

The Analysis and Creation of Chinese Lanterns Identity Book for Product Design

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ABSTRACT

This study aims to explore the cultural identity of Chinese lanterns and their innovative application in contemporary product design. The specific objectives are: (1) to analyze the identity elements of traditional Chinese lanterns; (2) to develop a Chinese Lantern Identity Book for use in design practice; and (3) to create and evaluate product designs inspired by lantern identity. A mixed-method approach was employed, combining literature review, fieldwork, semiotic analysis, expert interviews, surveys, and user testing. Sixteen types of Chinese lanterns listed as national intangible cultural heritage were selected for analysis. Key identity components—including craftsmanship, form, material, patterns, and colors—were extracted and evaluated through expert consultation. The findings were synthesized into a structured identity framework. The Chinese Lantern Identity Book was then developed based on this framework, and its usability was evaluated by 400 general users and expert reviewers. Finally, five lantern-inspired product prototypes were created and assessed by nine experts and 200 users. The study identified six representative lantern categories and developed a systematic identity model. The Identity Book was rated highly in terms of cultural representation (M = 4.13), visual layout (M = 4.10), and usability (M = 4.05), indicating its effectiveness as a design reference. Product prototypes demonstrated strong cultural alignment, with Model 1 receiving the highest scores in cultural communication (4.05), craftsmanship precision (4.15), and uniqueness (4.10). The research proposes a structured process of “identity analysis—book development—product innovation” that effectively bridges traditional cultural heritage and modern product design. The study validates how intangible cultural aesthetics can be preserved and reinterpreted through design tools and consumer-oriented applications. Despite its contributions, the study highlights challenges in standardizing cultural identity elements across diverse lantern types and regions. Further research is needed to explore cross-cultural applicability and long-term user engagement with culturally inspired products.

Keywords: Chinese Lanterns, Cultural Identity, Product Design, Intangible Cultural Heritage

INTRODUCTION

In today's era of globalization and increasingly dynamic cross-cultural exchange, traditional Chinese culture is receiving heightened international recognition. Among its many cultural symbols, Chinese lanterns are distinctive for their aesthetic sophistication, craftsmanship, and cultural identity. Historically central to festivals such as the Spring Festival and Lantern Festival, lanterns have evolved from ceremonial objects to powerful cultural icons in

global contexts (Wang & Zhao, 2018). However, socio-economic changes, shifting consumer tastes, and the decline of traditional craft skills—particularly among younger generations—threaten their continued relevance (Chen, 2019). The meticulous, labor-intensive process of lantern-making has limited youth participation, while modern consumers' evolving aesthetic and functional expectations present further challenges (Li, 2020). This underscores the urgency of preserving the symbolic essence of lanterns while adapting their form and function to contemporary design trends. Scholarly discourse increasingly advocates integrating traditional crafts with modern design through interdisciplinary collaboration across art, folklore, anthropology, and cultural studies (Wang & Liu, 2019). Cultural and creative industries (CCIs), defined by UNESCO (2022) as creativity-based economic activities that foster both economic growth and cultural transmission, present a promising avenue. In China, CCIs have been designated as a strategic industry, with government policy encouraging the fusion of traditional crafts and contemporary design to enhance innovation and competitiveness (State Council, 2019). As cultural diplomacy gains importance, modernizing traditional products like lanterns becomes part of a broader effort to promote Chinese culture globally (Zhao, 2022). This study addresses these challenges by exploring innovative applications of Chinese lantern identity in modern product design. Academically, it enriches knowledge of lantern morphology, symbolism, and techniques. Practically, it offers the Chinese Lantern Identity Book, a design guide for integrating traditional elements into contemporary products. Culturally, it supports the modernization of lanterns through creative products that preserve traditional meaning while appealing to modern tastes (Liu, 2021).

Research Objectives

1. To analyze and identify the cultural, structural, and aesthetic characteristics of traditional Chinese lanterns through historical, material, and stylistic dimensions.
2. To develop a comprehensive Chinese Lantern Identity Manual that systematically documents representative design elements for application in modern product design.
3. To conceptualize and create product design prototypes inspired by the visual and symbolic identity of Chinese lanterns, integrating traditional aesthetics with contemporary design methodologies.

The Creation and Application of Chinese Lantern Identification Manuals

The development of Chinese lantern identification manuals draws on cultural heritage studies, semiotics, and design theory, serving as structured tools for documenting and communicating symbolic meanings, aesthetic features, and craftsmanship. Within the framework of intangible cultural heritage, these manuals preserve and translate cultural knowledge for contemporary contexts (Assmann, 2011). Semiotic theory, as articulated by Saussure and Peirce, provides a lens for interpreting motifs such as dragons, phoenixes, and auspicious patterns (Chandler, 2007). Functioning as cultural decoders, manuals help designers integrate traditional symbolism into modern products without losing authenticity, aligning with Norman's (2004) emphasis on balancing function and cultural meaning. The manual's structure categorizes lantern attributes—structure, materials, colors, patterns, and craft techniques—supporting historical accuracy through detailed descriptions and visual aids such as diagrams and photographs. Standardization ensures consistency and provides a shared design language for professionals, educators, and consumers (Geertz, 1973). Including an evolutionary perspective highlights how forms and motifs adapt over time, enhancing cultural adaptability. In practice, manuals guide design prototyping, ensuring authenticity before market release. Notable applications include the Zigong Lantern Festival's integration of LED technology and the Guangzhou Lantern Art Festival's blend of Cantonese culture with modern principles, both yielding high consumer approval (Smith, 2017).

Cultural Product Design Research on Chinese Lanterns

Cultural product design emphasizes embedding symbolism and emotional resonance into functional modern products (Norman, 2004). In lantern design, cultural semiotics enables the transformation of traditional motifs into contemporary visual language (Li, 2020; Zhang, 2021). UX design shapes how users interact with lantern-inspired products, blending utility with cultural ambiance—such as warm light from red shades evoking festivity (Wang, 2022). Emotional design enhances attachment through colors, forms, and materials, with traditional red and gold evoking nostalgia and cultural pride (Desmet, 2007; Chen, 2022). The Analytic Hierarchy Process (AHP) aids in prioritizing cultural elements according to market demands (Saaty, 1980; Li, 2023). Modern reinterpretations include palace lantern silhouettes in aluminum and glass with LED lighting (Wang, 2021) and minimalist adaptations of traditional colors (Zhao, 2021). Abstracted motifs, sustainable materials, and eco-friendly innovations further align tradition with contemporary values (Sun, 2022; Li, 2022).

Inheritance and Innovation of Chinese Lanterns

Lantern craftsmanship encompasses bamboo weaving, paper-cutting, carving, and painting, historically transmitted through master-apprentice systems (Chen, 2022). Preservation faces challenges from declining youth

interest, market contraction, and competition from electric lighting (Zhao, 2023; Li, 2023). Despite heritage listing and subsidies, sustainable preservation requires societal engagement. Collaborations between artisans and designers integrate lantern motifs into modern interior and decorative arts, supported by storytelling that enriches cultural value (Wang, 2022). Innovation incorporates LED technology for safety and sustainability, material diversification for durability, and smart functions like mobile control for younger audiences (Zhang, 2021; Sun, 2022). Digital tools, including AR, enhance design visualization and education. In cross-cultural contexts, simplified lantern elements adapt to global aesthetics—such as red-and-gold motifs in Western Christmas ornaments (Smith, 2022) or tropical palettes in Southeast Asia (Chen, 2023). These adaptations expand market reach, strengthen cultural diplomacy, and elevate Chinese heritage in global cultural exchange.

