
Research Articles

Innovation and Inheritance of Guangdong Paper-cutting through Digital Art Integration

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Abstract

This research consisted of three objectives. They were to 1) study and analyze the historical origins, artistic characteristics, and cultural values of Guangdong paper-cutting in order to understand its cultural foundation, 2) synthesize the practices, achievements, and challenges of integrating Guangdong paper-cutting with digital art through representative case studies and critical evaluation, and 3) establish feasible strategies and pathways for using digital art to promote innovation and sustainable inheritance of Guangdong paper-cutting culture. Research methodology employed a qualitative case study approach, combining literature research, field case analysis, and expert interviews. The study was based on media theory, adopting qualitative research methods, and combining case analysis and cross-case comparison analysis to construct a logical research framework of "input-process-output-feedback". The study proposed four key strategies: the development of an interdisciplinary collaborative mechanism, the establishment of a digital knowledge base and educational platform, the refinement of a cultural authenticity assessment system, and the ecological integration of the creative industry. The final results were found that the integration of digital art and traditional craftsmanship not only sustains the cultural vitality of Guangdong paper-cutting but also provides a sustainable innovation model and theoretical framework for the preservation of intangible cultural heritage.

Keywords: Guangdong Paper Cutting, Digital Art, Innovation and Inheritance

Introduction

Intangible cultural heritage represents the living memory of nations, embodying collective wisdom, aesthetic values, and social identity. Among these, paper-cutting has long been recognized as one of China's most profound folk arts, inscribed in the national intangible cultural heritage list and the UNESCO Representative List (Yan, M., & Xie, Y.,2009). As avital branch, Guangdong paper-cutting has evolved since the Southern Han Dynasty, flourished in the Ming and Qing periods, and continues to represent the distinctive Lingnan cultural identity through its delicate craftsmanship, symbolic imagery, and integration with community rituals. However, under globalization and modernization, Guangdong paper-cutting faces multiple challenges. The number of skilled artisans is declining, younger generations are less interested, and urbanization has reduced the cultural spaces that once nurtured this art form. Traditional transmission models master-apprentice training and family-based practices—are no longer sufficient. At the same time, digital technology offers new opportunities to reinterpret and revitalize traditional culture. The intersection of digital art and intangible cultural heritage has thus become an urgent field of inquiry, demanding academic and practical attention. To comprehensively examine the significance of the innovation and inheritance of Guangdong paper-cutting integrated with digital art, it is necessary to examine the theoretical concepts that underpin this research. This study aimed to construct a theoretical framework encompassing three dimensions: artistic characteristics, formal innovation, and cultural reconstruction. Through comprehensive research into paper-cutting's visual language, digital media mechanisms, and user acceptance mechanisms, it aimed to provide theoretical support and practical references for the digital transformation of intangible cultural heritage (Qi, Y.,2023).

Research Objectives

1. To examine components and indicators of transformational leadership on teachers' innovative behavior psychological empowerment and organizational culture on higher vocational colleges in Henan Province.

2.To examine the model of psychological empowerment in the relationship between transformational leadership, organizational culture and teachers' innovative behavior on higher vocational colleges in Henan Province.

3.To investigate effect of transformational leadership on teachers' innovative behavior, psychological empowerment and organizational culture on higher vocational colleges in Henan Province.

Literature Review

1. Intangible Cultural Heritage and Cultural Significance

Intangible cultural heritage (ICH) is widely recognized as a vital component of cultural diversity and human creativity, encompassing practices, representations, and expressions that communities recognize as part of their cultural identity (UNESCO, 2003). It functions as a “living heritage,” continuously recreated and transmitted across generations, reflecting collective memory and social values. Scholars emphasize that traditional arts such as paper-cutting are not merely aesthetic objects but are embedded within social practices, rituals, and belief systems (Yan & Xie, 2009). In the context of Guangdong, paper-cutting represents a distinctive form of Lingnan culture, characterized by symbolic motifs, regional styles, and strong connections to daily life and festivals (Lai, 2020; Liu, 2020). However, rapid urbanization and modernization have led to a decline in traditional transmission mechanisms, threatening the sustainability of such heritage forms.

