

From Static Symbols to Dynamic Signification A Semiotic Study of the Construction and Dissemination Pathways of Paper-Cutting Animation

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Abstract: This study examines Zhuhai's 'Sanzao Paper-cutting' and its animated adaptation Crane Language as a case study. Adopting a semiotic theoretical perspective, it explores how paper-cutting art transitions from a static visual symbol to a dynamic semiotic system through animation, thereby establishing effective modern communication pathways. The research encompasses: 1. The patterns, lines, and colors of paper-cutting constitute its 'signifier' layer, while the underlying folk beliefs, regional culture, and auspicious wishes form its profound "signified" connotations. 2. An examination of how the animation medium achieves the 'dynamic translation' and 'semiotic construction' of paper-cutting symbols. 3. Building upon the dynamic symbolization outcomes, it explores how animated, narrative-driven paper-cut symbols better align with the dissemination logic of short-form video platforms. **Research Methodology:** The study employs literature review to trace the semiotic and communication theories underpinning paper-cut animation. It utilizes case analysis, integrated with the creative practice of Crane Language, to dissect its three-dimensional symbolic transformation mechanism—from signifier to signified to interpretation. **Research Conclusions:** Paper-cut animation constitutes a profound semiotic practice. Through media translation and dynamic narrative, it successfully reconstructs closed traditional symbolic systems into open, interactive modern cultural sign systems. This provides a paradigm reference for the living transmission and innovative dissemination of intangible cultural heritage, combining theoretical depth with practical validity.

Keywords: Paper-cut animation; Semiotics; Intangible cultural heritage; Dynamic representation; Digital dissemination

DOI:10.12417/3029-2344.25.10.016

1.Introduction

Intangible cultural heritage (ICH), as the "living" genetic code of national culture, centers its preservation on transmission and practice. Yet in contemporary society, numerous ICH projects—particularly traditional crafts such as paper-cutting—face the dual predicament of transmission gaps and dissemination failure. Their original symbolic meanings, when presented in static, static displays, create cognitive barriers with contemporary audiences, especially younger generations. Concurrently, digital animation technology, with its potent narrative capabilities and extensive dissemination efficacy, offers new possibilities for the modern transformation of ICH. This study addresses a central question: how can paper-cutting art achieve a semiotic transition from static symbol to dynamic expression through the medium of animation, thereby constructing effective modern dissemination pathways? Taking Zhuhai's 'Sanzao Paper-cutting' and the animated short film Crane Language, created based on this tradition, as its subjects, this study employs semiotic theory to systematically analyse the internal mechanisms and external effects of this transformation process. It seeks to provide a theoretical model and practical case study for the digital, living transmission of intangible cultural heritage.

2.Literature Review

2.1 Symbolic Construction Mechanisms and Evolutionary Pathways of Paper-Cut Animation

Paper-cutting, a resplendent jewel within China's intangible cultural heritage, embodies millennia of historical

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accumulation and profound folk wisdom. Its distinctive visual symbol system serves as a vital conduit for the cultural DNA of the Chinese nation (Zhang , 2014). The practical exploration of Chinese paper-cut animation has a long history. Since the late 1950s, marked by the creation of ‘Zhu Bajie Eats Watermelon’ (1958) by the Shanghai Animation Film Studio, this distinctive animation form has taken centre stage in history. During its subsequent golden age, artists such as Wang produced over seventy classic works including *The Golden Conch* and *The Fisher Boy*, forming a vital component of the ‘Chinese School’ of animation, renowned for its distinctive Eastern aesthetic charm (Wang & Yang , 2023). These works not only garnered numerous accolades on both domestic and international film circuits but also left an indelible mark on the collective memory of several generations through their distinctive decorative qualities, styled performance styles, and rich folk cultural attributes.

Since the 1990s, amid the waves of glocalization and market economics, traditional paper-cut animation has gradually faced decline and internationalism. This stems from its complex production techniques, lengthy production cycles, high costs, and a certain gap between its narrative and visual styles and the aesthetic trends of modern commercial animation (Wang , 2023). Concurrently, the transmission of paper-cutting art itself faced severe challenges, with issues such as the ageing of practitioners, diminishing interest among younger generations, and the shrinking of traditional application contexts becoming increasingly prominent (Zang , 2024).

