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Technological and Cultural Negotiations in Chinese Animated Film in the AIGC Era: Postprint

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Date: 2025-07-09T00:00:00+00:00

Abstract

Objective: This paper focuses on the translation of traditional element cultural symbols by Artificial Intelligence Generated Content (AIGC) technology in Chinese animation film creation, exploring the interplay between technology and culture, with the aim of finding a balance between technological empowerment and cultural inheritance. **Methods:** Through semiotic methods, this study analyzes the potential semantic erosion of cultural symbols during AI generation, and investigates the deformation of traditional cultural elements in the AI generation process by incorporating the concept of cultural genes. **Results:** AIGC technology can significantly enhance the production efficiency and visual effects of animation films, yet simultaneously leads to the weakening of cultural imagery. Therefore, in practical creation, it is necessary to implement two major strategies—“cultural gene database” and “manual correction intervention”—to ensure the accuracy of “cultural translation” in animation creation. **Conclusion:** Animation creation in the AIGC era should establish a “technology + culture” dual-track model, using technology to empower the dissemination of traditional culture, ultimately achieving the co-construction and sharing of “digital craftsmanship spirit” and cultural confidence.

Full Text

Preamble

The Interplay Between Technology and Culture in Chinese Animated Films in the AIGC Era

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Abstract

[Objective] This paper examines the translation of traditional cultural symbols by Artificial Intelligence Generated Content (AIGC) technology in Chinese animated film production, exploring the interplay between technology and culture to identify a balance between technological empowerment and cultural inheritance. **[Method]** Through semiotic analysis, we investigate the semantic erosion that may occur during AI generation of cultural symbols, while examining the morphological transformation of traditional cultural elements through the lens of cultural genetics. **[Results]** While AIGC technology can significantly enhance production efficiency and visual effects in animated films, it simultaneously risks weakening cultural imagery. Therefore, implementing two major strategies—“Cultural Gene Database” and “Manual Correction Intervention”—is essential to ensure the accuracy of “cultural translation” in animation creation. **[Conclusion]** Animation creation in the AIGC era must establish a dual-track “Technology + Culture” model that leverages technology to empower the dissemination of traditional culture, ultimately achieving the co-construction and sharing of “digital craftsmanship spirit” and cultural confidence.

Keywords: AIGC; Chinese Traditional Culture; Cultural Symbols; Technology Empowerment; Cultural Confidence

CLC Number: G202

Document Code: A

Article ID: 1671-0134(2025)03-07-05

DOI: 10.19483/j.cnki.11-4653/n.2025.03.001

Citation Format: Liu Lihui, Lü Xin. The Interplay Between Technology and Culture in Chinese Animated Films in the AIGC Era[J]. *China Media Technology*, 2025, 32(3): 7-11.

1. Technology Empowerment and Cultural Translation: Challenges and Opportunities in the AIGC Era

The world has entered an era of strategic competition dominated by technological innovation. As artificial intelligence technologies rapidly iterate, industrial applications are poised to explode, with animated films, television animation, and web animation developing concurrently across multiple tracks, demonstrating promising developments in both form and content. The related industrial chains have gained new opportunities during this explosive growth period, attracting societal and capital attention [1]. Digital technology has enabled increasingly deep AI application in content creation, and animated film production is no exception. AIGC plays a pivotal role in enhancing production efficiency and visual effects. However, this widespread technological application also presents new challenges for the translation and inheritance of traditional cultural elements. Chinese animated films, as important carriers of cultural expression, bear rich historical and cultural symbols, and striking a balance between efficient production and cultural inheritance has become a focal point

for both academia and industry. Cultural symbols embedded in animated films represent not only artistic creation but also serve as bridges for cultural transmission, enabling creators to convey traditional culture to audiences through symbols. Yet the process of symbolic translation via AIGC may encounter issues of cultural connotation ambiguity or distortion. How can AI creation ensure accurate translation of traditional cultural symbols while avoiding the loss of cultural imagery? In the context of globalization, how can technology be leveraged to promote the dissemination of traditional Chinese culture and demonstrate cultural confidence? Therefore, exploring the interaction between AIGC and cultural inheritance through a “Technology + Culture” dual-track parallel development model can provide theoretical support and practical guidance for Chinese animated film creation in this new era.