2. Digital Technology and Cultural Heritage Preservation

The advancement of digital technology has significantly transformed the methods of preserving and disseminating cultural heritage. Digital platforms enable the documentation, visualization, and global sharing of traditional cultural expressions, thereby expanding their accessibility and visibility (UNESCO, 2022). From a theoretical perspective, media scholars such as Marshall McLuhan (1964) and Lev Manovich (2020) argue that media technologies reshape cultural perception and communication. Digital media not only serve as tools for preservation but also act as transformative agents that redefine artistic forms and audience engagement.

Recent studies highlight the role of digital technologies—including virtual reality (VR), augmented reality (AR), and interactive media—in enhancing user participation and cultural experience (Tang, 2023). However, concerns have also been raised regarding the potential loss of authenticity and contextual meaning during digital translation (Xu, 2023).

3. Integration of Digital Art and Traditional Craft

The integration of digital art with traditional craftsmanship has become an emerging research field within digital humanities and cultural studies. Scholars argue that digital art enables the reinterpretation of traditional visual languages, allowing heritage forms to adapt to contemporary contexts (Qi, 2023). According to Henry Jenkins (2006), the concept of “convergence culture” highlights the interaction between old and new media, where traditional cultural content is reconfigured through digital platforms. Similarly, Giaccardi (2012) emphasizes participatory culture, where audiences become active contributors to cultural production and dissemination. In the case of Chinese paper-cutting, digital integration has been explored through animation, interactive installations, and digital exhibitions, which extend the expressive possibilities of traditional art (Li, 2022). Nevertheless, scholars note that such integration often leads to “symbol simplification,” where complex cultural meanings are reduced to decorative elements (Xu, 2023).

4. Challenges of Authenticity and Cultural Sustainability

One of the central debates in the digitalization of intangible cultural heritage concerns the balance between innovation and authenticity. While digital media enhance accessibility and engagement, they may also result in cultural commodification and detachment from community contexts (Liu, 2020; Xu, 2023). Authenticity is not only related to the preservation of form but also to the transmission of cultural meaning and social function. As emphasized by UNESCO (2003), safeguarding ICH requires the active participation of communities and the preservation of cultural context. Furthermore, the commercialization of digital heritage—through social media platforms and emerging technologies such as NFTs—introduces new ethical and governance challenges (Tang, 2023). Scholars argue that sustainable development

of cultural heritage must integrate technological innovation with cultural responsibility and community engagement.

5. Research Gap

Although existing studies have explored digital preservation and cultural dissemination, there remains a lack of systematic frameworks that integrate:

- 1) Artistic characteristics of traditional crafts
- 2) Mechanisms of digital transformation
- 3) Cultural reconstruction and user acceptance

Particularly in the context of Guangdong paper-cutting, research on the comprehensive integration of digital art and cultural inheritance is still limited. Therefore, this study addresses this gap by constructing a three-dimensional theoretical framework—artistic characteristics, formal innovation, and cultural reconstruction—to examine how digital art can support both innovation and sustainable inheritance of intangible cultural heritage (Qi, 2023).

Research Objectives

1) To analyze the historical origins, artistic characteristics, and cultural values of Guangdong paper-cutting in order to understand its role as a representative form of Lingnan cultural identity and intangible cultural heritage.

2) To examine the practices, achievements, and challenges of integrating Guangdong paper-cutting with digital art, through representative case studies and critical evaluation, with particular attention to media transformation and cultural communication mechanisms.

3) To propose feasible strategies and pathways for promoting innovation and sustainable inheritance of Guangdong paper-cutting through digital technologies, emphasizing interdisciplinary collaboration, digital platforms, and cultural authenticity.

Research Methodology

Research Design

This study adopts a qualitative, interpretive research design to explore the innovation and inheritance of Guangdong paper-cutting through digital art integration. A qualitative approach is appropriate for examining cultural meanings, artistic practices, and social interactions embedded in intangible cultural heritage (ICH) (Giaccardi, 2012).

Specifically, the research employs a multiple case study design, which allows for in-depth investigation of contemporary phenomena within real-life contexts and facilitates cross-case comparison (Yin, 2018). This design enables the study to analyze how traditional paper-cutting is transformed and recontextualized through different digital media forms.

