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The Characteristics of Cultural and Creative Product Design and Application Based on the Palace Museum

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Abstract
The cultural and creative industries are recognized as one of the most forward-looking industries today. As a unique cultural carrier, museums are undoubtedly an indispensable part of developing cultural and creative industries. The Palace Museum in Beijing, established on October 10, 1925, is the largest museum of ancient culture and art in China. However, Most of the cultural and creative products of the Palace Museum today are homogenized in design, and most of the elements used in the design are superficial. the design forms present an international style that is not in line with Chinese characteristics and fails to convey the important intellectual property information and the cultural imprint of the Palace Museum to the general public of consumers. In this study, the interview method and observation method were used to, can better understand the current situation of the design and application of cultural and creative products in the Palace Museum and analyse the characteristics of cultural and creative product design, which can help designers clarify their ideas, better develop and excavate the highlights. Design more popular cultural and creative products, to further promote the development of cultural and creative products of the Palace Museum.

Keywords: The Palace Museum, Cultural and Creative Products, Design, Features, Application.

Introduction
The design and development of cultural and creative products are one of the most important ways to develop cultural and creative industries in the past few years, and museums, as an important place to precipitate history and culture and preserve the treasures of cultural relics, are undoubtedly the best choice for developing cultural industries. Museums can enhance their educational and entertainment functions by promoting creative cultural products that are conducive to cultural dissemination, artistic innovation, and knowledge popularization (Mingxin, 2019). Established in 1925, the Palace Museum was built on the foundations of the Forbidden City, the imperial palace of the Ming and Qing dynasties, and is located at the centre of Beijing's central axis. The Palace Museum in Beijing is one of the world’s largest and best-preserved surviving wooden structures of ancient architecture, more than 600 years old, and the Palace Museum holds a total of over 1.8 million pieces of valuable collections (Xiaohan 2021).
In recent years, the Forbidden City in Beijing has made a name for itself in the museum, cultural, and creative industries, and it is difficult for other museums in China to match its reputation in terms of product variety and product sales. The remarkable success of Beijing Forbidden City's creative products is closely related to its trendy development and operation strategy (Tongtong, 2019). Many critics have pointed out that the cultural and creative products of the Palace Museum do not convey the connotations embedded in its cultural story. If only simple grafted products and culture are conveyed, it does not allow consumers to deeply feel the historical taste and cultural charm of the Palace Museum (Che et al., 2019). This study aims to further promote the development of the Palace's creative products by understanding the current status of their design use and summarising the design characteristics of the Palace's creative products, helping designers to clarify their thinking, better explore the highlights of the Palace's design, and design more popular cultural and creative products. By helping the Palace Museum's creative products to be better promoted and publicized, this study serves the development of the museum by enhancing its cultural and artistic connotations on the one hand and expanding its economic benefits on the other. Based on the earlier research objectives, the possible research questions are as follows:

1) What is the current status of the design and application of cultural and creative products at the Palace Museum in Beijing?
2) What are the characteristics of the design and application of cultural and creative products of the Palace Museum in Beijing?
3) What are the uses and functions of the cultural and creative products of the Palace Museum in Beijing?

**Literature Review**

By comparing the research literature of scholars from different countries, we can find that Chinese scholars have paid relatively late attention to cultural and creative products. It was not until 2000 that the term "cultural and creative industries" was formally introduced. The free opening of a large number of museums has stimulated the public's enthusiasm to visit museums, which has contributed to the development of museum cultural and creative products. According to the official website of the Palace Museum, more than 8,700 products were listed for purchase in 2016, with a turnover of over 1 billion yuan in that year alone. Its products are exquisite and practical, and the solemn culture of the palace is popular with consumers as it takes a hands-on approach. Cultural and creative products are the core value sources of the cultural and creative industries. Cultural and creative industries refer to the industrialization of cultural innovation with culture and creativity as the core and re-creation as the fundamental means to increase the added value of products through the re-creation of innovative talents, so that they have a certain scale and economic benefits. Cultural and creative products have different definitions according to the different focuses of the cultural and creative industries' perspective and the industrial design perspective (Shuhao, 2019)

**Value Characteristics of Museum Cultural And Creative Products**

The value characteristics of museum cultural and creative products are fundamentally different from those of ordinary products. Although museum cultural and creative products are varied and small in scale, they are indeed one of the most important ways of spreading cultural knowledge and extending educational functions. For the museums themselves, in addition to their cultural and educational functions, they are also an important additional economic tool for their development and profitability, free from dependence on government
funding, thus enhancing the sustainability of the museums. For consumers, museum cultural and creative products also carry emotional, practical, collectible, aesthetic, and commemorative values due to their unique cultural attributes and commodity characteristics, meeting the value needs of different consumer types. Therefore, analysing the different levels of the functional value of museum cultural and creative products can provide a clearer understanding of museums and consumers at the design development stage, and thus provide better design ideas. To summarise, for museums, creative products have educational, cultural communication, and additional economic functions; for consumers, they have emotional, practical, collectible, aesthetic, and commemorative values (Sisi, 2018).

