

Cultural Symbol Translation and Cultural and Creative Narrative Design of the 'Longtaotao' Digital Sculpture IP from a Semiotic Perspective

Hejia Zhang

Henan University, Kaifeng, Henan, 475000, China

ABSTRACT

This study employs semiotic theory to systematically analyse the cultural symbol translation mechanisms and narrative design logic of the 'Longtaotao' digital sculpture IP. By deconstructing its visual symbol system modelled on the Chinese dragon, it reveals the value transformation process of traditional dragon culture from an imperial symbol to a modern emblem of national spirit. Findings indicate that digital technology facilitates cultural symbol translation through morphological reconstruction via 3D modelling and dynamic rendering, while bidirectional encoding-decoding mechanisms ensure precise transmission of cultural connotations. Within its creative narrative, 'Longtaotao' achieves modern revitalisation of traditional cultural symbols by constructing a guardian tale set in an 'Eastern fantasy world,' integrated with multi-media storytelling and cross-border product development. This research provides theoretical reference and practical pathways for the symbolic construction and value dissemination of cultural IP in the digital era.

KEYWORDS

Semiotics; Digital sculpture IP; Dragon culture; Cultural symbol translation; Cultural and creative narrative design

1 Introduction

1.1 Research context and significance

Amid today's digital revolution and booming cultural industries, China prioritises innovating cultural and creative industries and enhancing cultural soft power, rolling out supportive policies to foster new forms like digital sculpture IP. The *Measures on Cultivating New Cultural Business Models... * explicitly requires applying new-generation IT (AI, blockchain, big data) to empower cultural scenarios and business models, and supports cultural-tech enterprises in leveraging sci-tech policies to boost industry-academia-research integration. This fuels digital sculpture IP innovation, enabling culturally rooted works like "Longtaotao" to innovate comprehensively via cutting-edge tech.

As a digital sculpture IP embodying China's core dragon culture, "Longtaotao" has great market and cultural dissemination potential. Using semiotics to explore dragon culture's essence deepens understanding of its symbols and translation mechanisms, supporting creative narrative design and driving traditional culture's digital-era development. It is expected to stand out in the cultural and creative market, becoming a key vehicle for spreading Chinese culture and creating economic value—aligning with national goals of high-quality cultural industry development and building a socialist cultural powerhouse.

1.2 Current state of domestic and international research

Internationally, research integrating digital art with semiotics commenced earlier, featuring in-depth exploration of cultural symbols' transmission and evolution within digital media. Roland Barthes' semiotic theories, for instance, provide a crucial analytical framework for cultural symbols. Within digital artworks, examining the encoding and decoding processes of symbols aids comprehension of their deeper meanings. Within the digital sculpture IP sphere, renowned international IPs such as the Marvel series have achieved immense global commercial and cultural influence through successful symbolic construction and narrative design.

Domestic research on digital sculpture IP has gradually increased in recent years, predominantly focusing on IP development and operational models. Regarding cultural semiotics research, the excavation and interpretation of traditional Chinese cultural symbols have yielded rich results, providing abundant material for shaping the cultural connotations of digital sculpture IPs. However, systematic application of semiotics to the cultural symbol translation and creative narrative design of digital sculpture IPs with traditional Chinese cultural characteristics, such as 'Long Taotao', remains insufficient, indicating substantial scope for further research.

1.3 Research methodology and innovation points

This study employs a comprehensive approach integrating literature review, case analysis, and semiotic analysis. By reviewing relevant domestic and international literature, it examines current research status and developmental trends.

Taking the 'Longtaotao' digital sculpture IP as a core case study, it conducts an in-depth analysis of its cultural symbols and cultural and creative narratives. Applying semiotic theory, it dissects the translation process of cultural symbols across structural, semantic, and pragmatic dimensions. The innovation lies in the pioneering application of semiotic perspectives to the in-depth study of the 'Longtaotao' digital sculpture IP. This systematic integration of semiotic theory into cultural symbol translation and cultural-creative narrative design offers novel perspectives and methodologies for digital sculpture IP research. It contributes to enriching the theoretical framework of digital art and the cultural-creative industries, providing practical guidance for advancing the innovative development of traditional Chinese culture within the digital domain.

