

# CHALLENGES OF THE QUALIA THEORY IN THE DESIGN OF CHANGSHA KILN MASCOT\*

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## Abstract

This study explores the application of qualia theory in the design of Changsha Kiln mascots and analyzes the challenges encountered in the design process. The qualia theory emphasizes the important role of emotional resonance and multi-sensory experience in design, and provides a methodological path for the integration of visual design and cultural narrative. Changsha Kiln is an important cultural heritage of the Tang Dynasty. Its unique artistic style and historical background provide rich materials for mascot design. This study uses methods such as literature research, case studies, and expert interviews to explore how to integrate qualia theory with the cultural symbols of Changsha Kiln, focusing on how to modernize traditional symbols, how to express sensory experiences, and how to effectively convey emotions. In the case study, representative mascots of Chinese culture, such as Sanxingdui and Bingdundun, were analyzed and studied. An expert on underglaze color of Changsha kiln was interviewed and a field visit was conducted. The study found that although qualia theory provides a new perspective for mascot design, challenges still exist, including how to combine traditional elements with modern design, how to

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concretize sensory experiences, and how to accurately convey complex cultural meanings. This paper proposes some suggestions, including how to use technology to enhance interactivity and how to promote interdisciplinary collaboration.

**Keywords:** Qualia theory, Mascot design, Changsha Kiln.

## Introduction

Changsha Kiln, one of the most representative ceramic production centers of the Tang Dynasty, embodies a unique fusion of artistry, craftsmanship, and cultural exchange along the Maritime Silk Road. Its porcelain is renowned for its poetic inscriptions, lotus and bird motifs, and multicultural decorative motifs, symbolizing the Tang Dynasty's spirit of openness and innovation. However, despite its historical splendor, public awareness of Changsha Kiln remains limited compared to Jingdezhen or Liling. Therefore, there is a need to expand Changsha Kiln's visibility.

Meanwhile, qualia theory emphasizes the integration of emotional value and sensory experience in design, providing a new theoretical perspective for understanding how users establish emotional connections with cultural products. When applied to mascot design—a key medium for cultural communication and branding—this theory can transform abstract sensory and emotional experiences into tangible forms. However, the process of integrating traditional symbolism with modern sensibility presents multiple challenges: how to visualize tactile or olfactory experiences, how to modernize ancient motifs without losing cultural heritage, and how to convey complex emotional meanings through a single mascot image.

Thus, this research is significant because it fills the gap between theory and practice in applying qualia theory to cultural heritage design. This study, focusing on the Changsha Kiln mascot, explores how to effectively integrate

emotional resonance and sensory perception into cultural products. This not only contributes to the expansion of the design theoretical framework based on qualia theory, but also provides a sustainable model for revitalizing traditional crafts in contemporary creative industries.

In recent years, research on the integration of cultural heritage and mascot design has been increasing. However, existing studies have mostly focused on visual imagery and communication strategies, lacking a systematic exploration of the emotional transmission and sensory experience mechanisms emphasized by "sensitivity theory." In particular, within the field of Changsha Kiln cultural design, much of the focus has been on historical re-creation, with little in-depth research on how to integrate sensory qualities with cultural symbols to create an empathetic design language.

## Objectives

1. To study how to reinterpret the traditional cultural symbols of Changsha Kiln in modern design to make it more in line with the public's aesthetic taste.
2. To study the embodiment of sensory experience in mascot design.

## Literature Review

As an important methodology in the field of design in recent years, the Qualia theory emphasizes the deep integration of emotional value and sensory experience through material carriers. Its core lies in building an emotional resonance mechanism between users and design objects (Dimitrov, 2025). Dimitrov (2025) proposed that the core of Qualia theory is to convey deep emotional value through material design. Changsha Kiln, a brilliant cultural treasure from the Tang Dynasty, is not only a shining pearl in the history of Chinese ceramics, but also an important part of the world's cultural heritage. It

