

# Cultural Meme Extraction and Application of Lihou Tiger

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## Abstract

To tackle the product research and innovative design challenges faced by Lihou Tiger, this study excavates its cultural memes, extracts representative design symbols, and applies them to guide product design. By integrating field visits, online searches, and literature reviews, Lihou Tiger materials from the 1950s to the present are collected and organized as research samples to explore their historical context. Both explicit and implicit cultural memes are systematically excavated and categorized, constructing a genealogical diagram of Lihou Tiger cultural meme types, followed by innovative design practices. This diagram method enables comprehensive and systematic collation of cultural memes. Combining modern design theories facilitates efficient transformation and innovative application of cultural resources, offering references for inheriting and innovating other intangible cultural heritage crafts.

**Keywords:** Lihou Tiger; Cultural Meme; Pedigree Map; Design Symbol; Innovative Design

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## 1. Introduction

Lihou Tiger has a unique shape and bright colors, integrating embroidery, cloth art, paper-cutting, and calligraphy and painting, and combining historical legends, totem worship, and belief aesthetics. It is the crystallization of the wisdom of Shanxi working people in production and life. Lihou Tiger (literally 'decorative cloth tiger') is a traditional folk craft in Shanxi Province, China, integrating embroidery, cloth art, and cultural symbolism. Despite the strong promotion by two generations of intangible cultural heritage inheritors and the local government, the attention of all sectors of society to Lihou Tiger is still relatively low. Backward technology and a lack of talent make its design and research capabilities insufficient to meet current market demands.

To better protect and inherit this intangible cultural heritage project, academic circles have actively conducted relevant research on Lihou Tiger in recent years. GAO Wei-Song [1] analyzed the composition and semantic interpretation of Lihou Tiger from the perspective of visual semiotics, filling the gap in the research on its craft form; LIU Zi-Yang [2] analyzed the artistic characteristics and inheritance influence of Lihou Tiger from the perspective of regional culture, deeply excavating its carried cultural elements; GUO Jia-Lin [3] carried out cognitive tracing and moral interpretation of Lihou Tiger from the perspective of image symbols, further exploring its cultural essence. The above provides a theoretical foundation for the inheritance research of Lihou Tiger. However, its design application still stays at the shallow level of cross-border integration, such as illustration, ceramic art, furniture [4-6], etc. Few studies analyze its shape evolution, examine its aesthetic implications, and refine its visual symbols for innovative design from the perspective of cultural meme theory.

This paper examines Lihou Tiger from the 1950s to the present, utilizing it as research material, and is structured into three parts: cultural meme extraction, pedigree construction, and innovative practice. These components are designed to explore the design regeneration model of intangible cultural heritage based on cultural memes. On the one hand, it allows people to clearly understand the historical origin and development evolution of Lihou Tiger and helps the modern inheritance and protection of Lihou Tiger culture; on the other hand, it is convenient to excavate its representative memes, realize the design transformation and innovative application of cultural resources, and provide a reference for the activation and regeneration of intangible cultural heritage.

## 2. Methods

### 2.1 Cultural Meme Theory

Cultural memes are similar to biological genes and refer to information units that can be inherited, selected, replicated, mutated, and transmitted in the process of cultural communication and evolution. These characteristics enable culture to be passed down from generation to generation without loss. In this process, memes with strong recognition, high approval, and rich appeal will be retained, strengthened, and continuously inherited and developed; memes with poor recognition, low approval, and weak appeal will be abandoned, forgotten, and gradually marginalized. This process of the emergence of new memes and the elimination of old memes forms the evolution and change of culture [7].

In recent years, the academic circle has introduced meme theory to better protect and inherit intangible cultural heritage. For example, WU Qun [8] and others deconstructed the memes of Dong-yang woodcarving and studied its different performances in the process of cultural evolution and communication; ZHU Wen-Shuang [9] and others applied meme theory to realize the extraction of Dong ethnic group characteristic elements and the construction of an evaluation system; ZHANG An-Hua [10] and others analyzed the genes of Nanjing Republican architecture based on meme theory, constructed a map, established an evaluation meme, and used artificial intelligence to generate patterns.

