

# ANALYSIS OF THE INNOVATIVE DESIGN PATH FOR CULTURAL TOURISM PRODUCTS BASED ON KAIPING DIAOLOU HERITAGE ELEMENTS

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## ABSTRACT

The Kaiping Diaolou are multi-story tower structures located in Kaiping City, Guangdong Province, China. As a UNESCO World Heritage Site inscribed in 2007, the property encompasses 1,833 well-preserved diaolou towers. This study focuses on the unique architectural forms and historical context of the Kaiping Diaolou, systematically exploring an innovative pathway for cultural tourism products from element extraction and creative transformation to design implementation by analyzing their cultural DNA. The research aims to provide theoretical insights and practical examples for the design of tourism products related to similar cultural heritage sites, thereby fostering the sustainable preservation of cultural heritage and the synergistic development of local cultural and tourism economies.

**Keywords:** Kaiping Diaolou, Cultural Tourism Products, Architectural Form, Innovative Design

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## INTRODUCTION

China's world architectural heritage is diverse and reflects its long history and rich culture. As of 2023, China has 57 World Heritage sites, including 39 cultural, 14 natural, and 4 mixed heritage sites. These architectural heritage sites hold significant historical, cultural, and artistic value while also demonstrating considerable market potential in contemporary society (Wang & Li, 2022).

Research indicates that the development of the cultural and creative industries not only enhances a city's cultural soft power but also promotes the transformation of traditional industries and the growth of emerging ones. As a core component of the cultural sector, the design of cultural and creative products injects new vitality into urban economies, becoming a key driver of high-quality economic development (Zhao & Sun, 2019).

Kaiping City is located in central-southern Guangdong Province, in the southwestern Pearl River Delta. With its distinctive cultural value and landscape resources, the Kaiping Diaolou exhibit immense tourism potential. Blending Chinese and Western architectural styles, the Diaolou attract both domestic and international visitors. The stories of overseas Chinese culture and modern social transformation further enhance their appeal for cultural tourism (Zhou & Huang, 2023). By developing unique cultural products, such as themed souvenirs and immersive experiences, a distinct market advantage can be established, fostering local economic growth and supporting the sustainable preservation of this heritage.

The application of artificial intelligence (AI) offers new possibilities for innovative cultural product design. AI can analyze and reinterpret heritage elements, such as the Diaolou's architectural patterns and structural features, transforming them into contemporary designs for home decor, apparel, or cultural merchandise (Liu, 2024). This approach not only revitalizes tradition in modern forms but also enhances cultural dissemination and commercial value.

## RESEARCH OBJECTIVES

This research aims to systematically investigate the cultural elements of Kaiping Diaolou by extracting its architectural features, decorative symbols, and cultural connotations, thereby establishing a theoretical foundation for its design. It seeks to analyze the intersection between tradition and modernity, identifying effective approaches to integrate Kaiping Diaolou's cultural attributes with contemporary design innovations in order to fulfill the needs of modern users.

## LITERATURE REVIEWS

### Related Studies in the country

In China, in the earlier stages, studies predominantly focused on documenting heritage resources and summarizing preliminary development experiences. Scholars such as Zhang (2021) emphasized the necessity of moving beyond mere visual imitation, proposing that the core of cultural product design lies in the deep extraction and symbolic transformation of cultural genes. Similarly, Li et al. (2022) argued that heritage application should follow a clear path of "element identification - semantic interpretation - design recombination," turning static cultural symbols into dynamic, contemporary design languages that resonate with modern aesthetics and lifestyles. This methodological shift reflects a broader trend in the field toward interdisciplinary research that integrates cultural studies, design studies, and marketing.

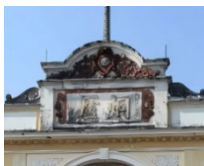


Regarding Kaiping Diaolou specifically, existing academic attention has largely concentrated on its historical, architectural, and socio-cultural dimensions. Studies such as those by Wang & Chen (2020) have provided thorough analyses of its architectural forms, construction techniques, and its significance within the context of modern Chinese history and the overseas Chinese experience. Huang (2023) further explored its role in regional cultural identity and its potential as a cultural tourism destination. However, this body of work primarily treats the