is named after the kiln site in Changsha City, Hunan Province. Its ruins are located on the east bank of the Xiangjiang River, about 25 kilometers northwest of Changsha City, and in the Shizhu Wazhaping area near Tongguan Town (Guo et al., 2022). This was once an important base for ancient ceramic production. The porcelain of Changsha Kiln, with its unique artistic style and exquisite craftsmanship, has become one of the representatives of Tang Dynasty ceramic art. Changsha Kiln's porcelain products are of various kinds, ranging from daily necessities such as bowls, plates, dishes, pots, bottles, jars, to pen holders and inkstones, which are part of the four treasures of the study, and even children's toys, all of which reflect the ingenuity and love of life of the Changsha Kiln craftsmen. In terms of decorative techniques, the craftsmen of Changsha Kiln demonstrated extraordinary creativity and artistic talent. Changsha Kiln was an important production base for export porcelain in the Tang Dynasty, and its mascot design carries unique cultural genes. From a historical perspective, it is necessary to reflect the technological breakthrough of Changsha Kiln in creating underglaze painting, as well as its special status in spreading Central Plains culture through the Maritime Silk Road. In terms of cultural connotation, it is necessary to extract typical artistic symbols such as molded decals and poetry decorations, and transform cross-cultural elements such as Hu people's music and dance, date palm patterns, etc. from the unearthed cultural relics of the "Black Stone" shipwreck into modern design language (Campagna & Chamberlain, 2024). Guo et al. (2022) studied the historical background and cultural value of Changsha Kiln, pointing out that Changsha Kiln is not only an important representative of Chinese ceramic art, but also an important resource for our study of cultural heritage. The design goals need to take into account the dual demands of cultural heritage and market communication. They must maintain the aesthetic characteristics of Tang Dynasty ceramics while conforming to the communication laws of contemporary IP images. For example, in terms of modeling, we can refer to the classic shape of Changsha Kiln teapot for

anthropomorphic reconstruction, and enhance affinity through Q-version proportions. The application of qualia theory in Changsha Kiln mascot design needs to start from the in-depth transformation of cultural symbols (Guan Ziwei, 2023). The visual elements of Changsha kiln colored porcelain, such as lotus patterns and poetry decorations, are not only decorative symbols, but also a concrete expression of the Tang Dynasty craftsmen's worship of nature and poetic life; In the application of color, the kiln-fired effects of copper red and green colors are transformed into digital gradient colors, which not only retains the characteristics of traditional craftsmanship but also adapts to the needs of new media communication. This dialectical unity of tradition and modernity constitutes the core challenge of incorporating Qualia theory into design practice. Changsha kiln porcelain, with its unique charm and far-reaching influence, has become an indispensable and important physical material for studying the social culture and economic exchanges of the Tang Dynasty. Many literatures show that the Qualia theory has broad application potential in design, especially in mascot design, which can effectively combine traditional culture with modern aesthetics.

## Methodology

The literature review method aims to establish a theoretical foundation for research by combing and analyzing relevant academic findings. In this study, by reviewing Chinese and international literature related to Changsha Kiln culture, Tang Dynasty ceramic art, mascot design, and qualia theory, we systematically organized the historical background, decorative techniques, and cultural symbolic characteristics of the Changsha Kiln. We also summarized the research findings and current application of qualia theory in design practice.

Secondly, the comparative analysis method is used to compare different design cases and extract universally relevant design principles and innovative strategies. This method, through horizontal comparative analysis, reveals both

