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A Study on the Pedagogical Reform of Music and Dance Education in Chinese Universities under the Context of Digitalization

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Abstract: This research aimed to study: 1) the structural challenges and transformation logic of music and dance education reform in Chinese universities under the influence of digitalization; and 2) the construction of a coordinated and practical reform pathway based on task-oriented instruction, digital platforms, and institutional governance. The sample was a set of academic literature and institutional cases related to higher arts education in China, selected through purposive sampling from CNKI and Google Scholar. The research results were found as follows: 1) Music and dance education in Chinese universities is facing fragmented reform due to the lack of synergy among curriculum content, teaching methods, teacher development, and institutional support. While digital platforms have been introduced, their integration with pedagogical logic and governance remains insufficient. 2) Some innovative practices—such as modular course redesign, AI-assisted feedback systems, and interdisciplinary training centers—have shown potential, but they often lack systematic coordination and scalability. To address this, the study proposes a "Task–Platform–Mechanism" coordination model that emphasizes the alignment of task-driven teaching design, intelligent platform integration, and adaptive institutional structures.

Keywords： Music and Dance Education; Digital Teaching Reform; Chinese Higher Education; Task-Based Instruction; Systemic Coordination

1.Introduction

Amid the ongoing wave of technological revolution, digitalization has emerged as a core trend in global education development. The integration of advanced technologies such as artificial intelligence, virtual reality, and 5G communication has profoundly transformed the landscape of teaching and learning (Bhattarai & Yousef, 2025; J.-E. Huang et al., 2024). In China, the government has placed significant emphasis on educational informatization as a strategic priority to modernize the education system. The *Education Digitalization Strategy Action Plan* issued in 2022 explicitly calls for a comprehensive reform of digital education, the construction of a national smart education platform, and the digital transformation of higher education institutions (Huang, 2025). These initiatives have laid a solid foundation for reconfiguring educational practices through digital technologies.

As the primary platform for higher education reform, universities in China are actively promoting the digitalization of pedagogical concepts, instructional methods, curriculum design, and evaluation mechanisms. Within this broader context, music and dance studies stand out as practice-based disciplines that rely heavily on sensory experience, bodily expression, and live interaction. The unique nature of these programs, which emphasize affective and embodied learning, makes the process of digital integration more complex compared to theoretical or technical disciplines (Kosmas & Zaphiris, 2023; Wang et al., 2024).

In recent years, the expansion of higher arts education has been notable. According to the *China Educational Statistics Yearbook*, by 2022, more than 360 universities nationwide had established undergraduate programs in music and dance studies, with a total enrollment exceeding 280,000 students (Guan, 2023). Furthermore, the *National Standards for Undergraduate Teaching Quality in Arts Disciplines*, issued by the Ministry of Education, emphasized the integration of artistic education with modern technology and encouraged the exploration of innovative teaching models (Zhan & Niu, 2023). However, despite policy support and institutional growth, substantial challenges remain in implementing effective teaching reform.

First, many instructors lack sufficient digital literacy, resulting in limited integration between pedagogical practices and technological tools (Zhang & Zhang, 2024). Second, curriculum content remains loosely connected to digital platforms, and existing teaching resources are predominantly traditional, lacking interactivity and real-time responsiveness (Hao & Gu, 2024). Third, performance-based learning in music and dance is highly dependent on spatial presence and kinesthetic guidance, making it difficult to substitute in-person instruction with online methods (Hrabluk, 2021). Lastly, assessment systems remain outdated and ill-suited to the dynamic nature of digitalized teaching environments (Yu et al., 2024). These issues are widely observed across institutions and represent key obstacles to advancing meaningful reform. Hence, the research objectives are:

1)To analyze the key problems and challenges faced by music and dance disciplines in implementing teaching reform;

2)To explore how digital technologies can facilitate systemic changes in teaching content and instructional methods.

2.Literature review

2.1 Theoretical Foundations of Digital Education and Teaching Reform in Higher Education

Digital education is commonly defined as a new form of education driven by information technologies, including multimedia, network communication, and artificial intelligence. It reshapes not only the tools and media used in teaching but also the modes of knowledge dissemination, spatial structures of learning, and the roles of instructors and learners (Mohamed Hashim et al., 2022; Timotheou et al., 2023). Compared to traditional teaching models, digital education offers distinct advantages such as resource visualization, personalized instruction, intelligent assessment, and extended learning environments. These features have been recognized as key to improving teaching efficiency and promoting learner autonomy (Liu & Yu, 2023; Xu, 2024).

Accordingly, universities have been identified as critical arenas for the implementation of digital education. Under the guidance of China's Strategic Action Plan for Educational Digitalization (Ministry of Education, 2022), the transformation of higher education has shifted from mere technical supplementation to a more systemic and structural reconstruction (Lu et al., 2024). The core goals of teaching reform in this context include the innovation of instructional models, enhancement of teachers' digital literacy, optimization of curriculum architecture, improvement of learning experiences, and the establishment of adaptive quality assurance systems (Wang et al., 2024).

