

## The Research on Design and Development of Cultural and Creative Products in Henan Museum

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### Abstract

Museum development is the core element that enhances the attraction, competitiveness, and influence of countries and cities. Research on museum cultural and creative industries can promote the creative transformation of China's excellent traditional culture and enhance cultural influence. Some problems exist in the development of culture and creative products in Henan Museum, which is a late start; products are separated from life and have little cultural carrying. This study aimed: (1) Research on the in-depth extraction of cultural elements of cultural relics. (2) To study the integration of history and contemporary life in cultural and creative products. (3) To design a new cultural and creative product for the Henan Museum.

The instrument for collecting data was a questionnaire, which identified the point of connection between cultural relics and contemporary life. The sample was 343 visitors to the Henan Museum; undifferentiated random sampling, analysis data by Descriptive statistics, and Content Analysis selected them. The interviews got suggestions on the extraction of cultural elements and the design of cultural and creative products. The results are as follows: (1) Three approaches can be used to extract cultural aspects. (2) Products should be based on functionality. (3) A lamp based on the Jiahu bone flute was designed. Finally, a design framework of museum cultural and creative products was summarized. This study approached the design of museum cultural and creative products through the lens of the three layers and levels of culture. It provided insights into the development of design strategies and suggestions.

**Keywords:** cultural and creative products; culture relics; Henan Museum; cultural layers

## Introduction

Nowadays, museums have evolved into public cultural institutions with the fundamental purpose of educational service. This plays an important role in meeting the spiritual and cultural needs of the public. Ye and Kuang(2023) found that current cultural and creative industries in Chinese museums mainly face problems such as insufficient cultural brand innovation, unclear consumer demand, and incomplete industry chain development. Mao (2023) believed that museums should balance practicality and cultural value and focus on product experience. Wang (2023) proposed a meaning–driven design framework that includes expressing cultural symbols through instinctive meanings, promoting emotional construction through enabling meanings, and enhancing community relationships through effective meanings. However, there are few special studies on improving the carrying capacity and dissemination of culture through cultural and creative products and breaking the barriers between long–standing traditional culture and modern life.

Due to the late start, the development of Henan Museum's cultural and creative design work has some problems, such as some products being separated from life and low cultural carrying. According to the data released by the Art Market Monitor of ARTRON in 2016, more than 2000 museums have cultural and creative product development capabilities. Henan Museum is also among them, but only 18 are genuinely profitable by selling cultural and innovative products, excluding Henan Museum. Meanwhile, because of its sense of history, most of the cultural contents are far away from people's daily lives, which naturally forms a distance from consumers. This study takes the cultural and creative product of Henan Museum as the research area, analyzes the cultural relics from the outside to the inside regarding the cultural level, and selects museum visitors as the target group to investigate the attitudes, preferences, and interests towards Henan Museum.

This research presents a design method for museum cultural and creative products. It analyzes the cultural layers of relics and consumer purchasing willingness to obtain the possible presentation of cultural relics in contemporary life.

## Objectives

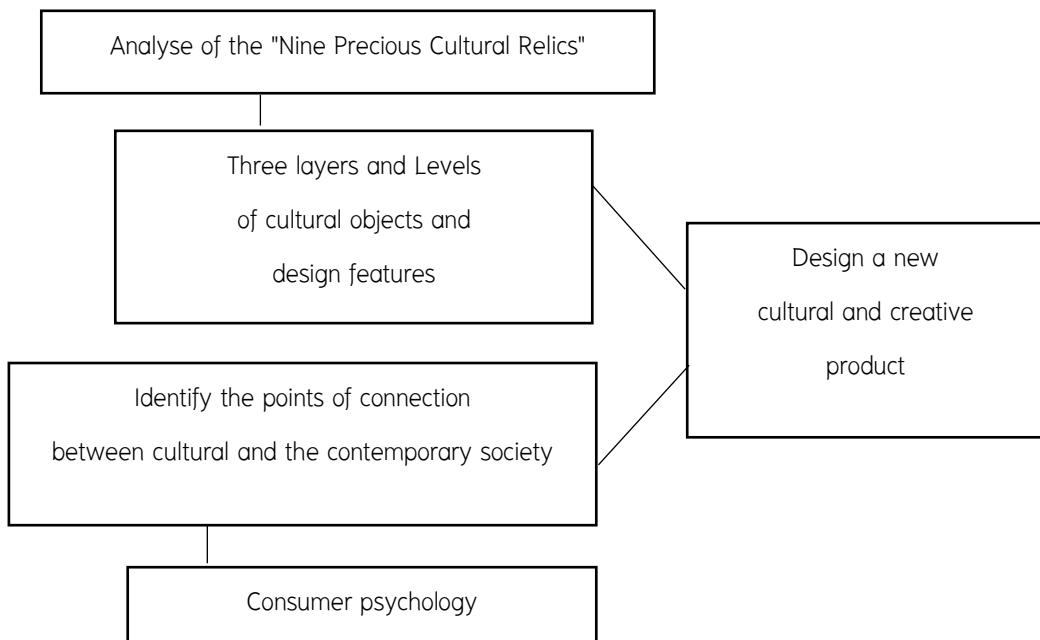
1. To study the extraction, in-depth excavation of cultural elements of cultural relics.
2. To study the integration of history and contemporary life in cultural and creative products.
3. To design a new cultural and creative product for the Henan Museum based on the first two steps.

