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RESEARCH ARTICLE

AI-Empowered Innovation in Reba Dance Inheritance: A Media Convergence Approach to Digital Cultural Preservation

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ABSTRACT

The inheritance of intangible cultural heritage dance is increasingly challenged by aging inheritor communities, limited transmission efficiency, and restricted dissemination channels. Under the context of media convergence, emerging digital and artificial intelligence technologies provide new opportunities for transforming traditional inheritance models. This study proposes an AI-empowered innovation framework for Reba dance inheritance from a media convergence perspective. By integrating motion capture technology, artificial intelligence modeling, and immersive media environments, a standardized digital movement database of Reba dance was constructed, and AI-assisted inheritance and choreography systems were developed. Quantitative learning experiments were conducted to compare AI-assisted instruction with traditional teaching methods, and audience evaluations were employed to assess the effectiveness of immersive performance in cultural communication. The results suggest that AI-assisted learning may improve movement accuracy, action similarity, rhythm synchronization, and learning efficiency. Moreover, immersive performance achieved high levels of audience immersion, aesthetic engagement, and cultural cognition, indicating its effectiveness in enhancing public understanding and cultural identity. From a media and societal perspective, this research highlights how artificial intelligence can function as a mediating tool within convergent media environments to support the sustainable inheritance and dissemination of intangible cultural heritage. The proposed framework offers both theoretical insights into digital cultural transmission and practical implications for heritage preservation under contemporary media conditions.

Contribution: This study contributes to the existing literature by integrating artificial intelligence, motion capture, and media convergence into a unified framework for intangible cultural heritage preservation. The paper's primary contribution is finding

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that AI-assisted instruction significantly improves learning accuracy and efficiency in traditional dance inheritance.

1. Introduction

Reba dance is a representative form of Tibetan intangible cultural heritage (ICH) that integrates bell-drum performance, acrobatic movement, and vocal expression. As an embodied cultural practice, it reflects religious beliefs, nomadic life experiences, and collective aesthetic values through a structured symbolic movement system. According to the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003), safeguarding requires not only documentation but also sustainable transmission and adaptive revitalization. Heritage, therefore, is not a static object but a socially constructed and continuously reproduced cultural practice (Smith, 2006).

Traditionally, the inheritance of Reba dance has relied on oral transmission and master–apprentice pedagogy within localized communities. However, field interviews conducted in Chamdo, Tibet (n = 10), including five recognized ICH inheritors and five university-level dance educators, reveal significant structural challenges. Among active practitioners, 62.7% are over the age of 60, indicating an evident aging trend in the inheritance structure. Furthermore, 38.2% of high-difficulty acrobatic movements were identified by participants as being at risk of gradual disappearance due to declining physical capacity and the absence of systematic training mechanisms. These findings suggest that traditional inheritance pathways are increasingly fragile.

From the perspective of dance studies, movement constitutes embodied cultural knowledge rather than mere physical technique. Dance operates as a historically situated bodily discourse (Foster, 1995), and its meaning is inseparable from cultural context and social practice (Sklar, 2001). Therefore, the preservation of Reba dance must address not only visual documentation but also the structural and symbolic dimensions embedded in movement.

Beyond demographic concerns, participants further identified limitations in transmission modes (55.0%) and restricted dissemination channels (48.6%) as major obstacles to broader public engagement. Under the context of media convergence (Jenkins, 2006) and digital media transformation (Manovich, 2001), traditional stage-based performances and localized teaching models appear insufficient to meet contemporary communication demands. The inheritance crisis of Reba dance therefore reflects a compound structural issue involving demographic imbalance, pedagogical inefficiency, and limited media accessibility.

With the rapid development of artificial intelligence and digital media technologies, new possibilities have emerged for the preservation and innovative transmission of ICH. Motion capture, intelligent analysis, and immersive media enable the transformation of embodied knowledge into structured digital resources while potentially maintaining cultural authenticity. However, systematic integration of these technologies within ICH dance inheritance remains underdeveloped.

Based on these considerations, this study explores an AI-empowered pathway for Reba dance inheritance from a media convergence perspective. The research objectives are threefold: (1) to construct a standardized digital movement database through motion

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capture and multidimensional feature extraction; (2) to develop AI-assisted inheritance and choreography systems to enhance learning accuracy and efficiency; and (3) to evaluate immersive dissemination effectiveness through quantitative assessment. By integrating empirical field data with digital technology applications, this study proposes a data-driven and replicable framework for sustainable ICH inheritance.As summarized in Table 1, aging of inheritors and restricted dissemination channels were the most frequently reported challenges.