RESEARCH METHODOLOGY

This study employed a mixed-methods research design to analyze and develop a Chinese lantern identity manual for application in modern product design. The methodology integrated both qualitative and quantitative approaches to explore the cultural significance, visual language, and contemporary applications of traditional lanterns.

Population and Sample. The research sample was drawn from four primary groups: cultural experts, design professionals, entrepreneurs, and general consumers. Cultural experts included three individuals with extensive experience in lantern craftsmanship and cultural heritage, such as Mr. Lai Xiushan, a recognized inheritor of Zhongxin Flower Lantern techniques. The design group comprised nine professors and associate professors from leading Chinese art institutions, selected based on their expertise in design education and traditional arts integration. The entrepreneur group consisted of senior professionals in brand management and lantern product marketing. Finally, a general consumer group of 400 individuals aged 15 and above, residing in lantern-rich regions, was selected using accidental sampling (error margin <10%).

Research Tools and Data Collection. A diverse set of tools was employed to gather comprehensive data. These included literature reviews, field observations, case studies, in-depth interviews, and structured questionnaires. Literature reviews focused on the history, morphology, and symbolism of lanterns (Wang, 2022). Field visits to workshops and festivals captured real-life usage and production processes, while interviews with artisans and scholars provided qualitative depth (Chen, 2023). Quantitative data were gathered through consumer and expert questionnaires, targeting cognition, emotional resonance, and design preferences. Specific tools included expert evaluations of lantern morphology, interviews on cultural symbolism, and satisfaction surveys on prototype products. A separate questionnaire assessed consumer preferences regarding design elements and the format of the identification manual.

Instrument Validation. To ensure the reliability and content validity of research tools, the Item-Objective Congruence (IOC) method was applied. Expert evaluators, including university faculty and cultural product specialists, rated each questionnaire item using a 5-point scale, with IOC values ≥ 0.5 considered acceptable (Rovinelli & Hambleton, 1977). Low-scoring items were revised or discarded, and feedback was documented to ensure transparency and rigor.

Research Process. The research followed a systematic eight-step process: (1) a literature review of lantern history and cultural background; (2) fieldwork, including interviews and observations; (3) classification of lantern types by shape, material, and symbolic meaning; (4) gathering user and expert input; (5) development of the Chinese Lantern Identification Manual; (6) formulation of product design guidelines based on lantern features; (7) expert and consumer evaluation of the manual and product prototypes; and (8) finalization of recommendations and design outputs.

Data Analysis. Data were analyzed using both descriptive and inferential statistical methods. Descriptive statistics (e.g., percentages, mean scores, standard deviations) were used to summarize demographic data and satisfaction ratings (Norman, 2004). Qualitative data from interviews were thematically coded to extract insights into cultural connotations and user experience. Satisfaction analysis of product prototypes employed quantitative scoring to assess visual appeal, functionality, and cultural resonance among users.

RESULTS

Identity Analysis of Chinese Lanterns

The cultural identity of Chinese lanterns was explored through in-depth interviews with experts, intangible cultural heritage inheritors, and cultural product designers. These insights provided a holistic understanding of the historical, symbolic, and design-related aspects of lanterns in both traditional and modern contexts. Cultural experts

such as Professors Li Zonggui, Li Fengliang, and Yu Xia emphasized the historical depth of Chinese lanterns, tracing their origins to the Sui and Tang dynasties and noting their ties to the spread of Buddhism. Lanterns have long symbolized reunion, celebration, and light, evolving into key cultural icons during major festivals. The experts highlighted how craftsmanship has shifted from traditional materials like paper and bamboo to modern components such as plastic and LED lighting, which, while increasing accessibility, risk diluting original symbolic meanings like the auspicious red or the dragon motif.

Interviews with three recognized inheritors—Lai Xiushan, Zhang Shuqi, and Chen Zhitang—revealed how traditional craftsmanship is preserved through familial and apprenticeship traditions. These artisans balance tradition with innovation by incorporating geometric design, eco-friendly materials, and personal styles rooted in regional identity. Despite the emotional and cultural resonance lanterns evoke during festivals, inheritors acknowledged challenges such as waning youth interest and market competition. Cultural product designers Li Wei, Liu Yu, and Wang Ming elaborated on transforming lantern motifs into modern applications. They draw design inspiration from tassels, shapes, and symbolic patterns, adapting them using modern materials like acrylic and LED. By combining user-centered design, aesthetics, and cultural symbolism, they ensure lantern-inspired products retain emotional value and cultural depth while meeting contemporary tastes. Together, these interviews underscore the vital role of lanterns in maintaining Chinese cultural identity, while emphasizing the need to innovate responsibly in a globalized era.

To explore the rich diversity and cultural depth of Chinese lanterns, this study conducted an in-depth analysis of 16 lantern types listed in China's National Intangible Cultural Heritage catalog. The analysis focused on six key dimensions: craftsmanship, styling design, material selection, pattern design, symbolic meaning, and cultural distinctiveness. These lanterns span different regions across China—from the ornate palace styles of Beijing to the vibrant folk traditions of Foshan and Chaozhou—offering a panoramic view of lantern-making as both a cultural expression and an evolving art form.

Through the analysis, researchers documented how each lantern type embodies a unique combination of materials, artistic techniques, and symbolic patterns, shaped by local traditions and historical developments. For instance, Xianju Lanterns are known for their meticulous needling technique and small, frameless structures made from paper, decorated with intricate patterns like dragons, phoenixes, and flower motifs. In contrast, Xiashi Lanterns stand out for their extremely high needle density—ranging from 18 to 32 holes per square centimeter—and elaborate storytelling designs featuring zodiac symbols and classical Chinese legends.

Quanzhou Lanterns integrate diverse techniques like paper-cutting, silk-thread inlays, and fiberglass, creating refined and balanced shapes that often feature floral and figural scenes. Similarly, Dongguan Thousand Corner Lanterns are known for their symmetrical and layered structure, combining iron wire and bamboo with PVC to form visually striking decorations of auspicious symbols.

The Foshan Lanterns, rich in decorative elements such as tassels and copper paper cuts, are recognized for their elaborate multi-layered construction and colorful aesthetic. The Beijing Lanterns, emblematic of palace art, feature high-quality materials like silk and jade, with refined designs symbolizing nobility and fortune. The Chaozhou Lanterns, on the other hand, highlight the region's opera culture and embroidery craftsmanship, integrating sculptural and painting techniques in their vivid depictions of folklore and theater.

Other distinctive forms include Luoyang Palace Lanterns, which emphasize symmetry and gravitas through satin and embroidery, and Zhongxin Lanterns, featuring geometric shapes and vibrant paper-cut patterns. The Yueqing Jewelry Dragon Lanterns are particularly unique, incorporating over 300 hand-sculpted figures into a large dragon boat structure, symbolizing folk life and festive abundance.

To identify the most representative lanterns, nine experts specializing in Chinese lantern craft and cultural studies were invited to evaluate each of the 16 lantern types across the six identity dimensions. The expert panel considered not only technical sophistication and aesthetic richness but also the extent to which each lantern type embodied core values of Chinese cultural symbolism and regional identity.