Entering the 21st century, the burgeoning development of digital technology and the widespread proliferation of new media platforms have ushered in a revolutionary turning point for paper-cut animation and the entire intangible cultural heritage sector. On the one hand, digital tools such as Blender, Procreate, and After Effects have significantly lowered the technical barriers and time costs of animation production, providing unprecedented technological empowerment for the dynamic expression of paper-cut art (Tang et al., 2021). Concurrently, new media channels such as short videos, social media, and virtual reality have pioneered fragmented, interactive, and immersive pathways for disseminating paper-cutting culture (Pan, & Guan, 2025). From the paper-cut style animation that captivated the world at the Beijing Winter Olympics opening ceremony, to tutorials and animated clips routinely garnering millions of views across major short-video platforms, to industrialization efforts like the digital experience centers and IP merchandise of Yuxian paper-cutting and Meishan paper-cutting, it is evident that paper-cut animation is undergoing a profound ‘digital renaissance’. transitioning from a mere ‘intangible cultural heritage’ to a more dynamic ‘cultural and creative industry’.

2.2 Foundational Research on Paper-Cutting Art and Semiotics

Domestic scholars have conducted valuable explorations in this field. Zhang (2014) conducted an in-depth study of folk paper-cutting in central Gansu from a Peircean semiotic perspective. She systematically categorize paper-cutting symbols into three types: iconic symbols (mimicking natural forms), lexical symbols (linked to specific rituals or functions), and conventional symbols (socially and culturally agreed meanings). She profoundly elucidated the dynamic generation and evolution of their meanings during transmission. This classification provides a solid foundation for analyzing the origins and types of symbols within paper-cut animation. Liu (2023) further concretion the symbolic value of paper-cutting into technical, cultural, and emotional dimensions, emphasizing their pivotal role in intangible cultural heritage branding.

Collectively, these studies demonstrate that paper-cutting constitutes a richly layered, structurally coherent symbolic system, providing the theoretical underpinning for examining its translation and reconfiguration within animation.

3.The Semiotic Theoretical Framework for Paper-Cut Animation Research

In this study, Charles Sanders Peirce's triadic model of signs constitutes the core theoretical framework. Peirce conceptualizations the sign as a dynamic process comprising the ‘representation (equivalent to Saussure's ‘signifier’), the “object”, and the ‘interpreted (Introduction to Communicative Semiotics, 2025).

This framework is applied to paper-cut animation research as follows:

3.1 The Signifier Level: From Static Patterns to Dynamic Audiovisual Units

Paper-cut animation inherits core signifier characteristics from traditional paper-cutting, including patterned motifs, angularity, and perforation. However, digital technology endows these signifiers with new dimensions. For instance, in *Crane Language*, the costume patterns of the Qianwu Piaoce ritual were digitally extracted and simplified into geometric forms. While retaining core features, these signifiers became more adaptable to animation production requirements. More significantly, the animated medium expands static visual signifiers into comprehensive audiovisual systems through motion (e.g., the crane's wing-spreading dance), sound (e.g., Cantonese opera accompaniment, ocean wave effects), and cinematographic language (e.g., depth-of-field shifts via tracking shots). This greatly enriches the expressive power of the symbols.

3.2 The Signified Level: Narrative Activation and Contextual Reconstruction of Folk Symbolism

The signified of traditional paper-cutting (e.g., auspicious symbolism) often relies on viewers' preexisting cultural knowledge. Paper-cutting animation, however, employs narrative to concretize and emotionalize these abstract signifiers. For instance, the fishing tackle symbol in 'Tricking Mudfish' evolves from a static implement into a vivid narrative vehicle for 'fisherman's survival wisdom' and 'traditional livelihoods' through the animated sequence of 'observing, setting, waiting, and retrieving'. This contextual reconstruction enables ancient symbolic meanings to resonate with contemporary audiences' lived experiences and emotional frameworks, preventing semantic rigidity and loss.