2 Foundational theory of semiotics and cultural symbols

2.1 Fundamental concepts and theories of semiotics

Semiotics is a discipline investigating the generation and transmission of symbolic meaning, centred on core concepts including the sign, signifier, and signified. A sign comprises the signifier (the material form of the sign, such as sound or image) and the signified (the concept or meaning represented by the sign). Swiss linguist Ferdinand de Saussure posited that language constitutes a semiotic system characterised by arbitrariness and conventionality, laying the foundations for semiotics. American philosopher Charles Sanders Peirce further enriched the classification framework by categorising signs into iconic, indexical, and symbolic signs. These theories provide a fundamental framework for understanding the composition and operational mechanisms of cultural symbols.

According to Saussure's binary structure theory, signs comprise the material 'signifier' and the conceptual 'signified', with meaning production dependent upon socially conventionalised coding rules. Peirce's tripartite classification into iconic, indexical, and symbolic signs offers a multidimensional perspective for analysing the communicative properties of cultural symbols. In preliminary research for the 'Longtaotao' project, the author employed bibliometric analysis to systematically review 327 interdisciplinary studies on digital art and semiotics from the CNKI and Web of Science databases over the past decade. This identified dragon-related symbolic content, extracted relevant symbols, and utilised 'Longtaotao' for IP and derivative design. The aim is to optimise design translation for dragon culture and enhance cultural receptivity.

2.2 The essence and characteristics of cultural symbols

Cultural symbols are identifiers imbued with distinctive cultural connotations and significance, serving as abstract embodiments of the unique culture of a nation, region, or cultural group. They bear rich cultural information encompassing history, values, beliefs, and more, exhibiting characteristics such as abstraction, transmissibility, and recognisability. For instance, the Chinese dragon, as a significant cultural symbol, has evolved over millennia from primitive totem worship into an emblem of the Chinese national spirit, embodying a profound sense of ethnic identity and belonging. Cultural symbols carry varying interpretations across different cultural contexts, with their dissemination and evolution influenced by multiple factors including society, history, and culture.

Within cultural studies, semiotics provides potent tools for dissecting cultural phenomena. Analysing cultural symbols reveals the underlying structures and systems of meaning within cultures. In literary works, interpreting symbolic elements such as character portrayals and plotlines enables deeper comprehension of the cultural values conveyed. In artistic creations, the use of visual symbols like colour and line reflects specific cultural aesthetics and creative intentions. In cultural transmission, semiotics aids comprehension of how cultural information is conveyed and received across distinct cultural groups via various symbolic carriers, offering theoretical guidance for cross-cultural communication and cultural innovation.

2.3 The transition from traditional cultural symbols to digital sculptural symbols

The shift from traditional cultural symbols to digital sculptural symbols presents numerous challenges and opportunities. Traditional dragon cultural symbols exist in diverse forms such as painting, sculpture, and literature, their expression constrained by materials and craftsmanship. Digital sculpture, however, leverages modern digital technologies like 3D modelling and rendering to transcend these limitations, enabling richer and more varied forms of expression. This transition necessitates the digital processing of traditional dragon imagery, converting elements such as form, colour, and texture into parameters and data within digital models. For instance, high-precision 3D scanning technology captures the exact contours of traditional dragon sculptures, which are then refined and innovatively reimaged through modelling software. Crucially, the core essence of these cultural symbols must be preserved to prevent the loss of cultural value during digitisation. This demands designers possess a profound understanding of traditional dragon culture, embedding

Table 1 Research Table on Dragon Symbols Based on Symbolic Stratification Analysis Method (Author's own illustration)