## Literature review

UNESCO (2021) defines cultural creative products as valuable products that convey cultural connotations, symbolic meaning and lifestyle. Leong and Clark (2003) developed a "spatial perspective" of culture framework: outer "tangible" level, mid "behavioral" level, and inner "intangible" level. Lin (2005) identified the design features that can fit into the "spatial perspective" culture framework, and developed a theory of "Three layers and Levels of cultural objects and design features." Wang et al. (2024) introduced the product development strategy from the perspective of culture, brand, and market and stressed the importance of brand awareness. Su and Phanthabutr (2024) takes a particular folk culture as the object and proposes the direction of separating cultural elements into innovative products.

The research perspective of museum cultural and creative products can be divided into status evaluation, development design, and marketing concept. Although the research objects of various scholars are different, and they produce many theoretical achievements, many research conclusions have strong commonalities. This study combined the historical and cultural background of Henan Museum to explore the path of cultural and creative design that integrates regional humanism and modern lifestyle.

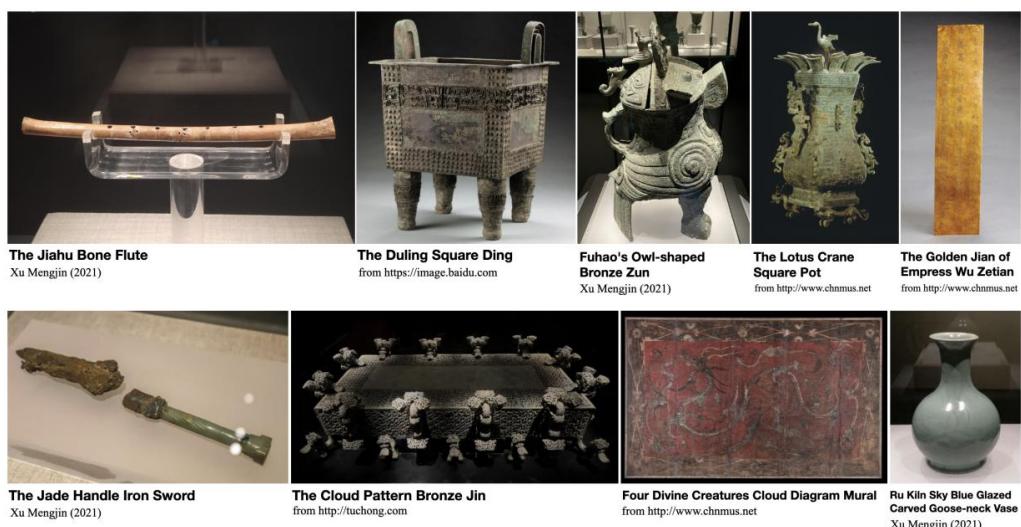
## Conceptual Framework



**Figure 1** shows the research conceptual framework.

## Research Methods

**Step 1:** Study and analyze the “Nine Precious Cultural Relics” of the Henan Museum (Figure 2).



**Figure 2** shows the "Nine Precious Cultural Relics" of the Henan Museum.

The analysis of the "Nine Precious Cultural Relics" will be carried out on three levels, listing information such as the appearance, pattern, function, usability, affection, cultural features, and historical significance of each relic.

### Step 2: Questionnaire

The questionnaire was distributed online by undifferentiated random sampling and divided into three parts: (1) Basic information from visitors. (2) Visitor's intention collection (3) Targeted questions to gather consumer responses. According to the statistical research by Junping (2006), the sample size can be calculated using the following formula:

$$n = (Z^2 * p * (1-p)) / E^2$$

$n$  is the sample size,  $Z$  is the  $Z$ -value corresponding to the confidence level,  $p$  is the expected sample proportion, and  $E$  is the expected error.

