition for the digital age, preserving its core elements (oral transmission, heart-to-heart communication, experiential immersion) while addressing scalability and accessibility challenges:

Oral Transmission 2.0: Enhanced by multimedia tools that preserve implicit knowledge. For example, interactive audio recordings of TCM masters include annotations about vocal inflections, "qi" flow, and cultural narratives.

Digital Apprenticeship: Scaled through video conferencing and AI-assisted feedback. TCM masters deliver live remote lectures and provide personalized feedback via AI tools that analyze performance nuances (e.g., erhu bow pressure, guqin finger technique). Educators

reported that this model replicates the one-on-one mentorship of traditional apprenticeship.

Immersive Experiential Learning: Augmented by VR/AR simulations. Students in resource-constrained regions can experience virtual folk festivals, temple performances, and master workshops. Interview data revealed that these simulations enhanced students' cultural understanding and emotional connection to TCM.

Critical to this layer is the principle of preservation through adaptation—digital tools preserve the essence of Kouchuan Xinshou rather than replacing it. As one educator explained: "We don't use technology to replace masters; we use it to extend their reach and preserve their wisdom."

Layer 3: Technological Affordances

The third layer identifies four technological affordances aligned with TCM's needs, derived from stakeholder data:

Accessibility: Virtual instruments, online archives, and MOOCs overcome geographic and resource barriers. Rural students, who lack access to physical TCM instruments and masters, use virtual guqin/erhu simulations to practice, while MOOCs provide access to TCM courses from top universities.

Scalability: Learning management systems (LMS), video conferencing, and AI feedback adapt traditional one-on-one transmission methods for large classes. Administrators noted that these tools enable universities to offer TCM courses to hundreds of students without compromising quality.

Engagement: Gamified apps, social media, and multimedia tutorials engage digital-native learners. Gamified tools (e.g., TCM melody identification games, cultural trivia quizzes) motivate students to learn TCM, while WeChat groups facilitate peer-to-peer sharing of performances and cultural insights.

Preservation: Digital archives, 3D instruments modelling, and oral history recordings safeguard endangered TCM traditions. TCM inheritors emphasized the importance of these tools for documenting rare melodies, instruments, and transmission methods that risk being lost with aging masters.

Stakeholders universally emphasized that technology must be used with cultural humility—avoiding over-reliance and ensuring that digital tools complement, rather than replace, in-person interaction and cultural immersion.

Layer 4: Teacher Professional Development (The Mediator)

The fourth layer positions teacher professional development as the critical mediator of framework implementation, requiring educators to develop four interconnected competencies:

TCM Cultural Competence: Understanding of TCM's philosophical foundations, Kouchuan Xinshou tradition, and cultural values. Professional development includes workshops with TCM masters, cultural immersion programs, and study of TCM's philosophical texts.

TCM Technical Skills: Proficiency in TCM instruments, melodies, and performance techniques. Teachers participate in hands-on training with TCM inheritors, focusing on both technical skill and expressive nuance.

Culturally Responsive Pedagogical Methods: Ability to adapt Kouchuan Xinshou for modern classrooms. Training includes strategies for integrating oral transmission, digital apprenticeship, and immersive learning into curriculum design.

Technological Literacy: Skill in selecting and using TCM-aligned digital tools. Teachers learn to use virtual instruments, AI feedback tools, and VR/AR simulations, with a focus on cultural responsiveness rather than technical proficiency.

Interview data showed that teachers who developed these four competencies were better able to resolve the technological-cultural disconnect, leveraging technology to transmit TCM's cultural essence. Administrators noted that institutional support—including funding for training, access to digital tools, and curriculum flexibility—is critical.

TABLE II: MAPPING THEMATIC ANALYSIS TO THE TCM-TPACK

Framework Layer	Core Theme	Initial Codes / Keywords	Source / Interview Questions
Layer 1: The Philosophical Foundation	Ontological & Aesthetic Incompatibility	Qi (Vital Energy), Yun (Rhyme), Harmony of Man and Nature, Technological Frigidity, Western Temperament Bias	Understanding of cultural essence Irreplaceable aspects of TCM
Layer 2: The Heritage Process	Digital Crisis of Embodied Transmission	Kouchuan Xinshou (Oral-Heart Transmission), Master-Apprentice Field, Screen Barriers, Tacit Knowledge Externalization	Traditional teaching methods Digital learning experience
Layer 3: Technological Affordances	Balancing Accessibility and Cultural Preservation	Geographic Barriers, Gamified Learning, Digital Archiving, AI-assisted Correction, Culturally Sensitive Tools	Desired technological tools Curriculum redesign suggestions
Layer 4: Teacher Professional Development	The Need for Culturally Responsive Mediators	Interdisciplinary Literacy, Digital Divide, Cultural Identity, Professional Self-efficacy, Technological Mediation	Required support systems Advice for policymakers