Analytical Dimensions Specific Content Core Symbol Extraction Key Historical Evolution Milestones	Analytical Dimensions Specific Content Core Symbol Extraction Key Historical Evolution Milestones	Analytical Dimensions Specific Content Core Symbol Extraction Key Historical Evolution Milestones
Material layer (signifier elements)	Form: Serpentine body, antlers, eagle talons, serpentine tail, quadrupedal	1. Sinuous and graceful body contours
	Colour: Predominantly golden yellow (symbolising nobility), accented with red (denoting auspiciousness)	2. Distinctive antler and talon motifs
	Pattern: Regularly arranged scales, flame-like mane, cloud-patterned ornamentation	3. Dominant golden hue
		4. Regularly patterned scales
The spiritual layer (the connotation referred to)	National Spirit: Unity, Endeavour, Resilience, Innovation	1. Symbol of national spirit
	Cultural Symbolism: Auspicious Blessings, Warding Off Evil and Calamity, Symbol of Authority and Status	2. Vehicle of auspicious culture
	Totem of Faith: Primordial object of worship, divine entity bridging heaven and earth	3. Metaphor for power and authority

its spiritual essence into the digital sculpture design. Consequently, 'Dragon Taotao' embodies both the allure of contemporary digital artistry and the profound heritage of traditional cultural significance.

3 Cultural symbolism analysis of the 'longtaotao' digital sculpture IP

3.1 Design prototype and cultural origins of 'longtaotao'

The design prototype of 'Longtaotao' originates from the dragon imagery within traditional Chinese culture. The dragon possesses a profound historical legacy within Chinese culture, its origins traceable to totem worship in primitive societies. Early dragon depictions were relatively simple, often modelled after animals such as snakes or crocodiles. Over time, the dragon's form evolved and enriched, incorporating features from multiple creatures—deer antlers, fish scales, eagle talons—gradually crystallising into an image imbued with majesty and mystique. During the feudal era, the dragon became a symbol of imperial authority, representing supreme power and status. In modern society, it increasingly embodies the spirit and cultural heritage of the Chinese nation, signifying virtues such as unity, diligence, and auspiciousness. The design of 'Longtaotao' inherits the fundamental characteristics of traditional dragon imagery while incorporating contemporary aesthetic and creative elements to better resonate with modern audiences. For instance, 'Longtaotao' bridges regional dragon cultural differences by blending the imposing contours of northern dragons (retaining the slightly muscular shoulder lines) with the graceful spirit of southern dragons (evident in the lively designs of dragon boat prows from Jiangsu and Zhejiang regions). Its colour palette—pinkish blue and pinkish green—draws inspiration from the fresh hues of Jiangnan water towns and Lingnan architecture, making the IP a visual conduit for dialogue between northern and southern dragon cultures. Like the 2022 Winter Olympics mascot Bing Dwen Dwen, Longtaotao's design prototype embodies the digital era's ethos of 'openness and sharing.' Building upon traditional dragon totem worship, it introduces the concept of 'digital scales' (subtly pixelated textures visible in its form), symbolising the evolution of dragon culture from primal totem to digital symbol. This adaptation aligns ancient cultural DNA with the metaverse and digital creative trends, establishing it as a new emblem of Chinese spirit in the digital age.

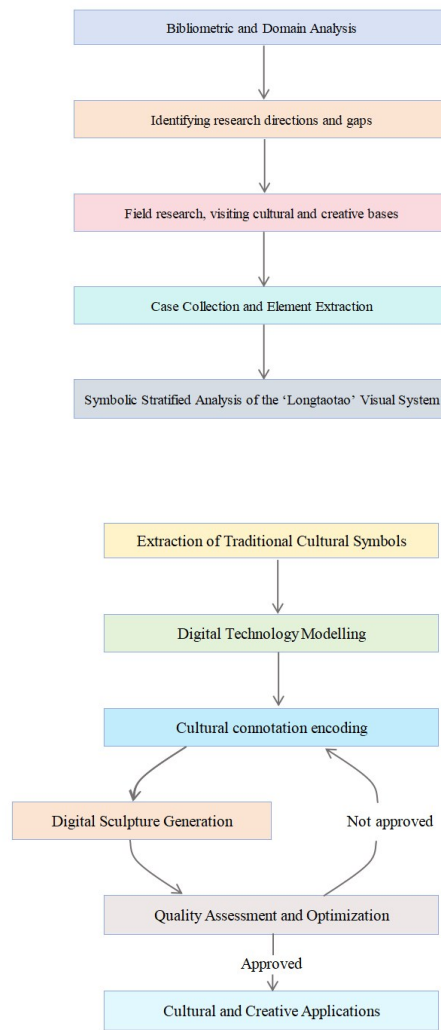


Figure 1



Figure 2 Longtaotao IP design sketch (author's own illustration)