### 2.2 Research Ideas

Lihou Tiger has a unique expression in the visual presentation of cultural characteristics, style characteristics, and spiritual value transmission, and is a true epitome of Shanxi regional culture and folk work of art. First, classify and collect cultural materials of Lihou Tiger in different periods. Secondly, excavate its explicit and implicit cultural memes, use pedigree classification and image classification to sort out the forms of expression and internal logic, and understand the forms of expression and internal logic of various cultural memes. Then, construct a framework of the Lihou Tiger cultural meme map to provide a reference for cultural inheritance and innovative application. Finally, carry out innovative application practices. The research idea is shown in Fig.1, the idea of cultural meme extraction and application.

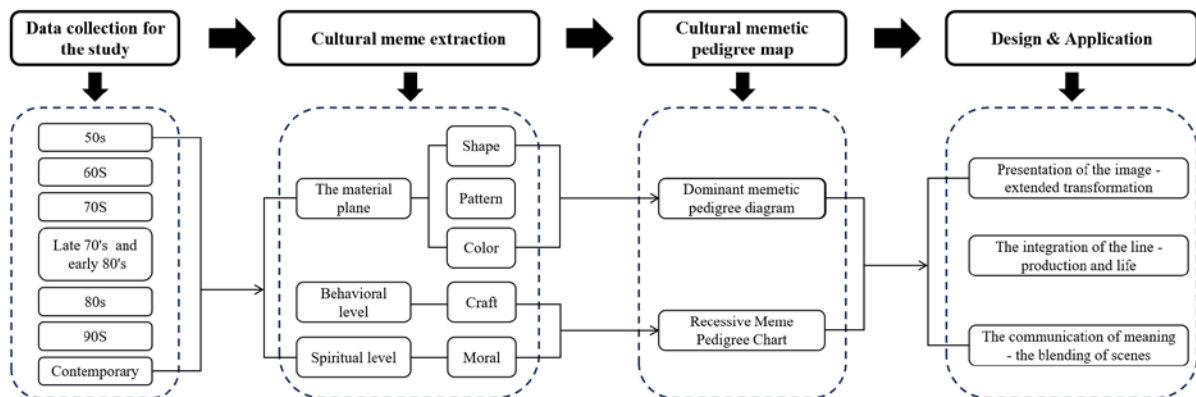


Fig.1 Cultural meme extraction and application ideas

## 3. Extraction of Lihou Tiger Memes and Construction of Pedigree Map

### 3.1 Excavation and Extraction of Lihou Tiger Cultural Memes

According to their material forms, cultural memes can be divided into two different attributes, explicit and implicit [11]. Explicit cultural memes refer to obvious cultural characteristics that can be directly perceived by people, such as the shape, pattern, and color of Lihou Tiger; implicit cultural memes refer to cultural characteristics that cannot be directly perceived, such as the production process and cultural connotation of Lihou Tiger.

### **3.1.1 Shape Memes of Lihou Tiger**

There is no fixed overall shape for Lihou Tiger in past dynasties, which can be divided into lying tigers, crouching tigers, and standing tigers. In the 1950s, it was round and plump, with a sunken tiger's ridge, a raised tiger's buttocks, and a short tiger's tail; in the 1960s, it was lean, with a prominent waist, and a tiger's tail coiled like a lucky cloud; in the early 1970s, it was plump and strong, with an indistinct waist, and a tiger's tail slightly raised in an "S" shape; at the end of the 1970s and the beginning of the 1980s, it had a high-spirited posture, and the tiger's tail was extended to the back of the neck; at the end of the 1980s and the beginning of the 1990s, it was round and full, and cute; at the end of the 1990s, it was nimble, three-dimensional, and the tiger's tail drooped slightly; after 1998, it was round and strong, and the tiger's tail upturned in an "S" shape.

The facial shape is based on the real tiger and is between representation and abstraction. The outline is similar to the tiger face in the decorative patterns of bronzes in the Shang and Zhou dynasties, presenting a square circle; the tiger ears can be traced back to the common ring-shaped ear patterns in the bronzes of the Shang and Zhou dynasties, presenting an oval shape, symmetrically placed on both sides of the tiger's head, implying dispelling evil spirits; the tiger's eyes originate from the animal face patterns of bronzes in the Shang and Zhou dynasties, symbolizing strength and majesty; the tiger's nose is a vertical nose, which is a cultural feature of the nomadic people in the northwest; the tiger's mouth is open, revealing sharp canine teeth, similar to the action of a real tiger hunting and licking blood with its tongue, making the pattern more vivid and artistic [12].

