

Interdisciplinary Approaches to Musical Literacy through the Transmission of Guinan Caicha Xi Chinese Opera

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ABSTRACT

This study examines the interdisciplinary approach to musical literacy through the transmission of the Guinan Caicha Xi Chinese Opera, a traditional folk opera from Guangxi Zhuang Autonomous Region, China. This opera, historically performed by tea farmers, integrates storytelling, expressive melodies, and cultural symbolism, serving as a repository of local heritage. However, modernization and digital globalization have led to a decline in transmission, highlighting the need for innovative pedagogical approaches. This research adopts a qualitative case study methodology, focusing on three educational and cultural institutions actively teaching Guinan Caicha Xi Chinese Opera. Data were collected through semi-structured interviews, curriculum analysis, and observational studies with nine informants, including a senior opera educator and a digital media specialist. The results reveal that an interdisciplinary approach integrating historical narratives, linguistic analysis, digital tools, and performance-based learning significantly enhances students' engagement and comprehension. While digital resources improve accessibility, traditional oral transmission remains crucial for cultural continuity. The findings suggest that combining traditional and modern educational strategies is essential for the sustainable preservation of Guinan Caicha Xi Chinese Opera in contemporary education. The study recommends future research on the long-term impact of interdisciplinary education and comparative analyses with other regional folk operas to refine the best cultural transmission practices.

Key words: Musical Literacy, Interdisciplinary Education, Guinan Caicha Xi Chinese Opera, Folk Opera Transmission, Digital Music Pedagogy

INTRODUCTION

Musical literacy is a vital component of music education beyond the basic ability to read and perform musical notation. It encompasses a deeper understanding of musical traditions' historical, cultural, and linguistic elements, fostering a more comprehensive appreciation of music as an art form. Traditional folk operas, such as Guinan Caicha Xi Chinese Opera, provide an exceptional case for examining musical literacy due to their intricate combination of storytelling, vocal techniques, rhythmic structures, and symbolic gestures (Broomhead, 2018; Feldman et al., 2020; Jian et al., 2024). These operas serve as historical and cultural archives, preserving a community's values, customs, and aesthetics through generations. However, the rapid advancement of modernization and the increasing influence of globalized popular music have led to a decline in the transmission and appreciation of these traditional art forms. As younger generations are more exposed to contemporary and digitalized music genres, traditional operas struggle to maintain relevance, posing a challenge for educators and cultural

practitioners who aim to sustain and promote these historical legacies (Alieva et al., 2019; Cheng, 2023; Qiu et al., 2024).

The challenges in transmitting Guinan Caicha Xi Chinese Opera reflect broader issues in traditional music education, where a discipline-specific approach often limits student engagement and understanding. In conventional music education, musical literacy predominantly focuses on Western notation systems, performance techniques, and theoretical analysis, with little emphasis on the cultural and historical dimensions that shape diverse musical traditions. As a result, students may struggle to grasp the significance of traditional operas, perceiving them as outdated or disconnected from contemporary musical landscapes (Howard, 2020; Savage, 2019; Xiaozhi, 2024). This gap in education highlights the need for an interdisciplinary approach that integrates multiple fields of study, including history, linguistics, performing arts, and digital technology, to enhance musical literacy. By embedding Guinan Caicha Xi Chinese Opera within a broader educational framework, students can gain a richer and more immersive learning experience that connects music to cultural

narratives, language structures, and technological advancements (Anderson et al., 2018; Becker, 2020). This approach ensures that students develop technical proficiency and acquire a deeper appreciation for the sociocultural contexts of musical traditions.

The primary objective of this study is to examine the interdisciplinary approach to musical literacy through the transmission of Guinan Caicha Xi Chinese Opera. Specifically, the research explores how different academic disciplines enhance students' understanding and engagement with this traditional opera form. By investigating the integration of historical context, linguistic analysis, performance-based learning, and digital innovations, this study aims to assess the effectiveness of interdisciplinary strategies in fostering musical literacy. Through qualitative analysis of educational models, interviews with practitioners, and curriculum evaluations, this study will provide insights into how interdisciplinary education can bridge the gap between traditional opera and modern pedagogical practices.