Current Status of Cultural and Creative Product Design at the Palace Museum
The Palace Museum is rich in antique treasures and is an important venue for spreading Chinese culture. In 2018, the museum received over 17.5 million visitors. People born in the 1980s and 1990s are the main group of visitors to the Palace Museum. At the same time, online consumers of cultural and creative products are relatively young, with more than half being born in the 1990s, including the highest proportion born after 1995.

The Palace Museum began selling cultural products as early as 2008. However, due to high prices and a lack of innovation, annual sales revenue was only around 150 million yuan by 2012. From 2013 onwards, the Palace Museum began to transform itself by fusing heritage and traditional cultural elements to develop many popular cultural and creative products. The National Palace Museum has become a super-Internet sensation since 2014 through a series of digital marketing campaigns. Sales of cultural products at the Palace Museum have increased from RMB 600 million in 2013 to RMB 1.5 billion in 2017. A significant portion of the museum's cultural and creative income is used to organise public education events. For example, more than 60,000 educational events were held in 2018, including events in overseas countries such as Malta, Singapore, Thailand, and Australia.

The Forbidden City's cultural and creative product line is currently available both online and offline. For online purchases, there is an official Palace flagship shop and a flagship shop for the Palace’s cultural creations on ticket sales, in addition to the Palace Taobao on tabao.com and the Palace’s flagship shop for cultural creations on Tmall (PMFSCCP). Publications of published works such as paintings and calligraphy are sold at the Tmall Mall. In terms of physical shops, the museum has some traditional gift shops located both inside and outside the museum. In February 2018, the museum created flash shops, a new type of short-term shop used by many famous fashion brands to attract fans.

During the COVID-19 epidemic, from January 25 to April 30, 2020, the Palace Museum, like many other cultural institutions, closed its on-site operations and shifted its operations online. The museum used social media for "cloud exhibitions," "cloud lectures," and educational programs, such as "National Treasures," which featured celebrities. The online flagship shop is trading uninterrupted. They continue to promote new cultural and creative products through social media platforms and TV channels through the programme "The Palace has something new to offer" (Li et al., 2021).
Cultural and Creative Product Design Features of the Palace Museum

The development of the cultural and creative product design route of the Palace Museum in Beijing is characterised by the following aspects: 1. traditional culture-based, integration of modern functions. 2. aesthetic instincts leading to emotional satisfaction. 3. branding strategy-based, series development. In the process of product design, the Palace Museum in Beijing has perfectly integrated the cultural values of the palace's cultural relics with the practical values of the products, relying on industrial production methods. Firstly, the Palace Museum's creative products include a large amount of royal culture from the Ming and Qing dynasties, which is a fundamental feature that sets the Palace's creative products apart from other creative products. These products have been brought into millions of homes and have also brought the culture of the palace to countless consumers. Every cultural relic in the Forbidden City is a representative of the culture of the Forbidden City, and therefore, the creative products with the Forbidden City gene naturally have the responsibility of spreading the culture. The rational use of traditional culture is the starting point for the development of the Forbidden City's cultural and creative products. The rational use of traditional culture is not simply the reproduction of cultural elements. It requires the developer to have sufficient knowledge of the details and background of the collection. In turn, the process of combining cultural elements with the product collides with the point of innovation. Once again, I have found through consulting relevant information that the vast majority of all the cultural and creative products on sale at the Palace Museum, both online and offline, have very practical functions for living, in addition to ornaments. Products that make it easier for people to make purchasing decisions and have a better sense of use tend to be hotter. Thus, products with both high practical value and distinctive cultural attributes are the ones that would stimulate a strong desire to buy from most consumers and would only sell well in the long term (Shuhao, 2019).
The Palace Museum’s Development of Cultural And Creative Products
The Palace Museum has more than 1.8 million precious collections. These precious collections contain rich and excellent traditional Chinese culture, which has become the main inspiration for the design and development of cultural and creative products. Due to the high price setting and insufficient innovation, the cultural and creative products of the Palace Museum developed earlier did not attract attention from all walks of life after their launch. Create products into people’s fields of vision. With the popularity of the cultural and creative products of the Forbidden City’s Meng department, designers have been deeply thinking about product design and future development routes. Therefore, only by exploring a set of solutions based on user needs can we attract more and more people's attention. The grasp of user needs is inseparable from accurately locating their actual experience and looking for the development route of cultural and creative products according to the experience results. (Xiaohan, 2021).