### **3.1.2 Pattern Memes of Lihou Tiger**

Lihou Tiger has a variety of traditional folk patterns all over its body, such as flower-shaped patterns, with whiskers representing the thin wires of the tiger pasted on both sides of the tiger's mouth, presenting a fierce posture; whirlwind patterns, with patterns pasted on both sides of the tiger's body representing the growth law of animal fur, meaning peace and smoothness; tiger's ridge patterns, cut from the same piece of fabric, with a round protrusion for a male tiger and a round groove for a female tiger, embodying the concept of yin-yang combination and the generation of all things; the 'Xīn' (heart in Chinese) character-shaped pattern, with the image of the seal-script character 'Xīn' decorated on the tiger's feet, reflecting the shape of the tiger's claws, which not only does not lose its majesty but also adds a bit of delicacy and elegance; king character patterns, pasted in the middle of the tiger's head, with the top horizontal stroke slightly longer and the two lower horizontal strokes relatively shorter, reflecting the introverted and unassuming personality of the Shanxi people.

### **3.1.3 Color Memes of Lihou Tiger**

Lihou Tiger incorporates the traditional five colors of the Chinese nation - black, red, green, white, and yellow, which are rich in national emotions and artistic ingenuity. Yellow is used as the main color and is widely applied to the tiger's body, head, and limbs, implying good luck and wealth; red is laid on the abdomen, adding a festive and warm atmosphere; blue silk is sewn for the eyebrows and eyes, representing the tiger's fierce points; the eyes are bright, superimposed by red, white, and black colors, and are the most eye-catching and central part of the facial features; the nose is dark green and three-dimensional, embroidered with Changping Needle Technique, with a full shape; the ears are yellow and trumpet-shaped, with red silk dots in the center, both powerful and playful.

### **3.1.4 Production Process of Lihou Tiger**

The production of Lihou Tiger uses natural and ecological materials, paying attention to the matching of materials and colors and the fineness of the production process, which mainly includes the following steps: 1) selecting pure cotton fabrics in red and yellow colors representing festivity and auspiciousness; 2) cutting the tiger's body fabrics and patterns for later use, facilitating subsequent sewing and pasting; 3) sewing the two large pieces of the tiger's body to shape the powerful posture of the tiger; 4) filling the tiger's body with cotton and tamping it tightly to make it not easy to deform; 5) embroidering parts such as eyebrows, eyes, and ears, and sewing eyebrows and eyes with blue silk; 6) pasting patterns and sewing parts such as eyes, eyebrows, and ears.

### 3.1.5 Cultural Connotation of Lihou Tiger

As a characteristic cultural symbol, Lihou Tiger is not only a handicraft loved by residents in festival celebrations and daily life but also an important carrier for inheriting and displaying Shanxi folk culture. In different occasions, the objects and meanings of Lihou Tiger's blessing are also different. For example, at a child's full moon, Lihou Tiger is given as a full moon gift to the newborn, implying that the child will be as brave and strong as a tiger in the future; at an old person's birthday, Lihou Tiger is given as a birthday gift to the old person, implying blessing and prolonging life, both happiness and longevity; at a couple's wedding, Lihou Tiger is given as a wedding dowry, implying having children early and having many children and grandchildren.