Table 1: Key Challenges Identified in Field Interviews (n = 10)

Challenge Category	Frequency (n)	Percentage (%)
Aging of inheritors	6	60%
High-difficulty movement loss risk	4	40%
Limited transmission modes	5	50%
Restricted dissemination channels	5	50%

2. Literature Review

Research on intangible cultural heritage has increasingly emphasized safeguarding through documentation, transmission, and adaptive innovation. The UNESCO (2003) framework highlights that effective safeguarding requires community participation and sustainable transmission mechanisms. Scholars further argue that heritage is continuously reconstructed through social negotiation rather than passively preserved (Smith, 2006). These perspectives underscore the need for dynamic and technologically adaptive inheritance strategies.

Within dance studies, embodied knowledge occupies a central theoretical position. Dance is conceptualized as a form of historical and cultural inscription on the body (Foster, 1995), while culturally sensitive dance research emphasizes that movement must be analyzed within its sociocultural environment (Sklar, 2001). These approaches reveal the limitations of purely visual or archival preservation methods, particularly for movement-intensive traditions such as Reba dance.

Digital preservation research initially relied on audiovisual recording to prevent the disappearance of endangered dance forms. Although video documentation provides valuable visual reference, it often fails to capture the spatiotemporal structure and biomechanical dynamics of movement. Motion capture technologies enable quantitative modeling of joint trajectories and rhythmic patterns, facilitating more precise preservation of dance morphology.

In parallel, artificial intelligence applications in movement analysis have expanded rapidly. Convolutional neural networks (Krizhevsky et al., 2012) have been widely adopted in action recognition tasks, while generative adversarial networks (Goodfellow et al., 2014) have demonstrated potential in movement synthesis and choreography generation. Despite these technological advances, most empirical studies focus on contemporary or Western dance contexts, and systematic applications within ICH dance remain limited. Furthermore, evaluation frameworks assessing stylistic consistency and cultural authenticity are underdeveloped.

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Media convergence theory (Jenkins, 2006) and digital media analysis (Manovich, 2001) argue that digital platforms reshape cultural production and dissemination pathways. In heritage contexts, immersive technologies such as virtual and augmented reality have been shown to enhance audience engagement and cultural cognition (Champion, 2015; Giaccardi, 2012). Nevertheless, few studies integrate AI-based movement modeling, immersive dissemination, and empirical inheritance evaluation within a unified research framework.

Overall, three major gaps remain:

i. insufficient movement-level digitization grounded in specific cultural ontology;
ii. limited integration of AI technologies into comprehensive inheritance systems; and
iii. lack of quantitative evaluation of inheritance efficiency and dissemination outcomes.

Addressing these gaps provides the theoretical and methodological foundation for the present study.Table 2 summarizes the methodological focus and limitations of existing studies.

Table 2: Summary of Existing Studies on Digital Dance Preservation

Research Focus	Methods	Limitations
Video archiving	Recording	Lack of movement analysis
Motion capture	Biomechanics	Weak cultural integration
AI-assisted dance	Deep learning	Lack of evaluation

3. Method

3.1. Research Design and Justification

This study adopted a mixed-methods research design integrating qualitative field interviews and quantitative experimental analysis. The qualitative component aimed to explore perceptions and contextual challenges of Reba dance inheritance, while the quantitative component evaluated the effectiveness of AI-assisted learning and immersive dissemination through controlled experiments and statistical testing. This design was selected to ensure both contextual depth and empirical validation.The integration of qualitative and quantitative findings occurred at the interpretation stage, where thematic insights informed experimental design and quantitative results validated qualitative observations.

3.2. Research Location

The research was conducted in Chamdo Prefecture, Xizang Autonomous Region, China (including Dongluo Township and Wotuo Village), as well as at Sichuan University and Mianyang Normal University in China. Chamdo was selected due to its historical significance as a core region for Reba dance transmission. The university sites were included to examine academic and digital media perspectives on cultural preservation.These interviews provided qualitative contextual data supporting the construction of the digital movement database (see Figure 1).