Method
The researcher would use qualitative research methods to collect data. For qualitative research methods, the researcher would gather additional information through interviews and observations. The researcher would also use primary data such as books, journals, articles, and relevant papers to obtain additional research data.
The first step is primary data collection. In this study, the interview method was used to ask relevant questions to three designers and three enthusiasts using a WeChat software video. The designers interviewed were Wendy Zhang, Wu Yao, and Kong Lingkai, and the enthusiasts interviewed were Yang Jianfei, Wei Qianqian, and Gong Xun. The interviews were conducted to understand the current status of the design and application of the Palace Museum's cultural and creative products and the characteristics of the Palace’s cultural and creative products and applications, as well as their needs and preferences as consumers of the Palace Museum’s cultural and creative products. The observation method is used to understand the characteristics of the design and application of the Palace Museum's cultural and creative products by observing documentaries documenting the entire process of the design of the Palace Museum’s cultural and creative products, observing videos of research interviews with the former curators of the Palace Museum, and observing sales data of the creative products.
Using this approach, the researchers would obtain more detailed data related to the characteristics of the design and use of cultural and creative products at the Palace Museum. Then there is secondary data collection. Researchers would collect research data through books, journals, newspapers, and magazines to obtain paper-based materials for this research. Electronic resources, such as the internet, were also used to locate information to obtain paper copies of the data for this study. This is considered helpful in the data collection process, and information from these sources can be used as additional input material.

Results and Discussion

The researchers would dissect the existing forms of cultural and creative development at the Palace Museum in Beijing and, by collating data from interviews with the designers involved, examine how the designers devise their distinctive expressions when designing the Palace's cultural and creative products. Beijing Palace Museum's cultural and creative products The researchers also collated data from interviews with fans and collectors of the Forbidden City's cultural and creative products, examining which features of the products make them attractive to purchase from the consumer's perspective. The study was facilitated by the collation and analysis of observational data, including a documentary film chronicling the culture and creative product design of the Palace; a video interview with the former director of the Palace Museum; and sales data from the flagship shop of the Palace Museum's cultural and creative products. as well as collating and analysing secondary data from paper materials related to this study and from electronic resources on the Internet related to this study.

During the study, the researchers separately collected information on the 1 cultural and creative product that the designers were most satisfied with having designed themselves, and the 1 cultural and creative product that the enthusiasts liked the most that they owned. The design sketches, design applications, and actual products were then analysed and studied. The following is a summary of the design and application characteristics of the Palace Museum's creative products.

Table 1
Product Feature Classification

<table>
<thead>
<tr>
<th>Item</th>
<th>Source of inspiration</th>
<th>Element application</th>
<th>Design finished product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product type 1</td>
<td>Ancient paintings</td>
<td>Traditional patterns + new ideas combined</td>
<td>Clothes, Shoes</td>
</tr>
<tr>
<td>Product type 2</td>
<td>Forbidden City beam building</td>
<td>Traditional shapes + new objects</td>
<td>Figures, Necklace</td>
</tr>
<tr>
<td>Product type 3</td>
<td>Integral elements of the Palace Museum</td>
<td>Traditional elements + image deformation</td>
<td>Fan, hand warmer</td>
</tr>
</tbody>
</table>

There are now a wide variety of Palace Museum cultural and creative products on the market, with different functions and design attributes. According to interviews with the National Palace Museum, the number of cultural and creative products in the category of daily necessities accounts for the highest percentage of the total number of cultural and creative products in the National Palace Museum. This is because everyday objects can be used in all aspects of people's lives. The use of the Palace Museum's artefacts as design inspiration for lifestyle products can be a greater and more effective way of communicating the culture that
the museum represents to people. Through interviews, the Palace Museum can summarise the popular types of the Palace Museum's cultural and creative products and analyse their design and use characteristics. They can be divided into type one, a combination of traditional motifs and new ideas. Type II, traditional elements, and image deformation design. From three aspects, Type three, a combination of traditional shapes and new objects, provides an in-depth analysis of the characteristics of the Forbidden City's cultural and creative design of lifestyle and household products.

