

Hues and Textures of Culture: Deciphering Material and Colour Use in Chinese Museum Interior Design

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Abstract: Materials and colours play an essential role in museum interior design and are a vital means of cultural expression, specifically when showcasing China's rich and colourful cultural history. This study evaluates the product option and colour application of Chinese museums to effectively share social info and historical stories. This research shows that there is a close link between local culture and the material and colour selection of museum interior design. This study adopted a mix of qualitative and measurable study approaches, including field observation, interviews and literature reviews. The study focused on evaluating the Palace Museum, the Shanghai Museum and the Shaanxi History Museum. The results reveal that museums can create valuable spaces by strategically selecting materials that are consistent with the local culture and incorporating symbolic colours. Second, the exact use of colours and materials enhances visitors' understanding of the exhibitions, while broadening visitors' understanding and love of China's regional variety. This research recommends some interpretations for future museum interior design, highlighting the value of including regional components right into the design procedure. Ultimately, it can give new understandings right into the area of museum interior design.

Keywords: Chinese, Material, Colour application, Cultural display, Museum interior

INTRODUCTION

On the stage of the museum, which serves as a platform for cultural exhibition, the interior design of a museum is critical (Jinlin, 2010). In addition to being fundamental components of visual looks, materials and colours additionally serve as channels for interacting social knowledge and feelings (Dolese and Kacinik, 2021). In China, a nation renowned for its substantial historical heritage covering millennia and its heterogeneous local societies, the interior design techniques employed in museums assume a heightened value as they offer to show the country's distinct culture heritage (Zhijun, 2015).

The purpose of this study is to investigate how the choice of tones and materials in Chinese museum interior design can convey and enhance the identity of a particular region. The research presented here holds great importance due to its contribution to the enhancement of museums' role as

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custodians of cultural heritage and its enhancement of the visitor experience by facilitating sensory interaction that fosters a more profound comprehension and admiration of China's regional cultures (Coombes, 2019).

In light of advancements in the design discipline and evolving audience preferences, conventional museum interior design is encountering novel and complex obstacles (MacLeod, Dodd and Duncan, 2015). Use of modern design concepts and technology to preserve cultural authenticity while showcasing culture has become a question that museum administrators and designers must consider jointly (Bautista, 2013). Thus, employing methodologies including field observation, interviews and case analysis, this research endeavour shall scrutinise the astute utilisation of materials and colours in interior design by Chinese museums as a means to exhibit regional culture, thereby, investigating the underlying strategies and insights (Dong, 2014).

By conducting research on this subject, this article seeks to offer fresh insights and actionable advice for the domain of museum interior design, thereby, fostering the expansion of Chinese museums' educational and cultural exhibition capacities.

LITERATURE REVIEW

The Role of Materials and Colours in Interior Design

Materials and hues play a dual role in museum interior design, namely, establish the aesthetic framework of the space and effectively communicate cultural significance and emotions (Ravelli, 2007). It is extensively acknowledged amongst scholars that the affective resonance and cultural experience of visitors can be substantially enhanced through making use of colour and material choice in interior design (Poldma, 2009). Especially in galleries and various other social event spaces, the historic durations and social heritage of displays can be subtly conveyed via the temperature level and saturation of colours, in addition to the structure of materials (Fabbri, 2012).

Expression of Cultural Elements in Interior Design

Specific regional history and culture can be effectively communicated through the selection and implementation of colours and materials, according to research on the interior design of Chinese museums (Gan, Jian and Zhiqiang, 2023). By employing symbolic hues and traditional materials such as silk, bamboo and porcelain in conjunction with red and gold, for instance, one can augment the audience's visual and sensory comprehension of Chinese

culture (Liu, 2011). In addition, the significance of colour in communicating sentiments and fostering a sense of culture is paramount in the development of a captivating museum encounter (Liu, 2013).

Spatial Aesthetics and Cultural Narratives

The theory of cultural narratives and spatial aesthetics (Vieira, 2012), as put forth in the literature, underscores the significance of materials and colours utilised in interior design not only as means of embellishing space but also as critical components in shaping cultural narratives and fostering greater comprehension across cultures (Li, 2015; Austin, 2020). Museum interior design ought to transcend simple visual aesthetics and convey cultural stories associated with exhibits through deliberate material and colour choices (Folkmann, 2013); hence, it needs to improve the exhibit experience by providing an extra extensive and diverse experience (McLean, 1999; Lorentz, 2006).