Diaolou as an object of preservation or a general tourism resource. A noticeable gap persists in literature that systematically investigates how the Diaolou's unique cultural symbols - such as its distinctive fusion of Chinese and Western architectural motifs, its defensive functional aesthetics, and the narrative of migration and return it embodies – can be deconstructed, interpreted, and innovatively translated into a diversified, multi-level system of cultural tourism products through structured, user-centered design processes. This gap is underscored by broader critiques within the field. For instance, Liu (2022) observed that many heritage-based product designs in China remain at the level of superficial ornamentation, lacking in-depth cultural narrative and experiential depth. Concurrently, Zhao & Ma (2024), in their study on the digital regeneration of Lingnan architectural heritage, pointed out that the integration of technological innovation with cultural connotation interpretation is key to enhancing product added value and audience engagement. Their findings reinforce the necessity for a more nuanced and innovative approach specifically tailored to the Kaiping Diaolou context. Therefore, there exists a significant opportunity and scholarly necessity for research that bridges the gap between the rich heritage studies of Kaiping Diaolou and the practical demands of contemporary creative design. Future inquiry should aim to construct a targeted design transformation model that not only safeguards the authenticity of cultural meaning but also meets modern market demands and user experience expectations, thereby filling the current theoretical and practical void.

#### **Related research abroad**

Internationally, the interdisciplinary integration of cultural heritage, design innovation, and tourism has been widely discussed within frameworks of “creative tourism” and “heritage interpretation.” Researchers such as Richards (2020) and UNESCO-affiliated experts emphasize experiential and participatory approaches to heritage engagement. Studies on adaptive reuse of architectural heritage (Plevoets & Van Cleempoel, 2019) and symbolic design transformation in cultural products (Giaccardi, 2018) provide methodological references, particularly concerning narrative design, digital interaction, and sustainable value creation. However, few studies have specifically addressed the design potential of vernacular architectural heritage like Kaiping Diaolou within a Sino-Western cultural hybrid context, suggesting a niche for this research to contribute localized insights to global heritage design discourse.

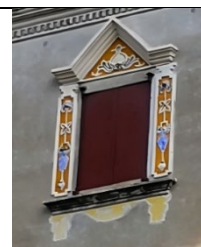
**Table 1** The architectural element system of Kaiping Diaolou

<b>Architectural Elements</b>	<b>Product design</b>	<b>Architectural Elements</b>
The shape and structure of the roof of Kaiping Diaolou	Modern daily necessities such as lamps and tea sets	
The shape and structure of the roof of Kaiping Diaolou	Modern daily necessities such as lamps and tea sets	
Combination of European and Chinese style columns	Treasurer small balcony column standing column shape	
Exquisite and intricate	Product design for bookmarks,	

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window decoration  
elements

refrigerator stickers, notebooks,  
and other items



## RESEARCH METHODOLOGY

**Describe the analysis and research methods, and the research and analysis steps of the researchers are as follows:**

This study aims to systematically and comprehensively explore the cultural characteristics, cultural identity, and application pathways of Guangdong Kaiping Diaolou cultural heritage in souvenir design. Diversified research methods will be employed to ensure the thoroughness and scientific rigor of the study. The specific steps of the research methodology are as follows:

### **Research Background and Theoretical Foundation**

The Kaiping area in Guangdong, China, serves as the core focus of this study due to its unique geographical environment, rich historical heritage, and profound cultural significance. Through field research, extensive literature including historical records, academic papers, and news reports has been collected from libraries, archives, the internet, and other sources. This provides a solid theoretical foundation and contextual background for the research. These materials not only reveal the historical origins, architectural styles, and diversity of intangible cultural heritage of the Kaiping Diaolou but also reflect its importance as a local cultural symbol.

### **Field investigation and data collection**

**Tool Preparation:** Carry photography equipment, audio recording devices, and professional measuring instruments to ensure systematic, high-fidelity information collection of historical buildings and cultural relics within the study area.

**Key Investigation:** Focus on representative historical buildings and core cultural nodes, documenting their names, historical periods, architectural features, and cultural significance in detail, while preserving visual raw materials through photography and videography.

**Sample Selection:** Employ a stratified sampling method, covering tourist groups, local residents, and relevant cultural research experts, to ensure broad coverage and typical representativeness of the sample structure.

**Content Design:** Develop a structured questionnaire centered on the cultural identity construction of Kaiping Diaolou and the design preferences for tourism souvenirs, collecting the cognitive attitudes and demand preferences of different stakeholders.