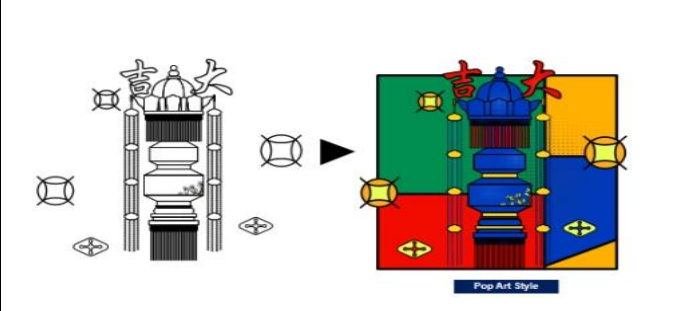

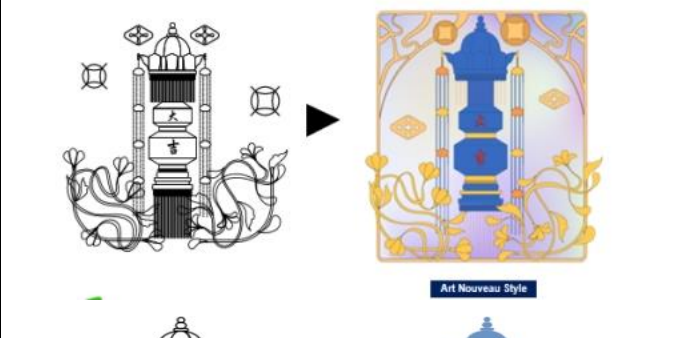
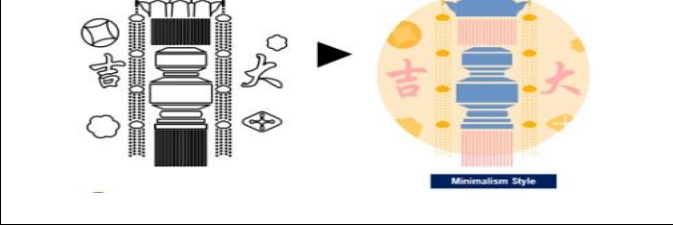

Based on their evaluations, six lantern types were identified as the most culturally representative: Xiashi Lanterns, Foshan Lanterns, Zhongxin Lanterns, Beijing Lanterns, Chaozhou Lanterns, and Quanzhou Lanterns. These were selected for their exemplary integration of craft, cultural symbolism, aesthetic appeal, and regional characteristics. Collectively, they reflect both the historical continuity and creative innovation of China's lantern-making tradition and serve as central references for the development of culturally inspired product design and educational materials.


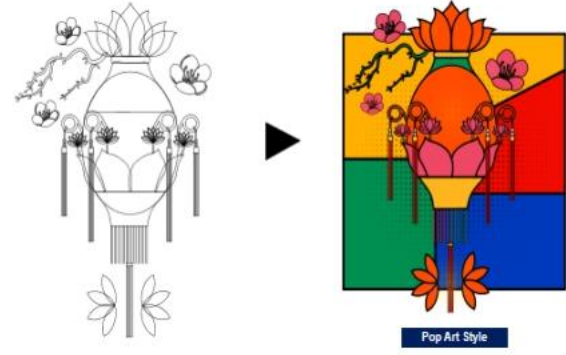
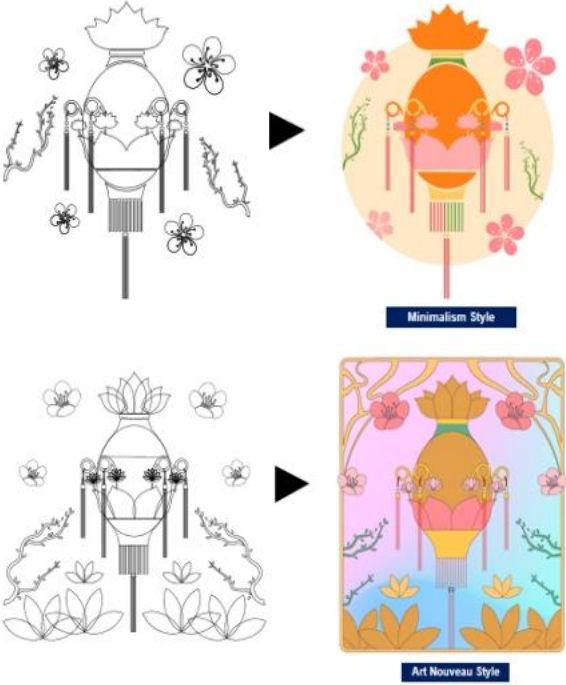

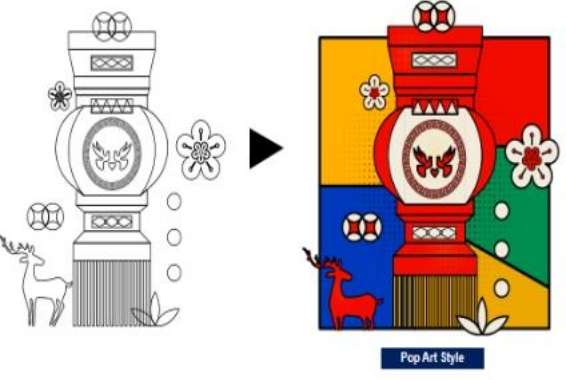
The comprehensive evaluation of the Xianju lanterns is as follows: the average score was 4.67 points. Overall, the Xianju lantern performed well, especially in relation to material selection. Approved by 8 experts; in terms of technology and color, 7 experts voted, indicating that the lantern is made in good technology, reasonable color matching, reflecting certain traditional skills and artistry. The comprehensive evaluation of Quanzhou lantern is as follows: the average score is 7.34, the structure and process each score 7 points, the shape of 6 points, the material and pattern design are 6 points, the color is 8 points, the overall performance is excellent, the use of color is



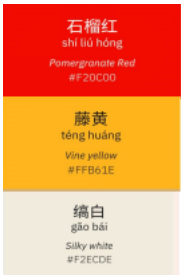
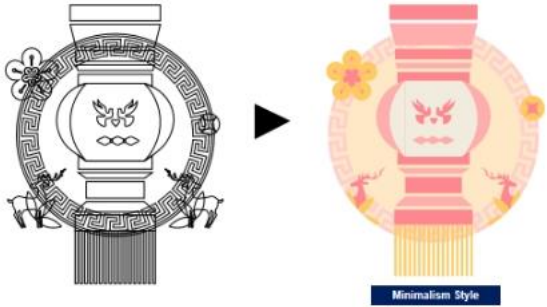

