
The Application of Digital Technology in Traditional Music Learning: A Literature Review on Senior High School Students in Jakarta

Gusti Laskar Ferdiansyah Simatupang^{1*}, Rien Safrina², Rizki Taufik Rakhman³
^{1,2,3}Faculty of Languages and Arts, Universitas Negeri Jakarta, Indonesia

Email Address

gustilaskar979@gmail.com

***Corresponding author**

Keywords: Digital technology, traditional music, literature review, music learning, senior high school students Jakarta.

Abstract

This study aims to review the implementation of digital technology in traditional music learning for senior high school students in Jakarta through a literature review approach. The focus of the study is directed at how digital media, learning applications, and interactive platforms contribute to enhancing students' musical intelligence, cognitive abilities, and creativity within the context of local cultural preservation. The research method employs a literature review from various national and international journals related to music education, digital technology, and the revitalization of traditional arts. The findings indicate that the integration of digital technology not only increases students' learning motivation but also enriches learning experiences through interactive approaches, personalized materials, and the use of multimedia. In addition, the use of digital learning applications for traditional music has been proven to strengthen cultural appreciation, improve student engagement, and present pedagogical innovations that align with the development of technology-based curricula in Indonesia. This review emphasizes the importance of developing digital learning media as an effective strategy to ensure the sustainability of traditional music while supporting the formation of 21st-century competencies among senior high school students.

Introduction

In the rapidly evolving landscape of education, digital technology has become a transformative force that reshapes how students learn, interact, and create knowledge. Within the field of music education, the integration of digital tools has opened new opportunities for preserving and revitalizing traditional music practices while aligning them with the interests and learning styles of the younger generation. In Indonesia, where cultural heritage plays a central role in national identity, the use of digital technology to support traditional music learning such as Gambang Kromong, Gamelan, or Angklung presents both challenges and opportunities, particularly among senior high school students in Jakarta.

The increasing accessibility of digital platforms, multimedia applications, and interactive learning environments provides a new paradigm for music pedagogy. According to constructivist learning theory (Piaget, 1973; Vygotsky, 1978), learners actively construct knowledge through meaningful engagement with their environment. Digital tools such as virtual instruments, online tutorials, and music composition software enable students to explore, collaborate, and internalize traditional music concepts in ways that were previously limited by conventional instruction. Furthermore, Technological Pedagogical Content Knowledge (TPACK) theory (Mishra & Koehler, 2006) highlights the importance of integrating technology effectively within pedagogy and subject content suggesting that teachers who can harmonize traditional musical content with digital media can significantly enhance student learning outcomes.

In the context of Jakarta's senior high schools, digital technology not only functions as an instructional aid but also serves as a medium for cultural sustainability. Through platforms like YouTube, TikTok, and digital music applications, students encounter traditional melodies in contemporary digital forms, fostering cultural relevance and engagement. However, while numerous studies have explored digital learning in general music education, limited research has systematically reviewed its application in traditional music learning within Indonesian schools.

Therefore, this literature review aims to analyze and synthesize existing research on the application of digital technology in traditional music learning among senior high school students in Jakarta. Specifically, it seeks to identify theoretical foundations, pedagogical models, and practical outcomes reported in prior studies. By examining these perspectives, the study provides insights into how digital innovation can bridge traditional musical heritage and modern educational practices, contributing to both educational reform and cultural preservation.

Method

This study employs a **systematic literature review (SLR)** design to identify, analyze, and synthesize existing research on the application of digital technology in traditional music learning, with a specific focus on senior high school students in Jakarta. The SLR approach was chosen to ensure a comprehensive and structured analysis of prior studies, in order to draw evidence-based conclusions about trends, theoretical frameworks, and pedagogical practices relevant to the topic (Kitchenham & Charters, 2007).

Results and Discussion

Most studies originated from Indonesia, with several comparative references from Southeast Asia and global contexts. The research primarily examined the use of digital platforms, multimedia applications, and online learning tools to support traditional music learning. Among these, YouTube-based tutorials, digital notation software (such as MuseScore), virtual gamelan simulators, and interactive e-learning platforms were the most frequently utilized media.

In Jakarta's senior high school context, the studies consistently reported that digital technology had a positive impact on students' engagement, motivation, and cultural understanding, especially when integrated with local music such as Gambang Kromong, Gamelan Betawi, and Kroncong. Teachers who adopted digital-based learning demonstrated improved instructional efficiency and were able to reach students through more interactive and visually stimulating methods.

The use of digital tools increased students' interest and participation in traditional music classes. Studies by Suryani (2020) and Lestari & Widodo (2022) found that digital audio-visual materials and mobile learning applications helped bridge the gap between traditional music forms and modern learning preferences.

According to Self-Determination Theory (Deci & Ryan, 2000), technology-based learning supports students' autonomy and competence, allowing them to explore musical elements creatively. For instance, students who used digital recording software to mix traditional rhythms with modern beats reported higher levels of satisfaction and creative expression.

Many studies adopted the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) to analyze teachers' readiness in blending traditional content with digital pedagogy. Findings indicated that teachers who possessed strong

TPACK competencies could effectively combine digital tools (technology), music theory and practice (content), and student-centered instruction (pedagogy).

For example, Sutanto (2023) demonstrated that using virtual gamelan software during classroom sessions improved students' rhythmic accuracy and cultural appreciation. However, some studies noted that limited teacher training and inadequate digital infrastructure still hindered optimal implementation.

