

Research on Children's Educational Toy Design of Yueqing Fine Lines Engraved Paper in the Memetics Perspective

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Abstract: Exploring the application and integration of Yueqing Fine Lines Engraved Paper culture with the design of children's educational toys in the perspective of memetics, aiming to address the survival crisis faced by Yueqing Fine Lines Engraved Paper and achieve the inheritance and innovative development of culture. Based on memetics, cultural memes of Yueqing Fine Lines Engraved Paper are extracted, classified, deconstructed, and recombined for optimization. A design model for Yueqing Fine Lines Engraved Paper cultural products based on memetics is constructed, and the effectiveness of memetics in cultural product design is discussed through practical cases. This enriches the application of memetics and provides guiding insights for region-based cultural product design, promoting the inheritance and innovation of culture.

Keywords: Yueqing Fine Lines Engraved Paper; Cultural Memetics; Intangible Culture; Product Design.

1. Introduction

As society undergoes development and transformation, creative industries driven by regional culture have shown immense potential both domestically and internationally. In recent years, China has placed significant emphasis on the inheritance of intangible cultural heritage, implementing various policies to support the development of the cultural and creative industries. Fine Lines Engraved Paper, as one of the outstanding traditional intangible cultural heritages in Yueqing, Zhejiang, boasts a history of over seven centuries. It was included in the first batch of national-level intangible cultural heritage lists in 2006. The inheritance, development, and innovation of Fine Lines Engraved Paper have long been a focus of scholars. However, due to the lack of systematic guidance, cultural and creative products related to the handcrafting of Fine Lines Engraved Paper still face numerous challenges. This paper, adopting a memetics perspective, explores the design concepts of cultural and creative products of Yueqing Fine Lines Engraved Paper. We attempt to embed cultural meme elements of Fine Lines Engraved Paper into contemporary children's educational toy designs. Through practical case studies, we investigate the effectiveness of memetics in cultural product design. Building on these findings, we seek new perspectives to expand the application of intangible cultural heritage in contemporary design, thereby contributing to the innovation and inheritance of our intangible cultural heritage.

2. Research Status of Yueqing Fine Lines Engraved Paper

2.1. Section Headings

2.1.1. Sub-section Headings

Yueqing fine lines engraved paper originated from the local folk activity of raising decorative dragons during the Spring Festival. Initially, it developed as a form of decoration for dragon boats. It is not only a practical folk decoration but also

a unique symbol for people in the Ouyue region to showcase their culture. Additionally, it serves as a witness to the integration of Yueqing Ouyue folklore, maritime culture, commercial civilization, and auspicious beliefs. Distinguished by its delicate and refined characteristics, Yueqing fine lines engraved paper is often hailed as the "micro-carving art of Chinese paper cutting."

Currently, research on Yueqing fine lines engraved paper is relatively scarce and mainly concentrated in the academic domain. Huang Benliang (2017) conducted in-depth research on the visual language and cultural connotations of fine lines engraved paper. Zhan Le (2011) provided a detailed discussion of its formal language, while Wang Yi (2013) explored the importance of collecting and applying the distinctive cultural features of Yueqing fine lines engraved paper in the region. Notably, existing studies generally lack a comprehensive exploration of the dynamic evolution and subdivision of fine lines engraved paper over time. Furthermore, research on innovative design and application of Yueqing fine lines engraved paper is relatively limited.

With the impact of industrialization and artificial intelligence, coupled with the diverse changes in lifestyle, the inheritance and development of fine lines engraved paper face an unprecedented crisis. In terms of inheritance, the high craftsmanship requirements and lengthy learning time have led to a decline in the number of individuals choosing to learn and pass down this craft, resulting in a gradual discontinuity. Regarding dissemination, Yueqing fine lines engraved paper has limited representation in film and television works, with a singular thematic expression and generally higher prices, restricting the expansion of the consumer base. In terms of innovation, the creative works of Yueqing fine lines engraved paper still predominantly focus on local themes and are often used as promotional gifts by government and corporate entities, limiting the user demographic. Therefore, this paper attempts to apply the methodology of memetics theory to guide design, combining fine lines engraved paper with children's toy design to innovate the expression of intangible

cultural heritage. This aims to provide an effective approach for both the protection and innovation of Yueqing fine lines engraved paper.