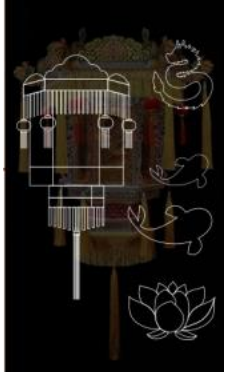
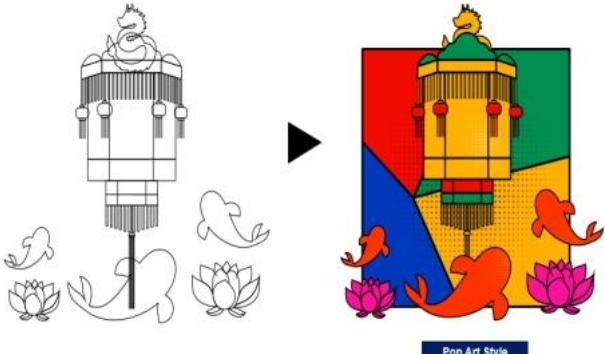
particularly excellent. The comprehensive evaluation of Dongguan Qianjiao Lanterns is as follows: the average score is 4.67, the fine process is 7 points, the modeling innovation is 6 points, the pattern is decorative 5 points, but the structure and material are only 3 points, the color is 4 points, and the stability of the structure and the environmental protection of the material need to be improved. Huangyuan Lantern comprehensive evaluation is as follows: average score 5 points, fine technology 7 points, shape and pattern 6 points, but color only 3 points, material 4 points, need to improve in color and material to enhance the overall artistic effect. The comprehensive evaluation of Beijing Lanterns Color is as follows: with an average score of 6.34, it shows its balanced development in process, shape, material and pattern design, with 7 points for process, 7 points for color, and 6 points for structure, shape and material. The overall performance is good, especially the use of color. The comprehensive evaluation of Shanghai Lanterns color is as follows: the average score is 4.67, the precision of the process is 7 points, the decorative pattern is 6 points, but the structure and shape are only 4 points, the material is 3 points, the color is 4 points, the overall need to strengthen the material selection and shape innovation, in order to enhance the artistic beauty and visual impact. The comprehensive evaluation of Qinhuai Lanterns color is as follows: the comprehensive score is 4.83, the fine process gets 7 points, the decorative pattern gets 6 points, the material is environmentally friendly 5 points, but the structure and shape are only 4 points, and the color is 3 points. It is necessary to improve the color and shape to enhance the overall artistic effect. The overall evaluation of Suzhou Lantern CAI is as follows: the average score is 4.6, the structure and shape score 4 points, the process score 2 points, the material and color score 5 points, the pattern score 3 points, the overall need to improve the process and pattern design to enhance the cultural and visual appeal. The comprehensive evaluation of Foshan Lantern is as follows: with an average score of 7 points, it shows its excellent technology and color application, its structure stability and functionality gets 8 points, its pattern decoration gets 7 points, its material environmental protection gets 6 points, and its shape is innovative gets 6 points. The overall performance is excellent. The comprehensive evaluation of Chaozhou Lanterns is as follows: the average score is 6.17, the structure and process are 6 points, the shape is 7 points, the material is 7 points, the pattern is 6 points, the color is 5 points, the overall performance is good, there is room for improvement in color. The comprehensive evaluation of Luoyang Palace Lantern is as follows: the average score is 4.67, the overall performance of Xianju lantern is general, and the pattern selection is outstanding. A total of 6 experts selected; In terms of craft and shape, a total of 5 experts selected, showing that the production process of the lantern is fine and the shape is reasonable, reflecting a certain traditional skills and artistry. The comprehensive evaluation of Bianjing Lantern is as follows: the average score is 4 points, showing that it needs improvement in several key areas. Although it received a high evaluation of 6 points in the innovation of its shape, showing a certain visual appeal, there is still room for improvement in the stability of its structure (4 points) and the traditional craftsmanship of its craft (5 points). The choice of materials (2 marks) and the cultural symbolism of pattern design (3 marks) are weak links in Bianjing lanterns, especially in terms of environmental durability and coordination with the overall style. The comprehensive evaluation of Zhongxin Lanterns is as follows: the average score is 6. Xianju Lanterns perform well on the whole, especially in the structure and process selection. A total of 7 experts selected; In terms of shape and materials, a total of 6 experts selected, Zhongxin lanterns need to be improved in material selection and color matching to better meet the requirements of traditional crafts and enhance artistic beauty. The comprehensive evaluation of Copper beam dragon lantern is as follows: the average score is 4 points, showing that it needs improvement in several key areas. Although it received a high evaluation of 6 points in the innovation of its shape, showing a certain visual appeal, there is still room for improvement in the stability of its structure (4 points) and the traditional craftsmanship of its craft (5 points). The choice of materials (2 marks) and the cultural symbolism of pattern design (3 marks) are weak links. The comprehensive evaluation of Yueqing Jewelry Dragon Lanterns is as follows: the average score is 4 points, showing that it needs improvement in several key areas. Although it received a high evaluation of 6 points in the innovation of its shape, showing a certain visual appeal, there is still room for improvement in the stability of its structure (4 points) and the traditional craftsmanship of its craft (5 points). The choice of materials (2 marks) and the cultural symbolism of pattern design (3 marks) are weak links.

In conclusion, 9 experts voted and scored lanterns for 16 kinds of national intangible cultural heritage. The researchers selected the six types of lanterns with the highest score as the representative of Chinese lanterns, namely Foshan, Quanzhou, Chaozhou, Beijing, Zhongxin and Xiashi.


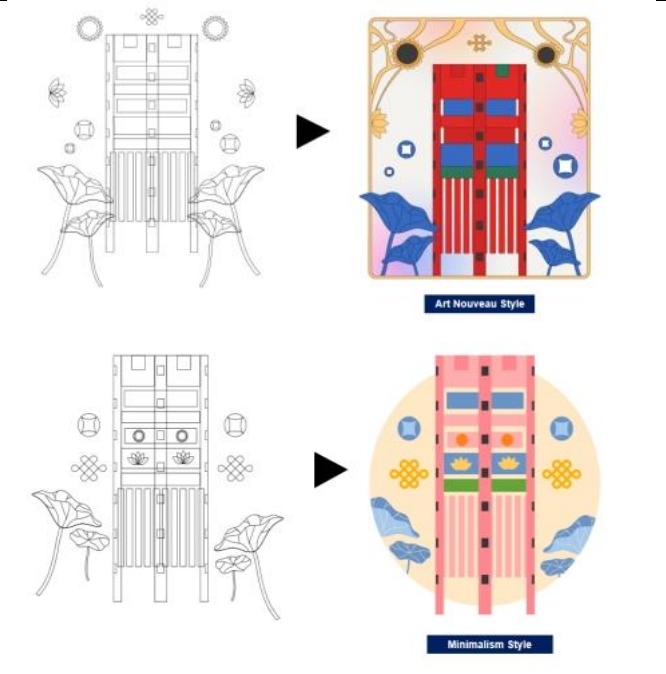
Table 1 Analysis results of lantern identity 2: Beijing Lantern

Results of identification analysis of Chinese lanterns								
<p>Beijing Lantern</p>								
<p>Prototype extraction</p>								
<p>Color extraction</p>	<table border="1" data-bbox="440 898 679 1122"> <tr> <td> <p>赭红 zhè hóng Peach blossom red #E67E22</p> </td> <td> <p>碧蓝 bì lán Skyblue #4682B4</p> </td> </tr> <tr> <td> <p>樱草色 yīng cǎo sè Pinecone yellow #F1C40F</p> </td> <td> <p>花青 huā qīng Flower blue #3498DB</p> </td> </tr> <tr> <td> <p>石榴红 shí liú hóng Pomegranate Red #E74C3C</p> </td> <td> <p>藕叶棕 ǒu yè zōng Waterlily leaf brown #8B4513</p> </td> </tr> </table>	<p>赭红 zhè hóng Peach blossom red #E67E22</p>	<p>碧蓝 bì lán Skyblue #4682B4</p>	<p>樱草色 yīng cǎo sè Pinecone yellow #F1C40F</p>	<p>花青 huā qīng Flower blue #3498DB</p>	<p>石榴红 shí liú hóng Pomegranate Red #E74C3C</p>	<p>藕叶棕 ǒu yè zōng Waterlily leaf brown #8B4513</p>	
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<p>Summaries</p>	<p>Beijing lanterns show distinctive regional characteristics and cultural connotations in terms of shape, technology, color, pattern and structure design. First of all, the shape of Beijing lantern is mainly square, hexagon and other regular geometric shape, the overall structure is symmetrical and stable, with a kind of atmosphere and solemn temperament, usually used for festivals and important ceremonies, symbolized authority and harmony. Secondly, the process is meticulous and rigorous, especially in the frame and joints using mortise and tenon process, so that the lamp structure is more firm and durable. The exterior decoration adopts carving and hollow-out technology, which adds a three-dimensional sense of the lamp body, and the exquisite details show the exquisite craftsmanship.</p> <p>In terms of color, the lanterns in Beijing are mainly colored with red and gold, creating a festive and rich atmosphere, which is in line with the aesthetic preference for festivals and festivals in the north.</p>							
<p>Foshan Lantern</p>								