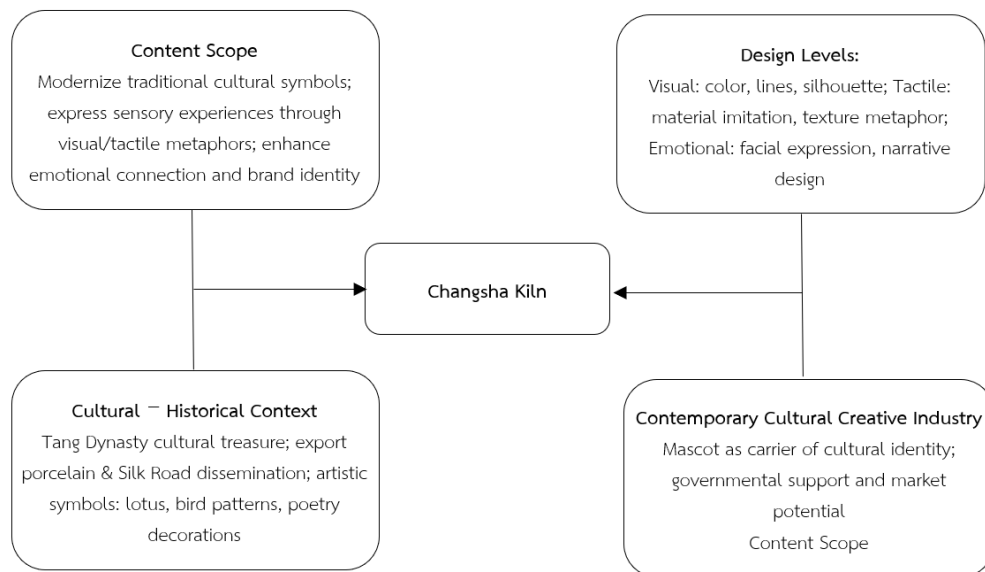
differences and commonalities in design language, visual symbols, and sensory expression. This study collected representative mascot examples from China and abroad, such as the "Sanxingdui Bronze Mask," "Bing Dwen Dwen," and "Lion Dance Image," and compared their modeling language, color usage, and sensory experience strategies. We summarized the design principles that integrate traditional cultural symbols with modern aesthetics, providing a reference for the development of Changsha Kiln mascot imagery. The time range of case selection is limited to between 2015 and 2025 to ensure that the research covers the latest trends in cultural creativity and mascot design in recent years.

Finally, the expert interview method aims to provide practical verification and supplementation for the research through the experiences and perspectives of professionals. In this study, researchers invited ceramic art experts to conduct in-depth interviews, providing recommendations based on technical feasibility, cultural accuracy, and market acceptance. This process not only provided professional feedback on the design proposals but also validated the applicability and limitations of qualia theory in the redesign of traditional culture, thus ensuring the scientific and innovative nature of the research conclusions.

## Conceptual Framework

At the top level of the framework, qualia theory emphasizes the use of material as a medium for sensory experience, conveying perceptual information through design elements such as color, texture, and form to stimulate users' emotional responses and cultural identification. Visual, tactile, and emotional experiences together constitute a comprehensive sensory experience system.

The bottom level of the framework revolves around the cultural core of "Changsha Kiln," developing design thinking from four dimensions (Figure 1).



**Figure 1** Conceptual Framework (Source: Constructed by the researcher)

## Results

### 1. Application of the texture theory in the design of Changsha Kiln mascot.

**Attractiveness:** We drew inspiration from the decorative patterns of Changsha kilns and designed a mascot image that is both simple and modern and in line with Tang Dynasty aesthetics.

**Aesthetics:** By simplifying traditional patterns, such as lotus and bird patterns, and incorporating them into the mascot's clothing and appearance, we can enhance cultural recognition while avoiding appearing too complicated.

**Creativity:** Combining the cultural characteristics of Changsha Kiln, a handheld object symbolizing the characteristics of Changsha Kiln was designed for the mascot, which enriched the character's dynamics and increased creativity and fun. In addition, the mascot also has a high degree of loyalty (Schultz & Sheffer, 2018). It not only represents the traditional culture of Changsha Kiln, but also can establish emotional connections with tourists through smart technology, becoming a loyal partner in spreading and promoting Changsha Kiln culture.

Exquisite: In the design of the Changsha Kiln mascot, 3D modeling not only improved visual accuracy and texture, but also demonstrated advantages in cost, durability, and manufacturability. While early modeling investment is high, parametric design reduces the cost of later modifications. Optimizing structural thickness improves the model's strength and lifespan. Furthermore, 3D models can be directly integrated with printing and mold production, achieving efficient transformation from digital design to physical manufacturing.