According to official data released by the Henan Museum (Figure 3), from the museum's reopening after the COVID-19 pandemic closure in 2020.9–2021.9, the age distribution of visitors was as follows: 13.56% were under 18 years old, 26.49% were aged between 18 and 25, 25.73% were aged between 26 and 35, 19.10% were aged between 36 and 45, 10.61% were aged between 46 and 60, and 4.51% were over 60 years old.

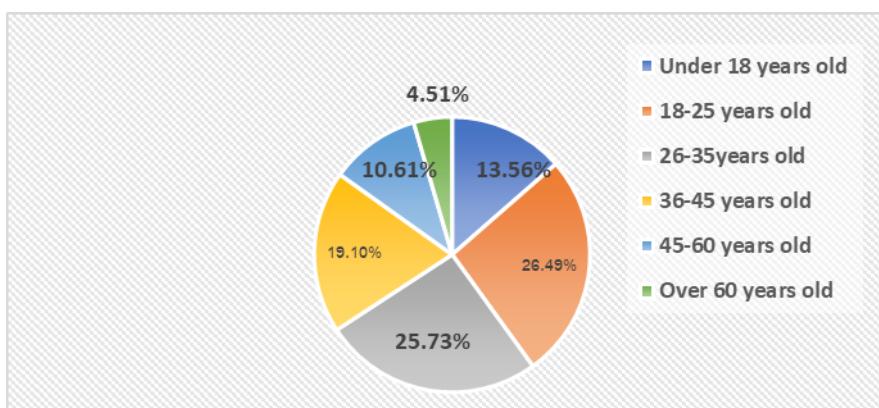


Figure 3 shows the Henan Museum Age distribution of visitors (2020.9–2021.9)

### Data from the Henan Museum's official WeChat public account

In this survey, the confidence level was 95%, and the expected error was 5%. The expected sample proportion of 26.49% was taken from the age group with the highest

percentage in the 2020.9–2021.9 reservation for Henan Museum. The values were substituted into the formula:

$$\begin{aligned}
 n &= (1.96^2 * 0.2649 * (1-0.2649)) / 0.05^2 \\
 &\approx (3.8416 * 0.2649 * 0.7351) / 0.0025 \\
 &\approx 0.7544 / 0.0025 \\
 &\approx 301.76
 \end{aligned}$$

350 questionnaires were distributed to ensure an adequate sample size. A total of 343 valid questionnaires were collected. This sample size can provide reasonably reliable results with a certain level of confidence.

#### **Step 3:** Interview expert suggestion

The interview is to obtain suggestions on the design of the museum's cultural and creative products. Two cultural experts and two design experts were the sample of this step and interviewed in a semi-structured manner.

#### **Step 4:** Design

The design combines the three-level analysis of cultural relics, the questionnaire results, and the interview results and also carries out the design from the three levels of culture.

## **Research Results**

**Objective 1.** The results show that the analysis of cultural relics can be carried out at three levels (as shown in Table 1): the inner level, which includes cultural content and emotional value; the mid-level, which includes function and usability; and the outer level, which includes patterns, materials, and texture.

**Table 1** Analysis of the Jiahu Bone Flute

Cultural Relic	The Jiahu Bone Flute	
Historical Period	Neolithic, 7800–9000 years ago	
Type	Musical instrument	
Image		Source: Xu Mengjin (2021)
Appearance	The ulna of a crane	
Pattern	No pattern decoration	
Colour	Bone colour, close to beige	
Shape	A slender cylindrical tube	
Function	Meeting the spiritual needs of the ancestors and expressing good wishes for life.	
Usability	Music and dance at significant events.	
Cultural Features	People used this flute to play an expression of their feelings about life and respect for the gods.	
Historical Significance	The earliest physical instrument in China.	
Affection	The cranes are regarded as the spiritual aspirations of Chinese Taoism and Chinese civilization. Modern people use them to signify longevity and wealth.	

**Objective 2.** The results show that the Jiahu Bone Flute ranked No.1 with a likability of 46.06% among the nine precious cultural relics, and the most impressive feature is cultural significance, accounting for 63.56%. Based on the word frequency analysis, the respondents most desire to see an increase in highly creative and practical products. "Culture" is the primary positioning of cultural and creative products.