<p>Prototype extraction</p>		 <p style="text-align: center;">Pop Art Style</p>						
<p>Color extraction</p>	<table border="1" data-bbox="443 936 683 1272"> <tr> <td style="background-color: #FF4500; color: white;">朱红 zhū hóng Vivid red #FF4500</td> <td style="background-color: #FF69B4; color: white;">淡蕊香红 dàn ruǐ xiāng hóng Delicate fragrant pale red #FF69B4</td> </tr> <tr> <td style="background-color: #FFD700; color: white;">藤黄 téng huáng Vine yellow #FFD700</td> <td style="background-color: #3CB371; color: white;">松花绿 sōng huā lǜ Pine tree needle green #3CB371</td> </tr> <tr> <td style="background-color: #F0F0F0; color: black;">缟白 gǎo bái Silky white #F0F0F0</td> <td style="background-color: #3CB371; color: white;">青碧 qīng bì Emerald green #3CB371</td> </tr> </table>	朱红 zhū hóng Vivid red #FF4500	淡蕊香红 dàn ruǐ xiāng hóng Delicate fragrant pale red #FF69B4	藤黄 téng huáng Vine yellow #FFD700	松花绿 sōng huā lǜ Pine tree needle green #3CB371	缟白 gǎo bái Silky white #F0F0F0	青碧 qīng bì Emerald green #3CB371	 <p style="text-align: center;">Minimalism Style</p> <p style="text-align: center;">Art Nouveau Style</p>
朱红 zhū hóng Vivid red #FF4500	淡蕊香红 dàn ruǐ xiāng hóng Delicate fragrant pale red #FF69B4							
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缟白 gǎo bái Silky white #F0F0F0	青碧 qīng bì Emerald green #3CB371							
<p>Summaries</p>	<p>Foshan lanterns are famous for their unique morphological features, which are mainly reflected in their delicate shapes and rich decorative details. These lanterns usually present elegant curved lines and hierarchical structures, combining traditional and innovative design concepts, showing strong local characteristics. Brightly colored materials are often used on the lamp body, with delicate hand carving and embroidery to form vivid cultural patterns. In addition, Foshan lanterns are often integrated with local folk customs and historical elements, making it not only a work of art, but also a carrier of cultural heritage.</p>							
<p>Quanzhou Lantern</p>		 <p style="text-align: center;">Pop Art Style</p>						

<p>Prototype extraction</p>		 <p>Art Nouveau Style</p>
<p>Color extraction</p>		 <p>Minimalism Style</p>
<p>Summaries</p>	<p>As an important port city on the southeast coast of China, Quanzhou has been a center of cultural exchange since ancient times. The production skills of Quanzhou lanterns were influenced by various cultures, especially foreign cultures from the Maritime Silk Road, which gradually formed a unique artistic style. The colors used in Quanzhou lanterns are very bright, mainly red, yellow, green and other bright colors, which have a strong visual impact. This color collocation not only makes the lanterns more eye-catching, but also carries the meaning of auspice and jubilation. The unique Quanzhou lantern lies in its exquisite handicrafts and various decorative styles. In the process of production, craftsmen give different forms of artistic expression to the lantern through ingenious lampshade design and lighting effect, so that it achieves a perfect combination between tradition and modernity.</p>	
<p>Chaozhou lanterns</p>		
<p>Prototype extraction</p>		 <p>Pop Art Style</p>

<p>Color extraction</p>		
<p>Summaries</p>	<p>Chaozhou lantern is one of the traditional Chinese folk arts, which has unique cultural and artistic value. Originated in Chaozhou City, Guangdong Province, it has a long history and is usually used to celebrate festivals, festive activities or religious ceremonies. Famous for their exquisite handicrafts and rich colors, Chaozhou lanterns use various materials, such as paper, bamboo, silk, etc., to make lamps of different shapes and styles.</p> <p>The design of Chaozhou lanterns is often integrated with local characteristics. Common themes include traditional folk customs, flowers, birds, fish and insects, etc., reflecting the natural landscape and cultural traditions of Chaozhou.</p>	
<p>Zhongxin Lanterns</p>		
<p>Prototype extraction</p>		

<p>Color extraction</p>		
<p>Summaries</p>	<p>Zhongxin lanterns come in various shapes, usually based on traditional auspicious patterns and integrated with local cultural elements to show the local characteristics. Common designs such as dragon, phoenix, lotus, etc., symbolize good luck and prosperity; The choice of materials is very exquisite, usually using high-quality silk, paper and bamboo. These materials are not only lightweight, but also have good light transmittance, which can present gorgeous colors and delicate textures under the light. The production process includes paper-cutting, painting, embroidery and other traditional skills. Through meticulous manual operation, the craftsmen make each lantern into a work of art, which fully demonstrates the charm of craftsmanship.</p>	

Source: Huiming Ke (2024)

Analysis of the Results from the Chinese Lanterns Identity Book

The Chinese Lanterns Identity Book was developed as a culturally rich and visually engaging reference tool aimed at designers, students, and the general public with an interest in traditional Chinese lanterns. The project aimed to blend historical and artistic content with modern design principles to ensure the manual could serve both as a cultural preservation medium and a design inspiration resource.

The first part of the process involved the compilation of the manual’s content, which focused on capturing the symbolic meanings, artistic styles, craftsmanship, and regional diversity of 16 types of lanterns listed in China’s national intangible cultural heritage catalog. The manual’s objective was to deepen readers’ understanding of the cultural roots of lanterns, emphasizing how their forms, colors, and motifs connect with Chinese history, folklore, and identity. The visual beauty of lanterns—manifested through paper cutting, weaving, and painting—was highlighted to enhance appreciation for traditional craftsmanship and support cultural education. In terms of visual design, the manual adopted a clean and bold style, using Roman boldface fonts to establish visual hierarchy and ensure readability. Title fonts were set at 18pt and body text at 12pt to create a clear and accessible layout. The color palette was primarily based on traditional red and gold to reflect the festive symbolism of lanterns, complemented by green and white for contrast and clarity. This design strategy was intended to balance authenticity with modern visual appeal. Illustrations played a central role in the manual’s design, divided into two parts: graphical maps that depicted the geographic distribution of different lantern styles, and high-resolution photographic images of the lanterns themselves. These visual elements served not only decorative purposes but also functioned as educational tools, enabling readers to quickly grasp the unique characteristics of each lantern type. The inside pages featured a classification system, cultural background information, and symbolic analysis presented in an engaging and reader-friendly manner. The cover design focused on immediate cultural recognition, using a vivid red lantern illustration and bold typography to convey the core theme of identity. The back cover echoed the front in style and featured hand-drawn lantern details to maintain visual continuity. Material selection and binding also received careful consideration. The manual used durable white cardstock with coated paper for vivid color printing and adopted an interactive iris-style binding to enhance usability and portability. This made the manual suitable for educational use and public dissemination. Experts were invited to evaluate the manual’s application, especially within educational contexts. It was used in heritage craft training programs for art teachers,

who noted its value in enhancing their understanding of lantern-making techniques and cultural significance. Experts praised the visual design and informative content, particularly commending the book's illustrations. They suggested including references for image sources to improve scholarly credibility and further enrich the book's professional content.