The significance of this study lies in its contribution to music education and cultural preservation. By advocating for an interdisciplinary approach, this research promotes a more effective method of teaching musical literacy. It provides a sustainable model for preserving Guinan Caicha Xi Chinese Opera in contemporary education. The findings will be valuable for educators, policymakers, and cultural institutions seeking to integrate traditional music into school curricula while maintaining student engagement. Additionally, the study highlights the importance of digital media and technology in revitalizing traditional operas, offering innovative solutions for reaching wider audiences and ensuring the continued transmission of cultural heritage (Galeati, 2024; Hou et al., 2022; Zhang & Thotham, 2024). In doing so, this research underscores the role of interdisciplinary education in fostering a well-rounded understanding of music, bridging the gap between tradition and modernity, and inspiring future generations to appreciate and sustain their cultural heritage.

Research Question

- How does an interdisciplinary approach enhance musical literacy through the transmission of Guinan Caicha Xi Chinese Opera in contemporary education?

LITERATURE REVIEW

Musical literacy has evolved beyond reading and writing notation to understanding cultural, historical, and artistic contexts. Traditional folk operas like Guinan Caicha Xi Chinese Opera provide an interdisciplinary lens to explore musical literacy. Conventional music education often focuses on Western classical training, limiting exposure to diverse musical traditions. Interdisciplinary education offers a promising approach to bridge this gap, allowing students to engage with music through multiple disciplines and enhance their understanding of musical and cultural literacy.

Defining Musical Literacy in Contemporary Education

Musical literacy in contemporary education goes beyond the technical ability to read and perform musical notation. It involves understanding musical forms' cultural, historical, and artistic elements, fostering critical listening, expressive performance, and appreciation of music's role in society. This definition aligns with modern educational frameworks that emphasize holistic learning, developing technical skills, and analytical and interpretative competencies. Traditional folk music and opera require an understanding of regional tonal systems, vocal techniques, and performance traditions that differ from the standardized Western approach. An interdisciplinary approach to musical literacy ensures students gain technical knowledge and cultural awareness for a comprehensive understanding of music, allowing them to engage meaningfully with traditional music traditions (Barton & Riddle, 2022; Bauer, 2020; Calvo-Zaragoza et al., 2020).

The Role of Interdisciplinary Education in Music Learning

Interdisciplinary education is a growing approach to music education that integrates various academic disciplines, such as history, language, performing arts, and digital technology, to enhance student engagement and comprehension. This approach allows learners to view music as a medium for telling history, preserving languages, and transmitting traditions. For example, studying Guinan Caicha Xi Chinese Opera through an interdisciplinary lens provides insights into its historical development, linguistic elements, and performance practices. Analyzing the opera's lyrics can deepen appreciation for regional dialects and storytelling methods. Digital media, such as interactive platforms and virtual performances, further enhances engagement and understanding. This interdisciplinary approach ensures that musical literacy extends beyond technical proficiency, including cultural appreciation and contextual knowledge (Cuervo, 2018; Olvera-Fernández et al., 2023; Rakhimbaeva et al., 2019).

The Cultural and Musical Significance

Guinan Caicha Xi Chinese Opera is a distinctive regional folk opera in Guangxi, China, known for its distinctive vocal styles, expressive melodies, and cultural roots. Historically, it served as entertainment for tea farmers, blending storytelling, music, and performance to reflect community values. The opera's thematic narratives often revolve around rural life, love, and morality, offering an artistic representation of local customs and traditions. Its music features pentatonic scales, rhythmic cadences, and dynamic vocal techniques, while its performance style incorporates elaborate gestures, symbolic costumes, and stage movement. However, the opera faces challenges in contemporary education due to the shift towards modern entertainment and digital media, reducing younger generations' exposure to traditional opera forms. The lack of

structured educational programs further exacerbates this issue, necessitating the exploration of new methods for preserving and transmitting this art form (Li, 2024; Geng, 2024; Zeng & Maneewattana, 2024).