In this broader digital landscape, promoting the digital transformation of arts-related disciplines—particularly music and dance—has become an urgent task. On the one hand, these disciplines are inherently practice-based and rely heavily on physical space, live performance, and embodied interaction. On the other hand, their core elements—such as sound, movement, and rhythm—are highly amenable to digital representation and technological enhancement. Prior research has demonstrated that digital tools not only support resource development and classroom assistance but also enable innovation in musical composition, dance analysis, and multimodal artistic expression (Lim et al., 2022; Peng, 2025; Tsuchida, 2024). Therefore, the integration of digital technologies into music and dance education can help overcome limitations of time and space, stimulate student creativity, and enhance engagement—ultimately facilitating a paradigm shift in arts education.

In recent years, both domestic and international scholars have explored the role of digital education in higher education reform. Internationally, the concept of blended learning has been advocated as a means of combining the flexibility of online learning with the immersion of face-to-face interaction

(Anthony et al., 2022). Meanwhile, the TPACK framework has been widely adopted to guide teacher development in technology-rich environments, emphasizing the integration of technological, pedagogical, and content knowledge (Yeh et al., 2021). In China, research focus has gradually shifted from surface-level technology adoption to systemic innovation. Scholars have proposed models such as the "intelligent teaching ecosystem" and "higher education digital capacity framework" to explain the internal mechanisms linking teacher competencies, digital resources, learning data, and evaluation systems (Sheng et al., 2024; Tang et al., 2024).

Despite these advancements, several gaps remain in the existing literature. First, most studies focus on STEM and humanities disciplines, with limited attention to practice-intensive fields such as the performing arts (Sue, 2023). Second, while many studies address tool-level applications, few engage with the core pedagogical issues of sensory experience, bodily expression, and spatial interaction in music and dance education (Kersting et al., 2021). Third, teaching reform discussions have largely centered on course design and resource development, with insufficient focus on systemic challenges, such as institutional readiness, teacher training, and platform integration (Yanzhi Zhao et al., 2024).

These research gaps align directly with the objectives of the present study. This research investigates the specific problems and challenges faced by music and dance programs in Chinese universities under the conditions of digital transformation and explores how digital technologies can be effectively leveraged to drive structural changes in teaching content and instructional approaches. By analyzing the tension between reform constraints and technological potential, this study aims to offer a theoretically grounded and practically oriented framework for digital teaching reform in arts education.

2.2 Research Progress in the Teaching Reform of Music and Dance Programs

The teaching reform of music and dance programs in Chinese higher education institutions can be traced back to the late 1990s. It was initially driven by the nationwide expansion of higher education and institutional efforts to improve undergraduate teaching quality (Li, 2022; Xu & He, 2025). During this early phase, the focus was primarily on curriculum standardization, enhancement of practical components, and alignment with national talent development frameworks. Existing studies have shown that the reform efforts aimed to integrate technical training with foundational theoretical knowledge to address the increasing demand for well-rounded artistic professionals in the context of educational massification (He, 2023; Pang et al., 2021; Yang, 2023). With the implementation of initiatives such as the "Quality Engineering Project" and the "Excellent Talent Training Plan" in the 2000s, music and dance programs were further incorporated into national quality assurance systems. Teaching objectives were subsequently extended to include artistic expression, aesthetic judgment, and interdisciplinary competence (Yang, 2023; Zhan & Niu, 2023).

Since the 2010s, information technology has emerged as a key driver of educational transformation. With the introduction of policy frameworks such as the Action Plan for Education Informatization 2.0 and the Strategic Action Plan for Educational Digitalization, teaching reform in arts disciplines has entered a phase of deeper integration between technology and pedagogy. Research during this period began to shift from content- and method-level adjustments to broader paradigmatic transformations. In terms of curriculum design, scholars have emphasized the need to move beyond traditional "technique-centered" models toward integrated structures that connect theory, practice, and creative expression (Fu et al., 2023; Jiang et al., 2024; Y. Liu et al., 2024; Zhang et al., 2023). Pedagogical innovations such as blended learning, flipped classrooms, and collaborative learning have been widely adopted, fostering greater learner engagement, expressive ability, and critical reflection. These approaches have facilitated a shift from teacher-centered to learner-centered instruction (Cheng & Ding, 2021; Xia et al., 2025).

Concurrently, the application of digital technologies in arts education has become a prominent research focus. Tools such as virtual pianos, MIDI systems, multimedia analysis platforms, motion capture technologies, and virtual rehearsal spaces have been introduced into instructional practice. Some institutions have developed immersive teaching platforms based on virtual reality to enhance students' spatial awareness, movement perception, and rhythmic control (Cheng & Ding, 2021). It has been noted that such technologies not only improve instructional efficiency and feedback accuracy but also offer expanded possibilities for artistic expression. In addition, the development of digital teaching resources—including course libraries, case databases, and remote interaction platforms—has supported the broader goals of cross-campus collaboration and individualized learning (H. Liu et al., 2024).