In conclusion, prior studies establish a robust theoretical framework for this article, illustrating the significance of hues and materials in the design of museum interiors and their distinct function in cultural exhibitions. However, notwithstanding the profound insights offered by prior research, there remains scope for additional investigation regarding the strategic and innovative implementation of these components in the interior design of Chinese museums (Yu, 1989).

METHODOLOGY

The aim of this investigation and analysis is to determine how the choice of colours and materials in the interior design of Chinese museums conveys and influences regional culture. A wide range of research methodologies are utilised to acquire comprehensive insights.

Research Design

Case studies serve as the primary research methodology for this qualitative and partially quantitative investigation into the subjective meanings and social constructions of cultural expression (Yi, 2014). Through an examination of the interior design methodologies employed by particular museums, this study seeks to unveil the cultural reasoning and strategic considerations that underpin the choices of materials and colours.

Data Collection

Initially, representative museums in China were chosen based on their diverse geographical locations and cultural backgrounds. The interior design of these museums, including the Palace Museum, Shanghai Museum and Shaanxi History Museum, showcases unique regional cultural attributes. Furthermore, field visits were carried out to the chosen museums, wherein comprehensive documentation of material utilisation, colour schemes and spatial arrangements in interior design were gathered through the means of photographs, films and written observations. Ultimately, interviews were carried out with the curators, interior designers and cultural research experts of the museums to get their perspectives on the criteria involved in the choice of materials and colours, as well as the anticipated cultural communication outcomes.

Data Analysis

Thematic analysis was conducted to analyse the acquired data (Boyatzis, 1998). Initially, the data were encoded using predetermined codes such as “material selection”, “colour application” and “cultural expression”. Next, the encoded data were classified and merged to discern the primary themes and patterns. Ultimately, these themes were analysed and explored in relation to the theoretical framework and research topics.

RESULTS AND DISCUSSION

Case Studies

Figure 1 shows the geographical locations of the three museums examined in this study. The Palace Museum is located in northern China, the Shaanxi History Museum is located in the northwest and the Shanghai Museum is located in southern China.

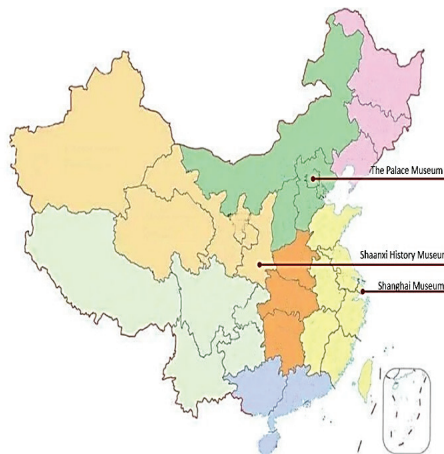


Figure 1. The geographical locations of the three museums in China

Source: <https://map.baidu.com/>

Tables 1 and 2 supply a succinct recap of the important statistics about material use and colour application, respectively, in the Palace Museum, Shanghai Museum and Shaanxi History Museum, based upon comprehensive study. With a relative analysis, it becomes evident just how museums employ various materials and colours in their interior designs to effectively share their one-of-a-kind social qualities and layout philosophies.

Table 1. Frequency of use of museum materials

Material Category	Palace Museum	Shanghai Museum	Shaanxi History Museum	Total
Wood	43	12	21	76
Glass	5	41	11	57
Metal	12	37	25	74
Ceramics	20	19	38	77
Silk	32	1	17	50
Total	116	107	110	334

The Palace Museum showcases the rich traditions of imperial China through its lavish design. Here, wood is a key feature, appearing 43 times throughout the space. This extensive use highlights the important role of timber in royal architecture and interior settings. In contrast, at the Shanghai Museum, wood appears only 12 times. This choice aligns with a modern style that leans more towards materials like metal and glass. Meanwhile, the Shaanxi History Museum features wood 21 times, reflecting traditional elements that connect

with the region's cultural history. Altogether, these institutions utilise wood a total of 76 times. This underlines its vital role in expressing historical and cultural meanings.

The Shanghai Museum characteristics glass plainly with 41 times, highlighting its modern-day and clear style values. This is a sign of Shanghai's condition as a worldwide city that puts a high worth on modern aesthetic appeals and functionality. The Palace Museum and Shaanxi History Museum employ glass less often (5 and 11, respectively), recommending that they place a lower top priority on modern materials than conventional ones. The galleries have a total utilisation of 57, which indicates a trend towards the integration of modern materials into the layout.