The study is theoretically grounded in media theory, drawing on the perspectives of Marshall McLuhan (1964) and Lev Manovich (2020), which emphasize the role of media technologies in shaping cultural expression and perception. An analytical framework based on the “input–process–output–feedback” model is constructed to systematically examine the transformation process:

- Input: Traditional artistic resources and digital technologies
- Process: Media translation and digital integration
- Output: Formal innovation and cultural reconstruction
- Feedback: Audience reception and evaluation

This framework supports a dynamic and holistic understanding of digital cultural transformation (Liu, 2020).

Methods

This study employs multiple qualitative research methods to ensure comprehensive analysis and triangulation of data sources:

Step 1: Literature Review

A systematic review of interdisciplinary literature on intangible cultural heritage, digital art, and media theory was conducted to establish the theoretical foundation (UNESCO, 2003; Qi, 2023).



Step 2: Case Study Analysis

Four representative cases of Guangdong paper-cutting integrated with digital art (2000–2024) were selected. These cases reflect diverse media forms, including digital video, interactive installation, augmented reality (AR), and digital exhibitions. Case studies enable the exploration of innovation mechanisms and cultural transformation processes (Yin, 2018).

Step 3: Cross-Case Comparative Analysis

A comparative approach was used to identify similarities, differences, and patterns across cases. This method enhances analytical depth and helps generalize findings within qualitative research (Stake, 2006).

Step 4: Semi-Structured Interviews

Interviews were conducted with artisans, digital artists, and cultural practitioners to gather insights into cultural values, digital integration experiences, and sustainability challenges (Kvale, 2007).

By combining these methods, the study achieves methodological triangulation, improving the validity and reliability of the findings.

Population and Sample

The study focuses on key stakeholders involved in the creation, transformation, and dissemination of Guangdong paper-cutting. A purposive sampling strategy was used to select participants with relevant expertise and experience (Patton, 2002).

Three main groups were included:

1. Traditional Artisans and Inheritors

Located primarily in Foshan, Chaoshan, and Guangzhou, these participants represent the core bearers of traditional paper-cutting techniques and cultural knowledge (Yan & Xie, 2009).

2. Digital Artists and Creative Practitioners

This group includes professionals engaged in digital media, animation, interactive design, and visual communication who have experience integrating traditional motifs into digital art (Li, 2022).

3. Cultural Institutions and Curators

Participants from museums, galleries, and cultural organizations involved in heritage promotion and exhibition design were included to provide institutional perspectives (Tang, 2023).

The sample selection ensures diversity in perspectives and supports a multi-dimensional understanding of cultural transformation processes.

Research Instruments

Two main research instruments were employed:

1. Case Study Documentation Template

A structured template was developed to systematically record and analyze each case, including: Project background and objectives, Methods of digital integration, Artistic outcomes and visual language, Cultural implications and audience impact. This instrument ensures consistency and comparability across cases (Yin, 2018).

2. Semi-Structured Interview Guide

The interview guide included open-ended questions focusing on: Cultural significance of paper-cutting, Perceptions of digital transformation, Challenges in maintaining authenticity, Strategies for sustainable development. The semi-structured format allows flexibility while maintaining focus on research objectives (Kvale, 2007). Content validity was enhanced through expert review.

Data Collection and Data Analysis

1. Data Collection

Data were collected through multiple sources to ensure richness and triangulation:

- **Documentary Data:** Academic literature, policy documents, and project reports
- **Case Study Materials:** Digital artworks, videos, exhibitions, and media content
- **Interviews:** In-depth interviews with selected participants
- **Field Observations:** Visits to museums, studios, and exhibition spaces

This multi-source approach strengthens the credibility of qualitative research (Creswell & Poth, 2018).



Data Analysis

Data analysis was conducted using **thematic analysis and qualitative coding techniques**:

1. Open Coding

Initial coding was performed to identify key themes related to artistic characteristics, digital transformation, and cultural meaning.

2. Axial Coding

Codes were grouped into categories aligned with the conceptual framework: artistic characteristics, formal innovation, and cultural reconstruction.

3. Cross-Case Analysis

Comparative analysis was conducted to identify patterns, similarities, and differences across the four cases (Stake, 2006).

4. Interpretive Analysis

Findings were interpreted within the theoretical context of media theory and cultural studies, emphasizing the relationship between technology and cultural meaning (Manovich, 2020).

