

Research on Cultural and Creative Product Development Based on Museum Resources

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Abstract. The China's national and cultural self-confidence originated from the long historical culture. Cultural and creative products development based on museum resources has a thriving trend, but has not formed a standardized development process. The optimization of products developing and rebuilding thinking and methods bring the upgrade for the cultural and creative products development based on museum resources at brand strategy level and product development level which is the focus in this paper. The purpose and significance of this study is to explore the development process of the cultural and creative products based on museum resources. The typical program cases were taken in this paper as examples, to verify the scientific and validity of these ideas and methods.

1. Introduction

Mr. Gong Liang, Dean of the Nanjing Museum, one of the "Three Great Museums" in China, pointed out: "The most valuable resource for museums is not the collection, but the audience" [1]. The museum plays a key role in promoting outstanding traditional culture, enriching the public's spiritual life, educating the public, and enlightening people. It is a postcard that the city and even a country can call. In recent years, China's museum cultural and creative products have attracted audiences regardless of age and gender with unique cultural creativity, rich cultural connotation, exquisite product quality and high added value. Many domestic regions have gotten up cultural and creative products exhibition and consumption trends. Among them, the cultural creative industry chain in Taiwan is the largest and most influential [2]. This article combines the hot spots of the social needs of the cultural and creative industries and products, conducts in-depth research on user characteristics, and grasps the law of the times in which service economy, experience economy, and sharing economy coexist. The research process established a multidisciplinary research system based on engineering, design, and museum studies, and conducted process exploration and practical research on the development of cultural and creative products based on the resources of Nanjing Museum.

2. Museum's function and new museum concept

2.1. Museum's Public Cultural Services

Over the years, the museum has issued "3E" functions of "Education", "Entertainment" and "Enrich" in developed countries such as Europe and the United States [3]. Therefore, when the museum is leading



the development of cultural and creative products, its starting point is usually not based on the principle of economic efficiency first, but more emphasis on the added value of cultural and creative products and their social benefits in the process of communication, focusing on the public and knowledge information related to the inheritance of human history and culture. The museum cultural and creative products themselves have the value attributes of use, decoration and collection. The public selectively purchases cultural and creative products, which is essentially the recognition of culture and brings the concept of the museum to the outside of the collection environment, is to further strengthen the museum's public cultural service capabilities. At the same time, the commercialization of museum cultural and creative products has become an effective way for some museums to obtain economic income. One-third of the total cost of the Metropolitan Museum of Art's current operations is derived from the revenue generated by the museum's cultural and creative products. The museum's cultural and creative products have also become an important source of funding for maintaining the normal operation of the museum and promoting upgrades.

In 1753, Britain established the first museum of modern significance in the world named "British National Museum". Not only the museum brought great improvement to the eyes of the British people, enriched their cultural life, but also deeply affected other countries in Europe and the United States, and influence on the world accompanied colonial [4]. In China, Zhang Jian established the Nantong Museum in the original intention of "opening the people and wisdom", making it the first museum in China. After the 21st century, the number of museums in China has grown rapidly (Table 1), but most of the museums still function more conventionally. Until the museum's cultural and creative products are welcomed by consumers, the creative thinking of the museum's public services has truly brought the beginning of the "intellectual wisdom" into the public view [5].

Table 1. Statistics on Chinese museums 2008-2016 (source: national cultural heritage bureau)

Years	2008	2010	2012	2014	2016
Number of museums	2970	3415	3866	4510	4873

The increase in cultural demand stems from the sustained and rapid development of the economy and the stability of the society as a whole. Once the economy has experienced a recession and depression, consumers will first consider weakening cultural consumption expenditures. At present, China's economy has maintained a new normal and rapid growth, its overall strength has steadily increased, and the development of museums has also been valued by the state. If we can enhance the cultural output and social value output of museums, the level of public cultural services in China is also expected to increase substantially.