**Data Analysis:** Use statistical analysis tools such as SPSS and Excel to perform descriptive statistics and correlation analysis on the questionnaire data, uncovering patterns of cultural cognition and consumer behavior underlying the data.

### **Quantitative research and qualitative research, the researchers are as follows:**

The opinion collection and evaluation process for the tourism product design of Kaiping Diaolou will be systematically carried out through the following steps: First, comprehensive collection and organization of relevant opinions and feedback will be conducted, followed by preliminary statistical analysis. On this basis, a specialized evaluation panel will be established, composed of the following members: 30 consumer representatives, 5-7 experts, scholars, and designers from relevant fields, and 10-15 representatives from communities, associations, and related organizations. Together, they will conduct a comprehensive assessment of the effectiveness of the product design.

Furthermore, to further enhance the adaptability of the product design, attention will be given to groups with potential consumption intentions who have not yet made actual purchases.

Through surveys, their understanding, perceptions, and expectations regarding the related designs and products will be investigated to refine the product design and market positioning.

## RESEARCH RESULTS

### Reliability Analysis

To ensure the internal consistency of the survey data, a reliability analysis using Cronbach's Alpha was conducted via SPSS on the 400 valid responses. The results indicate a high level of reliability.

Specifically, the 7 items measuring consumer purchasing factors (Section D2: Aesthetic Design, Cultural Uniqueness, etc.) yielded a Cronbach's Alpha of 0.887. Furthermore, the 5 items measuring the appeal of innovative product concepts integrating Diaolou elements (Section E: Building Block Set, Smart Home Device, etc.) achieved a Cronbach's Alpha of 0.856. Both coefficients exceed the acceptable threshold of 0.7, confirming that the scales used in the questionnaire possess strong internal consistency and that the data is reliable for further analysis.

**Table 2** Summary of Reliability Analysis and Consumer Preferences

Analysis Category	Measurement Items	Statistical Metric	Result
Reliability Test	Section D2: Consumer Purchasing Factors (7 items: Aesthetic Design, Cultural Uniqueness, etc.)	Cronbach's Alpha	0.887
	Section E: Appeal of Innovative Product Concepts (5 items: Building Block Set, Smart Home Device, etc.)	Cronbach's Alpha	0.856
Product Type Preference	Digital Interactive Products (e.g., AR/VR experiences, apps)	Preference Percentage	38.5%
	Traditional Crafts (e.g., sculptures, pottery)	Preference Percentage	34.8%
	Daily Necessities with Design (e.g., T-shirts, mugs)	Preference Percentage	32.1%
	Art Reproductions and Books	Preference Percentage	28.3%
Design Element Appeal	E3: Fashion Item (Patterns abstracted from Diaolou windows/walls)	Mean Score (1-5 scale)	4.2
	E5: Modern Tableware (Iconic silhouette or blue-green tones)	Mean Score (1-5 scale)	3.6
	E1: Building Block Set (Model of Diaolou)	Mean Score (1-5 scale)	4.0
	E2: Smart Home Device (Diaolou-inspired exterior)	Mean Score (1-5 scale)	3.8
	E4: Digital Game/App (Interactive exploration of Diaolou)	Mean Score (1-5 scale)	4.1

This study first conducted systematic field investigations and literature reviews of the Kaiping Diaolou, extracting three major categories of core elements: in terms of architectural form, it summarized common features such as tall structures, strong defensive capabilities, and dual functionality for habitation; in terms of decorative symbols, it systematically cataloged visual elements that blend Chinese and Western styles, including Western-style colonnades, arches, Baroque pediments, as well as Chinese murals, inscriptions, and gray sculptural decorations;

at the cultural connotation level, it provided an in-depth interpretation of the Diaolou's role as a witness to the history of overseas Chinese hometowns, embodying sentiments of homeland and family, cultural integration, and security awareness. This laid a solid theoretical foundation for subsequent design transformations.

The questionnaire results further validated the market appeal of these elements. Reliability analysis confirmed the internal consistency of consumer preferences (Cronbach's Alpha = 0.856 for product concepts). Preference analysis revealed that design paths featuring abstracted patterns from Diaolou windows/walls (E3: Fashion Item) received a high mean appeal score of 4.2 out of 5.0, while concepts utilizing the iconic silhouette or blue-green tones (E5: Modern Tableware) scored 3.6 out of 5.0. This indicates that consumers show stronger preference for design transformations based on detailed decorative symbols (such as Chinese murals and window patterns) compared to those based solely on general architectural forms. These findings confirm that the three extracted core element categories provide a solid theoretical foundation for subsequent design transformations, with decorative symbols representing the most commercially promising direction for innovative cultural tourism product development.