To ensure trustworthiness, the study applied strategies such as data triangulation, peer review, and consistency checks (Creswell & Poth, 2018). This research methodology integrates qualitative design, multiple data sources, and systematic analysis to provide a comprehensive understanding of how digital art facilitates the innovation and inheritance of Guangdong paper-cutting. The approach ensures both theoretical rigor and practical relevance, contributing to the broader discourse on digital transformation of intangible cultural heritage.

Research Results

1. Cultural Origins, Artistic Characteristics, and Cultural Values of Guangdong Paper-Cutting

The findings reveal that Guangdong paper-cutting is deeply rooted in the historical and cultural ecology of the Lingnan region, functioning as both an artistic practice and a carrier of collective cultural memory. Originating from early folk traditions and flourishing during the

Ming and Qing dynasties, Guangdong paper-cutting has evolved into a representative form of regional identity characterized by strong locality, symbolic meaning, and integration with daily life rituals.

From an artistic perspective, the study identifies three major regional schools—Foshan, Chaozhou, and Chaoyang—each demonstrating distinctive stylistic features. Foshan paper-cutting emphasizes dynamic composition and vibrant visual expression, Chaozhou style is refined and decorative, while Chaoyang paper-cutting retains strong ritualistic and mythological elements. These stylistic variations collectively form a diversified artistic system that reflects the openness and hybridity of Lingnan culture.

In terms of cultural values, Guangdong paper-cutting embodies symbolic communication embedded in social practices such as festivals, weddings, and religious rituals. It serves not only as an aesthetic object but also as a medium of cultural identity and social cohesion. However, the findings also indicate that traditional symbolic meanings are increasingly being simplified in contemporary contexts, especially under digital reproduction, where motifs are often reduced to decorative elements, leading to a weakening of cultural depth.

Furthermore, the study highlights that the “living” nature of paper-cutting—its embeddedness in everyday cultural practices—is at risk. While digital forms enhance visibility, they often fail to fully convey the ritualistic and emotional dimensions inherent in traditional practices. This suggests a growing gap between visual representation and cultural understanding in the digital age.

2. Practices, Achievements, and Challenges of Digital Integration

The analysis of four representative case studies demonstrates that the integration of Guangdong paper-cutting with digital art has generated significant innovation in form, dissemination, and audience engagement. These cases reflect four major modes of digital transformation: visual narrative, interactive experience, social media communication, and digital economy platforms.

First, digital media has significantly expanded the dissemination scope of paper-cutting. Projects such as cultural promotion videos integrate traditional motifs with dynamic

visual storytelling, enhancing international visibility and cultural outreach. This aligns with the concept of media convergence, where traditional and digital forms intersect to create new cultural expressions.

Second, interactive technologies such as augmented reality (AR) and immersive installations have transformed paper-cutting from static imagery into participatory experiences. These approaches enhance audience engagement, particularly among younger generations, by fostering emotional interaction and experiential learning.

Third, digital platforms and commercial collaborations have enabled wider circulation and economic valorization of paper-cutting. Social media filters, virtual exhibitions, and NFT-based projects provide new opportunities for cultural dissemination and intellectual property protection. These developments reflect broader trends in digital heritage and cultural industries.

Despite these achievements, the findings also reveal several critical challenges. One major issue is the “symbolic shallowness” caused by overemphasis on visual spectacle, which often leads to the loss of deeper cultural meanings. In commercial contexts, cultural elements are frequently commodified and simplified, resulting in what has been described as “cultural dilution”.

Additionally, technological barriers, high production costs, and limited accessibility constrain the scalability and sustainability of digital projects. Some interactive installations, while innovative, are difficult to replicate or integrate into community-based cultural practices. Furthermore, digital representations may detach paper-cutting from its original social and ritual contexts, leading to a form of cultural decontextualization.

Overall, the study finds that while digital integration enhances visibility and innovation, it simultaneously introduces tensions between authenticity and commercialization, as well as between technological advancement and cultural preservation.

3. Strategies for Innovation and Sustainable Inheritance

Based on the findings, this study proposes several strategic pathways to promote the sustainable innovation and inheritance of Guangdong paper-cutting in the digital era.

First, the study emphasizes the importance of deep cultural embedding in digital design. Digital transformation should not merely replicate visual forms but must preserve and reinterpret the symbolic meanings and cultural narratives embedded in traditional paper-cutting. This requires a semiotic and culturally informed approach to digital translation.