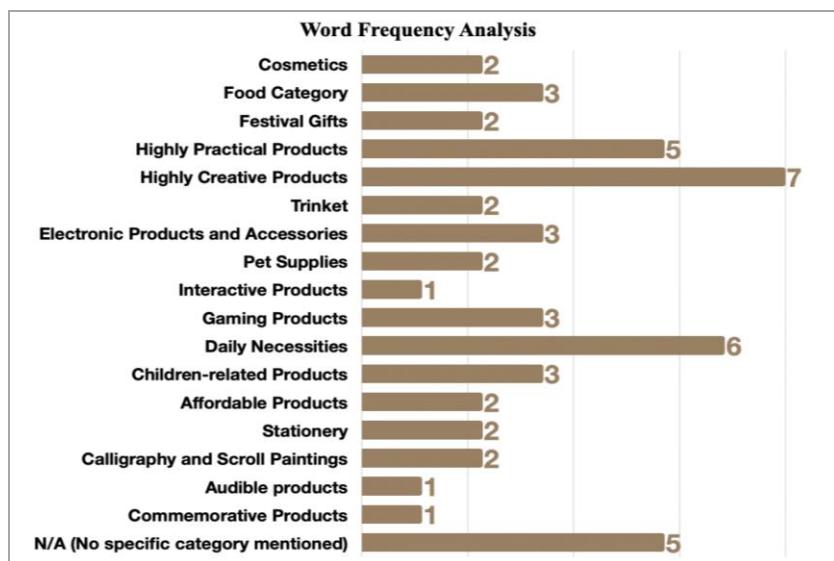


Figure 4 shows a Word Frequency Analysis of the creative products of the shop of Henan Museum.

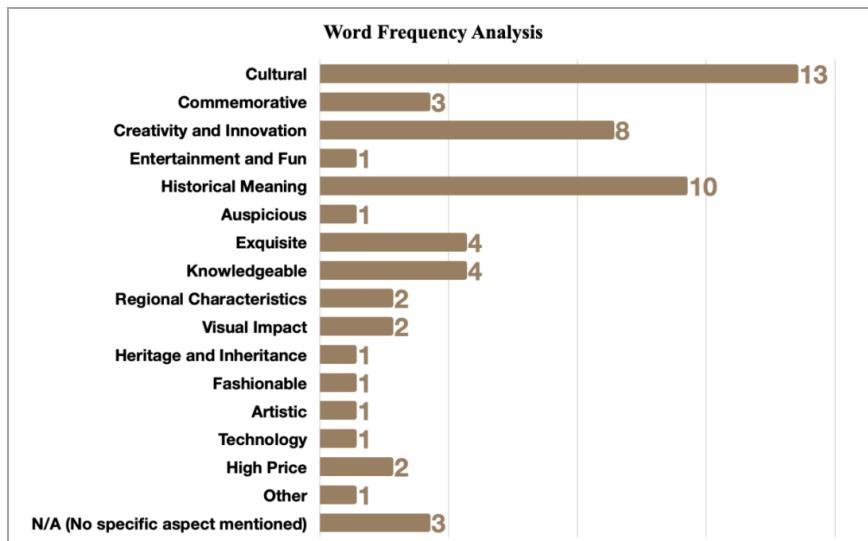


Figure 5 shows a Word Frequency Analysis of the keywords of museum cultural and creative products.

Daily necessities, with their cultural connotation, high creativity, and practicality, can guide the future development of Henan Museum's cultural and creative products (Figure 4, 5).

Objective 3. Three extraction approaches can be used in the design of museum cultural and creative products: replication, extraction, and interpretation. The products can break away from the original functions of cultural relics and endow them with new functions that align with modern lifestyles. They can also establish cultural atmospheres, creating an emotional connection between cultural relics and consumers.



Figure 6 shows the table lamp interior illustration design.

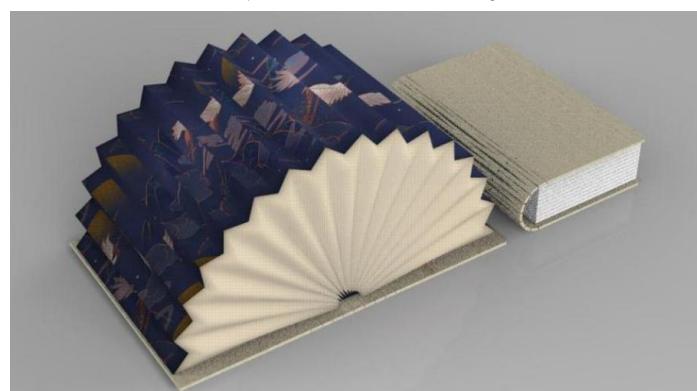


Figure 7 shows the table lamp design rendering.