3.3 Interpretive Level: Co-creation of Meaning from Passive Reception to Interactive Engagement

Within the new media environment, audiences are no longer passive recipients of meaning. Through bullet comments, derivative works (such as fan-made videos or fan art incorporating paper-cut animation elements), social media sharing, and interactive operations within AR/VR experiences, viewers actively participate in the reproduction of symbolic meaning (Zhao & Kim, 2024). This process falls within the semiotic category of 'pragmatics,' emphasising the interactive relationship between signs and users within specific contexts. Here, the 'interpretant' is fluid, communal, and even subversive, causing the symbolic meaning of paper-cut animation to be continually enriched and updated during dissemination.

4. Validation of the Creative Practice in Paper-Cut Animation 'Crane Language'

This research experiment centers on Zhuhai Sanzao paper-cutting as its core visual language. Integrating five representative intangible cultural heritage projects from the Zhuhai region—mudfish dressing, Qianwu floating colors, Cantonese opera, crane dance, and bamboo and grass weaving—it employs a technical approach combining 3D modelling with 2D rendering to create the paper-cut animation 'Crane Language'. Building upon the pediatric structure of semiotics, this study systematically analyses the animation's visual translation at the signifier level, the activation of cultural narratives at the signified level, and audience interaction and co-creation of meaning at the signifier level. This verifies how paper-cut animation achieves effective transformation from static symbols to dynamic expression.

4.1 Signifier Level: Dynamic Translation of Paper-Cut Patterns and 3D-2D Integration

In creating *Crane Whispers*, the 'signifier' elements of traditional paper-cutting—patterns, lines, colors, and compositional forms—were systematically extracted and translated into dynamic audiovisual symbols suited to the animated medium. The design team employed a 'low-poly modelling + hand-drawn texture overlay' strategy, preserving the paper-cutting's angularity, perforated quality, and symmetrical aesthetics while endowing it with spatial depth and kinetic capability.

In the Crane Dance sequence, the S-shaped neck curve remains a quintessential visual symbol of paper-cutting. Through skeletal rigging technology, it is endowed with the trajectory of spreading wings and flight, transforming the originally static 'crane' symbol into a dynamic image pulsing with rhythm and vitality. The feather sections

Taking ‘Qianwu Floating Colour as an example, the elevated figures in traditional processions are predominantly static displays. In Crane Whispers, however, the dynamic silhouettes of paper-cut characters and spatial staging on the stage reconstruct the ‘ritual of viewing’ for the floating colors. The audience perspective is guided into that of a ‘follower,’ moving alongside the elevated figures to create an immersive viewing experience (Fig. 5, 6). Though costume patterns are simplified into geometric forms, colour contrasts and negative space treatment preserve the floats' opulent, festive visual characteristics, reinforcing their signified cultural meanings of ‘celebration,’ ‘belief,’ and ‘community identity.’



Fig. 5, 6: Dynamic staging and perspective guidance design for Qianwu Floating Colour figures

In the Cantonese opera segment, the design team deconstructed facial patterns into symmetrical raised/recessed motifs, employing interplay between solid and void to convey the mystique and tension inherent in theatrical characters (Fig. 7). The stage backdrop combines traditional curtain structures with paper-cut figures, allowing characters to ‘live’ within the paper-cut stage. This enhances the opera's ‘performative nature’ and ‘sense of ritual,’ thereby activating Cantonese opera's symbolic significance as a repository of local cultural memory.



Figure 7: Reconstructed Stage Space

‘Crane Dance’ constructs a symbolic context of ‘auspiciousness,’ ‘longevity,’ and ‘harmony between humanity and nature’ by integrating the crane's flight trajectory with natural imagery such as ocean waves and moonlight. This evokes emotional resonance among audiences, facilitating their understanding of the cultural spirit it embodies.

4.3 Interpretive Layer: Co-creation of Meaning through Interactive Dissemination and Audience Engagement

At the interpretive level, Crane Language's dissemination extends beyond the animation itself. Through short-video platforms, cultural derivatives, and AR interactions, it stimulates audience reinterpretation and cultural participation, fostering the circulation and regeneration of symbolic meaning.