Challenges in Transmitting

Despite its cultural and educational value, Guinan Caicha Xi Chinese Opera faces several challenges in modern education. The integration of traditional opera into school curricula is limited due to Western classical music, leaving little room for indigenous operatic traditions. This disconnect between students and their cultural heritage reduces the likelihood of younger generations engaging with and preserving traditional operas. Students often perceive folk opera as outdated or irrelevant, and the emergence of globalized popular music and digital content has shifted musical preferences. Insufficient training of music educators in folk opera further contributes to its decline. However, modern pedagogy and digital technology can offer innovative engagement methods like interactive platforms, virtual reality experiences, and online archives. Interdisciplinary teaching methods, such as combining music with historical studies, linguistic analysis, and performance practice, can create a more engaging and relevant learning experience, ensuring students develop a deep and lasting appreciation for Guinan Caicha Xi Chinese Opera (Leung, 2020; Skelton, 2024; Yu & Chuangprakhon, 2025; Wang et al., 2025).

METHOD

This study employs a qualitative research design to explore how interdisciplinary approaches enhance musical literacy through the transmission of Guinan Caicha Xi Chinese Opera. The study investigates the integration of music, history, linguistics, and digital media in contemporary education (Barrett, 2023; Chen & Sensai, 2024). It focuses on educational institutions and cultural centers that incorporate traditional folk opera into their curricula. Data were collected through semi-structured interviews, curriculum analysis, and observational studies, with input from nine informants specializing in different aspects of Guinan Caicha Xi Chinese Opera.

Research Design

The study follows a qualitative case study approach to provide an in-depth understanding of how interdisciplinary education contributes to musical literacy. This approach allows for a comprehensive exploration of pedagogical strategies, curriculum integration, and cultural transmission. As shown in Table 1, the research is structured around three primary areas of investigation:

Research Site

The study was conducted in three distinct types of educational and cultural institutions actively engaged in teaching and preserving Guinan Caicha Xi Chinese Opera. These sites were chosen based on their use of interdisciplinary learning

strategies and their role in cultural preservation. As shown in Table 2, the selected research sites include:

Key Informants

To ensure diverse perspectives, the study engaged nine informants from various professional backgrounds, classified into three categories. Each group provided unique insights into how interdisciplinary approaches impact the teaching and transmission of Guinan Caicha Xi Chinese Opera. As shown in Table 3, the informants were categorized as follows:

Data Collection

The study used semi-structured interviews to gather insights from educators, performers, and scholars on interdisciplinary teaching methods. The interview questions were designed to explore key aspects of musical literacy development, including digital integration in folk opera education, the effectiveness of interdisciplinary methods, and the challenges in

Table 1. Research focus areas

Research Component	Description
Musical Literacy Development	Examining how students develop musical literacy through notation, performance, and cultural appreciation
Interdisciplinary Curriculum Integration	Analyzing how subjects like history, linguistics, and digital media intersect with opera education
Transmission and Pedagogical Strategies	Investigating the methods educators use to sustain and enhance the tradition of Guinan Caicha Xi Chinese Opera

Table 2. Research sites and their characteristics

Research Site	Description
Performing Arts Schools	Institutions offering structured opera training and integrating interdisciplinary approaches
Universities with Music Programs	Higher education institutions embedding Guinan Caicha Xi Chinese Opera into broader cultural and music studies curricula
Community-Based Cultural Centers	Local organizations focused on preserving and transmitting folk traditions through informal education and performance

Table 3. Informant categories and their roles

Informants	Role in Cultural Transmission
Three Key Informants	Educators specializing in Guinan Caicha Xi Chinese Opera and interdisciplinary music education
Three Casual Informants	Performers and cultural practitioners actively engaged in opera transmission
Three General Informants	Scholars and digital media specialists focusing on innovative teaching methods

transmitting Guinan Caicha Xi Chinese Opera. Informants were asked to reflect on their experiences teaching opera, discuss their perspectives on interdisciplinary curriculum integration, and provide examples of student engagement with historical, linguistic, and digital elements.