This design takes the Jiahu Bone Flute as a prototype. The color feature was used on the product's surface, and the design was set as a table lamp, which form takes the shape of a book. Since the flute is made of the bones of cranes, which is considered an auspicious animal in Chinese culture, and playing this flute at that time reflects people's aspirations for life, this design focuses on cranes as the central theme by emphasizing the symbolism of cranes as carriers of aspirations and ideals (Figure 6, 7).

## Discussion

This study proposes to extract elements from three approaches, which complements the practical application of the theory of "Three layers and levels of cultural objects and design features" in transforming cultural elements into visual elements. Regarding integrating culture into modern life, the questionnaire results show the respondents' demand for highly creative and practical products. In contrast, the interview results show that the products can break away from the original functions of cultural relics and endow new tasks that align with modern lifestyles.

From the questionnaire results, "cultural significance" is the most valued feature of cultural relics selected by the respondents. This is a deviation from Feng (2013), the market and economy

are the goals for developing cultural and creative products. The most popular products from the questionnaire were the "Fine collection category (reproduction version of cultural relics)." However, from the interview, four experts mentioned that the design of cultural and creative products should avoid the direct copying of cultural relics, and the cultural content should be conveyed through extraction and cultural interpretation. According to Muran (2018), the products should be reflected in the design of cultural and creative products rather than in their practical value. However, through interviews in this study, experts proposed that artistic and innovative products should be anchored in functionality. The author believes that there is a divergence of choices between consumers and experts because the current market of cultural and creative products lacks functional, artistic, and innovative products that lead to the aesthetic interest of consumers.

## New Knowledge from Research

Following the findings of this paper, a design framework was summarized and shown below:

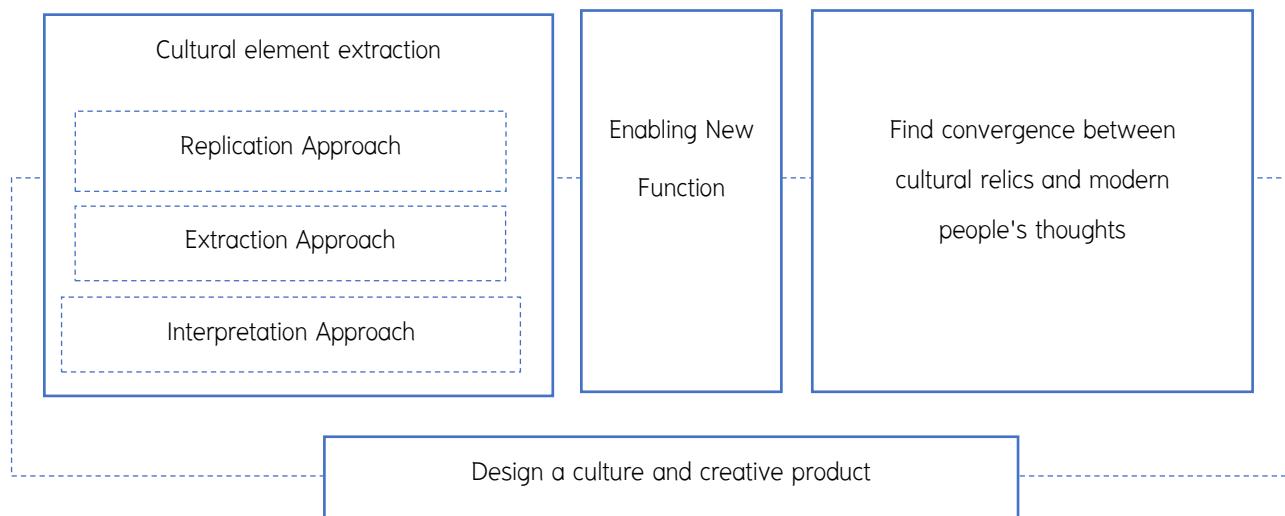


Figure 8 shows the design framework of the museum's cultural and creative products.

The outer elements of the product will be determined based on three cultural extraction approaches. The products should also have functions that fit the modern lifestyle. Finally, an emotional connection should be established, and a convergence between cultural relics and modern people's thoughts should be found.

## Conclusion

This study approached the design of museum cultural and creative products; it provided insights into the development of design strategies and suggestions. The proposed design approaches are a foundation for creating artistic and innovative products that resonate with modern audiences.

## Suggestions

**Suggestions for using research results effectively:** The museums should strengthen the development and authorization of their own resources and widely absorb the resources of all sectors of society, such as cross-border cooperation with artists, designers, brands, etc.

**Suggestions for future research:** As an important part of the cultural market, museums should actively collaborate with all sectors of society to promote scientific and international development.

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