

Research on the Combination of UI and Graphic Design in Museums in the Digital Age

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Abstract. The development of science and technology and the arrival of the digital age have affected every aspect of people's life and work, and museum interactive design has gradually become an important part of exhibition design. Museum interactive design in the digital age can not only increase the audience's participation, but also provide more rich and personalized exhibition experience. The purpose of museum interactive design is to explore the interaction between audience and exhibits in a more in-depth and interesting way through digital technology. Museum interactive design in the digital age needs to create a sense of interaction and participation, so that audiences can more actively participate in the exhibition, rather than just passively watching. Through the application of digital technology, audiences can experience the exhibits, participate in the story plot, and communicate with each other, thus enhancing their memory and understanding of the exhibition.

Keywords: Digitization; Museums; UI; Graphic Design.

1. The Current Situation of Museums in the Digital Era

The digital age provides museums with new opportunities and challenges, allowing for deep integration and innovation in collections, exhibitions, education, and other aspects. The following is an overview of the current situation of museums in the digital age.

Firstly, collections are the core resources of museums. In the digital age, museums have transformed their collections into digital form through technologies such as scanning and 3D printing, establishing a digital collection management system. This not only effectively protects the collection, but also facilitates research, display, and sharing, greatly improving the utilization rate and dissemination range of the collection. Digital technology provides strong support for the protection and inheritance of museum collections. Through digital means, museums can restore and replicate endangered collections, ensuring the integrity and inheritance of their historical information. In addition, digital technology can also help museums establish collection databases and resource sharing platforms, promoting the cross regional dissemination and sharing of cultural heritage.

Secondly, online exhibitions are one of the important features of museums in the digital age. Through platforms such as websites and apps, museums can present exhibition content to audiences in various forms such as graphics, videos, and virtual reality, breaking the limitations of geography and time. At the same time, the museum also organizes various activities through online live streaming, interactive Q&A, and other means to enrich the audience's participation experience. Virtual reality technology has brought immersive exhibition experiences to museums. Viewers can immerse themselves in the exhibition by wearing virtual reality devices, experiencing the weight of history and the beauty of culture. This technology not only enhances the attractiveness of exhibitions, but also provides viewers with a deeper understanding and appreciation of museum collections. In the digital age, museum exhibitions are no longer just about display and viewing, but more focused on the interactive experience of the audience. Through technologies such as touch screens and sensors, museums provide visitors with opportunities to interact with exhibits, such as touching materials and listening to story backgrounds, making exhibitions more vivid and interesting.

Once again, social media promotion and expansion of educational functions. Social media has become an important channel for museums to communicate with the public. Through microblog,



WeChat, Tiktok and other platforms, the museum releases exhibition information, event trailers, collection stories and other content to attract the attention and participation of the audience. At the same time, social media also provides audiences with a platform to interact and share experiences with museums, further narrowing the distance between museums and the public. The digital age has injected new vitality into the educational function of museums. The museum has developed a series of interactive education projects using digital technology, such as online courses, games, animations, etc., to provide personalized learning experiences for audiences of different age groups. These projects not only enrich the educational resources of museums, but also increase public interest and awareness of history and culture.

Finally, cross-border cooperation and innovation. Museums are also actively exploring cross-border cooperation and innovation in the digital age. By collaborating with institutions and individuals in fields such as art, technology, and education, museums can introduce more diverse resources and concepts, promoting innovation in exhibition content and form. At the same time, the museum also encourages visitors to participate in creative design, product development and other activities, stimulating public creativity and enthusiasm for participation.