Funding: This research is a phased outcome of the 2024 National Social Science Fund Art Project “Research on Multimodal Interaction Design Based on Spatial Computing” (Project No. 24BG143).

1.1 The Rise of AIGC Technology and Transformation in Animation Creation

AIGC represents a novel production mode that utilizes AI technology to automatically generate content, following professionally generated content and user-generated content [3]. In recent years, the rapid development of AIGC technology has enabled intelligent creation to gradually penetrate animated film production, transforming traditional creative workflows and artistic presentation forms while breaking through conventional constraints on creative expression. This has significantly improved the production efficiency of animated films, with artificial intelligence reshaping the productivity and creativity of this art form. First, AIGC technology substantially reduces time costs. From meticulous character development in scripts to elaborate scene design, each step traditionally requires a lengthy process. However, the introduction of AI technology, with its excellent image generation capabilities, can produce large quantities of high-precision images in extremely short timeframes. By learning from historical materials and existing styles, AI can provide valuable sources of inspiration for creators, greatly alleviating the burden of repetitive labor and enabling creative teams to focus their energy primarily on conceptualization and innovation. AIGC technology can also create imaginative images and scene effects based on its capacity to analyze massive datasets while incorporating the classic charm of traditional animation. This shift signifies that animated film creation is gradually transitioning from traditional manual modes to a new stage of intelligent production.

Second, AIGC technology is leading animated films toward digitalization and intelligence. In the production of major animated films such as *Nezha: The Devil Boy Strikes Back* (hereinafter referred to as *Nezha 2*), AI has become an indispensable assistant and efficient tool in concept design, production management, technical implementation, and marketing communication. From fluid

character movements to vivid environmental simulations, AI provides production teams with strong support capabilities and expanded creative space, making visual presentations more refined and visually stunning. The Decision of the Central Committee of the Communist Party of China on Further Deepening Reform and Promoting Chinese-Style Modernization proposes “exploring effective mechanisms for the integration of culture and technology, and accelerating the development of new cultural industries” [4]. Against this backdrop, the film and television production industry has entered a new era of deep integration between “human and AI,” and Chinese animated films imbued with profound cultural heritage will undoubtedly achieve comprehensive improvements in both speed and quality on the international stage, winning broader recognition and acclaim.

The production of *Nezha 2* exemplifies the integration of traditional Chinese ink wash and fine brushwork elements, transforming traditional Eastern aesthetic symbols into audiovisual language that conforms to contemporary aesthetics. In this process, AI-assisted creation was applied in concept design, where the art team proposed concepts based on narrative requirements and used text-to-image AIGC technology to quickly generate multiple concept reference images with diverse styles according to textual descriptions. This approach greatly accelerated the iteration speed of early-stage design, providing abundant inspiration for character modeling and scene atmosphere. However, the development from concept sketches to final artistic products still relied on deep manual processing by artists. AI-generated images could only serve as references, ultimately requiring the creative team to synthesize multiple references for drawing and revision to ensure that character images and scene designs met narrative requirements and aesthetic standards. Therefore, while AIGC technology achieves breakthroughs in visual presentation, it still exhibits deficiencies in the deep expression of cultural symbols, causing issues such as “semantic erosion” and “distortion” of cultural symbols. Traditional cultural symbols deeply depend on the cultural background and symbolic meanings they intend to express during transmission, yet AI-generated content often lacks understanding of complex cultures. The “original” cultural connotations of symbols may be simplified or misinterpreted during generation, particularly in AI-generated character creation that fails to adequately reflect the depth of cultural identity, relying solely on surface features of images or symbols for re-creation or modification. Consequently, creation relying exclusively on AIGC technology will neglect the underlying social, historical, and cultural contexts.

1.3 Cultural Translation Dilemmas and Response Strategies

The application of AIGC technology has brought dilemmas and challenges to cultural inheritance in animation creation. How can the risks of semantic weakening and cultural imagery loss be mitigated or avoided during the transmission of cultural symbols? AI-generated content typically relies on large amounts of data for “imitation” and “reconstruction,” with limited understanding of the