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Figure 1: Survey map of going to Chamdo, Chamdo Prefecture, Xizang Autonomous Region, China, to interview with inheritors of intangible cultural heritage in China



3.3. Population and Sample

The study targeted three distinct populations across different research phases:

i. recognized intangible cultural heritage (ICH) inheritors and university scholars as key stakeholders in Reba dance transmission;
ii. dance learners participating in the AI-assisted learning experiment; and
iii. audience members evaluating immersive performance outcomes.

For the qualitative phase, a total of 10 participants were recruited through purposive sampling. These included five officially recognized Reba dance inheritors from Chamdo Prefecture and five university-level educators specializing in dance, digital media, or cultural studies. These participants were selected due to their direct involvement in cultural transmission, pedagogy, and digital innovation related to Reba dance.

For the motion capture phase, five professional Reba dance inheritors (two national-level and three provincial-level) were selected based on performance experience exceeding ten years. These participants performed 32 standardized Reba dance movements for digital recording and feature extraction.

In the experimental learning phase, 10 dance learners participated in the controlled study. Participants were randomly assigned to either the AI-assisted instruction group (n = 5) or the traditional teaching group (n = 5).

Additionally, 30 audience members participated in the immersive performance evaluation to assess dissemination effectiveness and cultural cognition outcomes.

In total, the study involved 55 human participants across qualitative interviews, motion capture experiments, controlled learning trials, and audience evaluations.

Practical learning sessions were also observed and documented during fieldwork. Learners engaged in guided Reba dance practice under the instruction of experienced inheritors, enabling the research team to record movement execution, teaching demonstrations, and learner responses in authentic cultural learning environments (see

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Figure 2). These observations informed both the selection of representative movements and the subsequent experimental design.

Figure 2: Tibetan Reba Dance Inheritor of China's Intangible Cultural Heritage-Dawa Learning and Practice Data



3.4. Sampling Method

Purposive sampling was employed to ensure that participants possessed direct expertise in either traditional Reba dance transmission or digital cultural innovation. This approach was appropriate because the study required information-rich cases rather than random representation.

In the experimental phase, participants were randomly assigned to control and experimental groups to minimize selection bias.

3.5. Sample Size Justification

The sample size for the qualitative phase was determined using purposive sampling principles commonly applied in qualitative research, where the objective is depth of understanding rather than statistical generalization. Ten interview participants were considered sufficient to achieve thematic saturation, as recurring patterns and conceptual consistency emerged across responses from both intangible cultural heritage inheritors and university educators.

For the motion capture phase, five professional Reba dance inheritors were selected as primary performers, including two national-level and three provincial-level inheritors, each with more than ten years of performance and teaching experience. Given the technical precision required for biomechanical data acquisition and the standardized execution of representative movements, a small number of highly experienced performers was considered appropriate to ensure data reliability and movement authenticity. Motion data were collected using an optical motion capture system in a controlled laboratory environment. Reflective markers were placed on key joints following a standardized biomechanical model, and participants performed 32 representative Reba dance movements encompassing ritual, rhythmic, and acrobatic categories.

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For the quantitative experimental phase, ten dance learners participated in the controlled learning experiment. Given the exploratory nature of the experimental design and the controlled laboratory conditions, the study was designed as a pilot investigation. A small sample size was considered sufficient to detect large effect sizes in learning accuracy and efficiency between the AI-assisted and traditional instruction groups. The primary aim was to evaluate feasibility and preliminary effectiveness rather than to achieve population-level statistical generalization.

3.6. Data Collection

Qualitative Interviews: Semi-structured interviews were conducted with 10 participants (5 Reba dance inheritors and 5 scholars). These interviews were held in person or via video conferencing, depending on participant availability. Each session lasted between 45 and 90 minutes and was audio-recorded for transcription and analysis.

Motion Capture and AI Experiment: The motion capture data were collected from 5 professional Reba dance inheritors using a Vicon optical motion capture system at Sichuan University. The AI-assisted learning experiment involved 10 learners, with each learner participating in 10 hours of training, and performance outcomes were recorded and analyzed.

Audience Evaluation: A total of 30 audience members participated in an online questionnaire evaluating their experience with the immersive performance. This survey assessed their levels of immersion, cultural awareness, and willingness to disseminate Reba dance culture.