2.2. *The New Museum*

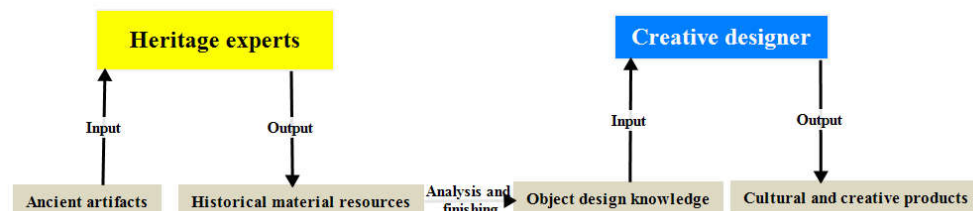
The change of the times has promoted the functional transformation of the museum. The museum is no longer a habitat for cultural relics. Instead, the public's public cultural service level is promoted as its long-term development goal, and the concept of "new museum" will follow. The direction of the development of the new museum is to comprehensively realize the cultural relic collection and display of the museum and to realize cultural value output through consumption of cultural and creative products. For the consumption of museum cultural and creative products, the current sales methods are mainly carried out through the "online" museum shop and the "offline" museum cultural and creative product zone. According to incomplete statistics, the following museums have opened museum shops (Table 2) [6].

Table 2. The distribution of Chinese museums that have opened museum stores

Regions	Museums
Beijing	Beijing Palace Museum
	Capital Museum
Shanghai	Shanghai museum
Jiangsu	Nanjing Museum
	Nanjing Yunjin Museum
	Nanjing Chaotian Gong Museum
	Suzhou Museum
	Suzhou Folk Museum
Zhejiang	China Silk Museum
	Hangzhou Arts and Crafts Museum
	Shaoxing Folk Museum
	Southern Song Guan Kiln Museum
	Ningbo Museum
Other Region	Xi'an Qin Shi Huang Terracotta Warriors and Horses Museum
	Guanghan Sanxingdui Museum
	Taipei National Palace Museum

3. The extraction and application of cultural and creative elements

The development of cultural and creative products is one more critical procedure than ordinary daily necessities, which is the combination of “cultural elements” and “creative elements”. The museum's cultural relics experts need to organize the ancient artifacts and related materials into cultural elements, and then pass the effective information to the designer, and the designer extracts the cultural elements and outputs the final cultural creative products (figure 1).

**Figure 1.** The formation and application process of object knowledge in cultural and creative products

The extraction of museum cultural and creative elements is mainly based on regional cultural resources, including the origin of the same culture or the same region. There are many factors that affect a region's cultural and creative elements, which are divided into spirits, materials, and institutions from the source. Extending to the next level corresponds to religion, artifacts, and customs. These three main lines will be subdivided into specific styles, decorative symbols, patterns, etc. [7]. After the formation of a collection of museum ceramics cultural and creative elements, we must go through the materials and processing processes, which mainly use product semantics and design semiotics methods. Finally, the cultural elements of the museum's ceramic culture have been converged and transferred to the product design stage to form specific cultural and creative products (Figure 2).

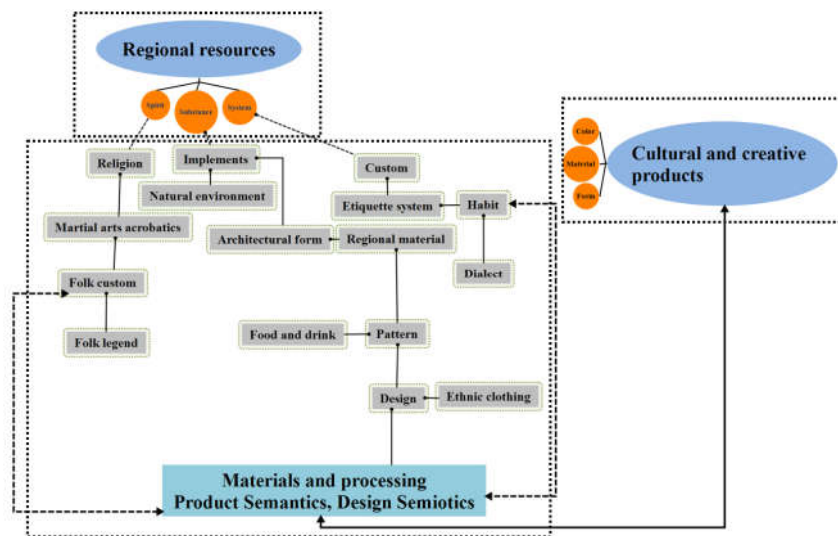


Figure 2. Extraction and processing of cultural and creative elements based on regional resources

4. Cultural and creative product development process

4.1. Research Analysis and Development Confirmation

Invited 12 teachers and student representatives who are familiar with Nanjing history and culture. What's more, they have product development and design experience in cultural and creative products, and randomly scored the most important three categories of products to be developed, out of 5 points (Table 3). The scores of the three categories of products to be developed were sorted out. Among them, the ceramic hanger series scored 150 points, and the mobile phone case and bracket set scored 137 points, the children's educational toys scored 123 points, which confirmed that the ceramic hanger series was a development project.