Firstly, Type I is a combination of traditional motifs and new ideas. Such a design method is arguably the most common and classic design approach in the design of cultural and creative products and can be applied to any cultural and creative product. The subject matter and pattern colour and composition characteristics of pattern patterns from various periods are different, and this innovative design needs to propose the use of structurally adequate methods combined with modern design expression and traditional pattern patterns for secondary design, so that both the essence of the traditional heritage style can retain the essence of the traditional heritage style and also meet the aesthetic test of contemporary people. For example Figure 1 The "Yongzheng Twelve Months of Fun" Dress, in the interview, designer Wendy Zhang's garments are a modern interpretation of the 'Yongzheng's December Journey', which distils the four seasons of palace life while incorporating the human and customary elements of the 'Moonman's Qing Journey' and using the delicate and intricate artistry of Western French prints. Hobbyist Yang Jianfei's favourite shoes are no different. Figure 2 The "Qing Yun Yue" canvas shoes. The lines of the shoes are extracted from the money ribbon pattern of the Hall of Taihe and the Hall of Fengxian, and the tongue edges are particularly beautifully stitched with a pattern taken from the wall tiles of the Hall of Taihe. The ribbons on the laces are taken from the pattern of the swirling flower painting of the Cheon Yi Gate in the Hall of Qin'an, which makes the shoe flowing and eye-catching as it walks. Even the heel and insole, which are not noticeable unless you look closely, are printed with the classic cloud pattern, leaving no detail untouched.

Figure 3: The "Yongzheng Twelve Months of Fun" Dress
Secondly, there is Type 2, a combination of traditional shapes and new objects. Such an approach to design is also a common technique used in the design of cultural and creative products. Most of the designs are inspired by the palace buildings themselves or the distinctive collections of the National Palace Museum. In the design of the Palace Museum's creative products, the palace building itself, as a historical and cultural building, and especially the palace building, is an important part of the culture of the Palace Museum. The palace buildings were restored by the royal family and are therefore more imposing and flamboyant than other ancient buildings. The palace architecture of the Ming and Qing dynasties was unprecedented in terms of both artistic and technical achievements. The palaces in the Forbidden City were not only diverse and well-made, but also made of exquisite materials and solids, and were even decorated in a variety of ways, finally taking the form that the Palace Museum now sees through several generations of the Ming and Qing dynasties. The elements of the palace architecture used in the palace's cultural creations are not only the shape of the building itself but also the images of the sacred beasts at the ridge of the building, which serve to hold the ridge tiles in place. For example, in the interview, designer Wu Yao designed a set of "Zhengda Guangmeng" figures, which are based on the ridge beasts of the Forbidden City buildings. The combination of the ancient ridge beast and the modern blind box, which is popular with young people, is a very creative way of spreading the culture of the Forbidden City and increasing young people's interest in the culture of the Forbidden City. This is also the case with the necklace loved by hobbyist Wei Qianqian. The gourd shape and the design details of the inverted "Fu" character are both symbols of praying for good luck in traditional Chinese culture and are shapes and elements that can be found everywhere in the Palace Museum's collection, with the gourd representing "Fu Lu." The gourd represents "fortune and prosperity" and the inverted "fortune" character represents "fortune has arrived," both symbolising good luck and hoping to bring good fortune and safety to each wearer.
Finally, there is Type 3, a design with traditional elements and image distortion, which is also a common approach in the design of cultural and creative products. The use of the visual elements of the shape of the National Palace Museum and its collection of cultural artefacts is a widely used direction for the development of cultural and creative products for the Palace. The creative products produced in this direction are usually easy to recognise and have a strong cognitive function for the audience as they are intuitively connected to the Palace Museum or its collection of artifacts. The use of shape elements can be divided into direct use and transformative use. For example, during the interview, designer Kong Lingkai and his team designed the National Tide Mini Fan, which is derived from the traditional doughnut fan, a round fan with a handle, which represents reunion and friendliness, and good fortune. During the Northern and Southern Dynasties, the nobility used to carry fans such as the doughnut fan to keep cool and shade their homes. The designer combined the idea of a modern hand-held fan and a classical group fan to create this small, stylish, and fashionable fan. This small fan is finished with a tassel accessory at the end. The tassel, also known as a spike, is a drop, tied with colourful feathers, velvet, etc., conveying an oriental flavour of antiquity and ebullience. So do the hand warmers favoured by the hobbyist Gong Xun. The
Forbidden City Cat was inspired by the image of a stray cat in the Forbidden City. The Forbidden City is home to a group of guardian messengers, sometimes domineering, sometimes soft and cuddly, who, in their way, guard every blade of grass and tree in the place. They walk through the Forbidden City and become a wonderful sight along with the scenery there. The hand warmer combines the auspicious artefacts from the Palace Museum's collection; it is made using modern techniques and incorporates many beautiful things to present a colourful art style. When held in the hand, the hand warmer makes one feel pampered and cheerful.