Metal is used extensively in all three museums, with the Palace Museum utilising it 12 times, the Shanghai Museum 37 times and the Shaanxi History Museum 25 times. This is a sign of the convenience and relevance of steel in both traditional and contemporary settings. The Palace Museum's use of steel may be associated with ornamental and architectural elements that improve its historical styles, whereas the Shanghai Museum's greater frequency indicates a preference for structured, modern styles. The function of steel in connecting conventional and contemporary design approaches is indicated by the total use of 74.

In the Shaanxi History Museum, ceramics are of particular importance, that serve as a testament to the region's extensive archaeological and cultural heritage (38 times). The Palace Museum and Shanghai Museum also utilise ceramics, albeit to a minimal extent, with 20 and 19 times, respectively. This highlights the significance of porcelain in attaching the museum's layout with its social story, especially in regions with a history of ceramic artistry. The value of ceramics in reflecting local heritage and historical context is emphasised by the overall use of 77 times amongst the museums.

Silk is made use of 32 times in the Palace Museum, which fits with the museum's royal and expensive motifs. The reality that traditional materials are used very little in the Shanghai Museum (1 time) and reasonably in the Shaanxi History Museum (17 times) shows that the two museums placed various quantities of relevance on them. The 50 times of total use show how vital silk is for telling cultural and historic stories, specifically in places with solid ties to conventional handiwork.

Table 2. Frequency of colour application in museums

Colour Category	Palace Museum	Shanghai Museum	Shaanxi History Museum	Total
Red	59	21	31	111
Gold*	55	9	26	90
Black**	11	49	22	82
Grey	7	42	12	59
White**	5	41	14	60
Khaki	28	3	53	84
Brown**	21	9	44	74
Total	179	174	202	560

Notes: *Abbreviated name for colour; **Frequency of colour appearance in wall, ceiling and floor decorations.

The Palace Museum utilises red the most regularly, with 59 times, as a sign of royal authority and auspiciousness in conventional Chinese cultural. Furthermore, the Shaanxi History Museum utilises crimson extensively (31 times), which may be a sign of its historic and cultural themes. The Shanghai Museum uses red less frequently (21 times), which is a sign of a more scrupulous method to this culturally significant shade. The relevance of red in communicating social and symbolic definitions is stressed by the total usage of 111 times.

The Palace Museum conspicuously displays gold 55 times, emphasising imperial grandeur, luxury and wealth. Its usage in the Shanghai Museum (9 times) and the Shaanxi History Museum (26 times) is reasonably restricted, recommending an extra moderate approach in modern and regional contexts. The overall of 90 times is a sign of the role of gold in the enhancement of the historical value and luxury of gallery style.

A contemporary and minimal visual that focuses on simpleness and beauty is mirrored in the Shanghai Museum, where black is utilised extensively (49 times). A unique technique to shade that is consistent with the historical and social motifs of the Palace Museum (11 times) and Shaanxi History Museum (22 times) is indicated by the limited use of black. The relevance of black in both typical and modern design contexts is underscored by the total use of 82 times.

The Shanghai Museum's contemporary design approach, which prioritises neutral tones, is most obvious in the use of grey 42 times. The Palace Museum (7 times) and Shaanxi History Museum (12 times) use grey sparingly, which

may be consistent with their typical or local colour design. The function of grey in contemporary design strategies is shown by the total use of 59 times.

The Shanghai Museum (41 times) and the Shaanxi History Museum (14 times) utilise white to establish clean and extensive atmospheres. Its application in the Palace Museum is limited to five times, which is indicative of a proneness for even more vibrant tones in conventional settings. White's contribution to the improvement of contemporary visual appeals and spatial clarity is emphasised (60 times).

Khaki is prominently featured in the Shaanxi History Museum (53 times), which follows the museum's focus on historic and rustic themes. Khaki is used to a minimised degree by the Palace Museum (28 times), while the Shanghai Museum employs it sparingly (3 times). Khaki's relevance in establishing connections with cultural and natural environments is stressed by the overall use of 84 times.