With regard to teacher development, studies have identified ongoing challenges related to curriculum reconstruction, technological proficiency, and interactive instructional design. While most arts educators possess strong professional competencies, many encounter difficulties in adapting to digital platforms and reconfiguring their instructional strategies. Research has also highlighted the lack of systematic training programs that integrate artistic, pedagogical, and technological knowledge, thereby limiting faculty capacity for innovation (Xin et al., 2022). In particular, the construction of a dual-competency faculty team—equipped with both artistic and technical expertise—remains a critical shortcoming in many institutions. This issue is especially evident in dance education, where the digital modeling of bodily movement and demonstration remains underdeveloped (Zhao, 2022).

Although considerable progress has been made in advancing teaching reform in music and dance programs, several limitations persist. Existing research tends to emphasize pedagogical techniques or digital tool applications

while neglecting the structural challenges inherent in reform implementation (Xinyu & Yanyi, 2024). The interrelationships among instructional content, teaching methodology, teacher competency, and platform technology have yet to be systematically theorized (Jiang, 2025). Furthermore, the body of research on dance education remains relatively limited in comparison to music, particularly with regard to digital embodiment, motion analysis, and sensory-based learning processes. Much of the literature relies on anecdotal or institution-specific experiences, lacking generalized models, strategic frameworks, or scalable best practices (Wei et al., 2022).

Given these constraints, a more holistic and problem-oriented approach is needed to examine teaching reform in music and dance disciplines. There is a pressing need to identify structural barriers and explore the mechanisms through which digital technologies can be effectively embedded in both instructional content and pedagogical methods. This study seeks to address these gaps by integrating literature analysis and case-based inquiry, offering a framework for systematic and practical reform strategies tailored to the evolving needs of arts education in the digital age.

3. Research Methodology

This study adopts a qualitative research orientation, emphasizing interpretive understanding and explanatory analysis of educational phenomena. The primary objective is to identify the structural challenges encountered in the teaching reform of music and dance programs within Chinese higher education institutions and to explore how digital technologies can be integrated to drive substantive transformations in teaching content and instructional approaches. To achieve these aims, the study employs a combination of document analysis and case study methods, thereby bridging theoretical abstraction with empirical insight.

The document analysis method is utilized to systematically review and synthesize existing scholarly work in the fields of higher education reform, digital education integration, and pedagogical innovation in arts education. Relevant literature was retrieved primarily from CNKI (China National Knowledge Infrastructure) and Google Scholar. Selection criteria included thematic relevance, scholarly credibility, and temporal coverage, with a particular focus on high-quality publications and policy documents published between 2008 and 2024. Through thematic categorization, comparative review, and conceptual integration, the literature was analyzed in terms of key issues such as evolving pedagogical philosophies, curriculum restructuring, technological integration, and faculty development. This process was intended to identify dominant perspectives, summarize scholarly consensus, and expose existing gaps in the literature. The document analysis thus serves to construct the theoretical framework of the study and inform the subsequent case investigation.

Building on this foundation, the study adopts a case study approach to examine how reform mechanisms unfold in practice and to uncover the tensions

embedded within institutional change. As a qualitative research method, case study analysis is particularly well-suited for the in-depth exploration of complex educational phenomena situated in real-world contexts, especially where the boundaries between phenomenon and environment are not clearly delineated (Leadley et al., 2023). This study employs an explanatory case study strategy and selects institutions that exhibit active engagement in digital teaching reform in music and dance education, including the Central Conservatory of Music, the Beijing Dance Academy, and several arts faculties within regional comprehensive universities. Data sources for the case studies include official university websites, institutional policy documents, digital teaching platform records, media reports, and publicly available interviews, ensuring transparency and source validity. The aim is to examine the types of challenges encountered during reform implementation, identify underlying structural mechanisms, and extract transferable strategies with broader relevance.

By combining document analysis with case study research, the study follows a methodological trajectory of "theoretical identification—practical induction—mechanism construction." Document analysis helps to establish the analytical framework and delineate the problem space, while case study analysis enables contextual validation, reconstruction of the reform dynamics, and extraction of systemic insights. Together, these methods serve the research objectives by supporting both theoretical inquiry and evidence-based reflection, ultimately informing a comprehensive and actionable framework for the digital transformation of teaching in music and dance education.

4.Results

4.1 Challenges in Teaching Reform of Music and Dance Programs in Chinese Universities

Based on a systematic review of relevant literature and the analysis of representative institutional cases, it is evident that music and dance programs in Chinese universities face deeply rooted structural challenges in the process of pedagogical reform. These challenges primarily manifest in three interrelated domains: outdated curriculum structures, limited methodological innovation, and a misalignment between faculty competencies and institutional support systems. Collectively, these issues hinder the effective integration of digital technologies and impede the holistic advancement of teaching reform.