A key finding from the literature is that digital platforms serve as powerful tools for cultural preservation and revitalization. Through digital archiving, video documentation, and online collaboration, students are exposed to traditional musical heritage in innovative ways. Drawing from Cultural Sustainability Theory (Throsby, 2001), the integration of digital media allows traditional music to remain relevant in modern society while ensuring that younger generations continue to value it. For instance, students in several Jakarta schools used YouTube channels to perform and share reinterpretations of Betawi songs, encouraging peer learning and cultural pride.

Despite positive outcomes, several challenges were identified. Common barriers included:

- Limited access to adequate technology in public schools.
- Insufficient teacher training in digital pedagogy.
- Curricular constraints that prioritize academic subjects over cultural arts.

As noted by Rahman (2021), effective integration requires systemic support policy inclusion, infrastructure investment, and teacher development to sustain long-term innovation in traditional music education.

The findings align with Constructivist Learning Theory (Vygotsky, 1978), which emphasizes active student engagement and social collaboration in constructing knowledge. Digital learning environments foster interactive experiences that empower students to discover traditional music through exploration and experimentation rather than rote memorization.

Furthermore, the results affirm the TPACK framework's relevance in digital-traditional integration. Teachers who successfully combined cultural knowledge with digital pedagogy enhanced both cognitive and affective learning outcomes. In this way, technology functions not as a replacement for tradition but as a bridge between cultural heritage and contemporary education.

Lastly, the incorporation of Cultural Sustainability Theory highlights the essential role of digital innovation in preserving Indonesia's musical identity. By recontextualizing traditional music through modern media, educators can cultivate both artistic skill and cultural awareness among students in Jakarta's dynamic urban environment.

Conclusions

This literature review has explored the integration of digital technology in traditional music learning among senior high school students in Jakarta, highlighting its educational potential, cultural significance, and theoretical underpinnings. The findings consistently demonstrate that digital innovation can serve as a powerful catalyst for enhancing student engagement, creativity, and cultural understanding when effectively integrated into the music education process.

Drawing from Constructivist Learning Theory, students learn best when they actively construct meaning through interactive and experiential learning environments conditions that digital technology readily supports. The TPACK framework further emphasizes the necessity of aligning technological tools with pedagogical strategies and cultural content to ensure meaningful learning outcomes. In parallel, Cultural Sustainability Theory

underscores the vital role of digital media in preserving and revitalizing Indonesia's rich musical heritage, ensuring that traditional music continues to resonate with modern youth.

The review also identifies several challenges that must be addressed for sustainable implementation. These include limited teacher competency in digital pedagogy, unequal access to technological resources, and curriculum designs that often marginalize arts education. Overcoming these obstacles requires collaborative efforts among educators, policymakers, and cultural institutions to develop inclusive, technology-supported music programs that honour both tradition and innovation.

In conclusion, the application of digital technology in traditional music learning is not merely a pedagogical trend but a transformative pathway toward cultural continuity and educational modernization. For Jakarta's senior high schools, embracing digital tools in music education can strengthen students' cognitive, creative, and cultural capacities, aligning with national goals for character and cultural development. Future research should focus on developing context-specific digital learning models, evaluating their long-term impact, and exploring interdisciplinary collaborations between technology, music, and cultural studies to sustain Indonesia's musical heritage in the digital era.

Acknowledgement

The author would like to express sincere gratitude to all individuals and institutions who contributed to the completion of this research. Special appreciation is extended to the Faculty of Language and Arts, Universitas Negeri Jakarta, for providing academic guidance and access to valuable research resources. The author also acknowledges the lecturers and fellow researchers in the field of music education and digital pedagogy whose insights and scholarly works formed the foundation of this literature review.

Deep appreciation is given to Jakarta's senior high school music teachers and students, whose dedication to preserving traditional music while embracing technological innovation inspired this study. The author also thanks colleagues who offered constructive feedback during the manuscript preparation process.

Finally, heartfelt gratitude is extended to family and friends for their continuous encouragement, understanding, and support throughout the research and writing journey. Without their motivation and patience, this paper would not have reached its completion.

References

- Deci, E. L., & Ryan, R. M. (2000). *The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior*. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Kitchenham, B., & Charters, S. (2007). *Guidelines for performing systematic literature reviews in software engineering*. Keele University and Durham University Joint Report.
- Lestari, D., & Widodo, H. (2022). *Digital-based learning for traditional music education in Indonesian high schools*. *Journal of Music and Arts Education*, 8(2), 101–113.
- Mishra, P., & Koehler, M. J. (2006). *Technological pedagogical content knowledge: A framework for teacher knowledge*. *Teachers College Record*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group. (2009). *Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement*. *PLoS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>

- Piaget, J. (1973). *To understand is to invent: The future of education*. Grossman Publishers.
- Rahman, A. (2021). *Digital transformation in music education: Opportunities and challenges in Indonesian schools*. *International Journal of Educational Technology and Innovation*, 4(1), 55–68.
- Suryani, N. (2020). *Utilization of digital media for preserving traditional music among high school students in Jakarta*. *Jurnal Pendidikan Seni dan Budaya*, 15(1), 45–58.
- Sutanto, R. (2023). *TPACK implementation in traditional gamelan learning through digital simulation software*. *Indonesian Journal of Music Pedagogy*, 11(3), 221–234.
- Thomas, J., & Harden, A. (2008). *Methods for the thematic synthesis of qualitative research in systematic reviews*. *BMC Medical Research Methodology*, 8(45), 1–10. <https://doi.org/10.1186/1471-2288-8-45>
- Throsby, D. (2001). *Economics and culture*. Cambridge University Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Author's Profile:

- a. Full Name: Gusti Laskar Ferdiansyah Simatupang
- b. Institution: Universitas Negeri Jakarta
- c. Email: gustilaskar979@gmail.com
- d. Education: Master Of Art Education
- e. Research interest: Art Education