**Figure 1** Kaiping Diaolou Element Refrigerator Sticker Design and Tea Set Design

### **An innovative pathway integrating traditional elements with modern design has been constructed**

To achieve the transformation from "cultural resources" to "design assets," this study establishes a three-layer framework for innovation: "symbolic translation" refers to the abstraction and simplification of concrete architectural outlines and decorative patterns to align with modern aesthetics; "functional transformation" aims to uncover the contemporary needs behind the Diaolou's original functions such as "defense, communal living, and storage," and convert them into product interaction logic; while "experience reconstruction" focuses on utilizing techniques such as narrative design and scenario creation to transform static historical relics into dynamic, participatory cultural experiences, thereby revitalizing the contemporary vitality of tradition.

### **Developed innovative design application plans for a series of cultural tourism products**

This study specifically demonstrates how to apply Diaolou elements in scenarios such as cultural and creative products, digital experiences, and tourism services. Based on the aforementioned pathways, the research has produced multi-layered design implementation plans. At the cultural and creative product level, a series of stationery items featuring the silhouette of the Diaolou as their design foundation, as well as jewelry and home goods inspired by decorative patterns, have been developed. At the digital experience level, concepts such as an architectural puzzle-solving game for the Diaolou incorporating augmented reality (AR) technology and online virtual exhibitions have been conceived.

### **Verified the effectiveness of the proposed design pathways in meeting the needs of modern users**

The study highlights their value in enhancing cultural identity and the quality of tourism experiences. Through methods such as user interviews, questionnaire surveys, and design

prototype testing, the applied solutions were evaluated. The results show that design products incorporating Diaolou cultural elements significantly increased users' interest in understanding and emotional connection to the culture of the overseas Chinese hometown, particularly among younger demographics. User feedback indicates that the innovative designs not only improved the aesthetic and practical value of tourism souvenirs but also deepened the understanding of heritage values through interactive experiences, effectively meeting modern consumers' multifaceted demands for cultural depth, personalized experiences, and emotional engagement.

## **DISCUSSION & CONCLUSION**

This study successfully identifies and categorizes the core architectural, historical, and social elements of the Kaiping Diaolou, providing a crucial foundational database for cultural translation. This systematic deconstruction moves beyond superficial aesthetic borrowing, allowing for a deeper, more meaningful integration of heritage into contemporary design. It confirms that a structured analysis of cultural DNA is a vital first step in avoiding clichéd or disrespectful product development, ensuring that innovations remain authentically rooted in the source material.

The constructed pathway, which methodologically integrates these traditional elements with modern design principles and technologies, demonstrates a viable model for heritage revitalization. By translating symbolic forms, spatial concepts, and historical narratives into functional product features, the pathway bridges the past and present. This process not only preserves cultural memory but also makes it accessible and relevant, thereby enhancing the economic sustainability of heritage through marketable tourism products that serve as tangible cultural ambassadors.

The innovative design application plans successfully demonstrate the translational potential of Kaiping Diaolou cultural elements. By materializing architectural silhouettes and decorative patterns into tangible cultural products—such as stationery, jewelry, and home goods—the research bridges heritage preservation with everyday utility, allowing users to maintain cultural connections beyond the tourism experience. The integration of Diaolou elements into physical tourism souvenirs enhances visitor engagement by offering meaningful, place-authentic mementos carrying layered historical narratives. This multi-layered approach illustrates that cultural heritage can be dynamically reconfigured for diverse consumption contexts, transforming static historical assets into living cultural expressions while establishing a replicable model for translating architectural heritage into economically viable offerings.

The verification of the developed product plans confirms that this innovative approach effectively meets modern user expectations for functionality, aesthetic appeal, and cultural meaning. The positive reception suggests such designs can enhance visitor engagement and foster a deeper appreciation for intangible cultural values. In conclusion, this research provides a replicable framework for transforming static heritage assets into dynamic cultural capital, ensuring the Kaiping Diaolou's legacy continues to evolve and resonate with future generations.

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