In summary, the Chinese Lanterns Identity Book successfully bridges tradition and modern design, serving as both a cultural record and a creative reference. It promotes broader cultural appreciation and educational use, while inspiring new design applications rooted in traditional identity.

User Satisfaction with the Chinese Lanterns Identity Book

Table 2 Consumers Analyze the Satisfaction of the Product

Satisfaction of consumers interested in Chinese lantern identity	\bar{x}	S.D.
1. Representative of culture	4.13	1.05
2. Content relevance and accuracy	3.80	1.15
3. Design the application	3.86	1.11
4. Vision and Layout	4.10	1.04
5. Readability and Usefulness	4.05	1.03
6. Cover and First impressions	4.24	0.84
7. User Experience	4.12	1.01
8. Interactivity and Engagement	3.92	1.09
9. Conservation and Sustainability	4.14	1.02
10. Recommend purchase intent	3.60	1.16
11. Added Value and features	2.95	1.23
12. The educational value of books	3.57	1.15
13. Book Organization and navigation	2.76	1.21
14. Books are accessible, inclusive, and current	4.11	1.03
The average of the sum of the 14 aspects	3.83	1.08

Source: Huiming Ke (2024)

The satisfaction analysis of the Chinese Lanterns Identity book, based on responses from 400 participants, reveals a high overall satisfaction (Mean = 3.83, S.D. = 1.08). Participants rated the **cultural representation** especially highly (Mean = 4.13), appreciating the book's ability to reflect traditional Chinese lantern culture, with the most praise for content attractiveness (Mean = 4.20). In terms of **content relevance and accuracy**, evaluations remained positive (Mean = 3.80), particularly regarding the reliability of data sources (Mean = 4.03) and connection to lantern identity (Mean = 4.01). Users also found the book helpful in **design applications** (Mean = 3.86), especially for inspiring creativity (Mean = 4.06) and showcasing example quality (Mean = 4.05). The book's **visual layout** earned strong feedback (Mean = 4.10), with illustrations and content alignment well-received. Additionally, **readability and usefulness** were praised (Mean = 4.05), especially for aiding design work (Mean = 4.09). The **cover design** had the highest satisfaction (Mean = 4.24), with color attractiveness rated at 4.53. The **user experience** was similarly valued (Mean = 4.12), particularly the clarity of content and catalog index. Although **interactivity** and **sustainability** were positively rated (Means = 3.92 and 4.14, respectively), aspects like **book organization and navigation** (Mean = 2.76) and **added value** (Mean = 2.95) were less satisfactory. Still, the book was appreciated for its **educational value** (Mean = 3.57) and up-to-date, inclusive content (Mean = 4.11), supporting its overall role as an effective cultural and design resource.

The consumer survey results highlight key insights into preferences and expectations for Chinese lantern-inspired products. While a majority of respondents possess basic knowledge of Chinese lanterns, 37.5% remain unfamiliar, indicating a need to incorporate educational elements into product design to enhance cultural understanding. Interest is strongest in styling (60%) and color matching (45%), suggesting that product appearance significantly influences purchasing behavior. Consumers see modern value in lantern elements (60%) but emphasize the need for innovation. Designers are encouraged to merge traditional elements—like patterns and colors—with modern materials or forms. Popular usage scenarios include bedrooms and studies, where soft lighting and compact design are preferred. Desired features include energy-saving (50%), dimming (45%), and intelligent control (40%). Price sensitivity varies, with 85% preferring options below 200 yuan, but 55% show willingness to pay more for culturally enriched or uniquely designed products. Influencing purchase factors include design aesthetics (45%), practicality (42.5%), and price (40%). These insights suggest that design strategies should


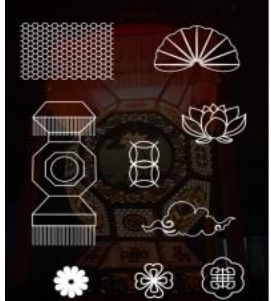


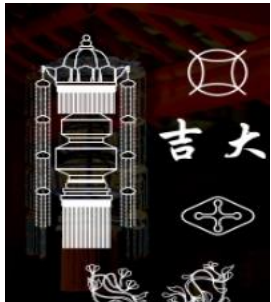




prioritize cultural storytelling, visual appeal, functional innovation, and affordability. Offering product lines that cater to both everyday use and premium markets can enhance accessibility while showcasing the richness of Chinese lantern culture in a contemporary context.

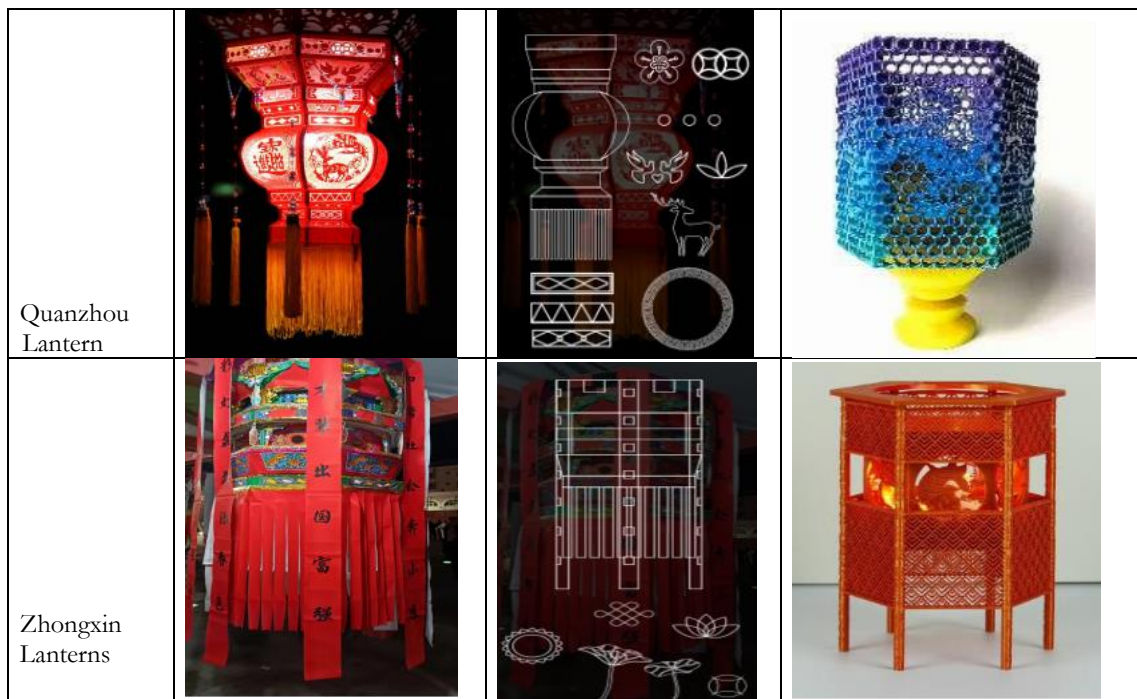
Process Analysis Results of Chinese Lantern Product Design

Chinese lantern, as a treasure of traditional Chinese culture, is not only an important element in the festival celebration, but also an outstanding representative of folk art. This study aims to explore the creation of products inspired by Chinese lanterns to develop a set of design guidelines. Chinese lantern has a long history, and its artistic and cultural value covers all parts of China, especially the Central Plains. Lantern is not only a lighting tool, but also a carrier of cultural inheritance and artistic expression. The design process began with an in-depth analysis of the historical and cultural significance of Chinese lanterns, identifying the key elements of their art, including shapes, patterns, colors, and materials. The research method includes the analysis of traditional production techniques and modern innovative applications of Chinese lanterns. In the design, it emphasizes the combination of traditional aesthetics and modern design concept of Chinese lantern. Bright color schemes and the application of cultural elements in contemporary product design while considering the functional and aesthetic value of the product. The design results include a series of products incorporating Chinese lantern elements, such as modern lamps decorated with traditional patterns and furniture designs inspired by the structure of the lantern. Each piece clearly reflects the cultural characteristics of Chinese lanterns. The creation of this series of works is not only to preserve and inherit Chinese lantern culture, but also to reinterpret and show the vitality of this cultural heritage in modern society.