historical and social backgrounds behind cultural symbols. This prevents the emotional depth of traditional culture that needs to be presented in animation creation from being fully expressed, causing cultural symbols to become superficial in technical creation and failing to resonate deeply. As AI technology gradually becomes an important tool in animated film creation, finding balance between innovation and traditional cultural inheritance is crucial. The translation dilemmas of traditional cultural symbols manifest primarily in two aspects: on one hand, whether cultural symbols can be re-innovated through AIGC technology to adapt to modern aesthetics and narrative demands; on the other hand, whether the profound traditional cultural connotations and related emotional expressions that creators intend to convey can avoid being “weakened” or “distorted” in the process of technological empowerment. While AI generation may rapidly produce dynamic scenes and character images, it cannot grasp the historical and cultural connotations of characters. The generated images often represent only superficial forms of characters, failing to convey their historical, cultural, spiritual, and symbolic meanings. How can we maintain the multiple symbolisms and cultural connotations of traditional cultural symbols under technology-driven conditions, avoid overly superficial or homogenized creation, and achieve harmonious coexistence between technology and culture?

The response strategies involve adopting “manual correction intervention” and “cultural gene anchoring” for adjustment. Specifically, creators can first “communicate” with and “train” AI, reviewing and revising generated content to ensure that its symbolic and emotional expressions align with traditional cultural backgrounds. Furthermore, ensuring that generated cultural symbols retain their original cultural meanings, particularly in animated films involving traditional cultural themes, requires the participation of cultural experts and historical scholars. “Manual correction” can compensate for the insufficient emotional depth and lack of historical-cultural context in AI-generated content. AIGC technology creation should establish cultural gene anchoring based on precise traditional culture, extracting the core connotations of traditional cultural symbols. “Manual correction” then supervises and re-optimizes each link in the generation process, enabling AI to correctly interpret the deep meanings of cultural symbols during innovation and re-creation, avoiding phenomena such as symbol distortion and hollowness in the technical generation process. Therefore, creation requires profound understanding and grasp of the social context and historical connotations behind cultural symbols, with “corrections” applied to enable the “symbols” in animation creation to effectively transmit the emotions and depth of traditional Chinese culture while accommodating modern aesthetics.

2. Multi-dimensionality of Cultural Symbols: Inheritance and Innovation of Cultural Genes

Chinese animated film creation needs to harness the power of AIGC to further improve the accurate reproduction of traditional cultural symbols through “cultural gene databases” and “manual correction intervention,” ensuring the precision of cultural symbols in AI generation and preventing cultural images from being weakened or misrepresented, thereby promoting the global dissemination and recognition of traditional Chinese culture. How to use AIGC to assist animation creation in achieving the modern translation of traditional culture, enabling the multi-dimensional meanings of cultural symbols to achieve harmonious coexistence between technology and culture, constitutes an important current challenge.

2.1 Inheritance of Cultural Genes: Cultural Gene Database

“Cultural gene” is a concept derived from biological genetics, used to describe the basic unit of culture in the process of transmission and evolution. It was first proposed by British evolutionary biologist Richard Dawkins in his 1976 book *The Selfish Gene*. Drawing on the concept of genes, Dawkins defined memes as “units of cultural transmission and imitation” [6]. These “genes” passed down through generations appear inadequate when using AIGC technology to reproduce traditional cultural elements due to the lack of profound understanding of these “cultural genes,” which prevents effective capture and transmission of these complex cultural genes. Only through more innovative and profound cultural expression can products become artworks with deep cultural value and emotional resonance, while also forming differentiated competitive advantages in the market [7]. Although AI can shape multiple character images in a short time, the emotional conflicts and complex inner conveyance of characters in animated films cannot be directly achieved through AI creation alone.

Symbols in animated films may represent not only the traditional mythological figures and stories expressed during film translation but also a deeper connotation of visual reproduction and cultural-historical re-creation. Combining semiotics theory, particularly Ferdinand de Saussure’s semiotics, reveals that the “signifier” and “signified” of cultural symbols are of great significance, with both aspects being extremely important. The “signifier” is the physical manifestation of the symbol, such as images or sounds, while the “signified” represents cultural meaning and symbolic content—the meaning of the symbol [8]. AI technology can learn and acquire the “signified” component of symbols (the deep cultural background and historical connotations) through cultural gene databases, which cannot be achieved merely by presenting surface-level symbols. With established cultural gene databases, AI can extract necessary cultural information when generating content, enabling it to produce visual effects or symbolic representations that conform to appropriate visual presentations, thereby understanding and expressing the cultural, historical, and social meanings contained within symbols.