Second, interdisciplinary collaboration is identified as a key driver of innovation. The integration of traditional artisans, digital artists, technologists, and cultural scholars can facilitate more holistic and culturally sensitive design processes. Such collaboration aligns with the concept of human-machine co-creation in digital art, where technology and human creativity jointly shape artistic outcomes.

Third, the study highlights the role of digital platforms and participatory culture in enhancing public engagement. By leveraging social media, virtual exhibitions, and interactive technologies, cultural heritage can be integrated into everyday digital life, fostering broader cultural awareness and participation.

Fourth, the establishment of cultural governance frameworks is essential to balance innovation and authenticity. Policies and ethical guidelines should be developed to regulate commercialization, protect cultural rights, and ensure that digital applications respect the cultural integrity of intangible heritage.

Finally, the study proposes the integration of education and digital technology as a sustainable pathway. Incorporating digital paper-cutting into educational curricula and public programs can promote cultural transmission and enhance cultural literacy among younger generations.

In summary, the research concludes that the sustainable development of Guangdong paper-cutting in the digital age depends on achieving a dynamic balance between technological innovation and cultural authenticity. A comprehensive approach combining cultural depth, technological application, social participation, and institutional support is essential for ensuring the long-term vitality of this intangible cultural heritage.

Research Discussion

The research discussion considered three topics as follows:

1. Cultural Roots and Artistic Characteristics of Guangdong Paper-Cutting

Research results indicated that Guangdong paper-cutting, as a key representative of Lingnan folk art, is deeply rooted in the historical memory and cultural ecology of local society, embodying the triple characteristics of "regionality," "living," and "symbolism" (Yan & Xie, 2009; Liu, 2020). From an artistic perspective, the three major schools of Foshan, Chaozhou, and Chaoyang constitute a diverse system of Guangdong paper-cutting, their artistic styles striking a unique balance between the rusticity and ruggedness of northern paper-cutting and the refinement and delicacy of southern art (Chen & Wang, 2006; Liang, 2007). The case studies in Chapter 4 reveal that Foshan paper-cutting is renowned for its dynamic lines, complex compositions, and vibrant colors; Chaoyang paper-cutting emphasizes religious rituals and mythological themes; and Chaozhou paper-cutting exhibits an elegant, graceful, and decorative formal language (Yan, 2017). This diverse artistic spectrum reflects the cultural compatibility forged in the context of open exchange within the Lingnan region, providing a rich visual resource and symbolic system for its digital representation (Lai, 2020).

However, the artistic language of traditional Guangdong paper-cutting is undergoing a semantic shift in the contemporary social context. Research shows that traditional symbolic systems—such as allegorical motifs like "double happiness," "dragon and phoenix," "lotus," and "fish and water"—are often simplified into formalized visual elements in modern media, gradually weakening their cultural connotations (Lai, 2020; Liu, 2020). Furthermore, the "handmade warmth" and "ritual sense" of paper-cutting art are challenged in digital media reproduction. Maintaining cultural authenticity and depth between symbolic translation and technological innovation has become a primary issue in digital integration (Xu, 2023). Survey data shows that approximately 78% of respondents believe that digital paper-cutting is more visually appealing, but only 42% can accurately understand the cultural symbolism behind it, indicating that the communication effect of digital reproduction has not yet fully achieved the deeper goal of cultural transmission (Qi, 2023).

Furthermore, from the perspective of artistic creation mechanisms, Guangdong paper-cutting art has a distinct "life-extending" nature. It is not an isolated art form, but is embedded in cultural practices such as wedding customs, festivals, and religious rituals (Yan & Xie, 2009). Field research in Chapter 4 shows that in traditional society, paper-cutting was not only a product of aesthetics but also a medium of social interaction and a symbol of cultural identity. Therefore, in the digital context, the living legacy of Guangdong paper-cutting must extend beyond the mere reproduction of images to the reconstruction and re-experience of cultural contexts. Digital art plays a role not only in reproduction but also as a medium for reconstruction: through interactive technologies like virtual reality and augmented reality, audiences can re-experience the cultural warmth of paper-cutting through an immersive experience, fostering emotional identification and cultural resonance (Giaccardi, 2012; Tang, 2023).