At the curricular level, recent studies have highlighted persistent problems of narrow content scope, insufficient modernization, and rigid structuring in both music and dance education. In music programs, for instance, instruction continues to emphasize technical training and textbook-based knowledge transmission, while paying inadequate attention to pedagogical competencies, artistic expression, and cultural contextualization (Du & Leung, 2022; Jiang et al., 2022). As Kong (2024) notes, music teaching methodology courses often lack breadth in

instructional goals and are poorly aligned with the actual needs of classroom-based music education, thereby limiting the development of students' interdisciplinary and creative capacities. Similarly, in dance programs, the curriculum remains heavily centered on skill acquisition, with limited support for fostering creative thinking, aesthetic judgment, and self-efficacy (Yang & Heong, 2024). Reilly and Reeves (2023) point out that students' creative capacity is closely tied to their belief in their own innovative abilities—a dimension that remains underemphasized in current course designs. Moreover, dance curricula are insufficiently connected with fields such as cultural studies, media, or physical education, thereby weakening their potential for interdisciplinary expansion and intellectual growth (Li & Liang, 2024).

In terms of instructional approaches, traditional teacher-centered, demonstration-based pedagogies continue to dominate the classroom environment, offering limited opportunities for student interaction, participation, or exploratory learning (Li & Liang, 2024). Although some universities have experimented with blended learning models and flipped classroom formats, these innovations often lack substantive integration with restructured curricula or robust digital platforms. As R. Huang et al. (2024) argue, pedagogical transformation without meaningful content adaptation or technological support tends to be superficial and unsustainable. Furthermore, the embodied and performative nature of music and dance presents specific challenges to digitization. While tools such as online rehearsals, remote feedback systems, and virtual performance simulations hold promise, they frequently fail to deliver adequate fidelity in terms of movement detail, real-time responsiveness, or emotional resonance—thus compromising the overall quality of the learning experience (Chen et al., 2024).

The divergence between faculty digital literacy and institutional infrastructure exacerbates these difficulties. Studies reveal that many university-level arts educators lack adequate training and practical experience in using digital platforms, designing interactive instruction, or aligning content with emerging technologies (Y. Kim et al., 2024). In dance education, for example, instructors are expected not only to perform and teach physical movements but also to digitize these processes into accessible and effective instructional content—yet such competencies are rarely incorporated into faculty development programs. Additionally, the absence of coherent evaluation systems, weak incentives for innovation, and limited administrative support contribute to fragmented reform efforts, which are often unsustained and lack strategic coordination.

Importantly, research in dance education further indicates that students' creative development is strongly predicted by their level of innovative self-efficacy, which in turn depends on supportive pedagogical environments that foster openness, inclusion, and motivational feedback (Ji et al., 2025). Without such conditions, reforms risk

failing to reach the deeper goal of enabling student-centered, creativity-driven education.

Taken together, the pedagogical reform of music and dance programs in Chinese universities is constrained by a complex interplay of curriculum rigidity, methodological inertia, faculty development gaps, and institutional inertia. These structural impediments are not isolated but mutually reinforcing, resulting in a reform trajectory that remains superficial and fragmented. Under these conditions, it becomes imperative to explore how digital technologies can be systematically embedded within teaching content and pedagogical design to disrupt these entrenched constraints and move toward genuine structural transformation.

4.2 The Role and Challenges of Digital Technology in Restructuring Teaching Content

Amid the ongoing digital transformation in education, digital technologies are no longer merely tools for enhancing efficiency; rather, they have become critical instruments in reshaping university curricula and redefining knowledge structures and learning logic. For arts-based disciplines such as music and dance—which are inherently expressive, experiential, and interactive—the integration of digital technologies signifies a fundamental shift in the paradigm of instructional content. Evidence from recent literature and case-based research indicates that while theoretical consensus on content restructuring has been gradually established, the practical implementation of such restructuring still faces multifaceted challenges related to adaptation, design logic, and pedagogical coherence (Jarrett et al., 2022; P. Li et al., 2024).

On the positive side, digital technology has substantially expanded the boundaries of instructional content, enabling cross-temporal and multimodal knowledge expression. The incorporation of ICT—including virtual platforms, multimedia tools, and intelligent interactive systems—has transformed traditionally linear and lecture-based content into more dynamic, visualized, and collaborative forms. This transformation supports a shift from knowledge-centered to competency-based curriculum architecture (Bhute et al., 2021; Yanxia Zhao et al., 2024). For instance, in music education, harmonic relationships and compositional logic can be presented through digital visualizations and layered audio simulations, while in dance instruction, motion-capture and 3D modeling technologies allow students to deconstruct and reconstruct choreography through repeated, self-paced observation (Liu, 2024).

Research further suggests that the integration of digital technologies not only enhances content openness and accessibility but also promotes individualized and differentiated learning (Timotheou et al., 2023). Generative artificial intelligence (GenAI) technologies, for example, offer real-time customization of learning materials through functions such as personalized content recommendations, automated feedback generation, and adaptive task design—forming what Feuerriegel et al. (2024) refers to as a “generative support system” for course

content development. ICT tools such as e-portfolios, visual knowledge maps, and modular AI-powered learning frameworks have facilitated a shift from "teacher-centered" content organization to a learner-centered and cognitively responsive content ecosystem (Procel et al., 2024).