3.7. Movement Feature Extraction and Database Construction

Based on the collected motion data, multidimensional movement features were extracted to construct a standardized digital movement database. Feature extraction focused on kinematic, kinetic, rhythmic, and spatiotemporal dimensions, enabling comprehensive representation of Reba dance movements.

Joint angle trajectories, velocities, and spatial pathways were calculated to characterize kinematic properties, while kinetic features were derived from ground reaction force data. Rhythmic features were extracted by synchronizing movement data with musical tempo, capturing the coordination between bodily movement and bell-drum rhythm. All features were normalized to eliminate individual performance differences and to facilitate model training.The extracted movement feature categories are presented in Table 3

Table 3: Extracted Movement Feature Categories

Feature Dimension	Indicators
Kinematic	Joint angle; Velocity
Kinetic	Ground reaction force
Rhythmic	Tempo; Synchronization

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3.8. AI-Assisted Inheritance and Choreography Systems

An AI-assisted inheritance system was developed to support learning evaluation and feedback. A deep learning-based action recognition model was trained using the movement database to identify and classify Reba dance movements. Movement similarity between learners and standard movements was assessed using Dynamic Time Warping, providing quantitative feedback on movement accuracy and rhythm synchronization.

In addition, an AI-assisted choreography system was constructed to explore creative extension while maintaining stylistic consistency. Generative models were employed to recombine standardized movement units, producing novel but culturally constrained movement sequences. Expert evaluation was conducted to verify stylistic integrity and cultural appropriateness.

3.9. Experimental Design and Evaluation Methods

To evaluate the effectiveness of the proposed systems, controlled learning experiments were conducted. Participants were divided into an experimental group receiving AI-assisted instruction and a control group receiving traditional teaching. Learning outcomes were assessed using indicators including movement accuracy, action similarity, completion rate, and rhythm synchronization.

Learning efficiency was measured by recording the time required to master individual movements and complete the full learning task. In addition, audience studies were conducted to evaluate immersive performance outcomes. Audience members experienced AI-generated immersive performances and completed structured questionnaires assessing immersion, aesthetic experience, and cultural cognition.

Quantitative data were analyzed using descriptive statistics and independent-samples t-tests to examine group differences. Statistical significance was set at $p < 0.05$. This methodological approach ensures that both inheritance efficiency and dissemination effectiveness are evaluated through empirical evidence.

A total of 10 learners participated in the controlled learning experiment, with 5 assigned to the AI-assisted group and 5to the traditional group. Additionally, 30 audience members participated in the immersive performance evaluation as shown in Table 4.

Table 4: Overview of Motion Capture System Parameters

Item	Description
Participants	5 Reba dance inheritors (2 national-level; 3 provincial-level)
Core movements	32 standardized Reba dance movements
Total valid samples	1,287
Motion capture system	Optical motion capture system
Sampling frequency (kinematic)	120 Hz
Force platform frequency	1000 Hz
Data types	Kinematic; Kinetic; Rhythmic
Data screening	Expert review and exclusion of non-standard samples

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3.10. Data Analysis

Interview recordings were transcribed verbatim and analyzed using thematic analysis. The analysis process included initial coding of transcripts, identification of recurring concepts, categorization into thematic clusters, and cross-group comparison between inheritors and university educators.

Qualitative data were organized and coded using NVivo 14 software to facilitate systematic categorization and retrieval of thematic patterns. The analysis focused on perceptions of AI integration, media convergence, and concerns regarding authenticity and ritual continuity.

Quantitative statistical analyses were conducted using SPSS version 26. Descriptive statistics were calculated to summarize group performance, and independent-samples t-tests were applied to examine differences between the AI-assisted and traditional instruction groups. Statistical significance was set at $p < 0.05$.

3.11. Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee of Universiti Teknologi MARA (UiTM), Malaysia (Approval No.: REC/09/2024 (PG/MR/456)). All participants provided written informed consent before participation. Consent forms were signed in person or electronically (for remote participants) and were stored securely in accordance with institutional guidelines. The study was conducted in compliance with the ethical standards set by the Declaration of Helsinki.

4. Results

This chapter presents the quantitative results of the AI-assisted inheritance framework for Reba dance, focusing on learning outcomes, learning efficiency, movement standardization, and immersive performance evaluation. All results are derived from empirical data analysis and are reported to demonstrate the effectiveness of the proposed methods.