The cultural and creative elements are fully integrated with the daily necessities of the family-hangers, and a series of free combination hangers with ceramic cultural and creative hooks and solid wood base stitching are developed. It not only meets the needs of cultural and creative product development of the Nanjing Museum, but also reflects the practicality of cultural and creative products. At the same time, the products can bring higher economic benefits. The final positioning of the development on the ceramic hanger series has generally highlighted Nanjing's cultural features, full of interest and universal applicability, and has met the expectations of the Nanjing Museum for the development of museum cultural and creative products.

Table 3. Category Selection Table For The Proposed Product

No.	Proposed product	Based on scoring	Score (number of people selected)					
1	Ceramic Hanger Series	Product popularity	3	(2)	4	(8)	5	(2)
		Creative expression	3		4	(10)	5	(2)
		Product usability	3	(1)	4	(6)	5	(5)
		Product popularity	3	(4)	4	(7)	5	(1)
2	Mobile phone case	Creative expression	3	(6)	4	(5)	5	
		Product usability	3	(3)	4	(7)	5	(2)
		Product popularity	3	(4)	4	(5)	5	(2)
3	Children's educational toys	Creative expression	3	(6)	4	(5)	5	(1)
		Product usability	3	(6)	4	(1)	5	(2)

4.2. Cultural Elements Extraction and Design Performance

Through the investigation and analysis of the key cultural relics during the Sixth Dynasty of Nanjing, the author finally selected the “Chicken Pot of the Southern Dynasty” style of the chicken head, the “South Dynasty Cattle Porcelain Lamp” head style and the “Lotus Statue of the Southern Hills Lingshan Tomb” lotus shape. Analysis and extraction of cultural and creative elements, as a combination of porcelain-wood hanger base modeling style. At the same time, the hangers quoted the moire of the representative cultural relics of the Six Dynasties in Nanjing during the Six Dynasties, the faucet of the "Southern Dynasties Dragon Handle Smoker" and the stone evil spirits of "Liang Wuping Zhonghou Xiaojing Tomb East Evil". The pattern of hanger hooks and decorative modules is enriched, it can not only ensure the individual needs of the audience, but also fully demonstrate the representative historical Nanjing culture in a specific period (Figure 3).



Figure 3. Sketches of cultural and creative elements of representative cultural relics during the six dynasties of Nanjing

The cultural and creative elements of the cultural relics are relatively complex. In the design concept stage of the product, the author uses the three-dimensional software that he is good at to create the model of the hanger hook module and the decorative module. The base part of the hanger is made of solid wood. The base and the hook part are connected by the traditional Chinese "dovetail", which can realize the free switching of the hook module in the base, which ensure that the whole hanger is durable and contains traditional oriental aesthetics. Taking into account the uncertainties of the conditions in which the audience is installing hangers indoors, the author designed two methods for the connection of the hangers to the wall or the interior door: “no trace suspension” and “hanging nail suspension” (Figure 4).