The Shaanxi History Museum uses brown thoroughly (44 times), which is a measure of the area's natural and historical context. Brown is made use of much less often at the Palace Museum (21 times) and Shanghai Museum (9 times), recommending a diverse strategy to colour in regard to their layout styles. Brown's contribution to the establishment of a historic connection and a sense of affection is highlighted by the overall use of 74 times.

Palace Museum

The Palace Museum (as shown in Figure 2), one of China's most renowned cultural heritage sites, is celebrated for its extensive collections and distinctive palace architecture (Zheng, 2006). The interior design of the space draws heavily from traditional Chinese culture, particularly in its utilisation of colour and materials.

As shown in Figure 3, the Palace Museum employs wood, lacquerware and silk extensively, showcasing the exceptional artistry of ancient China and expressing the regal grandeur and sacredness through their tactile qualities and shine. The interior design primarily showcases the colours red and gold, which symbolise attributes such as authority, wealth and celebration. The colours used in the interior rooms of the Palace Museum evoke a sense of rich historical ambiance, enabling visitors to fully engage with the allure of royal culture.

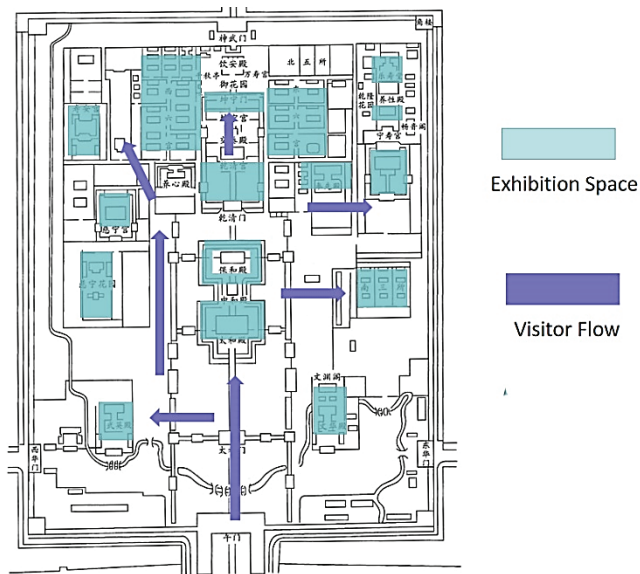


Figure 2. Exhibition floor plan of the Palace Museum

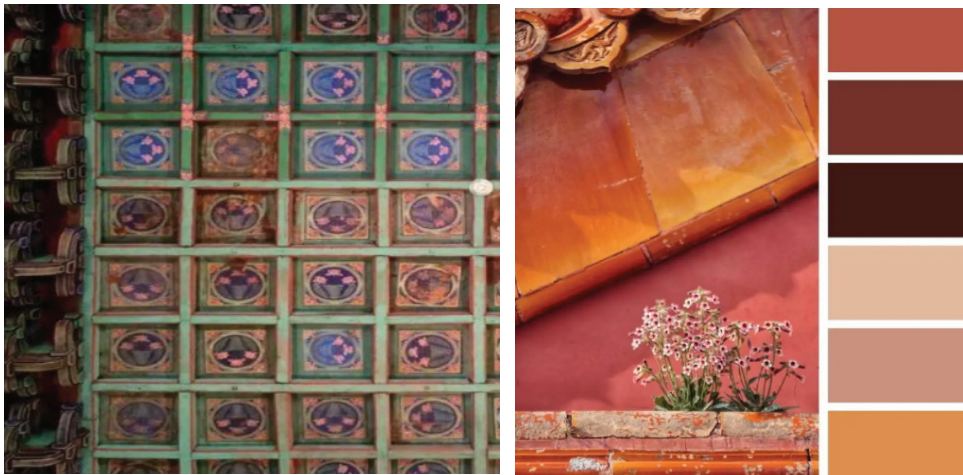


Figure 3. Palace Museum's use of colour

Shanghai Museum

The Shanghai Museum is a notable example of contemporary museums in China (as shown in Figure 4), recognised for its vast art holdings and contemporary presentation methods. By employing glass, metal and contemporary architectural elements, it mirrors the contemporary essence

and transparency of Shanghai metropolis. Simultaneously, meticulously chosen conventional materials like ceramics and fabrics incorporate Chinese characteristics into contemporary design within the exhibition halls.