2. The Importance of UI Design

In the digital age, the UI design of museums is not only about user experience, but also an important embodiment of brand image. An excellent UI design can improve the user's experience and guide them to better browse and understand the content of the museum. At the same time, UI design is also a key component of the museum brand image. It helps museums create a unique brand image through intuitive interfaces and attractive elements. The importance of UI design in museums cannot be ignored, mainly reflected in the following aspects:

2.1. Improving User Experience:

UI design is the first interface for users to interact with museum digital products (such as websites, apps, etc.). Excellent UI design can make users obtain a more intuitive, convenient and comfortable experience when browsing museum content. Through reasonable interface layout, beautiful visual effects and humanized interaction design, UI design can guide users to better understand and appreciate museum exhibits, and enhance users' sense of participation and immersion.

2.2. Shaping Brand Image:

UI design, as an important part of the museum brand image, can convey the core values and characteristic culture of the museum to users through intuitive, beautiful and distinctive interface design. A unique and recognizable UI design can make museums stand out in the digital age, and enhance brand awareness and influence.

2.3. Strengthening Information Dissemination Effect:

UI design can make the information of museum exhibits more clear and intuitive to users through reasonable information architecture and visual effect design. At the same time, through animation, interaction and other design means, it can attract users' attention and improve users' attention and understanding of exhibit information. This helps museums to better convey cultural knowledge, historical stories and other important information, and realize the educational function and social value of museums.

4. Adapt to the digital development trend: With the continuous development and popularization of digital technology, museums also need to constantly innovate and improve to adapt to new development trends. As an important part of the digital display of museums, UI design can help museums better use digital technology, improve user experience and brand image, expand the audience's participation and coverage. The importance of UI design in museums is self-evident. Through excellent UI design, museums can improve users' visiting experience, create a

unique brand image, enhance the effect of information dissemination, and adapt to the development trend of the digital age.

3. The Role of Graphic Design

Graphic design plays an important role in the digital display of museums. It uses graphics, text, color and other elements to build a display space full of visual impact and artistic appeal. Through graphic design, museums can convey the historical background, cultural connotation and other information of exhibits to the audience in an intuitive and easy-to-understand way, and improve their visiting experience. In museums, the role of graphic design is mainly reflected in the following aspects:

3.1. Information Communication:

graphic design is an important tool for information communication in museums. Through graphics, text, colors and other elements, graphic design can clearly show the information of exhibits, such as name, age, material, etc., to help audiences better understand and appreciate exhibits.

3.2. Exhibition Theme Presentation:

museum exhibitions usually have a clear theme. Graphic design can create an atmosphere in line with the theme of the exhibition by means of overall design style, color collocation, graphic application and so on, so that audiences can better integrate into the exhibition context.

3.3. Exhibition Guidance:

in the exhibition space of museums, graphic design can play a guiding and indicating role. For example, through graphic design such as exhibition maps and signs, audiences can clearly understand the layout of the exhibition and the location of exhibits, so that they can visit.

3.4. Artistic Aesthetic Improvement

graphic design in museums is itself a form of artistic expression. By using innovative design concepts and artistic techniques, graphic design can improve the overall artistic aesthetic level of museums, so that audiences can enjoy the experience of beauty in the process of visiting.

3.5. Brand Image Building

graphic design is also an important means of brand image building in museums. Through unified design style, identification system, visual elements, graphic design can help museums create a unique brand image, enhance their awareness and reputation in the public. In the museum UI and graphic design in the digital age, it is equally important to maintain brand consistency and cultural characteristics. Designers need to integrate the brand elements and cultural characteristics of the museum into the design to ensure that the display effect is coordinated with the overall image of the museum. At the same time, designers also need to maintain respect for traditional culture in innovation, and present the historical and cultural value of the exhibits in an appropriate way. Graphic design plays an important role in museums. It not only helps to convey information and present exhibitions, but also improves the audience's artistic aesthetic experience and the brand image of the museum.

4. Design Concept of Fusion and Innovation

In the digital age, the UI and graphic design of museums are no longer isolated, but need to be integrated and complementary to each other. Designers need to closely combine UI design and graphic design to create more attractive and interactive display effects with innovative ideas. This design concept of fusion and innovation can help museums better convey cultural connotations and improve user experience in the digital age.

