Creative Communication and Social Value Management of Chinese Cultural Heritage under Digital Transformation

Minghuan Zhang *

Harbin Normal University, Harbin, China

* Corresponding Author Email: 13942850086@163.com

Abstract. The wave of digital technology is driving a profound paradigm shift in the management of Chinese cultural heritage. This article focuses on the context of digital transformation and systematically analyzes the creative dissemination mechanism and social value management path of Chinese cultural heritage. At the level of creative communication, digital twin and multimodal fusion technology have spurred a shift in narrative strategies from "one-way indoctrination" to "digital empathy"; At the level of social value management, digital empowerment not only reshapes the cultural identity of groups and promotes knowledge inclusiveness, but also resolves the "digital divide" through accessible design and community governance, demonstrating significant social public inclusiveness; At the same time, the establishment of new formats such as digital night tours and copyright feedback mechanisms has successfully built a sustainable ecological cycle of "two-way nourishment" for cultural heritage to self generate. In response to the contradictions of technological alienation and governance deficiencies hidden in practice, the study emphasizes the collaboration of multiple subjects in order to provide a systematic framework that combines theoretical depth and practical value for the creative transformation of excellent traditional Chinese culture.

Keywords: Cultural Heritage; Digital Transformation; Creative Communication; Social Value Management; Digital Empathy.

1. Introduction

With the rapid development of digital technology, China is facing a dual challenge of cultural inheritance and innovative dissemination in the context of the new era. The traditional cultural heritage management method, which mainly relies on static display and one-way dissemination, is no longer able to meet the growing demand for personalized cultural experiences from the public. At the same time, the country vigorously promotes the deep integration of the "Digital China" strategy with cultural tourism, providing policy support and technological foundation for the digital transformation of cultural heritage [1] [2].

The digital transformation of cultural heritage presents development characteristics driven by technology, diverse dimensions, and progressive stages [3]. This article systematically explores the creative dissemination mechanism and social value management path of Chinese cultural heritage driven by digital technology. This study provides a systematic framework to assist in the creative transformation and innovative development of excellent traditional Chinese culture and contributes Chinese wisdom and solutions to global cultural heritage protection.

2. Creative dissemination mechanism of Chinese cultural heritage under digitalization

2.1. Shift in narrative strategy: from "one-way indoctrination" to "digital empathy"

The intervention of digital technology has broken the single perception mode centered on vision in the dissemination of traditional cultural heritage. Through the collaboration of high-precision digital twins, spatial audio, and tactile feedback technology, a multidimensional perception field integrating vision, hearing, and touch has been constructed. The core of this narrative shift lies in the shift from "viewing cultural relics" to "perceiving culture", where users are no longer bystanders

separated by glass cabinets, but experiencers immersed in cultural contexts through multiple sensory channels.

The immersive experience space constructed by Dunhuang Academy based on the existing caves of Mogao Grottoes is a representative practice of this narrative shift [4]. This experience space achieves a systematic transformation of cultural heritage from visual display to multimodal perception through the design logic of "historical narrative digital art immersive field" three-dimensional linkage. The breakthrough of this project lies in the organic integration of "reversible intervention" in cultural relic protection and "immersive resonance" in public experience. The experience space has carefully crafted five themed areas: Tianyin Boundless, Wanshen Cloud Architecture, Tiangong Weaving Dreams, Mogao Craftsmanship, and Miaoyin Seeking Realm. More importantly, the "Mogao Craftsmanship" area introduces the "neural tactile feedback" technology. When the audience holds lapis lazuli and grinds it and "dots it" on the mural clothing, the tactile device can restore the texture feedback of the mural, achieving a "tactile" cultural dialogue that spans thousands of years. This multidimensional perceptual narrative mode effectively solves the long-standing "knowledge threshold" dilemma in the dissemination of cultural heritage, transforming obscure religious iconography and cave form knowledge into perceivable bodily experiences. This project demonstrates that when visual, auditory, and tactile channels work together, users can upgrade from "cognitive understanding" to "embodied experience", and the transmission efficiency and emotional stickiness of cultural memory are significantly improved.

2.2. Changes in Communication Subject: From "Official Monologues" to "Diversified Co Creation"

Under the traditional mode, cultural and museum institutions, as the "authoritative interpreters" of cultural heritage, exhibit obvious one-way and elitist characteristics in their communication discourse. The digital transformation has spurred a comprehensive upgrade of the communication matrix of cultural and museum institutions, shifting from static displays on official websites to youthful expressions on social media platforms.