V. DISCUSSION

Resolving the Epistemological Conflict

The TCM-TPACK framework resolves the epistemological conflict between Western technical rationality and TCM's aesthetic intuition by centring TCM's philosophical foundations and Kouchuan Xinshou

tradition. Western music education's emphasis on standardization and measurable outcomes is balanced with TCM's focus on implicit knowledge, emotional resonance, and cultural immersion—with technology acting as a bridge between these two epistemologies.

For example, AI feedback tools are designed to evaluate not just technical precision but also expressive nuance and alignment with TCM's philosophical principles (e.g., Confucian harmony, Taoist spontaneity).

The framework's emphasis on Cultural Knowledge (CuK) ensures that technology integration is epistemologically aligned with TCM, rather than imposing Western rationality. As such, it moves beyond the "either/or" binary of Western vs. traditional education, offering a "both/and" approach that honors TCM's uniqueness while embracing digital innovation.

Technology as a Cultural Mediator

A key insight from this study is the repositioning of technology as a cultural mediator rather than a mere technical tool. Technology mediates between TCM's traditional transmission methods and modern educational needs, preserving cultural authenticity while enhancing accessibility and scalability.

Data from stakeholders revealed that technology acts as a cultural mediator in three key ways aligned with TCM's transmission and preservation needs.

Critically, technology as a cultural mediator requires intentional design—grounded in TCM's philosophical foundations and transmission needs. As one TCM inheritor noted: "Technology can be a powerful tool for cultural preservation, but only if it is designed by and for those who understand TCM's essence." This highlights the importance of involving TCM inheritors in the design and implementation of digital tools, ensuring cultural responsiveness.

Global Implications for Heritage Education

The TCM-TPACK framework offers broader implications for global heritage education, particularly for indigenous and traditional music traditions facing similar challenges of marginalization and technological-cultural disconnect.

First, the framework emphasizes the importance of philosophical grounding—heritage education must centre the unique epistemological and cultural foundations of the tradition, rather than adopting Western pedagogical models.

Second, the framework demonstrates the value of adaptive preservation—digital innovation should adapt traditional transmission methods rather than replacing them. This approach ensures that heritage is preserved in a form that is relevant to modern learners, while maintaining cultural authenticity.

Third, the framework highlights the critical role of teacher professional development—educators must be equipped with cultural competence, technical skills, and pedagogical methods to transmit heritage through digital tools. This requires targeted training programs that integrate heritage knowledge, technology use, and culturally responsive pedagogy.

By offering a model for balancing digital innovation and cultural authenticity, the TCM-TPACK framework contributes to the global dialogue on heritage education, demonstrating that technology can be a powerful tool for revitalizing traditional practices in the digital age.

Limitations and Future Research

This study has two key limitations:

(1) It focuses on TCM education in Chongqing, and findings may need adaptation for other regions or TCM forms;

(2) It is based on qualitative data from a small sample, and future research should validate the framework with a larger, more diverse sample.

Future research could:

(1) Evaluate the framework's implementation in different TCM education contexts (e.g., primary schools, community programs);

(2) Develop and test TCM-specific digital tools aligned with the framework;

(3) Explore the framework's application to other indigenous music traditions globally;

(4) Investigate the long-term impact of the framework on TCM preservation and student cultural identity.

VI. CONCLUSION

This study addresses the technological-cultural disconnect in TCM education by developing a culturally responsive TCM-TPACK framework that integrates TCM's philosophical foundations, Kouchuan Xinshou tradition, educational technology, and teacher professional development. Grounded in phenomenological research, the framework resolves the epistemological conflict between Western technical rationality and TCM's aesthetic intuition, repositioning technology as a cultural mediator rather than a mere technical tool.

The framework's four layers—philosophical foundation, digitalized Kouchuan Xinshou, technological affordances, and teacher professional development—offer a holistic roadmap for revitalizing TCM through digital innovation. By centring TCM's cultural and philosophical essence, the framework ensures that digital tools preserve, TCM's authenticity while enhancing accessibility, scalability, and engagement.

In conclusion, the TCM-TPACK framework demonstrates that digital innovation can revitalize traditional heritage—if grounded in cultural authenticity, philosophical depth, and stakeholder collaboration. By embracing technology as a cultural mediator, TCM education can honor its past while preparing for a sustainable future, ensuring that China's musical heritage is transmitted to future generations.

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