### 3.2 Construction of Lihou Tiger Cultural Meme Pedigree Map

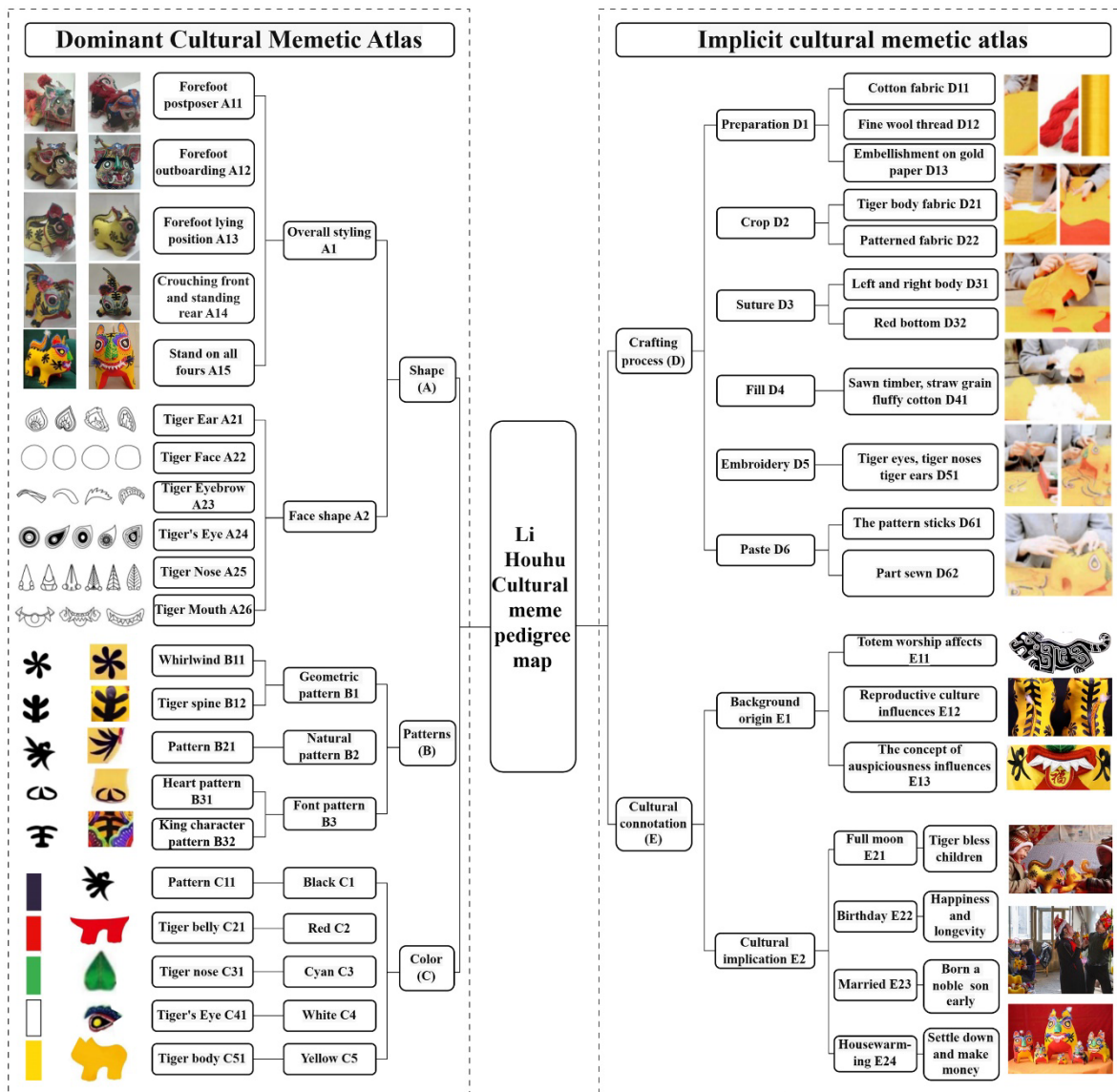


Fig.2 Cultural meme pedigree map of Lihou Tiger

The Lihou Tiger cultural meme pedigree map is a structured induction method, which systematically arranges and presents explicit and implicit cultural memes according to their attributes and logical relationships to ensure that each cultural factor of Lihou Tiger culture is displayed in an orderly and logical manner. This map not only comprehensively records various meme information in Lihou Tiger culture but also clearly reveals the mutual relationships between various memes, so that people can understand and recognize Lihou Tiger culture at a deeper

level. Through the excavation and analysis of Lihou Tiger cultural memes, its unique shape, complex patterns, bright colors, exquisite craftsmanship, and the profound meanings behind them have been explored. As shown in Fig.2, the Lihou Tiger cultural meme pedigree map, by integrating the explicit and implicit cultural meme maps, the final meme pedigree map is obtained, which not only shows its external artistic style but also deeply reveals its internal cultural heritage. As shown in Fig.2, Lihou Tiger Cultural Meme Pedigree Map. Left panel: Explicit memes (shape/pattern/color); Right panel: Implicit memes (craftsmanship/cultural connotation).