Engineering: A modular mascot was designed to adapt to different usage scenarios, such as festivals or exhibitions.

## 2. Integration of sensory experience and mascot design

### 2.1 Visual experience:

Low-saturation colors and rounded lines convey affinity and avoid overly complicated decorative elements interfering with the expression of cultural symbols. Low-saturation colors weaken visual stimulation by de-highlighting, creating a calm and warm atmosphere, making it easier for users to focus on the deep connotations of cultural symbols. Rounded silhouettes are naturally friendly and are not affected by cultural barriers. Take, for example, the spherical figure of Kumamon and the gentle curves of Butter Bear. Humans' preference for curves stems from evolutionary instincts. Round objects often symbolize non-threateningness, which allows designs to quickly transcend geographical limitations. In the design of the Changsha Kiln mascot, I drew on this preference for curves and used rounded lines to outline a friendly and approachable image, allowing the mascot to transcend cultural boundaries and resonate with the audience. In addition, the design cleverly incorporates traditional elements of Changsha kilns, such as lotus and bird patterns on porcelain, which have been modernized to preserve the essence of the culture while giving the mascot a unique visual identity. In terms of visual experience, the mascot design not only focuses on external beauty, but also strives to convey the profound heritage and affinity of Changsha kiln culture through the clever use of colors and lines .The






Silk Road cultural connotations carried by the camel and Hu people patterns of the Changsha Kiln in the Tang Dynasty need to be transformed into visual images that can be understood by contemporary audiences through narrative design (Eun-kyung, 2021).

## 2.2 Tactile metaphor:

The use of silicone materials that imitate ceramic glaze in physical derivatives balances the "cold and hard" feeling of traditional porcelain with the "soft" touch required by modern needs. Although we cannot actually touch the mascot, designers can let us imagine its touch by choosing the right materials and textures. For example, if it is designed to be furry, people can feel its softness and intimacy. Aesthetic response involves the experience of multiple senses. Different types of stimulation can change the degree of appreciation and may promote the multimodal expression of the overall aesthetic experience. Through the innovative use of materials, the designer hopes to inspire the audience to have a deep association with Changsha Kiln culture. Even if they cannot touch the mascot directly, they can feel the cultural connotation and aesthetic value behind it through the tactile metaphor of the material (Sonderegger & Sauer, 2015). This design strategy not only enriches the expression form of the mascot, but also expands the audience's perception channels of traditional culture.

Table 1 Sensory experience in featured mascots

Mascot name/core image	Mascot pictures	source	Key Features
Sanxingdui bronze mask		Bronze artifacts from Sanxingdui ruins	Vertical eyes, big ears, diamond-shaped eyes
Lion Dance		Lion dance customs in southern China	Big eyes, big mouth, curly hair, unicorn horn, festive and lively
Bing Dwen Dwen		Beijing Winter Olympics Mascot	The image of a giant panda is combined with an ice crystal shell that is full of super energy. The overall lines are smooth and rounded.

As Table 1. These mascots perfectly integrate sensory experience with mascot design through different design elements and forms of expression. The design of the Sanxingdui bronze mascot is inspired by the ancient bronze civilization. Its round and cute shape and the main colors of bronze green and gold not only show the mysterious charm of ancient civilization, but also bring people a unique feeling through the tough and cold texture in touch and vision. The lion dance mascot is presented in the image of a cartoon lion, with big round eyes, an open mouth and thick, curly hair. The round shape and soft curves symbolize warmth, security and non-threatening feeling, which helps to shorten

the psychological distance between the mascot and the audience. People feel as if they can touch the plush texture of the lion's fur and feel the joy and liveliness of the folk tradition. The design of the ice crystal shell pattern cleverly combines the image of the giant panda with the ice crystal shell. The overall lines are smooth and round, full of a sense of technology and the future. The transparent ice crystal shell not only highlights the cuteness of the panda, but also brings people a new sensory experience through the dual enjoyment of vision and touch. At the same time, the smooth surface texture evokes the realism of ceramic glaze and reinforces the cultural memory of Changsha kiln craftsmanship.