Figure 7: The National Tide mini electric fan

![The National Tide mini electric fan](image)

Figure 8: Forbidden City Cat Hand Warmer

![Forbidden City Cat Hand Warmer](image)
According to the staff of the Palace Museum, they use creativity and modern design to attract a large young consumer base. To a certain extent, the products are transformed into cultural symbols, making the Forbidden City more vivid, and the continuous cultural output adds more dimensions to the Palace. The development of cultural and creative products should delve into people's ever-changing lives, dig deep into their own unique cultural resources, coalesce unique and original elements, and connect with people's lives. People were willing to take such cultural and creative products home. The Palace Museum not only cooperates with the exhibition in the general direction of product development but also delves into the public's demand for cultural life, making the products historical, knowledgeable, artistic, interesting, fashionable, and environmentally friendly.

Based on observations of the sales of the Palace Museum's cultural and creative products on online shops and feedback from buyers, researchers can tell that, firstly, products with creative aspects sell better and are more popular with consumers. Secondly, household products sell better in multiple categories because of the specific use scenarios and functions. Products that are both functional and aesthetically pleasing are better rated. Practical value is the first factor that consumers consider when buying creative products. The price of the product is also a very important factor influencing consumer purchases.

Through interviews and observations, the researchers found that:

1) The design and application characteristics of the Forbidden City's cultural and creative products should be designed according to the overall atmosphere and tone of the Forbidden City to realistically consider the functionality of the products and their uniqueness and style. However, they should all follow function first, aesthetics second, and creativity third. The design of the Palace Museum's cultural and creative products should reasonably focus on the needs of young people when expressing features and highlights, in line with popular aesthetics and everydayness, and designers should not express themselves too much and ignore the needs of the Palace itself. Design products would be more available every day and oriented to the public. In making cross-border unions, as the Forbidden City is a magnificently good subject matter, designers are encouraged to cross boundaries and unite together in design. Combining with the technological end While arriving at innovative expressions of traditional culture, the cultural relics themselves are traditional, promoting forms and launching products that are newer expressions, such as digital collections.

2) Consumers buying the Palace Museum’s cultural and creative products hope that the design and application of the Palace Museum Cultural and creative products with traditional elements and modern aesthetics, cultural immersion. The main focus is on decoration, taking into account practicality and aesthetics. The design of the Palace Museum's cultural and creative products should be more harmonious and an art of inclusion and balance. Chinese cultural confidence is growing, and cultural identity is becoming stronger. Brand co-branding with other museums suits the public. Something that makes people more emotional, want to be more relaxed and have more fun. Function over aesthetics, cultural value, and incidental value are both important, first the product, then the cultural product.

3) The Palace Museum staff believes that product development should study in depth the public demand for cultural life, so that the product combines history, knowledge, art, fun, fashion, and environmental protection into one, creating a unique cultural Palace Museum style of creation. The research and development of cultural and creative products should delve into people's ever-changing lives, dig deep into their unique cultural resources, coalesce unique and original elements, and connect with people's lives, and people were willing to take such cultural and creative products home with them.
The researchers used a qualitative approach to obtain valid data through interview and observation methods. The observations and interviews showed that the current status of the design and use of the Palace Museum's cultural and creative products is good and there is a lot of room for development. There are commonalities in the design of good Palace Museum cultural and creative products, and designers can summarise and generalise to create better creative products. The Palace Museum’s promotion and publicity of the Palace Museum’s creative products can better pass on and promote traditional Chinese culture.

Conclusions
Overall, as a symbol of traditional Chinese culture, the Beijing Palace Museum has an irreplaceable position in the minds of its audience due to its profound cultural heritage. The development and operation of its cultural and creative products are in line with its own development needs in the modernization process, as well as leading the development of China's museums in the field of cultural and creative industries, while also following the global trend of commercialization of museum brands and playing a role as a model for the Beijing Palace Museum. It is also worth exploring how to enrich the cultural symbol of the Forbidden City in terms of connotation and aesthetics so that more audiences can actively learn about the culture of the Forbidden City and realise the perpetual transmission of traditional culture. It is hoped that a more in-depth study of the design methods of the Palace Museum’s cultural and creative products would be undertaken, but due to the variety of the Palace Museum and the wide range of fields involved, it is difficult to summarise the design methods and design ideas used in the Palace's cultural and creative products in this article, which requires a lot of case studies and analysis.

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