Moreover, instructional content in the digital era increasingly reflects behavioral and collaborative dimensions. Content is now often designed not just to convey information, but also to cultivate critical thinking, teamwork, and applied problem-solving through task-based, co-constructed, and context-rich formats (Haznedar et al., 2024). This trend is particularly relevant to music and dance education, where creativity, physicality, and ensemble coordination are central. For instance, AI-generated choreographic prompts can stimulate students' engagement with movement style, spatial arrangement, and emotional nuance, while virtual ensemble platforms in music facilitate real-time collaboration and feedback in a shared digital environment.

Nonetheless, despite its transformative potential, digital content restructuring is constrained by several deep-rooted issues. First, many existing courses remain undeveloped in terms of modular design and media translation, resulting in superficial digitization wherein traditional materials are merely uploaded onto platforms without fundamental pedagogical redesign (I. Kim et al., 2024). Second, while digital tools are widely available, content design is still heavily dependent on faculty expertise in both instructional design and technological implementation. In many cases, instructors serve as "content carriers" rather than "curriculum designers," lacking the training and institutional support required for meaningful content transformation (Benlhabib & Berrado, 2025; Kim et al., 2022). Third, disciplinary discrepancies in technological adaptability present further barriers. Dance education, in particular, imposes high demands on digital translation due to the spatial, kinesthetic, and sensory nature of its content (Magalhães, 2023). As a result, course development in this domain remains costly, fragmented, and technically complex.

In addition, issues of digital inequality and cultural misalignment exacerbate the challenges of content restructuring. In resource-constrained institutions or rural regions, limited infrastructure and weak platform support may not only hinder digital access but also widen existing gaps in educational equity (Raihan et al., 2024). Furthermore, content developers often overlook the cultural specificity of learners, leading to mismatches between imported digital materials and local pedagogical contexts, which in turn undermine instructional relevance and effectiveness.

In summary, digital technologies offer significant potential for restructuring teaching content in music and dance education, but the actual impact depends on the coherence of curriculum logic, faculty competence, platform functionality, and policy alignment. Future content development should prioritize the integrated construction of generative technology,

cognitive structure, and behavioral competency. Only when digital content becomes a medium for expression, a scaffold for knowledge organization, and a pathway for artistic understanding, can the restructuring of instructional content transcend surface-level transformation and achieve substantive, systemic change.

4.3 Pathways and Mechanisms of Instructional Innovation Driven by Digital Technologies

Instructional methods, as the operational foundation of curriculum implementation, have evolved beyond superficial modifications in form toward structural transformation in logic, cognitive scaffolding, and patterns of teacher–student interaction. In the context of increasingly sophisticated applications of digital technologies—particularly artificial intelligence (AI) and platform-based learning environments—the innovation of teaching methods in higher education is shifting from tool-based substitution to a systemic reconfiguration centered on task design, feedback mechanisms, and professional role realignment. For performance-based disciplines such as music and dance, this transformation is particularly complex due to their intrinsic reliance on embodied learning, emotional expression, and immediate feedback, thus requiring an adaptive pedagogical architecture grounded in digital logic and shaped by disciplinary specificity.

Recent studies demonstrate that AI-powered platforms are reconstructing instructional methods by creating dynamic learning environments capable of continuous task generation and personalized content delivery based on learner behavioral data and cognitive progression (Sanabria-Z et al., 2023; Troussas et al., 2025). These systems enable the decomposition, reorganization, and sequencing of instructional tasks in real time. In dance education, for instance, AI systems adjust movement breakdowns and pacing based on motion accuracy; in music instruction, they generate customized melodic or rhythmic templates to support student composition. Such algorithmic task orchestration replaces the rigidity of traditional uniform planning with adaptive teaching flows, enhancing pedagogical responsiveness to individual learner variability.

Simultaneously, the role of instructors is undergoing significant transformation. As AI assumes increasing responsibility for assessment, feedback generation, and semantic analysis, instructors are repositioned from content transmitters to learning designers and meta-cognitive facilitators (Carnevale et al., 2021). Within music and dance education, this shift is particularly salient. Instructors are now expected to construct instructional scenarios, define performance criteria, and interpret complex, emergent student outputs rather than merely deliver fixed content. These changes demand a heightened degree of pedagogical intentionality, technical fluency, and reflective capacity, situating instructors as architects of modular learning ecosystems and interpreters of AI-augmented learner behavior.