Employing red as its dominant hue, the animation unifies the visual style across five intangible cultural heritage elements, enhancing the irreconcilability and emotional resonance of paper-cut symbols while aligning with short-video platforms' dissemination logic. Its lightweight, narrative-driven, and visually impact characteristics have garnered substantial views and shares on platforms like Douyin and Bilibili, where audiences engage in symbolic meaning reproduction through bullet comments, reviews, and secondary creative videos. Core symbols (such as the crane dance, floating colour figures, and Cantonese opera masks) were extracted as visual IPs, applied to cultural products like phone cases, postcards, and red envelope covers. This transitioned the symbols from mere ‘viewing’ to

‘carrying,’ transforming intangible cultural heritage into consumable, disseminable cultural capital.

4.4 Validation of Creation Through a Semiotic Lens

The creative practice of Crane Language demonstrates that paper-cut animation transcends mere ‘form-to-animation conversion,’ constituting a profound semiotic endeavour. At the signifier level, it achieves media adaptation and dynamic expansion of traditional visual symbols; at the signified level, it revitalizes intangible cultural heritage through narrative and contextual reconstruction; and at the interpretation level, it enables co-creation of meaning through audience participation via new media platforms and interactive technologies.

This process not only validates the viability of paper-cut animation as a pathway for the ‘living transmission’ of intangible cultural heritage, but also provides a replaceable and saleable paradigm for the regeneration of traditional culture in the digital age.

5. Multi-dimensional Expansion of Paper-cut Animation Dissemination Pathways Based on Symbolic Dissemination

5.1 The transformation in symbolic construction methods has directly catalysed the diversification and institutionalization of its dissemination pathways.

The Continuation and Enhancement of Traditional Channels: Offline exhibitions, intangible cultural heritage programmer in schools, and festival performances remain effective, though now frequently integrated with digital screens and interactive projections to heighten engagement. The Empowerment and Dominance of New Media Channels: Short-video and live-streaming platforms have become pivotal for reaching the broadest audiences, particularly the younger Generation Z demographic. Their fragmented, visually impact nature aligns seamlessly with the dynamic paper-cutting symbols.

Digital platforms and e-commerce, exemplified by models such as the Meishan Paper-Cutting Digital Experience Centre, integrate online education, digital artefact exhibitions, and cultural e-commerce. This creates a complete dissemination loop spanning from ‘cultural awareness’ to ‘cultural consumption’.

Cross-media IP development represents the key pathway to maximizing symbolic value. Licensing or deriving core symbols (characters, patterns) from paper-cut animations into film, gaming, publications, and fashion creates multifaceted symbolic resonance, building formidable brand impact. Cutting-edge exploration in immersive and interactive experiences leverages AR/VR/MR technologies to forge unprecedented communication scenarios. Audiences may scan physical objects via mobile apps to activate animations or don VR headsets to traverse virtual worlds constructed from paper-cut art. Such embodied interaction significantly intensifies the perceptual impact and memory retention of symbols, elevating dissemination from mere ‘information transmission’ to ‘shared experiential engagement’.

5.2 Strategic Integration of Branded Dissemination

Grounded in semiotic theory, the contemporary dissemination of paper-cut animation can be summarized through an integrated model: "Digital Preservation → Dynamic Translation (Content Creation and Narrative Development) → IP-Driven Operations and Interactive Experiences (Value Derivation and Community Building)". The successful collaboration between Yuexian paper-cutting and e-commerce platforms (Liu, 2023) demonstrates that through systematic internet matrix marketing, community-based economic operations, and policy support, the transition of paper-cutting symbols from ‘traditional heritage’ to ‘modern trend brands’ can be effectively achieved.

Following dynamic translation, the dissemination pathways of paper-cutting symbols have diversified from singular to multifaceted.