Data collection methods included:

- Semi-structured interviews: These were conducted with all nine informants and focused on educational strategies, digital adaptations, and historical integration in teaching opera.
- Curriculum analysis: Reviewing educational programs that incorporate interdisciplinary approaches to traditional opera transmission.
- Observational study: Examining classes, workshops, and performances that integrate music with other disciplines.

Data Analysis

The data was analyzed using a thematic approach to identify recurring patterns and themes related to interdisciplinary learning and musical literacy development. The process involved transcription and review of interviews and observation notes, initial data coding into thematic categories, identification of key themes, comparative analysis of different teaching methodologies, and interpretation of results to assess the effectiveness of interdisciplinary approaches. Key themes identified included historical context in teaching, linguistic analysis of lyrics, digital media and learning tools, and student engagement and learning outcomes. These findings contribute to understanding the role of historical narratives in enhancing students' understanding of Guinan Caicha Xi Chinese Opera.

Research Limitations

To address these limitations, the study employed triangulation by cross-referencing interview responses with curriculum analysis and observational data. Multiple perspectives were considered to reduce researcher bias, and key themes were validated across different data sources. Future research could expand the sample size, include more institutions with diverse teaching models, and conduct longitudinal studies to track the long-term impact of interdisciplinary methods on musical literacy.

RESULTS

This section presents the study's findings, focusing on the impact of an interdisciplinary approach on musical literacy through the transmission of Guinan Caicha Xi Chinese Opera. Data from interviews, curriculum analysis, and observational studies reveal key insights into how historical, linguistic, digital, and performance-based methods enhance learning outcomes. The results are structured into three main areas. These findings highlight the importance of interdisciplinary strategies in ensuring the sustainability and educational relevance of Guinan Caicha Xi Chinese Opera in contemporary music education.

Enhancing Musical Literacy

The results indicate that historical and cultural integration significantly enhances musical literacy in Guinan Caicha Xi Chinese Opera students. Understanding the opera's historical evolution, regional influences, and cultural significance fosters a deeper connection to its melodies, rhythms, and performance techniques. The informants emphasized that when students are exposed to the historical background of Guinan Caicha Xi Chinese Opera, they are more likely to appreciate its musical structure and engage actively in learning. One educator explained:

"Students who learn about the cultural roots of Guinan Caicha Xi Chinese Opera develop a greater sense of ownership and responsibility in preserving it, which directly impacts their musical literacy."

As shown in Table 4, informants identified three major ways historical and cultural integration strengthens musical literacy: contextual learning, comparative analysis, and experiential exposure. Contextual learning allows students to associate musical phrases with historical events, while comparative analysis with other regional operas improves their ability to distinguish stylistic differences. Experiential exposure, such as visiting historical tea plantations or attending local performances, further deepens their understanding of the opera's thematic narratives.

One informant, a performing artist, highlighted the importance of oral transmission in Guinan Caicha Xi Chinese Opera, stating:

"The way elders pass down this music reflects its deep connection to agricultural life and local traditions. By learning about the daily life of tea farmers, students understand the lyrics and the emotional depth behind each melody."