A parallel innovation is found in the transformation of feedback mechanisms, which now rely on the synergy between algorithmic immediacy and human interpretative depth. While AI systems can generate rapid formative feedback based on multimodal data inputs (text, voice, movement), they often fall short in capturing expressive nuances, stylistic intent, and affective subtleties—critical components of artistic performance (Jürgensmeier & Skiera, 2024; Karmakar et al., 2025). In response, hybrid feedback models have emerged wherein AI provides preliminary diagnostics and instructors offer semantic calibration and stylistic guidance. This dual-channel feedback architecture enhances precision and contextual relevance, enabling more nuanced learning trajectories in expressive disciplines.

Moreover, student agency is being substantively redefined within AI-augmented instructional methods. Digital platforms now frequently embed visualization dashboards, progress tracking tools, and adaptive goal-setting features, enabling learners to take greater ownership over their pace, sequence, and depth of engagement (Halkiopoulos & Gkintoni, 2024). For music and dance education—where skill acquisition is iterative and feedback-driven—such systems support the development of self-regulatory competencies and encourage sustained creative exploration. These features represent a paradigmatic shift from teacher-directed delivery to learner-centered knowledge construction.

Case-based research on next-generation institutional models further suggests that instructional innovation is dependent not solely on technological capability, but also on the restructuring of educational roles, content modularization, and systemic alignment (Pacher et al., 2024). In fourth-generation universities, for example, instructors no longer design entire courses but contribute metadata-enriched modular units that are dynamically recombined by AI engines based on learner profiles and curricular objectives. This modular logic enhances content reusability, instructional agility, and cross-disciplinary integration. However, such innovation is viable only when accompanied by institutional support mechanisms including faculty development programs, incentive structures, and curricular governance aligned with platform capabilities.

Taken together, the integration of digital technologies into instructional methodology within music and dance education represents a shift from surface-level digitization toward systemic pedagogical restructuring. This transformation is manifest in three interlocking developments: AI-based task generation logic, the redefinition of teacher agency and instructional roles, and the embedding of hybrid feedback mechanisms. These elements do not function in isolation but operate as interdependent components within a complex instructional ecology. Such an ecology not only enhances personalization, adaptability, and interactivity in the learning process but also lays the methodological foundation

for artistic education to evolve meaningfully within the intelligent era.

4.4 The Coordination Dilemma and Systemic Pathways of Pedagogical Reform in Chinese Higher Education

Despite the growing emphasis on digital transformation in Chinese higher education, particularly in the modernization of instructional content and the adoption of technology-enhanced pedagogies, the advancement of systemic reform remains constrained by what can be termed a "coordination dilemma." In this context, coordination dilemma refers to the absence of dynamic coupling mechanisms among core components of the instructional system—namely, teaching content, pedagogical methods, teacher roles, technological platforms, and institutional structures. This misalignment manifests in fragmented reform trajectories, asynchronous implementation schedules, and a persistent disconnect between responsibilities and outcomes (Acosta, 2023; Shao et al., 2024).

The coordination dilemma is especially pronounced in performance-based disciplines such as music and dance, where expressive processes, embodied cognition, and creative autonomy are central to pedagogical success. On the one hand, efforts to digitalize instructional content—through AI-assisted scoring systems, virtual ensemble tools, or motion-capture platforms—often unfold independently of curricular logic or pedagogical adaptation. As a result, advanced technologies are embedded into conventional teaching routines without altering the underlying instructional design, producing a mismatch between innovation intent and pedagogical execution. On the other hand, the evolution of teachers' professional capabilities has lagged behind the expansion of platform functionality. Many instructors continue to rely on experience-based teaching models and remain unfamiliar with the procedural logic of intelligent platforms, leading to partial or ineffective integration of technological affordances.

These disconnections not only undermine the coherence of reform practices but also entrench systemic inertia at the institutional level. Curricular governance and academic administration in most Chinese universities still operate under traditional, discipline-specific structures that lack mechanisms for modular course development, cross-platform instructional design, or data-informed feedback loops (H. Li et al., 2024). As a result, isolated innovations are often restricted to pilot courses or small-scale programs, without generating replicable models for broader institutional transformation.

Addressing this dilemma requires the construction of systemic pathways tailored to the structural and cultural realities of Chinese higher education. These pathways should involve the reconfiguration of pedagogical logic from content coverage to task completion, supported by digital technologies that embed instructional tasks, learner behavior, and formative feedback into a coherent instructional loop. In music and dance education, for

instance, AI-driven tools integrated into task-based design processes have been shown to enhance students' precision in physical performance and capacity for personalized artistic expression through iterative, data-informed feedback cycles (H. Li et al., 2024; Yan et al., 2024).

Within this framework, the redefinition of teachers' roles emerges as a critical element. The effective deployment of intelligent platforms depends not only on technical functionalities but also on the instructor's ability to orchestrate learning environments, generate learning tasks, and interpret multimodal feedback. Rather than relying on ad hoc adaptation, institutions must establish structured programs that cultivate cross-functional teaching capabilities—spanning design thinking, platform literacy, and behavioral analytics. Professional development models such as AI-assisted teaching studios, scenario-based method workshops, and cross-platform mentoring systems can serve to align instructional design with platform affordances in a systematic fashion.