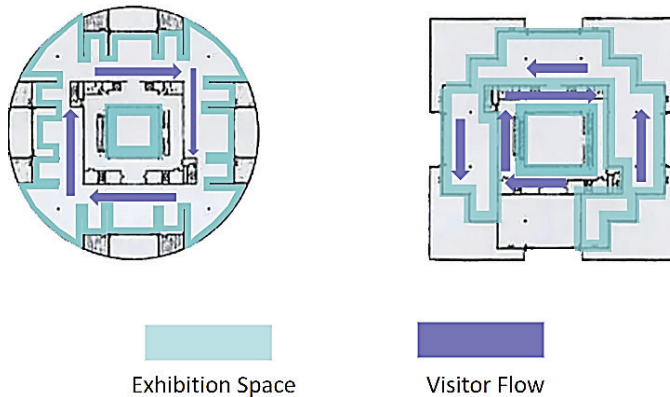


Figure 4. Exhibition floor plan of Shanghai Museum

As shown in Figure 5, the design skilfully integrates black, grey and white to establish a minimalist and contemporary ambiance, while certain exhibition spaces showcase colour selections like ink green and ochre red, highlighting the significance of traditional Chinese colour aesthetics.



Figure 5. Shanghai Museum's use of colour and materials

Source: www.meipian.cn/c/14987172

Shaanxi History Museum

The Shaanxi History Museum (as shown in Figure 6), situated in the city of Xi'an known for its historical and cultural significance, skilfully incorporates the abundant cultural legacy of Shaanxi into its interior design (Zhifeng, 1991).

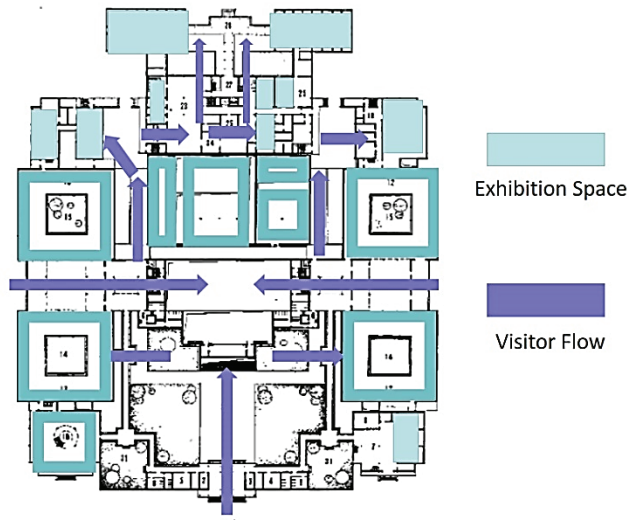


Figure 6. Exhibition floor plan of Shaanxi History Museum

Figure 7 shows that the use of materials including Chinese bronze, pottery and stone in the museum's exhibits which highlights the traditional craftsmanship of the Shaanxi region and reflects the materials found in the museum's collections. The interior design incorporates earthy yellow and brown tones, which reflect the natural scenery of the Loess Plateau in Shaanxi and the ancient structures, resulting in an immersive historical experience.



Figure 7. The use of colour and materials in the Shaanxi History Museum

Based on the aforementioned case analyses, it is evident that the material and colour selections in the interior design of Chinese museums not only showcase the cultural attributes of their individual areas, but also effectively communicate deep cultural meaning through these visual components. The Palace Museum embodies tradition and grandeur, while the Shanghai Museum represents modernism. The Shaanxi History Museum, on the other hand, showcases history and regional peculiarities. These three institutions skilfully mix these different components through their designs, using materials and colours.

Data Analysis

This research involved a detailed case study of three notable Chinese museums. Specifically, the focus of the research was on how materials and colours are used in interior design. The study sought to discover how choices in materials and colours communicate regional culture within interior spaces.

The study carefully examined how these elements are applied in three key institutions: the Palace Museum, the Shanghai Museum and the Shaanxi History Museum. The goal was to communicate and protect regional culture as well as cultural heritage effectively. A mix of qualitative methods and some quantitative approaches was used during this work.

The collected data were first organised using Microsoft Excel (Version 2016; Microsoft Corporation, Redmond, WA, USA) and further statistical analysis, including the Chi-square test, was conducted using IBM SPSS Statistics (Version 26.0; IBM Corp., Armonk, NY, USA). The following section provides a clear outline for how data was collected, analysed and interpreted.

