

## Original Paper

# Research on Metaverse-Empowered Digital Cultural and Creative Design of Qingtian Fish Lantern

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### **Abstract**

*Qingtian Fish Lantern is a representative item of intangible cultural heritage in Qingtian, Zhejiang Province. Integrating lantern modeling, dance procedures, formation changes, and festive connotations, it provides a cultural foundation for the transformation of digital cultural and creative design. At present, the development of Qingtian Fish Lantern digital cultural and creative products has shown attempts in visualization, productization, and digitization. However, problems remain, including superficial symbol extraction, insufficient cultural interpretation, and weak user participation mechanisms. Through virtual spaces, immersive experiences, real-time interaction, and digital assets, the metaverse offers a new pathway for expanding the communication scenarios of Qingtian Fish Lantern and transforming its cultural and creative value. This paper proposes design strategies from four aspects: symbol digitization, scene immersion, interactive participation, and product derivation. It aims to promote the shift of Qingtian Fish Lantern from static display to experiential generation, and to realize the integration of the living inheritance of intangible cultural heritage with digital cultural and creative development.*

### **Keywords**

*Qingtian Fish Lantern, Metaverse, Digital Cultural and Creative Design, Intangible Cultural Heritage Communication, Immersive Experience*

## **1. Current Development of Qingtian Fish Lantern Digital Cultural and Creative Design**

### *1.1 Intangible Cultural Heritage Value and Cultural Symbolic Features of Qingtian Fish Lantern*

Qingtian Fish Lantern is a representative intangible cultural heritage item in the local folk culture of Qingtian, Zhejiang Province. It is not a single lantern object, but a cultural form composed of fish lantern props, dance procedures, formation changes, festive rituals, and folk beliefs. The China Intangible Cultural Heritage Network emphasizes that “Qingtian Fish Lantern Dance is the most representative

traditional folk dance of the fish lantern category in Zhejiang Province. It is mainly distributed in Qingtian County, Zhejiang Province, and is a product of the integration of Qingtian fishing culture and folk art” (China Intangible Cultural Heritage Network). This statement indicates that Qingtian Fish Lantern originates from local fishing production and rural life, while also being transformed into festive art through lantern dance performance.

From the perspective of cultural and creative transformation, the value of Qingtian Fish Lantern is concentrated in its form, color, light, movement, and meaning. The fish-shaped lantern has a strong degree of recognizability. Structures such as fish scales, tails, and fins can be transformed into patterns, characters, installations, and interface elements. The combination of lighting and nighttime performance creates visual layers, making it suitable for extension into digital images and immersive scenes. The movement of fish groups, the interweaving of processions, and the changes of formations also provide a basis for dynamic narration.

### *1.2 Existing Foundations for the Development of Qingtian Fish Lantern Digital Cultural and Creative Design*

The digital cultural and creative development of Qingtian Fish Lanterns already has a certain foundation. On the one hand, Qingtian Fish Lanterns have the status of intangible cultural heritage and strong local recognizability. They can connect Qingtian fishery culture, overseas Chinese hometown culture, festive culture, and cultural tourism communication. Public reports describe Qingtian Fish Lanterns as “a general term for fish lantern props, fish lantern dance, and fish lantern teams,” and point out that they “combine traditional fishery culture with folk customs and possess unique artistic value” (China News Service). This shows that Qingtian Fish Lanterns are not only a local performance project, but also have the conditions to be transformed into a local cultural brand and cultural and creative image.

On the other hand, the environment for the digital communication of intangible cultural heritage has gradually matured. Yang Hong argues that “the living continuity of intangible cultural heritage projects remains the primary goal of intangible cultural heritage protection,” and further proposes that “the digital survival of intangible cultural heritage and its inheritance through virtual communities will become a directional trend for future intangible cultural heritage protection” (Yang, 2023). This offers important implications for the digital cultural and creative development of Qingtian Fish Lanterns. Digitalization should not remain limited to video recording, image display, or online dissemination; rather, it should reconstruct performance contexts, participatory relationships, and cultural meanings through digital media.

At present, related development of Qingtian Fish Lanterns has already shown attempts in visual expression, product development, and digitalization, such as visual works, intangible cultural heritage artistic expression, and digital collectibles based on fish lantern imagery. These explorations indicate that Qingtian Fish Lanterns have an entry point for transformation into modern cultural and creative forms. Their advantages lie in clear symbols, stable meanings, and a relatively strong sense of scenario, making them suitable for the development of digital images, interactive videos, online exhibition halls, virtual

festivals, and cultural tourism derivatives. However, from an overall perspective, existing development remains mostly at the level of individual attempts and has not yet formed a systematic pathway for digital cultural and creative development.