2.2 Gatekeeping of Cultural Transmission: Manual Correction Intervention

Technological innovation has brought complex interplay to the transmission and re-creation of traditional cultural symbols. In the generation process of cultural symbols, to ensure that generated content can convey both visual presentation and cultural connotation, achieving complete preservation of cultural symbol emotion and depth, effective cultural transmission, and further optimization of character design, manual intervention is required in the AIGC empowerment process for cultural correction to maintain cultural authenticity and avoid “superficialization” and “distortion” of symbols. Incorporating manual review and adjustment mechanisms in the AI generation process ensures that generated content meets cultural accuracy requirements, avoiding deviations in technical generation. Every link in AI-generated content requires manual review. Through refined technical control and cultural guidance, the deep integration of traditional cultural elements and modern technology can be achieved, optimizing the cultural expression effectiveness of AIGC-generated content.

Chang' an San Wan Li is an animated film that successfully transmits excellent traditional Chinese culture. Through vivid reproduction of 48 classic Tang Dynasty poems, it shapes three-dimensional images of historical cultural masters such as Li Bai, Gao Shi, Du Fu, and Wang Wei, presenting the prosperous scene and poetic atmosphere of the Tang Dynasty golden age. The film skillfully integrates historical authenticity with artistic innovation, enabling modern transformation and dissemination of traditional poetry through deep appreciation of classical poetry and broad stimulation of interest in traditional culture, allowing audiences to experience the charm of traditional poetry while sparking a national “Tang Poetry Craze.” AIGC technology could potentially be used to rapidly generate Tang-style character costumes, scene details, and numerous visual elements, saving pre-production design and rendering time while assisting artists in exploring visual styles and creative solutions. However, this may also lead to insufficient cultural connotation expression, inadequate historical accuracy, and inconsistent visual styles, particularly given the profound cultural heritage and delicate emotional expression of Tang poetry that are difficult to manifest. Therefore, AIGC and manual creation must collaborate synergistically, ensuring that technology assists rather than dominates, to truly achieve accurate transmission of cultural value. As British scholar Viktor Schönberger mentions in his book *Big Data: The Wave of the Era*, using big data and algorithms must consider cultural diversity and complexity, meaning that AIGC technology requires “cultural mediation” to better serve the goals of cultural inheritance.

3. Chinese Animation in the Global Context: Technology Empowerment and Cultural Confidence

The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council, in their *Opinions on Implementing the Project for Inheriting and Developing Excellent Traditional Chinese Culture*, have made arrangements to “implement the animation creation project for Chinese classic folk stories,” with the National Radio and Television Administration and the National Press and Publication Administration organizing related work respectively. This guides animation creators to excavate the cultural essence accumulated in folk stories, demonstrate the ideological concepts, humanistic spirit, and moral norms cultivated by the Chinese nation over thousands of years of civilization with profound patriotism and historical consciousness, encourages animation works to inherit Eastern aesthetics, and explains Chinese people’s emotional pursuits and aesthetic standards. By promoting the creative transformation and innovative development of excellent traditional Chinese culture, these efforts continuously enhance cultural confidence in Chinese animation [9]. In the context of globalization, creators need to pay greater attention to how technology can ensure accurate transmission of traditional cultural symbols and expression of cultural confidence. The dual-track model of parallel technology and culture can not only improve the reproduction and expression of traditional cultural symbols but also provide strong support for co-construction and sharing of cultural confidence, thereby realizing the “digital craftsmanship spirit.” Through refined technical support and precise cultural transmission, Chinese animated films will occupy a place in the global cultural market and become an important vehicle for promoting Chinese cultural soft power.

3.1 Integration of Digital Technology and Cultural Confidence

Modern narratives of traditional aesthetics involve not only the reproduction of symbols but also the transmission of cultural values and emotional connotations. Artificial intelligence technology can provide creators with more flexible and diverse creative tools in storytelling, helping them expand the space for expressing traditional cultural elements and enabling innovation based on traditional aesthetics. The animated film *Nezha 2* exemplifies the integration of digital technology and cultural confidence. Through digital technology innovation, it successfully retains the core characteristics of the Nezha traditional cultural symbol in character design, scene rendering, and action performance, endowing it with modernity in visual language. The Nezha in the film conveys the values of “rebellious spirit” and “self-redemption” in traditional Chinese culture, making the image extremely modern and gaining recognition and affection from global audiences. This film has promoted the internationalization of Chinese animated films and enabled broader global dissemination of traditional Chinese cultural symbols.