### 2.3 Emotional resonance:

Mascots are designed to touch our emotions. By designing different shapes, expressions and movements, mascots can express emotions such as happiness, sadness, bravery, etc. This can resonate with our hearts and make us identify with and remember the brand or event more. When the mascot's expression is not designed, the mascot can become a symbol of emotion. If you are happy, the mascot is happy too. If you are unhappy, the mascot is also unhappy, just like Hello Kitty has no expression. The cleverness and fun of mascot design have great appeal to consumers (Patterson et al., 2013). They are not just symbols of brands or activities, but more like a partner who can accompany us and understand our emotions. Designers strive to create a sense of familiarity and belonging by carefully planning every detail of the mascot, including the color, line, and even the mascot's name. This design strategy not only strengthens the emotional connection between consumers and brands or activities, but also greatly enhances the charm and value of the mascot itself. With the company of the mascot, we seem to have found a friend with whom we can confide our thoughts, share joy and sorrow, making the whole experience more warm and memorable.

### 3. Challenges in the application of qualia theory

#### 3.1 Conflict between tradition and modernity:

If the traditional symbols of Changsha Kiln are to be reborn in modern design, they must be carefully transformed and innovated. However, in this process, oversimplification of these symbols may cause them to lose their original cultural depth and connotation. Taking the digital presentation of glaze texture as an example, designers need to find a proper balance between high realism and abstract expression to ensure that the unique beauty of traditional craftsmanship can be conveyed while retaining modern aesthetic tastes. At the same time, traditional Changsha kiln handicrafts are not just exquisite objects, they often contain rich historical and cultural connotations and artistic value. In modern design, how to cleverly preserve these traditional essences while meeting the aesthetic needs and practical functions of contemporary people has become an important issue that needs to be solved urgently. For example, incorporating the poetic elements of ancient poetry on the poetry pot into the design of a modern mascot can allow people to recognize its profound cultural origins at a glance without appearing too stiff or abrupt. This requires designers to have superb creative ability and clever arrangement skills. Designers must use modern design concepts and techniques on the basis of respecting tradition to create design works that have both traditional charm and conform to modern aesthetics.

#### 3.2 The problem of concretization of sensory experience:

In qualia theory, so-called “tactile metaphors” are often limited by the choice of materials in the field of physical design. For example, although imitation glaze materials can bring a unique tactile experience, their high prices often discourage designers from using them in actual applications. In addition, this material is difficult to convey a real tactile feeling in graphic design, which undoubtedly increases the difficulty of design. At the same time, the concretization of "olfactory metaphor" also faces many challenges. Take

Changsha Kiln as an example. Its rich glaze color changes and unique fragrance emitted during the firing process together constitute its profound historical and cultural connotations. However, in the process of mascot design, how to transform this olfactory experience into visual elements so that it cannot only be preserved in the physical toy but also be widely disseminated on digital media platforms is undoubtedly a technical challenge. Designers must seek out new materials and processing techniques to simulate or suggest this unique smell while ensuring the design is practical and economical. This requires not only breakthroughs in material science and process technology, but also innovative thinking in cross-sensory design. In this way, designers can create mascots that inspire both visual beauty and evoke olfactory memory, thereby building a bridge between physical and digital media so that the essence of traditional culture can be inherited and carried forward in modern society.