The "Mini Program Smart Open Service" project, launched by the Palace Museum since 2020 is a benchmark practice for the digital transformation of cultural and museum institutions. This project relies on 5G network and integrates multiple functions such as AR real-life tour guide, AI tour guide assistant, and digital multi-treasure pavilion [5][6]. The breakthrough of this project lies in upgrading from a "tool-based" digital service to a "relational" cultural platform. Traditional voice guidance is a one-way information output, while AR reality navigation in mini programs combines route guidance and knowledge push into one - users open their cameras and aim at the palace, and 3D navigation arrows and pop-up explanation cards are overlaid on the screen. AI guides can also "predict" their possible questions based on the user's travel trajectory and actively push relevant information. In addition, the "Digital Treasure Pavilion" has achieved high-definition digital collection of 900000 pieces (sets) of cultural relics, and users can flip, enlarge, or even disassemble and observe the "cultural relics" 360 ° without blind spots.

As of the end of 2023, 900000 out of 1.86 million collections in the Palace Museum have been digitally collected. This project has been selected as one of the first "5G+Smart Tourism" application pilot projects, proving that digital transformation led by cultural and museum institutions can fully achieve "professionalism without losing warmth, authority without losing closeness". From the perspective of communication studies, the practice of the Forbidden City has proven that the "official" identity in the digital age is not only a burden, but also a trust asset. While users obtain interesting experiences, their trust in the authority of content has not been weakened, which is the core advantage that UGC content cannot replace.

2.3. Innovation of Media Forms: Cross-border and Wall-breaking

The integration of television variety shows, and digital technology has opened up a new path for the dissemination of cultural heritage on the big screen. Through the staged application of

technologies such as XR, AR, and holographic projection, traditional cultural symbols have gained unprecedented visual expression and emotional appeal.

Li Peng conducted research on the application of virtual reality technology in the production of traditional cultural programs [7]. Taking the XR experience of "Tang Palace Banquet" as a typical case, he systematically analyzed how VR technology "innovates expression forms through spatiotemporal reconstruction and dynamic narrative". The research points out that the core breakthrough of XR experience in "Tang Palace Banquet" lies in the cross-border integration of the narrative logic of TV variety shows and XR's immersive technology. Li Peng summarized such applications as two major ways of application: "reproducing cultural relics history" and "innovating stage art". Specifically, the project has constructed a complete cinematic narrative structure - the audience is not passively "watching" a Tang Dynasty banquet but is incorporated into the narrative clues of the banquet and interacts with virtual characters. The combination of the content planning ability of television media and the immersive expression ability of digital technology can create synergies. The storytelling ability that television stations excel at fills the narrative gap of pure technology companies, while the immersive experience ability of technology companies breaks through the "fourth wall" of traditional television.

As a new form of cultural dissemination, the core value of virtual digital humans lies in carrying cultural memories with personalized digital identities and achieving "quasi interpersonal" communication with the younger generation. Unlike static IP images, high-precision virtual digital humans can continuously produce short videos, live broadcasts, short dramas, and other content, establishing long-term emotional connections with users.

In addition, Wang Jiaxing takes the virtual digital figure "Tianyu" as the research object and analyzes the mechanism and value of intangible cultural heritage digital figures in cultural dissemination from the perspective of aesthetic theory [8]. This study focuses on how "Tianyu" achieves aesthetic reconstruction of Dunhuang culture through visual symbol reshaping and narrative construction. Tianyu "is based on the Dunhuang Flying Apsaras, integrating classical aesthetics and modern digital technology, and carrying cultural narratives in the form of" virtual humans+short dramas ". The customized short drama "A Thousand Wall Pursuit" takes Dunhuang as the story background, incorporates mural elements into the suspenseful plot, and achieves the translation of cultural knowledge into plot. Wang Jiaxing's research analyzed the dissemination effectiveness of "Tianyu" from the theoretical framework of aesthetic reconstruction and demonstrated the unique value of virtual digital humans as cultural communication media. They are not fixed labels, but digital actors who can constantly "star" in new content and participate in new issues, with a communication lifecycle far beyond traditional promotional videos or posters [8].

3. Social Value Management Network under Digital Transformation

3.1. Cultural Value

Digital technology is awakening dormant collective memory. It reproduces traditional cultural scenes in a visual and interactive way, allowing the younger generation to develop a sense of cultural identity. This kind of identification is not instilled but naturally generated through experience. At the same time, digital technology has significantly lowered the threshold for acquiring cultural knowledge. The digital museum is open to the global public for free. Digital ancient books are no longer locked in libraries but are searchable and downloadable public resources. Cultural resources are moving towards democratization as a result. It is not exclusive to elites, but spiritual wealth is accessible to everyone [9].