This demonstrates that incorporating historical narratives into the curriculum enhances musical literacy by linking sound, text, and movement with lived experiences. Additionally, educators emphasized that historical storytelling methods, such as narrative-based teaching, significantly improved students' retention of musical phrases. In classroom observations, students introduced to Guinan Caicha Xi Chinese Opera through historical storytelling exhibited higher accuracy in phrasing and rhythmic comprehension than those who only learned through notation-based methods. As shown in Table 5, literacy-based outcomes in

Table 4. Key contributions

Approach	Description
Contextual Learning	Connecting musical elements to historical events and cultural practices to reinforce memory and interpretation
Comparative Analysis	Examining similarities and differences between Guinan Caicha Xi Chinese Opera and other folk operas to build critical analysis skills
Experiential Exposure	Engaging students in cultural activities such as tea-picking festivals and live opera performances to provide direct historical connections

Table 5. Impact of historical and cultural learning

Musical Literacy Skill	Traditional Method	Integrated Approach
Accuracy in Phrasing	Moderate Improvement	Significant Improvement
Rhythm Recognition	Gradual Development	Rapid Development
Expressive Interpretation	Limited Understanding	Strong Emotional Connection
Engagement in Learning	Moderate Interest	Increased Enthusiasm

musical comprehension increased when historical and cultural learning components were incorporated.

A curriculum developer who participated in the study noted, “When students learn that these songs were once performed during harvest celebrations, they sing them with more energy and expression, making the learning process more meaningful.” This suggests that historical and cultural integration provides an emotional and intellectual framework for musical literacy, encouraging students to engage with Guinan Caicha Xi Chinese Opera as a performance art and as a living tradition.

The Role of Digital Technology in Transmission

The research findings indicate that digital technology has become vital for enhancing musical literacy in transmitting Guinan Caicha Xi Chinese Opera. By incorporating online platforms, virtual learning resources, and interactive applications, students gain greater accessibility to the opera’s musical structures, vocal techniques, and historical narratives. Using multimedia tools has significantly expanded the scope of traditional learning, allowing students to practice and analyze Guinan Caicha Xi Chinese Opera beyond conventional classroom settings. One educator highlighted this impact, stating:

“Students who engage with digital media develop a more precise understanding of pitch variations and stylistic nuances, strengthening their overall musical literacy”

As shown in Table 6, informants identified four major benefits of digital technology in the literacy-based transmission of Guinan Caicha Xi Chinese Opera: enhanced accessibility, interactive learning, performance analysis, and virtual collaborations. Online platforms provide students unlimited access to educational materials, while interactive tools increase engagement through self-paced learning experiences. Performance analysis software enables students to review vocal techniques and rhythmic accuracy, and virtual collaborations allow them to engage with artists and educators worldwide.

Digital media specialists have highlighted the effectiveness of mobile applications and online tutorials in improving aural literacy in Guinan Caicha Xi Chinese Opera. These apps help students develop ear training skills, enhancing their ability to recognize melodic patterns and tonal shifts more accurately. This digital engagement complements traditional teaching methods, reinforcing musical literacy by enhancing

Table 6. Benefits of digital technology

Category	Description
Enhanced Accessibility	Online archives and digital resources allow students to engage with opera materials anytime and anywhere
Interactive Learning	Virtual tutorials, interactive applications, and gamified learning methods improve engagement
Performance Analysis	Digital tools enable pitch tracking, rhythm synchronization, and vocal technique evaluation
Virtual Collaborations	Students connect with performers and educators globally, fostering cultural exchange.

listening comprehension and vocal precision. Live-streamed performances and virtual workshops have increased student interest in learning Guinan Caicha Xi Chinese Opera, with interactive online workshops allowing students to observe live performances and receive direct feedback from experienced artists. Real-time digital engagement significantly improved students’ accuracy in tonal production, lyrical comprehension, and rhythm synchronization. Multimedia storytelling techniques, such as animated videos, interactive timelines, and AI-assisted language translation tools, have made the Guinan Caicha Xi Chinese Opera more accessible and engaging for diverse student populations. These digital resources are supplementary tools and integral components of interdisciplinary learning.