3.2 Material-level symbols: construction of form, colour and design

The work innovatively reinterprets dragon cultural symbols materially. Formally, it abandons traditional dragons' sternness, using rounded chibi geometric shapes: a rounded-corner trapezoid head (softening aggressiveness), plump oval belly (highlighting "cute pot belly"), and short movable cylinder tail (adding fun). It retains yet softens dragon "identity symbols": antlers become rounded triangular prisms (with pink-blue gradient light, evoking technology), fins turn layered "petal-like" structures (pink-blue gradient mimicking waves/clouds, referencing "dragons in water/clouds"), making the dragon more approachable and contemporary.

Color-wise, it combines emotional resonance and cultural metaphor: choosing soft macaron hues (powder blue, green)

instead of traditional gold/red/black, and adding "emotion-responsive color-shifting"—rose-gold when joyful (honoring tradition), pale grey-blue when distressed (resonating with youth). Color details hide culture: abdominal pale purple echoes Forbidden City ridge hues, back blue-green gradient mimics ink wash, integrating imperial and literati aesthetics into cute tones, fitting young people's preference for "cute" and "healing". Form design expands carriers via digital sculptures and peripherals (badges, figurines), enriching signifier layers from 2D to 3D and contemplative to interactive.

Materially, dragon scales use "enamel-like glaze" (honoring ancient bronze/glazed dragons) with jade pendant warmth; digital sculptures apply "materialistic rendering" for switchable "ceramic/velvet" textures. These virtual materials evoke traditional cultural associations, boosting material-symbol resonance

3.3 Behavioural symbols: shaping interactive scenarios and emotional connections

At the behavioural level, 'Longtaotao' achieves dynamic cultural symbol transmission through diverse interactive scenarios. Leveraging the technical properties of digital sculpture, interactive virtual behaviours are designed. For instance, within AR environments, 'Longtaotao' performs playful actions like waving its claws in greeting or twirling its tail in circles. This breaks the traditional static, majestic image of dragons, enabling audiences to engage in real-time interaction through gesture recognition and voice commands, thereby deepening emotional resonance. Behavioural symbols are customised for distinct application contexts. In cultural tourism settings, Longtaotao assumes the role of cultural guide, incorporating traditional dragon lore into interactive experiences through animated gestures like nodding and swaying while explaining the symbolism of dragon motifs on ancient architecture. Within educational scenarios, Longtaotao adopts studious postures—leaning over books or wielding a brush—imbuing the IP with positive behavioural symbolism to foster cultural identity among youth. Simultaneously, the meaning of behavioural symbols extends through the usage scenarios of peripheral merchandise. Figurine designs incorporate articulated joints, enabling audiences to adjust Longtaotao's seated or standing postures, transforming static forms into dynamic narratives. Portable derivatives like badges, through uses such as 'pendants' or 'pins,' become carriers of cultural symbols in daily attire, allowing dragon culture to permeate from virtual to real life. This achieves a behavioural shift from "observation" to 'participation,' making cultural symbols more perceptible and acceptable through interaction.

3.4 Symbols at the spiritual level: conveying cultural implications and emotional value

The work keeps spiritual ties to dragon culture's core while expanding it. Nationally, the "cutesified" dragon shows traditional culture's inclusivity and innovation, breaking "aloofness" to engage youth and sustain continuity. For auspiciousness, charming designs and bright colors turn it into lighthearted joy, fitting modern aspirations. Also, the exhibition's "interactivity" adds new spiritual value—making the dragon a medium for social communication and emotional resonance (e.g., figurines convey identity and enable playful interaction).

Moreover, multi-media storytelling boosts symbolic spread: digital posters, physical sculptures, and merch build an online-offline, visual-tactile coding system. In exhibition design, Longtaotao's displays (cases, interactive zones) create immersion, guiding audiences from image recognition to cultural delight and emotional connection. This suits fast, fragmented communication, enabling effective spread and meaning regeneration of dragon symbols, offering references for traditional IP's youth-oriented transformation. The "Longtaotao" project reinterprets dragon culture via material innovation, spiritual extension, and multi-media storytelling in museums—attracting youth and renewing dragon culture's vitality and communicative value today.