2. Overview of Four Representative Cases

The four digital integration cases of Guangdong paper-cutting selected in this study—Foshan paper-cutting & Foshan Kung Fu culture promotion video, interactive paper art installation "Blooming", Alibaba & Chen Fenwan co-branded AR device, and Chinese folk paper-cutting Top 100 online exhibitions—represent four typical innovation paths of paper-cutting in the context of digital art, corresponding to the four dimensions of visual narrative, interactive experience, commercial platform, and digital economy (Manovich, 2020; Jenkins, 2006).

(1) Foshan Paper-cutting & Foshan Kung Fu Culture Promotion Video

This project integrated traditional static paper-cutting into dynamic visual storytelling through digital media technologies, enhancing the international communication of Lingnan culture. This reflects the convergence of traditional art and digital media in contemporary cultural production (Jenkins, 2006). However, the excessive pursuit of visual spectacle led to "symbol shallowness," where cultural meanings were overshadowed by entertainment value, illustrating the risks of media-driven simplification (Manovich, 2020).

(2) Interactive Paper Art Installation "Blooming"

This installation demonstrates the transformation of paper-cutting into an embodied interactive experience through digital technologies, aligning with participatory culture and user

engagement theories (Giaccardi, 2012). While it successfully attracted younger audiences, its high technical cost and abstraction resulted in partial detachment from traditional cultural contexts, highlighting the tension between innovation and cultural continuity (Tang, 2023).

(3) Alibaba & Chen Fenwan Co-branded AR Device

This case reflects the integration of intangible cultural heritage into digital consumer culture via social media platforms and AR technologies. It exemplifies how digital platforms can expand cultural dissemination and audience participation (Jenkins, 2006; UNESCO, 2022). However, the commercialization of paper-cutting motifs led to cultural dilution, where symbolic meanings were reduced to decorative aesthetics, raising concerns about authenticity (Xu, 2023).

(4) Online Exhibition and NFT Paper-cutting Project

This case represents the application of digital platforms and blockchain technology in cultural heritage preservation and dissemination. NFT technologies provide new mechanisms for ownership, copyright protection, and economic value creation (UNESCO, 2022; Liu, 2020). However, the commodification of cultural heritage and its detachment from community contexts pose significant challenges, reflecting the need for cultural governance frameworks (Xu, 2023).

3. Cross-Case Comparative Analysis Results

This study evaluated different types of visual languages and media: digital imagery, embodied interaction, multidimensional interaction, and immersive presentation. Through four case studies, common patterns and key differences were identified.

The results indicate that digital integration is characterized by media diversification, cross-disciplinary collaboration, and increasing engagement with younger audiences (Manovich, 2020; Jenkins, 2006). While visual media enhances global dissemination, interactive technologies foster participation, and digital platforms enable cultural circulation and economic sustainability, these developments also introduce shared risks.

Specifically, visual spectacle often reduces symbolic depth, commercial platforms may dilute cultural meaning, and technological barriers can limit accessibility and community participation (Xu, 2023; Liu, 2020). Moreover, the findings reveal a central tension between



innovation and authenticity in the digital transformation of intangible cultural heritage. This aligns with broader discussions on digital heritage, where the balance between preservation and transformation remains a critical issue (UNESCO, 2003; UNESCO, 2022).

Overall, the study demonstrates that successful digital integration requires not only technological innovation but also the preservation of cultural semantics, community engagement, and educational mediation. Without these elements, digital transformation risks becoming superficial rather than meaningful.

Table 1.1 Cross-Case Comparative Analysis

Case Study	Strengths	Weaknesses	Implications
Foshan Paper-cutting + Foshan Kung Fu Promotion Video	<ul style="list-style-type: none">·Enhanced international visibility of Lingnan culture.·Supported cultural tourism and local identity.	<ul style="list-style-type: none">·Overemphasis on spectacle reduced symbolic depth.·Ritual meaning overshadowed by entertainment.	<ul style="list-style-type: none">Cross-media promotion works well for exposure, but needs cultural framing to avoid superficiality.
Interactive AR Installation “Dark Fragrance”	<ul style="list-style-type: none">·Highly engaging for youth audiences.·Encouraged curiosity about symbolism.	<ul style="list-style-type: none">·High cost and technical barriers.·Abstracted motifs sometimes detached from cultural context.	<ul style="list-style-type: none">AR/VR can revitalize heritage but must include contextual interpretation and educational framing.
Meitu & Chen Fenwan AR Collaboration	<ul style="list-style-type: none">·Created immersive, memorable experiences.·Reached mass	<ul style="list-style-type: none">·Motifs reduced to ornamental patterns.·Commercial framing overshadowed ritual significance.	<ul style="list-style-type: none">Commercial platforms are effective for dissemination but risk trivialization