This design serves as a bridge between tradition and modernity, making Chinese lantern culture still fresh and visible to young people and enhancing cultural identity. To demonstrate the application potential of Chinese lantern culture in contemporary design, create cultural value as well as business and tourism opportunities, and promote the development of related industries. The concept can be extended to a wider range of design fields, such as fashion, interior decoration, and public space design, making Chinese lantern culture more widely known. Inspired by the "Chinese Lanterns Identity book", the researcher created a series of product prototypes inspired by Chinese lanterns to explore the application of lantern culture in modern design. The analysis results are as follows:

Table 3 Analysis Process of Chinese Lantern Identity Product Design

The lanterns represent		Symbol Extraction	Product Prototype
Xia shi Lanterns			
Beijing Lantern			
Foshan Lantern			



Source: Huiming Ke (2024)

Table 4 Consumers Analyze the Satisfaction of the Product

Satisfaction of consumers interested in Chinese lantern identity	Pattern 1		Pattern 2		Pattern 3		Pattern 4		Pattern 5	
	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.
1. Product convenience and usability										
Total Average	4.46	0.83	3.39	0.81	4.39	0.99	3.73	0.81	4.09	0.83
2. Consumer value										
Total Average	4.47	0.83	4.40	0.78	3.02	0.94	3.44	0.91	3.29	0.81
3. Product quality and durability										
Total Average	4.61	0.83	3.64	0.89	4.28	0.84	3.64	0.78	3.30	0.82
4. Intrinsic cultural values										
Total Average	4.73	0.84	4.84	0.75	3.83	0.80	3.84	0.87	4.19	0.86
5. Art and design appeal										
Total Average	4.07	0.91	4.84	0.75	4.17	0.94	3.84	0.77	4.85	0.86
6. Unique look										
Total Average	4.46	0.89	4.30	0.96	3.56	0.90	3.06	0.87	3.34	1.00
7. Usability and performance										
Total Average	4.21	1.04	4.17	0.86	4.31	0.90	3.81	0.87	4.84	0.85
8. Communicate										
Total Average	4.74	0.91	4.13	1.08	4.17	1.07	3.84	0.87	2.85	1.02
The average	4.46	0.91	4.21	1.08	3.96	0.92	3.65	0.84	3.84	0.88

Source: Huiming Ke (2024)

Lighting products Product Type 1: The product has the highest overall satisfaction, which indicates that the product has been recognized by consumers in most aspects. In particular, in terms of product quality, cultural value and communication effect, the product performs well. However, the relatively low scores for artistic and design appeal, as well as practicality and performance, point in the direction of product improvement.

Lighting Products Product Type 2: The overall performance of the product shows some polarization. In terms of ease of use, the average score of the product is 3.39, indicating that users have encountered some difficulties in using the product, and the satisfaction of actual needs is low, while the display lighting effect score is relatively high, indicating that the product has certain advantages in visual effects. The average score of the consumer value dimension is 4.40, which shows that the product has been highly recognized in the aspects of practicality, applicability evaluation and brand image construction, indicating that the product has done a good job in meeting the basic value needs of consumers.

Lighting product type 3: The overall performance of the product shows a certain imbalance, the overall average score is 3.96, indicating that the product has been recognized by users in some aspects, while in other aspects need to be improved. In the dimension of consumer value, including practicality, applicability evaluation and brand image construction, the average score of the product is 3.02, which is the lowest score in all dimensions, especially the practicality score is only 2.73, which may mean that the product has a big problem in meeting the core needs of consumers, and the brand image and applicability need to be improved.

Lighting product type 4: The product is good in terms of actual demand satisfaction, appearance design, practicality and performance, but there is room for improvement in consumer value, product quality and durability, unique appearance and communication. Products need to be optimized in terms of enhancing brand image, enhancing product quality and durability, increasing product uniqueness and personalization, and improving communication effects to enhance overall satisfaction.

Lighting Products Product Type 5: The overall average score of the product is 3.84, which indicates that the product performs near average on most evaluation dimensions, but there are some outstanding strengths and obvious weaknesses. In terms of actual demand satisfaction, the score is 4.25, the display lighting effect score is 3.86, the average score of these two dimensions is 4.09, indicating that the product has a good performance in meeting the basic needs of users and providing a good visual experience.

The overall analysis of lighting products type 1 to 5 shows that the products are outstanding in meeting the actual needs of consumers, conveying cultural values and appearance design, but there are shortcomings in brand image building, product quality and durability, unique appearance and communication effect. In particular, product types 2 and 3 scored low in terms of consumer value and practicality, indicating the need for improvement in these areas. Product types 4 and 5, while performing well in some areas, scored near average overall, showing room for improvement. To sum up, lighting products need to make efforts in enhancing brand image, enhancing product quality, increasing uniqueness and personalization, and improving communication strategies to improve overall satisfaction.

The Results of the Analysis of Consumer Satisfaction with the Product

The number and percentage of general picture status of consumer groups interested in the product. Of the 400 respondents who participated in the survey, we found that there were slightly more female respondents than men, with 238 women, or 59.5%, compared to 161 men, or 40.5%. In terms of occupational distribution, among the 400 respondents who participated in the survey, government officials or employees of state-owned enterprises accounted for the highest proportion, with 98, accounting for 24.5 percent of the total. It was followed by students with 96, accounting for 24 percent. Private sector employees accounted for 94, or 23.5 percent. Sixty-two, or 15.5 percent, were self-employed, while 57, or 14 percent, were in other occupations. In terms of income levels, the largest number of respondents, 97 or 24.2 per cent, earned between \$4,001 and \$5,000 a month. This was followed by 97 with a monthly income of less than 5,000 yuan, accounting for 24.3 percent. There were 89, or 22 percent, with a monthly income of 3,001-4,000 yuan. Sixty, or 15 percent, earned between 5,001-8,000 yuan a month. 57, or 14.2 percent, earned more than 8,001 yuan a month. In terms of educational background, the largest number of respondents had a bachelor's degree, with 98, accounting for 24.5 percent. Master's degree followed with 95, accounting for 23.75 percent. Those with junior college degrees accounted for 114, or 28.5 percent. Those with other educational backgrounds accounted for 77, or 19.25 percent. In terms of age distribution, respondents under the age of 20 had the largest number, with 132 respondents, accounting for 33 percent. This was followed by respondents over the age of 40 with 120, or 30 percent. There were 86 respondents, or 21.5 percent, aged between 31 and 40. There were 62 respondents, or 15.5 percent, between the ages of 21-30.