Performance-Based Learning as an Effective Pedagogical Strategy

Findings from the study indicate that performance-based learning is one of the most effective strategies for enhancing musical literacy through the transmission of Guinan Caicha Xi Chinese Opera. Hands-on engagement with the opera’s musical elements, including rhythm, melody, and vocal techniques, allowed students to understand its structure better. Students demonstrated greater retention of musical concepts and improved their interpretative skills by participating in role-playing exercises, full-scale reenactments, and guided workshops. One instructor highlighted this by stating:

“When students actively perform and embody the characters, they internalize the rhythmic phrasing, melodic contour, and lyrical nuances much faster than through passive learning”

As shown in Table 7, informants identified four key aspects of performance-based learning that positively impacted musical literacy: kinesthetic learning, emotional connection, ensemble collaboration, and improvisational skills. Engaging in physical movement and vocal exercises allowed students to internalize musical structures more effectively than through theoretical study alone.

One informant, a senior opera performer, noted:

“Musical literacy is not just about reading notes—it’s about feeling the music in your body. When students physically engage with the music, their rhythm and pitch recognition improve significantly.”

Table 7. Benefits of digital technology

Learning Aspect	Description
Kinesthetic Learning	Physical engagement with musical phrasing through body movement and gestures enhances rhythmic literacy
Emotional Connection	Acting and singing roles create a deeper emotional link to the opera's themes and lyrical content
Ensemble Collaboration	Group performances develop coordination, listening skills, and an awareness of harmonic blending
Improvisational Skills	Spontaneous performance tasks reinforce adaptability and creativity in musical interpretation.

This aligns with the study's findings that embodied learning through movement and role-playing accelerates literacy development by creating a strong sensory connection between musical elements and physical actions. Through collaborative learning, ensemble-based performance training enhances students' aural skills, timing, and dynamic awareness. Students who participate in group performances show stronger rhythmic accuracy, more expressive phrasing, and improved lyrical diction than those who only engage in passive learning methods. This collaborative nature enhances interpretive depth and expressive control, reinforcing literacy skills. A music educator shared that students who actively participate in group reenactments improve their technical skills and develop confidence in their musical expression, which is crucial for literacy. Performance-based learning fosters a sense of cultural immersion, allowing students to experience historical narratives, poetic structures, and regional dialects in a way that traditional classroom learning does not provide. After performing selected scenes, many participants reported a greater appreciation for Guinan Caicha Xi Chinese Opera's cultural significance, revealing how the lyrics reflect daily life and emotions.

DISCUSSION AND CONCLUSION

The findings of this study illustrate the effectiveness of an interdisciplinary approach in enhancing musical literacy through the transmission of Guinan Caicha Xi Chinese Opera. Consistent with prior research, the results demonstrate that integrating historical, linguistic, digital, and performance-based methodologies significantly improves students' engagement and understanding of traditional folk opera (Barrett, 2023; Cuervo, 2018). By moving beyond a notation-based pedagogy and incorporating a broader socio-cultural perspective, students not only develop technical proficiency but also gain an appreciation for the cultural narratives embedded in Guinan Caicha Xi Chinese Opera (Broomhead, 2018; Becker, 2020). This aligns with the theories of culturally responsive music education, which emphasize the importance of context in learning (Barton & Riddle, 2022). However, despite these advantages, some inconsistencies with existing research were observed. While

previous studies argue that digital tools alone can bridge the gap between traditional and modern music education (Bauer, 2020; Hou et al., 2022), this study finds that digital methods are most effective when combined with hands-on experiential learning and oral transmission techniques, reinforcing the idea that technology should supplement rather than replace traditional methods.

A significant outcome of this study is the validation of interdisciplinary teaching strategies in fostering deeper engagement with traditional opera. Historical integration, for instance, emerged as a crucial factor in enhancing musical literacy, as students who learned about the cultural roots of Guinan Caicha Xi Chinese Opera exhibited greater enthusiasm and retention of musical concepts (Leung, 2020; Wang et al., 2025). This finding supports previous research highlighting historical narratives' role in music education (Howard, 2020). Furthermore, the linguistic component of the curriculum helped students understand the regional dialects used in the opera, reinforcing the argument that language and music learning are intrinsically linked (Chen & Sensai, 2024). These results also align with cognitive learning theories suggesting that a multimodal approach integrating auditory, visual, and kinesthetic experiences enhances comprehension and retention in music education (Calvo-Zaragoza et al., 2020).