By combining traditional mythological elements with modern visual styles, the film designs the character image of the “Dragon King.” In scene presentation,

through refined digital modeling and unique rendering, it presents the “Dragon Palace” as a magnificent, imposing, and mysteriously majestic tableau reminiscent of a maritime masterwork. These visual presentations, which precisely utilize cutting-edge technological means to interact closely with the global market, remain loyal to the spiritual connotations of traditional culture while integrating global market acceptance and modern aesthetics, successfully pushing traditional Chinese culture onto the world stage.

3.2 Interaction Between Digital Craftsmanship Spirit and Global Market

The “digital craftsmanship spirit” is constructed and “cultural confidence” is promoted. Digital craftsmanship spirit lies in meticulously crafted technology and the pursuit of excellence in creative quality. Animation creators enable traditional cultural symbols to present more personalized expressions through AI technology via exquisite visual effects and deeper cultural expression. The process by which creators achieve lean creation through technology is precisely the process of embodying the digital craftsmanship spirit that respects and innovates traditional culture. The animated film *Chang'an San Wan Li*, with its exquisite digital restoration of Tang Dynasty architecture and poetic imagery, demonstrates animation creators’ ultimate pursuit of quality and detail. This spirit is continuously enhanced through Chinese animation quality and international competitiveness, achieved through pursuing perfection and technological innovation. The national style of Chinese animation is not only an expression of external form but also the construction of internal national implications and national spirit [11]. *Nezha 2* has successfully achieved breakthroughs and interactions for Chinese animation in the global market through high-quality digital production, gaining tremendous positive reputation worldwide.

3.3 Chinese Animation Creation Path: The Dual-Track Model of Technology and Culture

Animated film creation is an artistic presentation and a bridge for global cultural communication. Technology empowerment and cultural transmission are not opposing forces but can jointly promote Chinese culture to the world, thereby better showcasing the charm of traditional Chinese culture. Chinese animated films need to develop through the “dual-track model of technology and culture,” promoting both technological innovation and ensuring the depth and accuracy of cultural inheritance. AIGC technology can improve animation production efficiency through highly automated creative means and, in the future, can further help creators achieve confident global cultural dissemination. In global cultural competition, it is necessary to ensure these symbols meet modern aesthetic demands while transmitting the depth and symbolic meaning of Chinese culture. AIGC technology provides creators with the ability to innovate and express on the foundation of local culture, achieving worldwide dissemination through digital platforms. While empowering and transmitting the profound

heritage of traditional culture, animation works break through linguistic, cultural, and geographical limitations, bringing traditional Chinese aesthetics to global audiences through modern technological means. With technological support, Chinese animated film creation can conduct cultural dissemination more efficiently and make appropriate manual correction interventions according to the needs of different regions and cultural backgrounds, making the process of cultural sharing broader and deeper.

As AIGC technology penetrates deeper into animated film creation, more works like *Nezha 2* may emerge. They are no longer simple entertainment products but crystallizations of the spirit of the era and technological power. In the process of cultural transmission, creators still play a leading role and need to ensure the uniqueness, depth, and connotation of traditional cultural symbols are accurately preserved in modern translation. Future Chinese animated films will become catalysts for cultural transmission through the “technology and culture dual-track model,” providing stronger support for Chinese animation to enter the world stage. AIGC-enabled Chinese animated film creation can conduct cultural transmission faster and better, not only adding rich and colorful content to local cultural expression but also bringing broader perspectives to global cultural dissemination. Relying on technology empowerment to accurately discover and understand audience cultural needs, and through modern interpretation and deep deductive presentation of traditional cultural symbols, cross-cultural communication can be achieved, further promoting global recognition of traditional Chinese culture. As cultural scholar Edward Hall stated, symbols in high-context cultures often depend on implicit background information and contextual understanding [12]. Using technological means to promote the presentation of high-context culture can not only provide strong support for animated film creation but also assist cultural confidence and innovation. Chinese animated film creators should actively utilize new technologies, focusing on the dissemination of cultural connotations and the continuation of spirit while continuously injecting new vitality into Chinese culture, further promoting Chinese culture to shine more brilliantly on the world stage through technology empowerment.

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