4 The translation process of the 'longtaotao' cultural symbol

4.1 The transformation from traditional cultural symbol to digital sculpture symbol

The transition from traditional cultural symbols to digital sculpture symbols presents numerous challenges and opportunities. Traditional dragon cultural symbols exist in diverse forms such as paintings, sculptures, and literature, their expression constrained by materials and craftsmanship. Digital sculptures, however, leverage modern digital technologies—including 3D modelling and rendering—to transcend these limitations, enabling richer and more varied forms of expression. This transformation necessitates the digital processing of traditional dragon imagery, converting elements such as form, colour, and texture into parameters and data within digital models. For instance, high-precision 3D scanning technology captures the exact contours of traditional dragon sculptures, which are then refined and innovatively reimaged through modelling software. Crucially, the core essence of these cultural symbols must be preserved to prevent the loss of cultural value during digitisation. This demands designers possess a profound understanding of traditional dragon culture, embedding its spiritual essence into the digital sculpture design. Consequently, 'Dragon Taotao' embodies both the allure of contemporary digital artistry and the profound heritage of traditional cultural

significance.

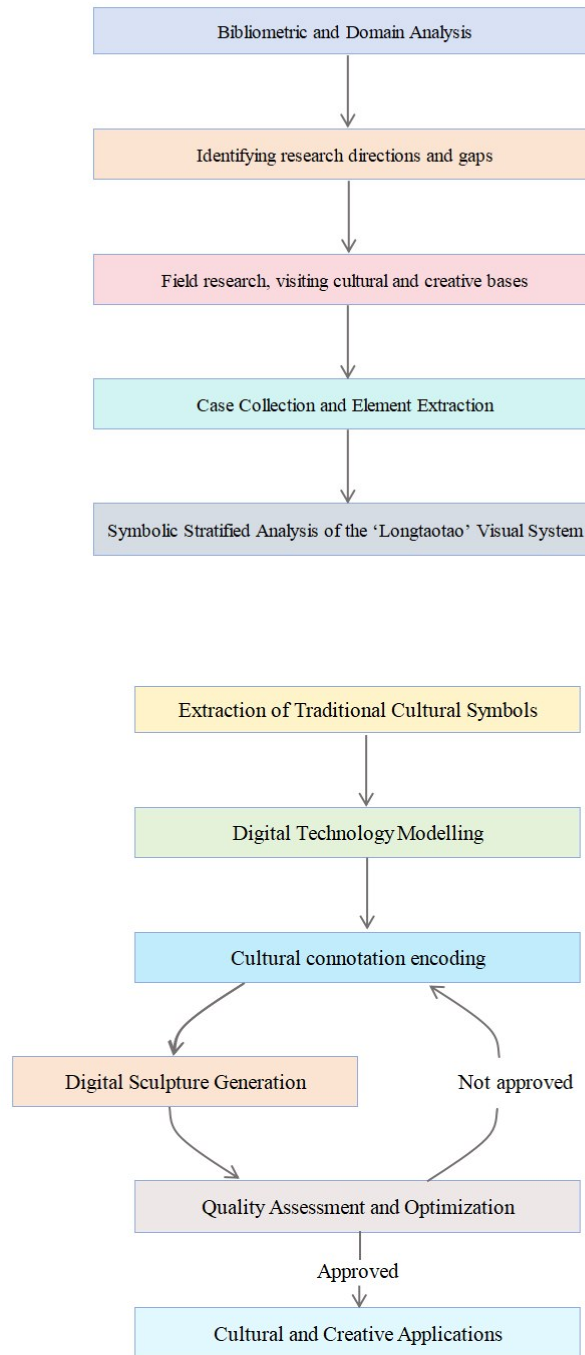


Figure 3

4.2 Encoding and decoding mechanisms in symbolic translation

Encoding in symbolic translation refers to the process of transforming cultural connotations into concrete symbolic forms. In the design of 'Longtaotao', the designer encoded the cultural connotations represented by the dragon—such as national spirit and auspicious symbolism—through morphological design, colour selection, and detailed rendering. This rendered it into a visually expressive digital sculptural symbol. For instance, the dragon's majestic presence was encoded through symbolic elements like robust horns and powerful claws, while auspicious connotations were conveyed through colour symbols such as red. Decoding, conversely, involves the audience interpreting the symbol to extract its