Data Encoding and Preprocessing

Based on area check outs, interviews and literature review, the data were at first categorised into “material use” and “colour application”. When it comes to materials, the focus was specifically on wood, lacquerware, silk, glass and metal as they relate to museum interior design. These materials are very important. They have aesthetic but also convey particular historical and cultural messages in cultural displays. For colour, the research examined the use of red, gold, black, grey, white, khaki and brown. Each of these colours serve to heighten the visual effect and add symbolic meaning to exhibitions. The choice of each colour aims to harmonise with themes of cultural heritage or the artifacts displayed. This strategy is intended to enhance audience engagement, making educational experiences much more effective. By following this method, the study thoroughly investigated how materials and colours work together within museum settings. This exploration serves to express and reinforce unique regional cultural characteristics.

Qualitative Data Analysis

The material and colour themes of the Palace Museum were determined to be “royal dignity and historical depth”, which is evident in the abundant utilisation of wood, lacquerware, silk, as well as the selection of red and gold.

The Shanghai Museum’s theme was the “integration of contemporary and traditional elements”, which was accomplished by incorporating modern construction materials like glass and metal, as well as a modern colour scheme of black, grey and white. Occasionally, traditional elements were added, featuring colours such as dark green and ochre red.

The Shaanxi History Museum’s theme is “the deep origins of regional culture”, which is expressed via the utilisation of bronze, ceramics and stone, as well as the incorporation of earthy yellow and brown hues that mirror the natural scenery and historic buildings of Shaanxi.

Table 1 reveals that the Palace Museum made substantial use of wood (43 times) and lacquerware (32 times) in its interior design, indicating the significant role these materials play in traditional Chinese culture. Wood, particularly when used in the adornment of display cabinets and exhibition halls, not only highlights the fundamental characteristics of ancient Chinese architecture and craftsmanship but also establishes a welcoming and organic presentation atmosphere. The exhibition of lacquerware highlights the distinctive allure of Qing Dynasty artistry.

According to the data presented in Table 2, the colours red and gold were the most commonly utilised at the Palace Museum, with red appearing 59 times and gold appearing 55 times. In Chinese culture, the colour red is associated with auspiciousness and joy, whereas the colour gold is a symbol of prestige and prosperity. The abundant utilisation of these two hues not only corresponds with the regal disposition of the Palace Museum but also aesthetically engenders a grandiose sensation for the spectators.

Quantitative Data Analysis

The chi-square test is frequently employed to analyse the relationship between categorical variables, taking into account the current data availability (Sourial et al., 2010). If a substantial amount of quantitative data, such as the frequency of material and colour application in museum interior design, are collected and there is a desire to investigate their correlation with specific cultural display effects, the chi-square test can be used, even though this study primarily focuses on qualitative analysis.

The researchers’ objective is to investigate whether there is a correlation between the choice of specific materials and colours in Chinese museum interior design and the purpose to showcase particular regional cultures. Data listed in Table 3 were acquired from on-site observations, illustrating the frequency of material and colour applications in three representative museums. The results indicate if these applications are meant to promote certain regional cultures.

Table 3. Frequency of use of specific materials and colours in representative museums

Museum	Materials/ Colour	Application Frequency	Designed to Showcase Culture (Yes/No)
Palace Museum	Wood	46	Yes
Palace Museum	Red	59	Yes
Shanghai Museum	Glass	42	No
Shanghai Museum	Black	48	No
Shaanxi History Museum	Bronze	51	Yes
Shaanxi History Museum	Khaki	54	Yes

Using these data, a chi-square test table was created to examine if there is a statistically significant association between material/colour selection and intended to showcase specific regional culture (as shown in Table 4). To simplify, “yes” and “no” are binary variables, with “yes” being encoded as 1 and “no” as 0. Then, the discrepancies between the expected and observed frequencies were evaluated.

Table 4. Chi-square test results

Variable Name	Show Specific Regional Culture (Yes)	Show Specific Regional Culture (No)	Total
Observed material/ colour applications	209	99	308
Desired frequency	148	145	293

A chi-square test was performed on the material and colour applications in the chosen museums, resulting in a chi-square value of $\chi^2_{Total} = 48$ with 1 degree of freedom. Given that the chi-square test has a critical value of 3.84 at a significance level of 0.05 and 1 degree of freedom, the chi-square value greatly surpasses this critical value. Thus, the null hypothesis that there is no correlation between the utilisation of materials and colours and their purpose of highlighting distinct regional culture was rejected.