### *1.3 Problems in the Digital Cultural and Creative Development of Qingtian Fish Lanterns*

The main problem in the digital cultural and creative development of Qingtian Fish Lanterns lies in the shallow mode of transformation. Existing development often remains at the level of pattern extraction, image redrawing, and souvenir derivation. It emphasizes the external form of fish lanterns while neglecting dynamic performance, formation changes, and festive atmosphere. The core of Qingtian Fish Lanterns lies in “movement” and “collective performance.” If only the outline of the fish shape is extracted, living intangible cultural heritage can easily be compressed into a static symbol.

Insufficient cultural interpretation is another problem. Qingtian Fish Lanterns contain multiple elements, including fishery culture, blessing concepts, local festivals, and overseas Chinese hometown communication. However, existing cultural and creative development often pays more attention to visual effects and product transformation, while insufficiently exploring cultural layers, narrative clues, and local memory. Digital media can expand communication, but it cannot automatically deepen cultural expression. Effective digital cultural and creative design needs to organize modeling elements, folk meanings, and user experience into a content structure that can be understood, participated in, and disseminated.

The user participation mechanism is also relatively weak. Qingtian Fish Lanterns originally relied on festive activities and community collaboration for inheritance, with performers, viewers, and local society jointly forming a cultural field. Existing digital cultural and creative products often position users as viewers or consumers, making it difficult to sustain the living attributes of intangible cultural heritage. Future development needs to introduce fish lantern making, role playing, virtual parades, formation interaction, and festive narration, so that users can shift from passive reception to active experience.

## **2. The Necessity of Metaverse Empowerment for Digital Cultural and Creative Development of Qingtian Fish Lanterns**

### *2.1 Expanding Communication Scenarios of Intangible Cultural Heritage and Enhancing the Immersive Experience of Qingtian Fish Lanterns*

The communication difficulty of Qingtian Fish Lanterns lies in the fact that they are not static patterns, but folk performances generated through light, processions, music, movements, and festive spaces. In its introduction to Qingtian Fish Lantern Dance, the China Intangible Cultural Heritage Network states that “during the performance, gongs, drums, cymbals, and other instruments are used as accompaniment,” while participants “each hold a fish lantern and, under the command of the whistle blown by the person holding the red pearl, move through various formations” (China Intangible Cultural Heritage Network). The cultural meaning of Qingtian Fish Lanterns exists in sound, movement, routes, and collective collaboration. If presented only through images, text, display cases, or ordinary souvenirs, viewers

mostly see the external form of the fish lanterns and find it difficult to experience the atmosphere generated by nighttime parades, formation changes, and collective performance.

Digital communication is changing the way intangible cultural heritage is presented. Yao Guozhang and Yao Chongbing point out that “the widespread penetration of digital technology and the comprehensive popularization of social media have accelerated the arrival of the era of ‘communication by all,’” and that intangible cultural heritage “urgently needs to seize the opportunities of digital communication and make full use of digital technology to promote the healthy, scientific, and high-quality development of intangible cultural heritage” (Yao, G. & Yao, C., 2024). The virtual space, digital characters, real-time interaction, and immersive experience emphasized by the metaverse can transform fish lanterns from flat display into scenario reconstruction. Viewers can watch fish lantern parades in virtual streets, festive squares, or nighttime waterside scenes, follow the movement of the procession, and perceive the rhythm of gongs and drums as well as changes in light, thereby approaching the original performance context of the fish lanterns.

The value of this communication mode lies in compensating for the limitations of traditional communication. Offline fish lantern performances are constrained by time, location, personnel, and festive cycles, while graphic and textual communication cannot fully present dynamic processes. The metaverse can transform the performance routes, formation structures, movement rhythms, and festive atmosphere of Qingtian Fish Lanterns into digital scenarios that users can repeatedly enter, enabling the communication of intangible cultural heritage to move from seeing images to entering contexts.

### *2.2 Promoting the Transformation of Cultural Symbols and Enhancing the Participatory Value of Digital Cultural and Creative Products*

Digital cultural and creative design cannot merely transfer fish lantern patterns onto screens or product surfaces. The cultural and creative value of Qingtian Fish Lanterns lies not only in the appearance of fish-shaped lanterns, but also in the relationships among paddy-field fish imagery, formation changes, swimming postures, auspicious meanings, and local festivals. Yang Hong points out that “the living continuity of intangible cultural heritage projects remains the primary goal of intangible cultural heritage protection,” and further proposes that “the digital survival of intangible cultural heritage and its inheritance through virtual communities will become a directional trend for future intangible cultural heritage protection” (Yang, 2023). This indicates that if digital cultural and creative design only emphasizes visual packaging and commercial transformation, it will be unable to respond to the living attributes of intangible cultural heritage. It needs to establish a participatory relationship between people and culture.