Case Study	Strengths	Weaknesses	Implications
	<p>audiences through social media.</p> <ul style="list-style-type: none"> ·Attracted younger generations. <p>Blended fashion and digital heritage.</p>		without authenticity safeguards.
Online Exhibitions & NFT Paper-cutting	<ul style="list-style-type: none"> ·Global accessibility beyond geography. ·New economic opportunities for artisans. ·Effective archiving and digital preservation. 	<p>Over-commercialization risks commodification.</p> <ul style="list-style-type: none"> ·NFT's detached from community context. 	Digital platforms can sustain dissemination but require governance frameworks for authenticity and cultural rights.

A cross-case comparison revealed that the four cases shared the overarching characteristics of digital art integration: media diversification, cross-disciplinary dissemination, and a younger audience. However, their cultural logics, dissemination models, and risk mechanisms differed.

First, in terms of innovative forms, the four cases represented visual narratives (Foshan paper-cutting videos), interactive experiences ("Blooming"), social communication (AR installations), and the digital economy (NFT exhibitions). These four models collectively demonstrated the recontextualizing role of digital art in intangible cultural heritage: traditional

paper-cutting shifts from visual objects to experiential content, and from ritual art to cultural media.

Second, in terms of dissemination mechanisms, cross-media integration had significantly enhanced the visibility and engagement of Guangdong paper-cutting. Visual dissemination broadens international audiences, interactive installations stimulate public participation, social platforms promote cultural circulation, and the digital economy provides sustainable copyright and revenue mechanisms. However, these cases also shared common risks: visual spectacle diminishes cultural depth, commercial dissemination dilutes cultural meaning, and technological barriers limit replicability and community sharing.

Third, from the perspective of cultural significance, these four cases together revealed the core tension of the digital translation of Guangdong paper-cutting - the balance between innovation and authenticity. Digital media brings the impetus for artistic regeneration, but it may also cause "semantic drift". For example, "Anxiang" achieves "emotional recontextualization", but its abstract expression was separated from the specific ritual context; AR installations achieve "cultural censurability" but weaken community identity; NFT models achieve "digital scarcity" but face "cultural decentralization".

In summary, the cross-case comparison results showed that the path of digital art empowering Guangdong paper-cutting was both full of potential and full of challenges. Successful digital integration depends not only on the application of technology, but also on the integration of cultural semantics, community participation and educational communication. The study found that the most sustainable innovation model should have three characteristics: (1) deep embedding of cultural semantics - preserving the spiritual connotation of the traditional symbol system; (2) synergistic integration of technology and education - promoting cultural learning through digital interaction and curriculum design; (3) multi-layered network of social participation - achieving cultural sharing through community co-creation and digital governance mechanisms.

Conclusion

Research results indicated that Guangdong paper-cutting, deeply rooted in the folk traditions and rituals of the Lingnan region, is both a visual art form and a cultural symbol that

carries collective memory and social identity. Its artistic characteristics are reflected in its compositional logic and symbolic system of "complexity yet order, auspicious meaning," showcasing the regional aesthetics and folk philosophy of Lingnan culture. While the three major schools of art in Foshan, Chaoyang, and Chaozhou differ in style, they all share the cultural characteristics of "allegory," "decorativeness," and "symbolism," demonstrating the deep connection between Guangdong paper-cutting and local beliefs, festivals, rituals, and ethical order. The study found that Guangdong paper-cutting is not only a folk craft but also a crucial vehicle for regional cultural identity and social memory. While modernization has diminished its practical function, shifting paper-cutting from a "living art" to a "display art," the integration of digital technology has provided an opportunity to recontextualize and inspire rebirth. This demonstrates that the cultural roots and aesthetic logic of Guangdong paper-cutting provide a profound cultural foundation for digital innovation, validating the first research objective. The second research objective focused on the opportunities and challenges of integrating digital art with Guangdong paper-cutting. Four case studies demonstrated that digital media offers new possibilities for the cross-disciplinary dissemination of traditional art: Foshan paper-cutting and kungfu culture videos achieve dynamic narratives of folklore; the "Secret Fragrance" AR installation creates an immersive interactive experience; the Meitu and Chen Fenwan AR project promotes the social dissemination of intangible cultural heritage; and the NFT paper-cutting project opens up new channels for copyright and economic benefits. These cases demonstrate that digitalization had provided a broader platform for the dissemination of paper-cutting and its social influence, promoting the younger generation and international dissemination of intangible cultural heritage.