This finding suggests that the choice of materials and colours is statistically significant for highlighting a distinct geographical culture. It supports the researchers' hypothesis that the careful selection and use of materials and colours are critical in portraying regional culture in Chinese museum interior design.

Discussion

This study examines the utilisation and importance of materials and colours in expressing regional culture by analysing interior design examples from the Palace Museum, Shanghai Museum and Shaanxi History Museum. The research demonstrates that the choice of materials and colours in interior design is not only vital for the visual appeal of museums but also has a significant impact on cultural communication and education.

The analytical results show that the Palace Museum creates a regal and esteemed vibe by using materials like wood and lacquer. Moreover, colours such as crimson and gold play a vital role. These hues symbolise deep values in Chinese traditional culture. In contrast, the Shanghai Museum reflects modern culture, especially during modernisation. They rely on modern materials like glass and metal. A minimalist colour scheme of black and grey emphasises this contemporary feel. Meanwhile, the Shaanxi History Museum focuses on the rich history of the Shaanxi region. It employs materials like bronze and pottery. Earthy tones, such as beige and brown, are also incorporated, linking to the local heritage. These findings stress the importance of selecting suitable materials and colours in interior design. This choice helps to enhance the cultural themes presented in each museum.

This research highlights the relevance of effectively connecting cultural info and emotions in museum interior design by using carefully chosen materials and colours, in comparison to previous research in the field. This research builds on previous research that recognises the important impact of interior design on cultural exhibits. Nevertheless, it goes a step further by supplying comprehensive situation analyses that show exactly how different museums make calculated selections relating to materials and colours, taking into consideration their own cultural features and exhibit needs.

This research suggests that future museum interior design need to pay even more focus to the role of colour and material in cultural interaction and designers must choose local materials and symbolic colours that are very closely related to cultural heritage events. As an example, museums that display ancient Chinese social heritage can make use of traditional materials such as lacquerware and wood in addition to culturally symbolic colours such as red and gold. By meticulously picking materials and colours, interior developers can enable site visitors to connect with the social heritage of

the exhibitions visually and tactilely, consequently improving visitors' understanding and immersion in the event, which helps to demonstrate the academic and experiential worth of the museum.

The study showed that exhibit layout can include story components, use regional materials and colours as methods and integrate multimedia to convey the stories behind each exhibition. Second, via narrative exhibit layout and content, the tourist attraction and educational value of the exhibit can be enhanced, enabling visitors to not just value the stunning displays, yet also deeply comprehend the historical and cultural relevance of cultural heritage.

CONCLUSION

This research provides an in-depth analysis of the interior design of three significant representative museums in China, concentrating on the role of materials and colours in shaping and sharing the cultural identification of museums. Through case studies, this study observes how numerous materials and colours are purposefully used to improve the audience's cultural understanding and psychological reaction to exhibition themes.

The Palace Museum makes extensive use of wood and lacquerware, materials with cultural significance, reflecting the luxury and refinement of the ancient Chinese royal family. It also deepens the audience's understanding of Chinese royal culture through the heavy sense of local history in interior design. The modern materials such as glass and metal used by the Shanghai Museum convey the cultural openness of Shanghai. When it comes to the Shaanxi History Museum, traditional materials such as bronze and ceramics are used to effectively connect the audience with Shaanxi's rich archaeological heritage and ancient civilisation.

In terms of colour, the Palace Museum mainly uses red and gold to highlight the imperial power and wealth, which enhances the visual impact of the exhibition and deepens the audience's understanding of traditional Chinese values. To highlight the black and grey tones of the exhibits themselves, the Shanghai Museum uses a modern and simple aesthetic, allowing contemporary audiences to focus more on the interpretation of culture. The Shaanxi History Museum uses more earth tones and brown tones in its design, connecting visitors with the natural history of Shaanxi and increasing the exhibition's sense of regional identity and historical continuity.

This study found that the choice of materials and colours is an important visual element of interior design and can also be used as a tool to express local culture. Materials and colours play an important role in shaping the

cultural atmosphere of the museum and enhancing the visitor experience. Future studies can explore the innovation of museum interior design through local culture, so as to enhance its role in global cultural exchanges.

By thoroughly analysing the use of materials and colours in museum interior design, this study not only provides specific strategic recommendations for designers and museum managers but also offers new perspectives on understanding and utilising the potential of cultural heritage in modern society.

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