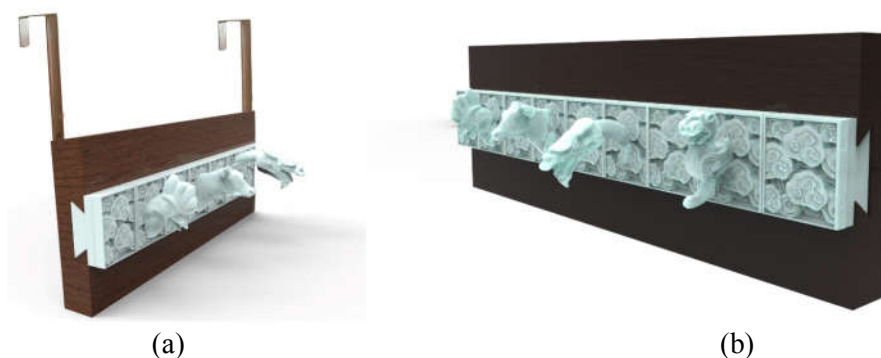


Figure 4. Two different hanging style hanger solutions

4.3. Series of Product Development

This product development supports monomer suspension to meet decorative needs and practical needs (Figure 5). Consumers can freely combine and collaborate at will. At the same time, the series of development kits for subsequent products can be extended to the Zodiac set products. This series of developments reflects the establishment of the gene family of the museum cultural and creative

products, and the inheritance of the product family genes for subsequent product set derivatives (Figure 6).

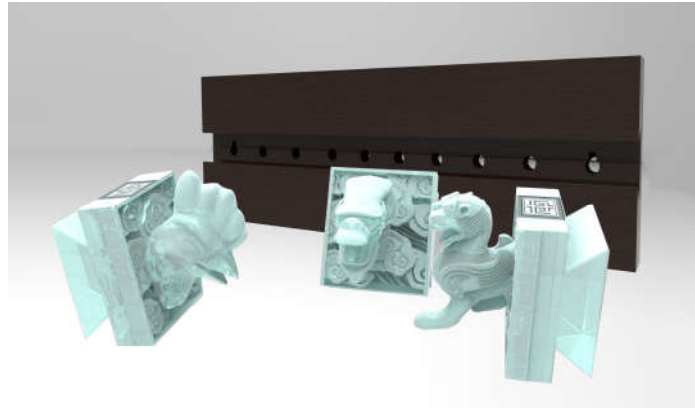


Figure 5. Monomer hook free choice

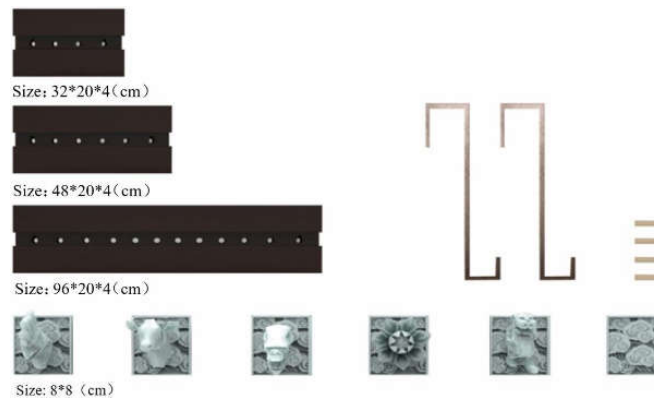


Figure 6. Hanger base and hook optional module details

4.4. Mass Production and Sales Model of Products

Into the mass production stage, the product processing is divided into two parts: the solid wood base and the hook module of the hanger. The processing technology of the solid wood base part is relatively simple, the whole product is relatively regular and the transition is uniform, and usually the numerical control processing can be used. The processing cost of the base part is the most relevant to the material of the solid wood, and the price level of different types of wood market is clearly subdivided. The material of the base part can be selected according to the user's home decoration style and the wood material of the purchased furniture.

In the mass production of hook modules and decorative modules, mature processing technology selection and processing cost control are the focus of this series of products. The hooking and decorative module forming process of the ceramic hanger series products is selected from the grouting forming of plaster molds (Figure 7).