## **4. Design Practice Based on Lihou Tiger Meme Pedigree**

### **4.1 Design Application Model Based on Cultural Meme Pedigree**

To refine and transform cultural resources into innovative products with cultural characteristics, it is necessary to rely on the cultural meme pedigree and comprehensively consider factors such as carrier selection, symbol extraction, translation and integration, and evaluation feedback [13-14] to construct a design application model, as shown in Fig.3, the design application model based on the Lihou Tiger cultural meme pedigree. First, analyze user needs, and select appropriate carriers by combining the cultural cognition, behavioral habits, and emotional needs of the target group; secondly, screen out the combination of explicit and implicit cultural memes matching the target carrier from the pedigree map, and use modern design theories and methods to extract design symbols that are easy to recognize and rich in cultural heritage [15-17]; then, explore the multi-element integration path between Lihou Tiger cultural elements and the target carrier to realize the design transformation of cultural meme symbols and their meanings; finally, use the Likert five-point scale to score through a questionnaire survey to test the feasibility of the design scheme. The design practice completed in this way can quickly and effectively obtain the sense of belonging of local people and the recognition of people from other places.

### **4.2 User Portrait Positioning**

As a model of Chinese traditional handicrafts, Lihou Tiger demonstrates the unique intangible cultural heritage textile culture of Shanxi. Through the analysis of the population attributes and hobbies of the keyword "cloth tiger" by Baidu Encyclopedia's Giant Calculation, it is found that the related crowd is mainly under 19 years old, with a large proportion of females, and the users' related interests are mainly in education, books, leisure, etc. Based on this user portrait, the target group is positioned as young women who love life. According to the cultural background of Lihou Tiger, design carriers related to textiles are selected to develop a series of ladies' bags. At the same time, integrate cultural heritage into the daily life of young people and use multiple ways to promote the communication of intangible cultural heritage and increase its influence.

### **4.3 Extraction of Design Symbols**

Combined with the above target user portrait positioning and referring to the Lihou Tiger cultural meme pedigree, design elements are extracted from the aspects of shape, pattern, color, and connotation for the design concept of backpacks, as shown in Fig.4, the design concept map of the series of backpacks. In terms of shape, the square and round tiger face outlines and representative tiger eyes and eyebrows are selected; in terms of patterns, tiger's ridge and whirlwind patterns are used as detail decorations to enrich the visual effect of the backpack; in terms of color, yellow is the main color and red is the auxiliary color, which is simple and full of vitality, and can also convey the meaning of completeness and auspiciousness; in terms of technology, pasting and embroidery techniques are used to make the design effect of the backpack more exquisite and layered. After determining the plan, the details are deepened and the effect drawing is completed, and then the design effect drawing of the "Fu Hu" series backpacks is obtained through computer-aided three-dimensional modeling and rendering, as shown in Fig.5, the final effect drawing of the "Fu Hu" series products.

### **4.4 Evaluation of Design Effects**

To verify the effectiveness of the extraction and transformation of Lihou Tiger cultural memes, after completing

the design of the "Fu Hu" series products, a satisfaction evaluation survey was conducted on relevant young groups through a questionnaire survey. The questionnaire tested and evaluated the product in terms of appearance beauty, cultural transmission, application matching, innovation, and function practicality, using the Likert five-point scale. (Likert Scale: 1=Strongly Disagree, 5=Strongly Agree). Because this method was chosen for its efficiency in quantifying user feedback, which aligns with the goal of assessing market acceptance. Compared to expert reviews, it better reflects end-users' perspectives, critical for practical design application. A total of 145 questionnaires were distributed, and 127 valid questionnaires were returned. The statistical results show that the average score of each option is higher than 4 points, which are 4.24, 4.22, 4.21, 4.13, and 4.29 respectively. This indicates that the design scheme can reflect the characteristics and cultural implications of Lihou Tiger, meet the expected goals, and receive good feedback in actual use, as shown in Table 1, the design satisfaction survey table.