(1) Lightweight Social Dissemination: Dynamic, narrative-driven paper-cutting symbols align perfectly with the dissemination logic of short-video platforms. Their visual impact, storytelling appeal, and concise duration cater to contemporary audiences’ fragmented consumption habits, enabling ‘one-click’ lightweight cultural engagement. This significantly enhances intangible cultural heritage’s visibility and acceptance among younger demographics.

(2) IP-Driven Industrial Derivatives: The animated work Crane Language itself serves as the seed for a cultural IP. Dynamically constructed symbols—such as specific crane dance motifs and Qianwu Floating Colour characters—serve as core visual elements, extending into creative merchandise (e.g., phone cases, hoodies), digital publications, and physical experiential exhibitions. This transforms intangible heritage symbols from passive objects into consumable, interactive, and portable cultural capital, forming a value loop of ‘symbol innovation—content production—industrial application’.

(3) Immersive Experience Expansion: Building upon the dynamic symbol library, further expansion into immersive experiences such as VR (Virtual Reality) and AR (Augmented Reality) is feasible. For instance, through AR technology, audiences scanning physical paper-cut artworks could trigger corresponding animated narratives. This achieves synergistic dissemination across online and offline platforms, significantly enhancing the interactivity and immersive quality of communication.

6. Discussion

6.1 Distortion and Preservation in Symbolic Translation

In the translation process from static to dynamic form, does symbolic meaning undergo loss or distortion? For instance, does simplifying paper-cut outlines to achieve fluid motion diminish their inherent rustic aesthetic? This represents a core issue requiring careful consideration. Successful translation should respect the sign's core signified (its cultural essence) while indicatively adapting its signifier to the new medium, thereby achieving ‘preserving the spirit while altering the form’.

6.2 Technology as an Active Agent in Symbolic Construction

This study highlights that digital software (Blender, Procreate) is not a neutral tool. Their inherent technical logic—such as skeletal rigging and particle systems—directly participates in and shapes the dynamic form of symbols. Thus, technology itself should be regarded as an active agent in the symbolic construction process, simultaneously expanding expressive possibilities and introducing new aesthetic paradigms.

6.3 Pathways from Cultural Dissemination to Cultural Affiliation

The ultimate purpose of dynamic paper-cut animation extends beyond knowledge dissemination to forging cultural affiliation. By transforming unfamiliar traditional symbols into comprehensible, resonant dynamic narratives, it cultivates a sense of familiarity and pride in local culture among audiences—particularly younger generations—thus achieving a profound communicative effect that transcends mere ‘knowledge’ towards genuine ‘affiliation’.

7. Conclusion

This study employs a semiotic theoretical lens, combined with the specific creative practice of Crane Language, to systematically analyse the intrinsic logic through which paper-cut animation achieves its transformation from ‘static symbol’ to ‘dynamic expression’ in the digital era. The research indicates that this transformation is not a mere formal migration, but a comprehensive semiotic construction process encompassing the dynamic expansion of signifier, the activation of referential narratives, and the interactive co-creation of interpretive elements. Within this process, the visual elements of traditional paper-cutting are transformed into dynamic audiovisual symbols adapted to the new media context. Their profound cultural connotations are awakened through contextualized narratives and undergo continuous meaning reproduction during dissemination through audience participation. Guided by this constructive logic, paper-cut animation's dissemination pathways transcend traditional constraints, expanding into lightweight social sharing, IP-driven industrial spin-offs, and immersive experiences. This fosters a virtuous ecosystem for the living transmission of intangible cultural heritage.

Whilst this study provides a framework for understanding the symbolic transformation and dissemination of paper-cut animation, limitations remain. Empirical analysis of audience feedback warrants deeper exploration, and

discussion of synergistic expressive elements such as auditory symbols remains insufficient. Future research may advance by quantitatively assessing dissemination effectiveness and investigating symbolic construction within novel scenarios like the meta verse. Overall, this study demonstrates the profound significance of paper-cut animation as a semiotic practice: it not only provides an innovative pathway for the survival and development of intangible cultural heritage in the contemporary era, but also constructs a semiotic bridge between traditional culture and modern life – one that is communicative, interactive, and capable of growth.

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