We can see that government officials or employees of state-owned enterprises, students and employees of private enterprises are the groups most interested in the product. Income levels are more evenly distributed, but there are slightly more middle income groups. In terms of educational background, respondents with college and bachelor's degrees account for a relatively high proportion, which may mean that product positioning can be more oriented towards well-educated consumers. The gender distribution shows that there are slightly more female consumers, which may have implications for the product's market positioning and marketing strategy. The age distribution shows that young consumers (under 20 years old) show the highest interest in the product, which may be related to young people's acceptance and curiosity for new things.

CONCLUSION

Objective 1: To Analyze and Identify the Cultural, Structural, and Aesthetic Characteristics of Traditional Chinese Lanterns through Historical, Material, and Stylistic Dimensions.

The research successfully uncovered the rich cultural, symbolic, and structural identity of Chinese lanterns by analyzing 16 types of national intangible cultural heritage lanterns. In-depth interviews with cultural scholars and lantern craft inheritors confirmed that Chinese lanterns embody a blend of Buddhist origins, regional craftsmanship, and symbolic motifs such as dragons, phoenixes, and lotus flowers. These elements serve not only decorative purposes but also express collective identity, values, and cultural memory. The study categorized the identity of lanterns into explicit elements (materials, form, and construction) and implicit dimensions (emotional symbolism, regional aesthetics, and cultural meaning), thereby offering a comprehensive framework for understanding their design language and heritage value.

Objective 2: To Develop a Comprehensive Chinese Lantern Identity Manual that Systematically Documents Representative Design Elements for Application in Modern Product Design.

The Chinese Lanterns Identity Book was developed as a practical tool for designers, educators, and cultural product developers. It combines historical context, visual documentation, and structured classification of lantern attributes. A satisfaction survey of 400 users confirmed that the manual was highly regarded in terms of cultural representation ($M = 4.13$), visual layout ($M = 4.10$), and usefulness for creative application ($M = 3.86$). While users praised the clarity of illustrations and the accessibility of the guide, areas needing improvement included book navigation and perceived added value. These findings highlight both the manual's contribution to cultural preservation and its potential as a reference for future design practices.

Objective 3: To Conceptualize and Create Product Design Prototypes inspired by the Visual and Symbolic Identity of Chinese Lanterns, Integrating Traditional Aesthetics with Contemporary Design Methodologies.

Three product prototypes were developed to evaluate how lantern identity could be adapted into modern consumer design. Product 1 achieved the highest satisfaction ($M = 3.92$), excelling in usability, cultural resonance, and interactivity. Product 3 ($M = 3.85$) also performed well across multiple dimensions, including design appeal and consumer value, though its interactivity was less favored. Product 2 ($M = 3.64$) showed strong visual appeal but scored lower in perceived durability and value. These results demonstrate that consumer satisfaction is influenced by a product's ability to integrate traditional cultural identity with functional modern design. Balancing aesthetics, interactivity, and cultural symbolism is essential to the successful adaptation of intangible heritage into contemporary product innovation.

DISCUSSION

Objective 1: To Analyze and Identify the Cultural, Structural, and Aesthetic Characteristics of Traditional Chinese Lanterns Through Historical, Material, and Stylistic Dimensions.

The investigation revealed that Chinese lanterns encapsulate not only visual and structural artistry but also profound cultural symbolism. Drawing on Clifford Geertz's (1973) interpretation of culture as a "web of significance," this study validated that lanterns serve as symbolic communicators of collective values such as family unity, prosperity, and spiritual belief. The explicit attributes—materials, patterns, colors, and forms—were systematically catalogued, while the implicit attributes—emotional resonance and symbolism—were extracted through interviews with experts and inheritors. These findings affirm Jan Assmann's (1995) theory of cultural memory, as lanterns are revealed to function as vessels that carry and transmit intangible cultural values across generations.

Objective 2: To Develop a Comprehensive Chinese Lantern Identity Manual That Systematically Documents Representative Design Elements for Application in Modern Product Design.

This study developed and validated a Chinese Lanterns Identity Book, which consolidated historical, symbolic, and regional design data into an accessible, visual manual. Its compilation was rooted in user-centered and modular design principles, resonating with Donald Norman's (2004) emotional design theory. The manual was highly rated by 400 users for cultural representation ($M = 4.13$), design application usability ($M = 3.86$), and visual layout ($M = 4.10$). The design framework offers a practical bridge between traditional culture and contemporary creative industries, extending the work of Zhang (2021) and Liu (2019), who emphasized regional design variation, by offering a tool for applied cultural design. The manual also emphasized sustainable and inclusive design, in line with Victor Papanek's (1985) call for socially responsible and environmentally conscious design practice.

Objective 3: To Conceptualize and Create Product Design Prototypes Inspired by the Visual and Symbolic Identity of Chinese Lanterns, Integrating Traditional Aesthetics with Contemporary Design Methodologies.

The development and evaluation of three product prototypes demonstrated the feasibility and market potential of integrating traditional lantern identity into modern products. Product 1, which maintained high levels of cultural symbolism and interactivity, received the highest consumer satisfaction ($M = 3.92$), supporting Norman's (2004) assertion that emotional engagement enhances user experience. Products that combined motifs such as lotus flowers and dragon figures with modern technologies (e.g., LED lighting and laser cutting) were particularly well-received, validating Manzini's (1992) perspective on integrating local traditions with global innovation. However, the study also confirmed concerns raised by Di (2017) and Chen & Wang (2018), that excessive modernization may dilute artisanal value—especially when technologies like 3D printing reduce handmade uniqueness.

RESEARCH IMPLICATIONS

This research offers several significant implications for theory, practice, education, and policy in the domains of cultural heritage preservation, product design, and creative industries:

1. Theoretical Implications

The study contributes to the theoretical understanding of how traditional cultural symbols can be systematically categorized and translated into modern design frameworks. By distinguishing between explicit (e.g., structure, material, color) and implicit (e.g., symbolism, emotional resonance) identity features of Chinese lanterns, this study reinforces and extends the work of cultural theorists such as **Geertz (1973)** on symbolism and **Assmann (1995)** on cultural memory. It provides a model for how traditional crafts can be analyzed semiotically and functionally within a modern design context, bridging the gap between heritage and innovation.

2. Practical Design Implications

The creation of the *Chinese Lantern Identity Manual* serves as a practical tool for designers, artists, and cultural entrepreneurs seeking to integrate heritage elements into contemporary products. The positive consumer feedback on design applications drawn from the manual—particularly in terms of cultural resonance, usability, and visual appeal—demonstrates the feasibility and market potential of culturally inspired product innovation. This has direct implications for branding, product development, and the enhancement of local creative industries.

3. Implications for Cultural and Creative Industries (CCIs)

The study supports the notion that traditional crafts can serve as a rich source for the development of cultural and creative products. It shows how identity-driven design can contribute to **cultural sustainability** and **economic revitalization** in local communities, particularly through cross-sector collaboration between artisans, designers, and cultural policymakers. This aligns with global trends identified by **UNESCO (2022)** that call for the fusion of traditional knowledge and creative entrepreneurship.

4. Educational Implications

The manual also functions as an educational resource. It can be integrated into art and design curricula to teach students about the relationship between cultural identity and visual communication. Its modular structure and illustrated examples provide pedagogical value for teaching cultural analysis, symbolic interpretation, and sustainable design thinking.

5. Policy Implications

At the policy level, the study underscores the importance of supporting intangible cultural heritage through interdisciplinary research, documentation, and application. It suggests that public institutions and cultural ministries can play a key role in funding the development of identity manuals, training programs, and product innovation initiatives that preserve and promote local heritage. The findings also advocate for the establishment of **design guidelines and sustainability standards** to ensure respectful and responsible use of cultural motifs in commercial contexts.

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