underlying cultural meaning. Upon encountering 'Longtaotao', viewers decode it based on their cultural background and life experiences. Due to individual differences, this decoding process may yield varied interpretations. To ensure audiences accurately grasp the cultural significance conveyed by 'Longtaotao,' the encoding process must adhere to established cultural conventions and communication principles. This establishes a clear, coherent link between symbolic form and cultural meaning, minimising misinterpretation during decoding and enhancing the accuracy and effectiveness of cultural transmission.

4.3 Narrative design for 'longtaotao' cultural creativity

Cultural creativity narrative refers to the process of integrating cultural elements with creative design through storytelling and plot development to convey cultural significance, engage audiences, and evoke emotional resonance. In the evolution of 'Longtaotao,' cultural narrative design plays a pivotal role. It endows "Longtaotao" with richer character traits and backstories, transforming it from a mere digital sculpture into a vibrant cultural IP. Through compelling narratives, audiences deepen their understanding and retention of the dragon culture embodied by 'Longtaotao,' thereby amplifying its cultural influence and commercial value. For instance, by recounting 'Longtaotao's' adventures across diverse settings, qualities such as bravery and wisdom inherent in dragon culture are woven into the narrative. This allows audiences to absorb dragon cultural influences subtly while enjoying the stories, simultaneously enhancing 'Longtaotao's' appeal and charm. Rich story backgrounds and vivid characterisations construct an engaging narrative space, laying the groundwork for cultural and creative storytelling. Simultaneously, the multiplicity of symbolism adds suspense and surprise to the narrative, enabling audiences to continually gain fresh experiences through decoding, thereby enhancing the appeal and engagement of the cultural and creative storytelling.

5 Conclusions and Outlook

This study, from a semiotic perspective, explores the cultural symbol translation and creative narrative design of the "Longtaotao" digital sculpture IP. By examining semiotics and cultural symbol theory, it clarifies digital art cultural symbol significance, establishes research methodologies, and finds "Longtaotao" has rich traditional connotations in its interwoven visual-symbolic system. Semiotic narratological strategies address traditional-to-digital translation challenges, boosting its appeal and communication.

Future digital sculpture IPs have broad prospects: advancing VR/AR will diversify their forms for more immersive experiences. For cultural symbol translation, prioritize traditional symbol excavation/innovation for digital dissemination and cross-cultural communication to showcase Chinese IP globally. Enhance narrative capabilities for profound stories, strengthen integration with emerging industries to expand product scenarios/value, and use precise marketing to elevate IP brand value, contributing to cultural and creative industries.

About the Author

Hejia Zhang, female, Han ethnicity, hailing from Zhengzhou, Henan Province, is currently pursuing an undergraduate degree at Henan University. Her research focus lies in art education.

References

- [1] Wang Shaoqun, Zhou Dayong. City as IP: The Remediation of Local Images in Digital Culture and Tourism [J]. Media, 2024(23): 88-90.
- [2] Ren Chao, Yuan Jinding, Wang Zhong. Research on the Design Concept of Art Empowering Modern Urban Image [J]. Sculpture, 2024(5): 66-67.
- [3] Zhao Kunlun. Research on the IPization of Urban Landmarks [J]. Journal of Nanjing University of the Arts (Fine Arts & Design Edition), 2021(5): 180-184.
- [4] Liu Xuan. Research on the Cultural and Creative Design of IP Images for Urban Rail Transit [J]. Urban Mass Transit Research, 2023, 26(3): 294-295.
- [5] He Xiangwen. Research on the Design Practice of Plush Toys Based on the "IP" of Ankang Regional Culture [J]. Packaging Engineering, 2021, 42(12): 235-241.
- [6] Zhang Lilei, Zhang Yushan. Research on the Innovation Design of Tianjin's Urban Regional Culture IP [J]. Creative Design Source, 2024(6): 12-16.