3. Extraction of Product Elements based on Cultural Memes

3.1. Definition of Memetics

The concept of memes was initially proposed by Dawkins at the University of Oxford in 1976. Memes, similar to genes in the biological evolutionary process, are information units that transmit culture, beliefs, concepts, and behavioral patterns. They share essential similarities with the inheritance, transformation, and variation in cultural transmission. Analyzing the transmission of intangible culture from the perspective of memes, it is essentially a closed loop of meme information encoding, transmission, decoding, and feedback. In the process of cultural meme transmission, conscious choices are made by the audience to retain strong memes and eliminate weak ones. Culturally favored memes become strong memes and endure, while others are gradually phased out [1]. The process of optimization and transmission of suitable meme information by communicators, in response to

public feedback, constitutes the memetic evolution of intangible culture. However, due to the constant changes in the selection of objects, many excellent cultural elements, requiring preservation, have inadvertently become weak memes. As a result, many outstanding intangible cultural heritages in China are gradually declining, which is regrettable [2].

From the perspective of memetics, the active transmission of intangible heritage involves four core components: communicator, transmitted content, transmission medium, and recipient. As the origin of information transmission, designers or inheritors need to integrate and optimize intangible culture based on current trends and market demands. In the design of intangible cultural and creative products, the key is to consider how to actively combine weak memes with design strategies to transform them into strong memes, facilitating their preservation in daily life and promoting the dissemination of intangible culture[3].

To better integrate the memes of fine lines engraved paper with the practice of designing literacy toys for children, as shown in Table 1, the author refers to expert opinions and classifies them into three major memes: concrete memes, behavioral memes, and imagery memes [4].

Table 1. Meme Classification

Cultural Meme Levels	Meme encoding	Hierarchy of Children's Toy
Imagistic Meme	Meaning, Allusion, Cultural Features	Layer of Connotation (Design Background, Characters)
Behavioral Meme	Usage, Folk Customs, System	Behavioral Layer (Practicality, Amusement)
Concrete Meme	Patterns, Motifs, Colors, Materials	Physical Layer (Educational Toy Design)

3.2. J Distillation of Cultural Memes in Yueqing Fine Lines Engraved Paper

Yueqing Fine Lines Engraved Paper boasts a distinctive style characterized by delicacy, precision, refinement, and elegance. Its artistic features are primarily manifested in aspects such as pattern design, composition, and color. However, influenced by popular culture and advancements in new media technology, traditional paper art struggles to meet the audience's demands for aesthetics, entertainment, and emotion. Deconstructing the cultural memes of intangible heritage requires a deep understanding of its historical background, developmental trends, and current status. In this context, the author primarily focuses on distilling and optimizing Yueqing Fine Lines Engraved Paper across three levels: concrete memes, behavioral memes, and imagery memes.

Concrete Memes primarily manifest in the material layer of fine lines engraved paper culture, emphasizing aspects such as patterns, colors, composition, and materials. In the design of cultural toy products, adopting a straightforward and concise approach by extracting elements from the original work's material layer (such as colors, forms, etc.) is effective. Designs created through this method can clearly convey the designer's ideas, with a broad scope of dissemination and a large audience. However, due to its simplicity and ease of

replication, the cultural meme expression in this design approach is relatively weak [5].

Behavioral Memes encompass the folklore, functional purposes, and crafting processes that have evolved throughout the development of fine lines engraved paper. The behavioral layer includes observable, audible, and untouchable usage behaviors, constituting a collection of rituals and customs. As a designer, exploring the behavioral processes through innovative design methods allows for the manipulation of cognitive and experiential cognitive processes, enabling users to deeply experience the cultural significance of fine lines engraved paper.

4. Fine Lines Engraved Paper Intelligent Literacy Product Design for Children

4.1. Design Philosophy and Significance

In recent years, China has actively promoted traditional cultural education for young children, starting with basic education. Choosing children as the target audience aims to integrate excellent intangible cultural heritage into their daily lives, achieving the effect of "combining education with entertainment." By leveraging commonly used educational toys, it is possible to cultivate children's abilities in various

aspects, including word recognition, hand-eye coordination, and visual perception. The exploratory and learning desires of children during this period are relatively strong. Integrating elements of fine lines engraved paper culture into literacy and puzzle toys can positively promote children's cultural awareness. In a relaxed and enjoyable entertainment context, intangible cultural heritage subtly enters the hearts of children.