However, challenges persist in transmitting Guinan Caicha Xi Chinese Opera, especially regarding its incorporation into formal education systems. The prevalence of Western classical music curricula restricts the availability of structured folk opera programs, highlighting a broader issue in global music education (Skelton, 2024). Furthermore, the perception of traditional opera as outdated among younger generations creates a barrier to its sustainability (Cheng, 2023). While digital technology, including interactive platforms and virtual reality, has been proposed as a means to revitalize interest in folk opera (Hou et al., 2022; Zhang & Thotham, 2024), this study revealed that students were more engaged when digital tools complemented live performances and oral traditions. This indicates that a blended approach merging traditional transmission methods with modern technological innovations may be the most effective strategy for preserving Guinan Caicha Xi Chinese Opera in contemporary education.

The study's findings enhance the broader discourse on interdisciplinary education by demonstrating how integrating multiple disciplines history, linguistics, performance, and digital media creates a more comprehensive and engaging learning experience. As prior research suggests, students are more likely to develop a deep understanding of music when they see its relevance beyond a single domain (Olvera-Fernández et al., 2023). This study reinforces this principle by highlighting the interconnectedness of different fields in the learning process. However, an area for further research would be to examine the long-term impact of interdisciplinary education on musical literacy. Future studies could conduct longitudinal research to assess whether students retain their knowledge and appreciation of Guinan Caicha Xi Chinese Opera beyond the

classroom setting. Additionally, comparative studies between different folk opera traditions, such as Peking Opera or Kunqu Opera, could provide further insights into the effectiveness of interdisciplinary methodologies in diverse cultural contexts.

In conclusion, this study highlights the significance of an interdisciplinary approach to transmitting Guinan Caicha Xi Chinese Opera and enhancing musical literacy. By integrating historical narratives, linguistic analysis, digital resources, and performance-based learning, students gain a richer and more immersive educational experience. However, sustaining traditional opera in contemporary education necessitates balancing innovation and tradition. Policymakers and educators should consider developing structured curricula incorporating traditional folk operas while utilizing modern technology for greater accessibility. Moreover, fostering collaboration among cultural institutions, educators, and digital media developers could improve the transmission of folk opera to younger generations.

The study underscores the potential of digital learning methods in the transmission of Guinan Caicha Xi Chinese Opera. However, long-term sustainability remains a critical factor requiring further exploration. While digital platforms facilitate accessibility and engagement, challenges such as digital literacy gaps, resource constraints, and technological obsolescence must be addressed. Educational institutions should invest in digital infrastructure, including virtual archives, interactive applications, and real-time online workshops, to ensure the continuous transmission of folk opera traditions. Furthermore, interdisciplinary collaborations between musicologists, software developers, and cultural heritage experts can enhance the effectiveness of digital tools by preserving the authenticity of opera performances while integrating innovative learning features.

To sustain the integration of digital learning in folk opera education, institutions should adopt hybrid models that blend technology with live performance and mentorship. Digital repositories of traditional performances, annotated scores, and expert commentary can serve as long-term educational resources. Moreover, partnerships with digital media platforms and cultural organizations can enhance the global reach of Guinan Caicha Xi Chinese Opera, allowing audiences beyond China to engage with this art form. Future research should examine digital learning models' scalability and adaptability to different educational contexts, ensuring that traditional opera remains relevant in the evolving digital era.

As traditional music faces increasing challenges in the digital age, interdisciplinary strategies present a promising pathway for preserving and revitalizing these cultural heritage forms. Future research should examine the scalability of these approaches in various educational settings and explore the potential of emerging technologies, such as artificial intelligence and virtual reality, in supporting traditional music education. By connecting the past and present, interdisciplinary education can ensure that Guinan Caicha Xi Chinese Opera and similar art forms continue flourishing in the evolving musical landscape.

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