### 3.3 Complexity of emotional transmission:

The cultural connotation of Changsha Kiln needs to be expressed through a single mascot image, which may lead to information overload. Storytelling design is needed to assist in emotional transmission. In such a huge cultural carrier as Changsha Kiln, it is undoubtedly a difficult task to condense its cultural connotation into a single mascot image. Therefore, it is necessary to cleverly select the cultural symbols that best represent the characteristics of Changsha Kiln within the limited design space, and use innovative design techniques to skillfully weave the cultural story of Changsha Kiln into the image of the mascot. By giving the mascot a story background, it becomes not just a static object, but a living character that can tell history and convey emotions. For example, a mascot inspired by the pattern elements of Changsha Kiln can be designed. It not only has a unique appearance, but also has a background story closely linked to the history of Changsha Kiln, telling a moving story about the combination of traditional craftsmanship and modern design. This is also a preservation of the

regional characteristics and folk values of Changsha Kiln(Baosheng & SUZUKI, 2013).Through such storytelling design, the audience can naturally feel the cultural charm of Changsha Kiln and resonate with it emotionally during the interaction with the mascot. This design technique can not only effectively convey the cultural value of Changsha Kiln, but also enhance the attractiveness and market competitiveness of the mascot, making it a bridge connecting the past and the future, tradition and modernity.

## Discussion

This study focuses on two core issues: (1) How to transform the traditional symbols of Changsha Kiln in the context of modern design to balance cultural heritage and market communication; (2) How to express the emotions and sensory experience of Changsha Kiln mascot through the theory of sensibility.

This study explores the potential of the application of perceptual theory in the design of Changsha Kiln mascots and its limitations. The core contradiction of the study is how to achieve effective market communication while maintaining cultural heritage and finding a balance between the two.

1. Modern translation of cultural symbols: The patterns and glazes of Changsha kiln need to be "redesigned" to adapt to modern aesthetics, rather than directly copied. For example, the redesign of the "lotus pattern" is not just a direct copy of the original pattern, but a creation and giving it a new meaning.

2. Technology empowers sensory experience: Use AR/VR technology to make up for the limitations of physical design. For example, by scanning the mascot, a virtual scene of Tang Dynasty kiln workers making porcelain can be triggered to enhance the user's immersive experience.

3. The necessity of interdisciplinary collaboration: Designers need to work with ceramic craftsmen and user experience experts to ensure that the five

elements of the perceptual quality theory (charm, aesthetics, etc.) are reflected in both physical products and digital media.

This study employs the method of "modern translation of cultural symbols" to simplify and recreate traditional Changsha kiln elements, such as lotus patterns, poetry motifs, and Hu people dance motifs. This approach preserves the aesthetic characteristics of the Tang Dynasty while meeting the requirements of contemporary mascots for readability and international communication. The study also proposes the principle of "redesign rather than reproduction," emphasizing the infusion of new cultural meaning into traditional elements.

In terms of sensory experience, the design draws on visual experience, employing a desaturated color scheme and smooth lines to enhance emotional resonance and cultural identity. In terms of tactile metaphors, glazed silicone materials, digital gradient colors, and simulated textures are used to strike a balance between the "cold and hard feel of ceramics" and the "soft touch of modernity." Furthermore, storytelling can be used to enhance emotional communication. Mascots can also be designed as characters that carry historical memories and be given backstories, making them interactive and emotionally impactful cultural vehicles.

Finally, to achieve sustainable development of the Changsha Kiln mascot, its image should be extended to more media and scenarios, such as digital media, AR filters, and licensed merchandise. This will not only enhance public participation and cultural identity, but also build a cultural IP system with long-term influence.

## Recommendations

### 1. General Recommendations

Designers should collaborate closely with ceramic artisans, cultural historians, and user-experience experts to ensure the accuracy, authenticity, and emotional resonance of cultural representations. Furthermore, cultural institutions and policymakers should support interdisciplinary research projects that integrate traditional craftsmanship with new materials, digital media, and emotional design. Such collaboration not only ensures design innovation but also contributes to the sustainable preservation and global dissemination of Chinese cultural heritage.

### 2. Future Research Recommendations

Future studies could explore the application of Qualia Theory in other intangible cultural heritage designs, such as Xiang embroidery, Jingdezhen porcelain, and Miao silver ornaments. Additionally, empirical studies involving audience perception and emotional response could further validate the effectiveness of sensory-based cultural design models. These directions will help refine the theoretical foundation of Qualia Theory and expand its impact in cross-cultural and cross-sensory design research.

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