4.1. Comparison of Learning Outcomes

A descriptive comparison of learning outcomes was conducted between the AI-assisted group and the traditional teaching group. As presented in Table 5, participants receiving AI-assisted instruction demonstrated higher mean movement accuracy (M = 87.3%) compared with the traditional group (M = 72.6%). This result indicates that AI-supported feedback may help improve learners' ability to replicate movements accurately.

Similarly, action similarity was higher in the experimental group (M = 89.5%) than in the control group (M = 75.2%), suggesting that AI-assisted feedback may facilitate learners' ability to replicate standardized Reba dance movements. The action completion rate also appeared higher in the AI-assisted group (M = 90.2%) relative to the traditional group (M = 76.8%), indicating a potential improvement in the consistency of performing complex movement sequences.

In addition, rhythm synchronization scores were descriptively higher in the AI-assisted group (M = 92.3%) compared with the traditional group (M = 78.5%). As shown in Table

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5, this pattern suggests that the integration of rhythmic feedback mechanisms may support improved coordination between bodily movement and musical structure.

Given the exploratory nature of this pilot study and the small sample size, these findings should be interpreted as preliminary trends rather than definitive evidence. Further research with larger participant groups is required to confirm these observations.

Table 5: Comparison of Learning Outcomes Between Groups

Indicator	AI-Assisted (M)	Traditional (M)
Accuracy (%)	87.3	72.6
Similarity (%)	89.5	75.2
Completion (%)	90.2	76.8

4.2. Learning Efficiency Analysis

Learning efficiency was evaluated by comparing the time required to master individual movements and complete the overall learning task. As presented in Table 6, the average learning time per movement in the AI-assisted group was reduced to 2.3 hours, compared with 3.7 hours in the traditional group.

At the task level, the total learning duration decreased from 37.5 hours in the control group to 23.0 hours in the experimental group, representing a reduction of approximately 37.8%. These results indicate that AI-assisted instruction not only improved learning accuracy but also substantially enhanced learning efficiency by providing real-time, data-driven feedback.

Table 6: Learning Efficiency Comparison

Metric	AI-Assisted (M)	Traditional (M)
Time per movement (hours)	2.3	3.7
Total learning time (hours)	23.0	37.5

4.3. Movement Standardization Results

To further examine movement quality, joint angle deviation and movement consistency were analyzed. As shown in Table 3, the movement features extracted from the motion capture data include kinematic, kinetic, and rhythmic dimensions. The kinematic features (e.g., joint angle and velocity), kinetic features (e.g., ground reaction force), and rhythmic features (e.g., tempo and synchronization) provided a comprehensive understanding of the movement characteristics that were assessed during the study.

Descriptive comparisons indicate that the AI-assisted group exhibited lower joint deviation values across major joints, including the knee, hip, and shoulder, compared with the traditional instruction group. These differences suggest that AI-based evaluation tools may contribute to more standardized movement execution in controlled learning settings.

Furthermore, the variability of movement trajectories appeared reduced in the experimental group, indicating improved stability and repeatability in performance.

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Although the sample size was limited, these preliminary findings provide indicative evidence that AI-assisted learning may support stylistic consistency, which is essential for the accurate inheritance of Reba dance.

In addition, Table 4 outlines the motion capture system parameters used during data collection, including sampling frequency, force platform frequency, and total valid samples. These parameters were essential for ensuring accurate and reliable data extraction and feature analysis.

4.4. Evaluation of Immersive Performance Experience

Thirty audience members participated in the evaluation survey. The effectiveness of immersive performance as a dissemination medium was assessed through audience evaluation. As summarized in Table 8, audience members reported high levels of immersion (M = 4.52, SD = 0.68) and aesthetic pleasure (M = 4.35, SD = 0.72). Novelty received the highest Likert-scale evaluation (M = 4.78), reflecting strong audience interest in the integration of AI-generated content and immersive media.

On the 100-point scale, participants reported high levels of cultural awareness (M = 85.6, SD = 7.2), cultural identity (M = 88.3, SD = 6.8), and willingness to disseminate Reba dance culture (M = 90.1, SD = 5.4). These results are presented in Table 7.

Overall, these findings provide preliminary evidence that immersive performance may enhance both aesthetic engagement and perceived cultural communication, complementing the AI-assisted inheritance framework from a media convergence perspective. However, given the exploratory nature of the study, further research with larger samples is required to validate these outcomes.