Reform at the governance level is equally essential. Curricular administration in Chinese universities must move beyond content-based course approval systems and embrace learning-process-oriented models of course development, assessment, and quality assurance. Emerging examples—such as the modular course design initiatives at a southern Chinese university's digital music program—demonstrate how teaching teams organized around module leads and platform analysts can enable collaborative design, cross-platform integration, and student progress monitoring. The resulting instructional system has shown measurable improvements in teaching satisfaction and student creativity, providing a promising template for broader reform.

Nevertheless, the implementation of systemic pathways continues to encounter several critical barriers. Teacher engagement with platform design and feedback mechanisms remains uneven, often constrained by disparities in digital fluency and time resources (Hennessy et al., 2022). Platform architectures, for their part, are frequently optimized for linear, STEM-oriented instructional models and lack compatibility with the nonlinear, expressive, and multimodal demands of the arts (Duan et al., 2025). In addition, data governance systems have yet to incorporate behavioral learning data as core assets in instructional decision-making, resulting in the marginalization of valuable feedback loops (Nandan Prasad, 2024).

To overcome these limitations, systemic pathways for pedagogical reform in Chinese universities must be developed as integrated frameworks encompassing instructional logic, professional capability, platform functionality, and governance adaptability. Only by embedding design principles, data analytics, and strategic alignment into the full life cycle of teaching and learning can digital reform evolve from isolated experimentation into organizational transformation. For disciplines such as music and dance, the construction of such pathways is not merely a technical upgrade—it constitutes the epistemological and

structural basis for reimagining arts education in the age of intelligent coordination.

5.Discussion and conclusion

5.1 Theoretical Implications

This study investigates the structural logic and systemic mechanisms underlying pedagogical reform in music and dance programs at Chinese universities under the broader context of digital transformation. Drawing on document analysis and case-based inquiry, the research systematically examines the current state of reform efforts, highlighting challenges in content redesign, instructional innovation, and coordination mechanisms. The study reveals that the primary barrier to effective reform is not the absence of technological tools, but rather the lack of structural coupling between content design, pedagogical logic, and institutional governance. In response, a triadic coordination model—comprising task logic, platform integration, and governance mechanisms—is proposed. This model emphasizes that pedagogical reform must be guided by task-based instructional objectives, operationalized through platform-mediated processes, and institutionalized via adaptive administrative mechanisms that facilitate meaningful interactions between teachers and technologies.

In comparison with existing research, this study offers three notable theoretical contributions. First, it expands the analytical scope of digital education theory. While prior research has focused primarily on general education, STEM curricula, or standardized instructional formats (Thomas & Larwin, 2023; Zhang & Zhu, 2023), this study shifts attention to performative arts disciplines, which have long been underrepresented in digital pedagogy discourse. By introducing the concept of "expressive content adaptation," the study integrates embodied, generative, and context-sensitive features of music and dance education into the theoretical landscape of digital teaching and learning. Second, it enriches task-based and generative learning theories by applying them to non-standardized, performance-centered disciplines. Unlike linear, transmission-oriented instruction, artistic pedagogy emphasizes emergent learning processes and individual variability (Sato et al., 2025). This study develops a "task–data–feedback" instructional model, which recasts teaching as a process of behavioral generation and formative response, thereby extending the applicability of generative learning theory across disciplinary boundaries. Third, the study reconceptualizes the notion of instructional coordination. Whereas much prior research has focused on teachers' willingness to adopt technologies or platforms' functional compatibilities (Antonietti et al., 2022; Marks & Thomas, 2022), this research foregrounds the dynamic interactions among teacher agency, platform logic, and institutional governance. The resulting systemic model advances theoretical inquiry from a functionalist perspective toward an organizational and process-oriented understanding of instructional ecosystems.

In sum, this research addresses critical theoretical gaps in the literature on digital reform in arts education. It offers a structural framework for understanding pedagogical transformation in expressive disciplines and introduces a generalizable model—task-driven, platform-coordinated, and governance-embedded—that may inform future studies on multimodal, nonlinear, and systemically integrated teaching paradigms in digitally mediated learning environments.

5.2 Practical Contributions

Beyond its theoretical advancements, this study offers concrete practical implications for promoting digital transformation within music and dance education in Chinese universities. The findings reveal a set of actionable pathways for institutions seeking to align artistic pedagogy with emerging technologies and systemic reforms.

One key contribution lies in the restructuring of instructional content. This research advocates a shift from traditional knowledge-centered modules toward task-oriented instructional units. By reconfiguring course content around performative tasks and expressive outcomes, the proposed approach enables a more organic integration of digital tools into the pedagogical workflow. For music and dance disciplines—where real-time feedback, embodied expression, and processual learning are essential—this model facilitates meaningful interaction between content delivery and technological mediation.

At the level of instructional organization, the study emphasizes the need for reconfiguring the relationship between teachers, platforms, and learners into a tripartite collaborative structure. Rather than treating platforms as passive content repositories, this research proposes their transformation into active pedagogical agents—supporting task assignment, adaptive feedback, and iterative learning loops. In doing so, teaching becomes a dynamically orchestrated process, wherein technological affordances are synchronized with instructional intent and student progress.