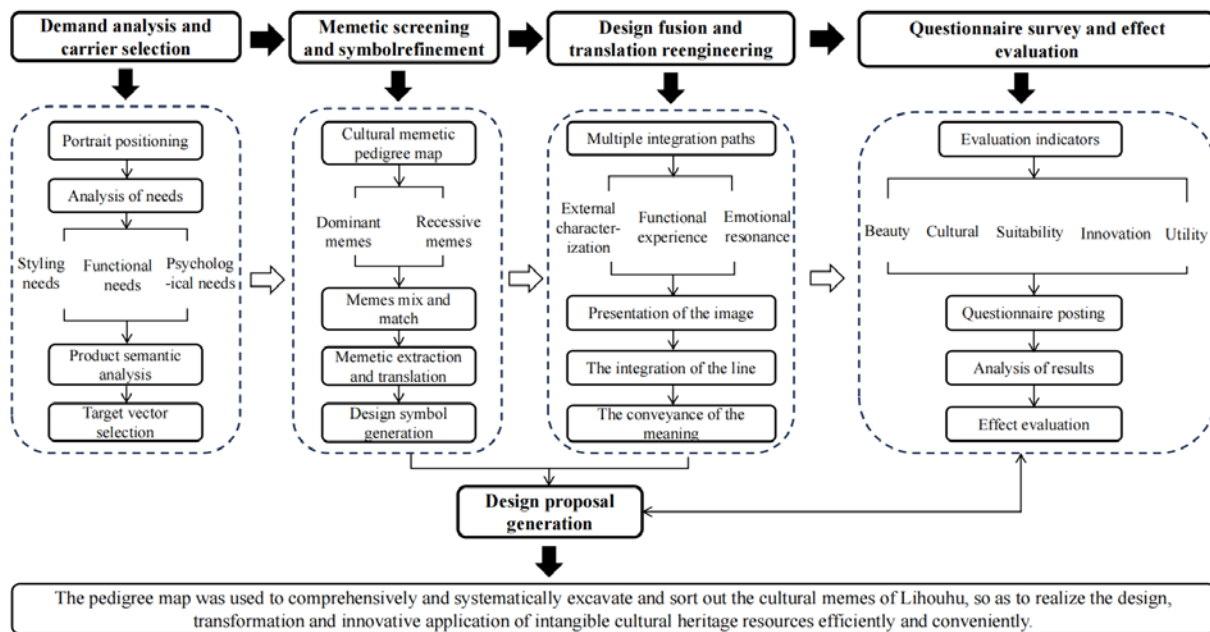


Fig.3 Design application model based on the cultural meme pedigree map of Lihou Tiger


Element	Element samples	Memetic extraction	Design translation	Design schematic
Shape		 A22 A25  A23  A24		
Patterns		 B11 B12		
Color		 C51 C21 C11	 C5 C2 C1	
Connotation	"Blessed fortune"	Auspicious concept	Nafu attracts wealth and good health	Ping an package Lucky package Gold package Pleasant package

Fig.4 Design concept of a series of bags



Fig.5 Final renderings of "fu hu" series bags

Table 1. Design satisfaction questionnaire

Design proposals	Evaluation indicators	Test questions	1	2	3	4	5	Average score $\pm$ SD
	Attractive appearance	Is the product aesthetically pleasing?	0 (0%)	6 (4.72%)	15 (11.81%)	49 (38.58%)	57 (44.88%)	4.24 $\pm$ 0.81
	Cultural transmission	Does it embody the "Li Hou " cultural meme?	0 (0%)	3 (2.36%)	20 (15.75%)	50 (39.37%)	54 (42.52%)	4.22 $\pm$ 0.82
	Application matching	Is it aligned with "Lucky Tiger of Prosperity"?	0 (0%)	5 (3.94%)	24 (18.9%)	37 (29.13%)	61 (48.03%)	4.21 $\pm$ 0.85
	Creative novel	Is the product design innovative?	1 (0.79%)	6 (4.72%)	25 (19.69%)	38 (29.92%)	57 (44.88%)	4.13 $\pm$ 0.89
	Functionally practical	Is the product convenient to use?	0 (0%)	6 (4.72%)	15 (11.81%)	42 (33.07%)	64 (50.39%)	4.29 $\pm$ 0.79

## 5. Discussion

As a national intangible cultural heritage project, the research on diversified protection and inheritance of Lihou Tiger is of universal significance based on its development status. This study innovatively uses a cultural meme pedigree map to trace the historical context of Lihou Tiger culture, systematically excavate and summarize its explicit and implicit cultural memes, and make its cultural meme structure clearly presented. The meme pedigree map addresses the "cultural distortion" issue in intangible heritage inheritance, providing a tool for balancing tradition and innovation, is not exclusive to Lihou Tiger but can be generalized to other intangible heritage cases by adjusting meme categories. At the same time, by integrating modern design concepts, it explores the innovative transformation path of Lihou Tiger cultural memes in product design. Through case practice, the regenerative design of traditional culture is realized.

## 6. Conclusion

This not only promotes the original ecological protection and innovative inheritance of Lihou Tiger culture, improves its popularity and influence, and promotes national cultural confidence but also contributes to promoting

the development of related industries, helping rural revitalization, and exploring a sustainable development path for the inheritance and communication of intangible cultural heritage under the background of the new era.

## 7. Acknowledgement

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