3.2. Social Public Value

Digital communication cannot only serve young people and highly skilled populations. It must address the issue of the 'digital divide'. A new concept is emerging, which is ‘reverse inclusiveness' - prioritizing serving those who are most easily forgotten by technology. For the elderly population,

many places have launched voice guides, large font interfaces, and one click help functions. For the visually impaired population, accessible digital cultural services adopt screen reading adaptation and tactile feedback technology. These designs bring cultural rights back to everyone. Community participation is equally crucial. The digital filing of community intangible cultural heritage projects enables residents to become recorders and narrators of their own culture. This is not top-down protection, but a living inheritance of resident co governance [10].

3.3. Economic and Ecological Value

The integration of digital technology and cultural tourism has given rise to new business models. Digital night tours bring historic districts to life at night. Immersive performances make tourists no longer bystanders, but participants in the story. These new business models directly drive the local economy, create employment opportunities, and enhance the brand value of the city. More importantly, digital copyright management is building a sustainable feedback loop. The income from IP authorization is reinvested into the protection and restoration of physical cultural heritage. Digital income nourishes physical heritage, which in turn provides a continuous stream of materials for digital creation. This closed loop has enabled cultural preservation to no longer rely solely on financial appropriations, but to form a virtuous cycle of self-generation [11].

4. Conclusion

This article systematically explores the creative dissemination mechanism and social value management path of Chinese cultural heritage in the background of digital transformation. Research has found that digital technology has driven a fundamental shift in the narrative strategy of cultural heritage from "one-way indoctrination" to "digital empathy". The dissemination subject has shifted from "official monologue" to "diverse co-creation", and media forms have achieved temporal and spatial breakthroughs and personalized expression through cross-border integration. At the level of social value, digital empowerment significantly enhances cultural identity and knowledge inclusiveness, strengthens social inclusiveness, and constructs a sustainable ecological cycle of "two-way nourishment". Although still facing challenges such as technological alienation and governance deficiencies, this study provides a systematic theoretical framework and practical path for the creative transformation and innovative development of excellent traditional Chinese culture. In the future, with the in-depth application of embodied intelligence and big model technology, cultural heritage is expected to achieve deeper semantic understanding and intelligent interaction. Future research should introduce interdisciplinary perspectives such as media ecology and memory theory to expand the theoretical depth of digital dissemination of cultural heritage. Embodied intelligence and big model technology will promote deep semantic understanding and intelligent interaction of cultural heritage, achieving a more natural "human culture" dialogue. At the same time, a "digital good governance" model with Chinese local characteristics should be refined to provide Chinese solutions for global cultural heritage protection that can be referenced.

References

[1] Li Shuangshuang, Zhang Aibing. The Transformation of Digitalization in China's Cultural Heritage: Technological Applications, Business Models, and Future Prospects. China Cultural Relics News, 2026-02-26(22323).

[2] Shen Jingjing. From "Looking Across the Counter" to "Immersive Experience": How Cultural Heritage Can Capture the Attention Economy. Hubei Daily, 2026-02-26.

[3] Yong Zhongxiamu. Digital Innovation and Transformation of Intangible Cultural Heritage Driven by a Three-Dimensional Model of Technology-Culture-Industry. Cultural Journal, 2025(12).

[4] Yin Yifei. Research on the Application of VR Technology in the Digital Dissemination of Dunhuang Murals—Taking "Exploring Dunhuang" as an Example. Cultural Relics Appraisal and Appreciation, 2025(3): 82–85.

[5] Gu Yiyin. Empowering VR Immersive Storytelling through Film and Television Production: A Case Study of "See My Central Axis". Modern Audiovisual, 2025(5): 44–48.

[6] Li Dan, Xu Zheng. A Study on Mobile Terminal Experience Design for Museums Based on TAM—Taking the Palace Museum Mini Program as an Example. Art and Design (Theory), 2023, 2(07): 58–61.

[7] Li Peng. Application of Virtual Reality Technology in the Production of Traditional Culture Programs. Film and Television Production, 2025, 31(1): 35–39.

[8] Wang Jiaxing. Aesthetic Reconstruction and Communication Mechanism of Digital Avatars for Intangible Cultural Heritage—Taking "Tianyu" as an Example. Science and Technology Communication, 2025, 17(6): 77–80.

[9] Tim Gruenewald. Narrative Virtual Reality as a Memory Machine//Institute of Cultural Industry, Peking University. Series of Special Lectures on Creative Design and Arts Management. Beijing: Institute of Cultural Industry, Peking University, 2025.

[10] Miguel García-Bustos, Olivia Rivero, Paula García Bustos, et al. From the Cave to the Virtual Museum: Accessibility and Democratization of Franco-Cantabrian Palaeolithic Art. Virtual Archaeology Review, 2022(28): 54–64.

[11] Tim Gruenewald. Narrative Virtual Reality as a Memory Machine//Institute of Cultural Industry, Peking University. Series of Special Lectures on Creative Design and Arts Management. Beijing: Institute of Cultural Industry, Peking University, 2025.