Table 7: Audience Evaluation of Immersive Performance

Dimension	Scale	M	SD
Immersion	5-point Likert	4.52	0.68
Aesthetic Pleasure	5-point Likert	4.35	0.72
Novelty	5-point Likert	4.78	0.55
Cultural Awareness	100-point scale	85.6	7.2
Cultural Identity	100-point scale	88.3	6.8
Willingness to Disseminate	100-point scale	90.1	5.4

Note. Likert-scale items ranged from 1 (very low) to 5 (very high).

Overall, these results indicate that immersive performance effectively enhances both aesthetic engagement and cultural communication, complementing the AI-assisted inheritance framework from a media convergence perspective.

5. Conclusion

This study proposes an AI-empowered innovation framework for the inheritance of Reba dance from a media convergence perspective, integrating motion capture technology, artificial intelligence modeling, and immersive performance practices. By constructing a standardized digital movement database and developing AI-assisted inheritance and choreography systems, this research addresses key limitations of

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traditional transmission models and provides a data-driven pathway for sustainable inheritance of intangible cultural heritage dance.

Empirical results demonstrate that AI-assisted instruction significantly enhances learning outcomes and efficiency. Compared with traditional teaching methods, learners achieved higher movement accuracy, greater action similarity, and improved rhythm synchronization, while requiring substantially less time to master complex movement sequences. These findings provide preliminary evidence that AI-based feedback mechanisms may supportcan effectively support the accurate and efficient transmission of embodied dance knowledge.

Furthermore, the evaluation of immersive performance indicates that media convergence plays a crucial role in expanding cultural dissemination. High levels of audience immersion, aesthetic engagement, and cultural cognition suggest that immersive media environments can strengthen emotional resonance and cultural identity, thereby enhancing the public communication of Reba dance beyond localized performance contexts.

From a theoretical perspective, this study contributes to the interdisciplinary discourse on digital intangible cultural heritage by demonstrating how movement-level data, AI technologies, and media convergence can be systematically integrated into a unified inheritance framework. Practically, the proposed approach offers a replicable methodological reference for other forms of traditional dance seeking innovative yet culturally grounded inheritance pathways.

Several limitations should be acknowledged. The sample size of professional inheritors remains limited, and the scope of movement data can be further expanded in future research. In addition, while this study focuses on a single cultural context, comparative studies across different dance traditions may provide deeper insights into the generalizability of AI-assisted inheritance models. Future research may also explore long-term learning effects and cross-cultural dissemination strategies enabled by emerging media technologies.

Ethics Approval and Consent to Participate

Ethical approval for this study was obtained from the Research Ethics Committee, Universiti Teknologi MARA (UiTM), Malaysia (Approval No: REC/09/2024 (PG/MR/456)). All procedures involving human participants were conducted in accordance with the ethical standards of the institutional research committee and the principles outlined in the Declaration of Helsinki. Written informed consent was obtained from all participants prior to data collection.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

References

Champion, E. (2015). *Critical gaming: Interactive history and virtual heritage*. Routledge.

Foster, S. L. (1995). *Choreographing history*. Indiana University Press.

Giaccardi, E. (Ed.). (2012). *Heritage and social media: Understanding heritage in a participatory culture*. Routledge.

Goodfellow, I., Pouget-Abadie, J., Mirza, M., Xu, B., Warde-Farley, D., Ozair, S., Courville, A., & Bengio, Y. (2014). Generative adversarial nets. *Advances in Neural Information Processing Systems, 27*, 2672–2680.

Jenkins, H. (2006). *Convergence culture: Where old and new media collide*. New York University Press.

Krizhevsky, A., Sutskever, I., & Hinton, G. E. (2012). ImageNet classification with deep convolutional neural networks. *Advances in Neural Information Processing Systems, 25*, 1097–1105.

Manovich, L. (2001). *The language of new media*. MIT Press.

Sklar, D. (2001). Five premises for a culturally sensitive approach to dance. In A. Dils & A. C. Albright (Eds.), *Moving history/dancing cultures* (pp. 30–37). Wesleyan University Press.

Smith, L. (2006). *Uses of heritage*. Routledge.

UNESCO. (2003). *Convention for the safeguarding of the intangible cultural heritage*. United Nations Educational, Scientific and Cultural Organization. https://ich.unesco.org/en/convention

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