However, the research also revealed the cultural risks and ethical challenges brought about by digitalization. Some projects excessively pursued visual spectacle or commercial returns, leading to a weakening of the cultural significance of paper-cutting and the consumerization and entertainment of its ritual and symbolic value. In particular, within the context of commercial platforms and NFT transactions, the community context and sense of cultural belonging of intangible cultural heritage were at risk of being diluted. The research suggested that digitalization should be viewed as a "medium for cultural regeneration" rather than a mere technological means, its value lying in balancing innovation and cultural fidelity.

Only by respecting cultural context, safeguarding the subjectivity of artisans, and strengthening its educational function can digital technology become a positive force in promoting the sustainable development of Guangdong paper-cutting. The third objective of the study was to propose a sustainable path for the digital integration of Guangdong paper-cutting. Analysis results indicate that future development should be based on the core principles of "interdisciplinary collaboration, digital education, and authenticity assurance," establishing a systematic mechanism for the simultaneous advancement of culture and technology. Interdisciplinary collaboration was the foundation of digital innovation. The collaborative efforts of artisans, artists, designers, and technical teams enable the digital reinterpretation of traditional symbols. Digital knowledge bases and interactive education platforms provided structural support for the preservation of intangible cultural heritage. Leveraging AI recognition, 3D modeling, and semantic annotation technologies to establish a digital resource library, they promoted the transformation of paper-cutting from static preservation to dynamic dissemination. Authenticity assurance was the ethical foundation for sustainable development. Expert review and community engagement mechanisms should be implemented to ensure that cultural symbols are not misinterpreted or alienated.

Furthermore, the integration of creative industries provides economic impetus for the digitization of paper-cutting. Through cultural and creative product design, film and television animation, and digital exhibitions, Guangdong paper-cutting can achieve "cultural innovation and industrial prosperity." The research clearly concludes that the digital integration of Guangdong paper-cutting is not only artistic innovation but also a practical path for cultural renewal and social sustainability. Through technological translation, educational empowerment, and social co-creation, it allows traditional art to be revitalized in the contemporary context.

Research Suggestions

Research Suggestions and Recommendations for Future Research

Based on the findings and limitations of this study, several recommendations for future research are proposed to further advance the understanding of the innovation and inheritance of Guangdong paper-cutting in the context of digital art.

1. Future research should adopt mixed-methods or quantitative approaches to complement the qualitative findings of this study. While this research provides in-depth insights through case studies and interviews, quantitative studies—such as surveys on audience perception, user experience, and cultural understanding—can offer more generalizable data and strengthen empirical validation. In particular, large-scale studies examining how different demographic groups perceive digitalized intangible cultural heritage would provide valuable insights into cultural communication effectiveness (Qi, 2023; Tang, 2023).

2. There is a need for longitudinal research to examine the long-term impact of digital technologies on the sustainability of intangible cultural heritage. Existing studies, including this one, primarily focus on short-term projects or case-based analysis. Future research could track digital initiatives over time to evaluate whether they contribute to sustained cultural transmission, skill inheritance, and community engagement (UNESCO, 2022).

3. Future studies should explore comparative research across different regions and types of intangible cultural heritage. While this study focuses on Guangdong paper-cutting, comparative analysis with other regional paper-cutting traditions or different forms of intangible heritage (e.g., embroidery, opera, or ceramics) could reveal broader patterns and context-specific differences in digital transformation strategies (Liu, 2020). Such comparative perspectives would contribute to building a more comprehensive theoretical framework for digital heritage studies.

In conclusion, future research should move toward more interdisciplinary, empirical, and ethically informed approaches to better understand the complex relationship between digital technology and cultural heritage. By integrating technological innovation with cultural sensitivity and social participation, future studies can contribute to more sustainable and

meaningful pathways for the preservation and revitalization of Guangdong paper-cutting and other forms of intangible cultural heritage.

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