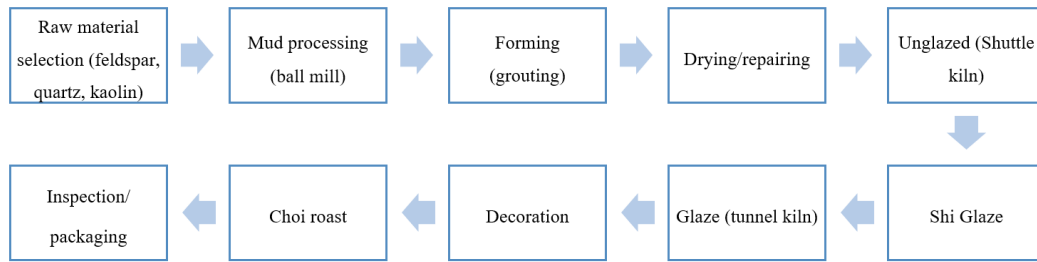
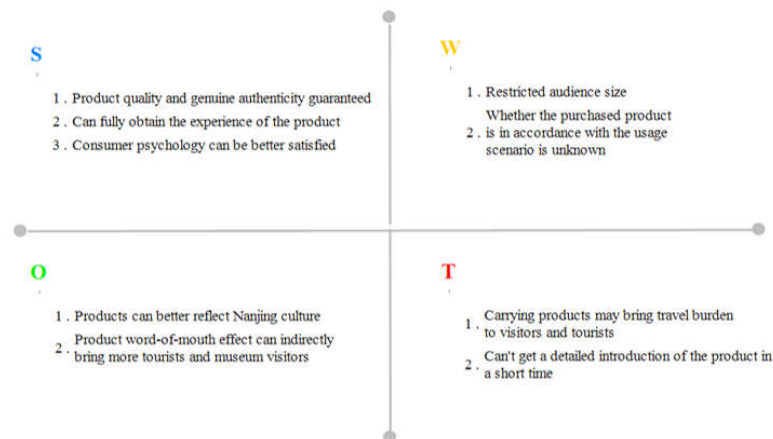
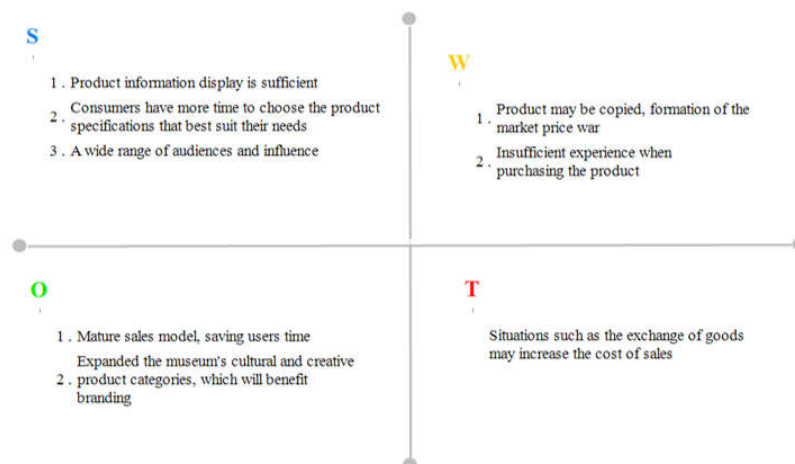


Figure 7. Ceramic hanger series products hook and decorative module processing process

Sales is to get products into the market and achieve a stable profit margin, and marketing is to take effective methods and means to allow enterprises to obtain higher profits in the process of exporting products. There are two types of sales models for ceramic hangers: First, through the cultural and creative commodity shops of the Nanjing Museum, “offline” experiences and sales are conducted in the form of tourist products; The second is to carry out “online” publicity and sales through the Nanjing Museum’s brand website and flagship store. These two sales models have distinct advantages and shortcomings, and their respective superior (S), weak (W), opportunity points (O) and threats (T) are analyzed (Figure 8).



a) SWOT analysis of “offline” sales model



b) SWOT analysis of “online” sales model

Figure 8. SWOT analysis and comparison of "online" and "offline" sales models

The “online” and “offline” sales models have their own advantages. The combination of the two is more consistent with current and future consumer trends, which is more in line with the brand publicity and cultural benefits of museum cultural and creative products in the promotion of public cultural service levels in the Nanjing Museum’s achievement.

5. Conclusion

This article cross-cuts the needs of the era of museums' ability to enhance public cultural services and the development of cultural and creative products based on museum resources, which regards the process of cultural consumption of cultural and creative products as an effective means of “going out” museum public cultural services. According to the characteristics of cultural and creative product development of museum resources, the entire process of the development of the “Ceramics and Wood” hanger series of Nanjing Museum was discussed in a distributed manner. The development process conceptualizes the three major modules of “the problem of the product (project acquisition, project preparation, brainstorming, cultural creative element extraction), conceptual visualization (design concept expression and method, design evaluation, and small batch trial production) and design commercialization (mass production, marketing, and sales service upgrade)”, to explore the product life cycle.

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