With respect to faculty development, the study identifies a pressing need to move beyond conventional training models and toward integrated professional development ecosystems. It recommends the creation of interdisciplinary training modules that address three interconnected competencies: curriculum design, digital platform fluency, and behavioral feedback analysis. Such an approach would support the transformation of instructors from content deliverers to instructional designers capable of leveraging intelligent platforms in performance-based settings.

On the institutional level, the research proposes a rethinking of governance models to support sustainable digital innovation. Suggested measures include the establishment of “Instructional Content Redesign Centers” tasked with managing modular curriculum development, as well as cross-functional teams responsible for data-driven feedback calibration and platform integration. These governance structures would facilitate the transition from static course management systems

to process-oriented learning ecosystems, thereby institutionalizing reform beyond isolated pilot initiatives.

Importantly, these contributions align closely with ongoing national initiatives such as the "New Liberal Arts" construction framework and the Ministry of Education's "AI + Education" strategic roadmap. The proposed system pathway—centered on coordination between instructional logic, platform architecture, and administrative support—provides a scalable model for Chinese universities seeking to advance digital teaching in the arts. Moreover, the insights generated by this study are transferable to other expressive disciplines such as theatre, visual arts, and interdisciplinary creative programs, offering a valuable framework for broader application across the humanities and arts in digitally mediated learning contexts.

5.3 Conclusion

This study has explored the pedagogical transformation of music and dance programs in Chinese universities under the influence of digitalization. By analyzing the structural challenges and reform trajectories within these expressive disciplines, the research has identified key tensions between technological adoption and pedagogical coherence. Through an integrated framework encompassing instructional content redesign, methodological innovation, and systemic coordination, the study offers both theoretical insight and practical strategies for advancing digital reform in arts-based higher education.

The core finding of this study is that successful digital transformation in the context of music and dance education requires more than the deployment of digital tools. Instead, it demands a systemic reconfiguration of the pedagogical ecosystem—one in which task-based learning logic, platform-enabled instructional flow, and governance structures are dynamically aligned. The proposed "task–platform–mechanism" triadic model highlights the need for deep coordination among curricular design, technological mediation, and institutional support in order to overcome fragmentation and realize sustained reform.

This research contributes to the broader discourse on digital pedagogy by extending existing theoretical models to underexplored fields such as performance-based arts education. It emphasizes the significance of multimodal learning, embodied cognition, and process-oriented assessment as core dimensions of digital reform in expressive disciplines. The study also offers a pathway for institutional innovation through integrated teacher development, modular content design, and platform-based feedback systems—each tailored to the specific needs of music and dance education in the Chinese higher education landscape.

Looking ahead, future research may build upon this conceptual framework by conducting empirical investigations across diverse institutional types, regions, and disciplines. Comparative studies involving other artistic fields—such as visual arts, drama, or interdisciplinary creative practice—may further validate and refine the proposed

model. Additionally, the implementation of experimental or pilot programs based on the systemic pathway outlined in this study would offer valuable feedback for institutional policymakers and curriculum developers seeking to embed digital transformation within the unique logics of artistic instruction.

In summary, the findings reaffirm that the digital transformation of arts education in Chinese universities cannot rely on piecemeal innovations or isolated technological upgrades. Rather, it must be approached as a system-wide endeavor that synchronizes pedagogical theory, instructional practice, and institutional governance to cultivate a digitally competent, pedagogically coherent, and artistically expressive educational environment.

Suggestion

To effectively promote digital transformation in music and dance education in Chinese universities, it is suggested that institutions adopt a system-oriented approach that integrates task-based instructional design, intelligent platform functionality, and governance mechanisms. Curriculum developers should restructure teaching content into modular and expressive tasks that align with digital tools for feedback and performance assessment. Faculty development programs should prioritize interdisciplinary competencies, including platform literacy and data-informed instructional design. Universities are encouraged to establish dedicated centers for teaching innovation and content redesign to support cross-functional collaboration among teachers, platform developers, and administrators. Policy frameworks should also be updated to support the embedding of intelligent technologies into the structure of artistic education, ensuring long-term sustainability and educational equity in digital reform efforts.

New Knowledge

This study offers an empirical conceptualization of digital teaching reform in the context of arts education by proposing a "Task–Platform–Mechanism" coordination model. Unlike prior frameworks focusing on tool adoption or teacher attitudes, this model reveals how systemic alignment among instructional tasks, intelligent platforms, and governance mechanisms is critical for sustaining reform. The model explains how task-driven content reconstruction can be synchronized with platform-based data feedback and institutional processes to form a coherent digital teaching ecosystem. The findings provide a new analytical lens for understanding how pedagogical reform in performance-based disciplines, such as music and dance, can move beyond fragmented experimentation toward structured and scalable innovation.

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