Designed for children aged 4-6, the goal is to create learning toys that are interesting, practical, and educationally meaningful. This initiative addresses the gap in children's understanding and learning of Yueqing fine lines engraved paper culture. Through intelligent interactive learning with zodiac patterns, it stimulates children's strong interest in fine lines engraved paper, laying a solid foundation for future cultural inheritance.

4.2. Encoding Optimization Process based on Memetics Theory

The design of children's idiomatic learning toys based on fine lines engraved paper aims to integrate cultural memes of varying strength through the medium of toys, as shown in Figure 1, allowing weaker memes to be disseminated alongside stronger ones. To achieve this, the cultural meme elements of fine lines engraved paper are correlated with the design elements of children's learning toys. Through optimization, cultural memes are encoded and integrated into children's toy products, meeting the modern demand for enjoyable learning experiences and facilitating the learning and dissemination of culture through play.

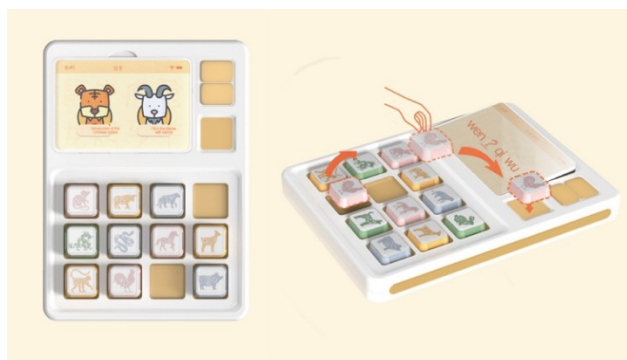


Figure 1. Children's Educational and Intelligent Toy Illustration

In terms of the material layer, based on the concrete genes of fine lines engraved paper, bright and vibrant colors easily accepted by children are extracted. Different color combinations facilitate children's differentiation between different modules while nurturing their perception of colors. The design adjusts relatively soft hues to avoid visual clutter and protect children's eyesight. Monochromatic combinations between different modules present a clear and thematic effect. In terms of form, combining the techniques of fine lines engraved paper, we simplified and optimized the animal shapes of the 12 zodiac signs. Based on visual perception, the shapes become more concise and adorable, presenting a simple and cute appearance. This not only relaxes children's moods but also stimulates their imagination, enhancing the activity of design thinking and contributing to interest cultivation[6].

In the behavioral layer, the design mainly focuses on the safety, fun, and cultural dissemination of children's cultural and creative toys. In terms of safety, the product's simple and rounded design is retained, and the combination of plastic and

rubber materials is used. The zodiac patterns, simplified using the techniques of fine lines engraved paper, are fixed above the modules to prevent misuse. Regarding fun, the design breaks away from the simple way of memorizing idioms through text and introduces interaction between the zodiac patterns of fine lines engraved paper and word blocks. This makes learning idioms more interesting for children, and the zodiac patterns can be imprinted. Through the process of playing, the design achieves the effect of integrating education with entertainment, contributing to the dissemination of intangible cultural heritage.

In the symbolic layer, the expression of the product mainly involves innovation in the themes, colors, and compositions of fine lines engraved paper while retaining its inherent characteristics. Combined with popular elements, the design adds a sense of fashion, making it more in line with contemporary aesthetic preferences. This contributes to the enjoyable learning of children and the transmission of excellent traditional culture. The work also reflects the aspirations of people for self-improvement and a harmonious life. Using modern science and technology, the design brings traditional culture closer to life through new and enjoyable carriers. Children, in the process of subconscious learning, gain some understanding of the culture of fine lines engraved paper, expanding its application scope and promoting the inheritance and development of intangible cultural creativity.

5. Conclusion

Examining cultural development history reveals that culture needs continuous dissemination to be learned and inherited. Memetics theory provides a new perspective and approach for the protection and dissemination of Leqing fine line-cut paper intangible cultural heritage. By symbolizing the intangible elements in culture, memetics theory serves as an effective method to enhance the creativity of fine line-cut paper culture. It extracts elements such as pattern styling and color techniques through memetics theory, integrates strong and weak memes, and combines them with children's educational toys at the levels of material, behavioral, and symbolic layers. This is a collision between tradition and modernity, as well as an innovative attempt. This paper explores the effectiveness of memetics theory in cultural product design, particularly in the context of children's educational toys. It enriches the application of memetics theory and provides guiding suggestions for region-based cultural product design. The aim is to expand the dissemination path of intangible cultural heritage, promoting innovation and inheritance in non-material culture.

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