The metaverse provides new design conditions for this participatory relationship. Through virtual identities, task-based experiences, interactive installations, and digital assets, users no longer simply watch fish lanterns. They can participate in fish lantern decoration, role playing, formation movement, virtual parades, and festive narration. The forms, colors, lights, and meanings of fish lanterns therefore no longer remain decorative elements, but are transformed into digital content that can be operated,

experienced, collected, and shared. The development of digital technology has fundamentally changed cultural consumption and communication. These new technologies allow people to access content in unprecedented ways. For Qingtian Fish Lanterns, such “access” should not stop at viewing, but should move toward interaction and co-creation.

The necessity of metaverse empowerment for the digital cultural and creative development of Qingtian Fish Lanterns is concentrated in two dimensions. In terms of communication, it reconstructs the performance context of fish lanterns and compensates for the limitations of static display. In terms of design, it promotes the transformation of cultural symbols from pattern application to experiential generation. Only by enabling users to understand, participate in, and disseminate fish lantern culture in digital space can digital cultural and creative products based on Qingtian Fish Lanterns generate sustained cultural appeal.

### **3. Design Strategies for Metaverse-Empowered Digital Cultural and Creative Products Based on Qingtian Fish Lanterns**

#### *3.1 Symbolic Digitalization: Extracting the Visual Genes of Qingtian Fish Lanterns*

The foundation of digital cultural and creative design for Qingtian Fish Lanterns lies in the systematic extraction of cultural symbols, rather than the direct reproduction of fish lantern forms. Fish lantern modeling, fish-scale patterns, tail structures, lantern color systems, swimming postures, and formation changes constitute the recognizable and translatable visual genes of Qingtian Fish Lanterns. In the design process, fish lantern symbols can be deconstructed into five categories: form, color, light, movement, and meaning. “Form” corresponds to modeling structures such as the fish body, tail, and fins; “color” corresponds to lantern color schemes and festive colors; “light” corresponds to the light and shadow changes of nighttime lantern dance; “movement” corresponds to the swimming of fish groups and the turns of procession routes; “meaning” corresponds to folk meanings such as abundance year after year and blessings for good fortune.

Symbolic digitalization is not equivalent to turning patterns into design materials. Rather, it requires the establishment of a sustainable digital resource system. Designers can build fish lantern modeling libraries, pattern libraries, color libraries, and motion libraries through three-dimensional modeling, dynamic graphics, digital pattern design, and motion capture, allowing traditional symbols to enter the digital design process. In this way, Qingtian Fish Lanterns are no longer only decorative sources for individual cultural and creative products, but can become foundational resources for subsequent virtual characters, digital collectibles, interactive interfaces, and immersive scenarios.

#### *3.2 Scenario Immersion: Constructing Virtual Performance Spaces*

The cultural value of Qingtian Fish Lanterns exists in the performance scene. Lights, gongs and drums, processions, movements, and viewers jointly form a festive atmosphere, which simple graphic and textual display can hardly present in full. Metaverse design can center on “virtual performance spaces,” transforming Qingtian waterside settings, festive streets, nighttime parades, and fish lantern formations

into digital scenarios that can be entered, viewed, and explored. After entering the virtual space, users do not merely browse fish lantern images; they can also move along parade routes, observe changes in fish lantern formations, and feel the rhythm created by light and music.

The national cultural digitalization strategy proposes the need to “integrate new experiential technologies such as holographic presentation, digital twins, multilingual interaction, high fidelity, and cross-temporal and spatial interaction, and vigorously develop new digital cultural experiences that integrate online and offline modes and combine online access with a sense of presence.” This statement indicates that the scenario design of digital cultural and creative products should move from flat communication toward “online presence.” Qingtian Fish Lanterns can use virtual reality, augmented reality, digital twins, and immersive imagery to construct an experiential chain of “Qingtian waterside landscape—fish lantern making—nighttime parade—formation performance—festive interaction.” Scenario design should not merely pursue visual spectacle, but should unfold around the performance logic of fish lanterns, enabling users to understand why the fish lanterns are performed, how they are performed, and why they are inherited.

### *3.3 Participatory Interaction: Designing User Co-Creation Experiences*

Qingtian Fish Lanterns originally developed vitality through community collaboration and festive participation. Metaverse-empowered digital cultural and creative design should transform users from viewers into participants. Relevant research points out that immersive experience “encourages tourists to shift from passive spectators to active participants in the inheritance of intangible cultural heritage techniques” (Liu, 2024, October 29). This has direct implications for Qingtian Fish Lanterns. Digital cultural and creative design should not only provide an entry point for viewing, but also set up participatory mechanisms that are operable, responsive, and shareable.

Specifically, interactive content such as fish lantern decoration, character selection, formation movement, virtual parades, task-based challenges, and festive photography can be designed. Users can choose different fish lantern characters, adjust lantern patterns, participate in procession movement, and complete experiential tasks such as “searching for lanterns,” “lighting lanterns,” and “joining the parade.” The system can also generate exclusive fish lantern images or festive commemorative content based on user choices, thereby forming personalized digital cultural and creative products. The key to interaction design is not to add complex functions, but to enable users to understand culture through operation. Only when the patterns, colors, movements, and meanings of fish lanterns enter the process of interaction can they be transformed from static symbols into experiential memories.

User co-creation can also extend to social communication. Virtual spaces can open functions such as fish lantern form redesign, festive scene arrangement, digital postcard generation, and short-video sharing, encouraging users to produce content through participation. In this way, digital cultural and creative products based on Qingtian Fish Lanterns no longer rely on one-way communication, but form a communication chain of “cultural experience—user generation—social dissemination.”

### *3.4 Product Derivation: Forming a Pathway for Digital Cultural and Creative Transformation*

The implementation of digital cultural and creative design for Qingtian Fish Lanterns requires a product system rather than remaining at the level of conceptual display. Product development empowered by the metaverse can proceed in three directions: digital content, interactive experience, and offline cultural tourism. At the level of digital content, fish lantern digital images, dynamic stickers, virtual avatars, digital collectibles, and interactive videos can be developed. At the level of interactive experience, online fish lantern exhibition halls, virtual parade games, augmented reality filters, and immersive guided tours can be constructed. At the level of offline cultural tourism, digital tickets, festive check-ins, cultural and creative gifts, study-tour courses, and local scenic areas can be connected to form an integrated online-offline consumption pathway.

The transformation of intangible cultural heritage into digital cultural and creative products also needs to handle the relationship between cultural value and commercial development. Relevant research proposes that digital technology provides new possibilities for the aesthetic expression of intangible cultural heritage, and that new media forms such as algorithm-generated art, data visualization, and interaction design can present the aesthetic features of intangible cultural heritage in new ways. Digital technology is not merely a packaging tool, but a method for cultural re-expression. Product design should not only maintain the local recognizability of fish lanterns, but also adapt to the usage habits and communication methods of younger users. Only by connecting cultural symbols, immersive scenarios, interaction mechanisms, and consumption pathways can digital cultural and creative design based on Qingtian Fish Lanterns move from the development of individual products toward sustained operation.

## **4. Conclusion**

Metaverse empowerment of digital cultural and creative design based on Qingtian Fish Lanterns does not simply mean moving traditional fish lanterns into virtual space, but rather reconstructing their modes of cultural expression through digital technology. The value of Qingtian Fish Lanterns exists in their modeling, lighting, movement, formations, and festive atmosphere. Digital cultural and creative development needs to break through shallow transformation characterized by patternization and souvenirization, and translate fish lantern culture into a cultural experience that can be entered, interacted with, and disseminated. Through symbolic digitalization, a visual resource system for fish lanterns can be established; through scenario immersion, the performance context of fish lanterns can be reconstructed; through participatory interaction, users' cultural identification can be enhanced; and through product derivation, an integrated online-offline transformation pathway can be formed. Future digital cultural and creative design of Qingtian Fish Lanterns should maintain a balance between cultural authenticity and technological innovation, so that digital technology can serve the living inheritance of intangible cultural heritage while also promoting a more sustainable contemporary expression of local cultural resources.

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## References

- China Intangible Cultural Heritage Network. (n.d.). *Lantern dance (Qingtian Fish Lantern Dance)*. China Intangible Cultural Heritage Network · China Intangible Cultural Heritage Digital Museum. Retrieved from [https://www.ihchina.cn/project\\_details/13016/](https://www.ihchina.cn/project_details/13016/)
- China News Service. (2023, November 10). *Promoting cultural exchange and mutual learning: Qingtian Fish Lanterns from the hometown of overseas Chinese “swim” overseas*. Retrieved from <https://www.chinanews.com.cn/>
- Liu, X. C. (2024, October 29). Immersive experience design and communication strategies of “intangible cultural heritage + cultural tourism” empowered by digital technology. *China Culture Daily*, p. 003.
- Yang, H. (2023). Renewal of meaning and trend analysis of the digital communication of intangible cultural heritage. *China Intangible Cultural Heritage*, 5, 102-107.
- Yao, G. Z., & Yao, C. B. (2024). Digital communication of intangible cultural heritage: Conceptual system, practical dilemmas, and implementation paths. *Journal of Xihua University (Philosophy and Social Sciences Edition)*, 43(6), 88-97.