4.1. Challenges and Opportunities of Realistic Performance

Museum UI and graphic design in the digital age faces many challenges, such as rapid technological update and diversified user needs. However, these challenges also bring opportunities. Museums can use advanced technical means, such as virtual reality and augmented reality, to create more vivid and interesting display effects and attract more audiences. At the same time, museums can also understand user needs through big data analysis and other means to optimize UI and graphic design and improve user experience.

4.2. Use Technical Means to Improve Display Effects

The digital age provides rich technical means for museum UI and graphic design, such as virtual reality, augmented reality, dynamic interaction and so on. Designers can use these technical means to create more vivid and interesting display effects to attract the audience's attention. At the same time, these technical means can also help designers better convey the historical background, cultural connotation and other information of exhibits to improve the audience's visiting experience.

4.3. Pay Attention to User Experience and Interactivity

In the digital age, user experience and interactivity have become important considerations for museum UI and graphic design. Designers need to deeply understand the needs and preferences of audiences and design interfaces and display effects that meet their usage habits. At the same time, designers also need to pay attention to interaction, so that audiences can participate in the exhibition and have a deeper connection with the exhibits. This design concept that focuses on user experience and interaction can let audiences understand the exhibits more deeply and improve their visiting experience.

In the future, the UI and graphic design of museums will pay more attention to personalization, intelligence and interaction. Personalized design can meet the needs of different audiences and improve their visiting experience; intelligent design can optimize the display effect and improve user experience through big data, artificial intelligence and other technical means; interactive design can let audiences participate in the exhibition of museums more deeply and enhance their sense of participation and experience. To sum up, the combination of UI and graphic design of museums in the digital age requires designers to integrate innovative design concepts, use technical means to improve the display effect, pay attention to user experience and interaction, and maintain brand consistency and cultural characteristics. Such design strategies will help museums better convey cultural connotation in the digital age, improve user experience, and realize the inheritance and innovation of traditional culture.

5. Future Trends

In the future, the UI and graphic design of museums will pay more attention to personalization, intelligence, and interactivity. Personalized design can meet the needs of different audiences and enhance their visiting experience; Intelligent design can optimize display effects and enhance user experience through technologies such as big data and artificial intelligence; Interactive design can allow the audience to participate more deeply in the museum's display, enhancing their sense of participation and experience.

5.1. Widespread Application of Augmented Reality (AR) and Virtual Reality (VR):

With the continuous development of AR and VR technologies, graphic design may be more deeply integrated into these technologies, providing audiences with a more immersive experience. For example, through AR technology, viewers can see 3D models of museum collections on their mobile phones or tablets, and observe these collections from various angles through operations such as rotation and scaling. VR technology can create a completely immersive environment for the audience, allowing them to freely walk in digital museums and explore various exhibition areas.

5.2. Dynamic and Interactive Display:

Future digital museums may place greater emphasis on audience engagement and interactivity. Graphic design may adopt dynamic and interactive design methods, such as dynamic images, touch screen interaction, etc., to enable audiences to participate more directly in the exhibition, increasing their participation and interest.

5.3. Responsive Design:

With the popularity of mobile devices, more and more visitors will access digital museums through various mobile devices. Therefore, future graphic design may focus more on responsive design to ensure a good user experience across various devices and screen sizes.

5.4. Data Driven Design:

Future digital museums may place more emphasis on data analysis and user behavior research to understand the needs and preferences of audiences. Graphic design may rely more on data-driven design methods to optimize exhibition design based on audience behavior and feedback, enhancing the attractiveness and influence of exhibitions.

5.5. Sustainability and Environmental Protection:

With environmental protection and sustainability becoming increasingly the focus of attention, future digital museums may pay more attention to environmental protection and sustainability. Graphic design may adopt more environmentally friendly materials and technologies to reduce its impact on the environment, while also conveying the concepts of environmental protection and sustainability through design.

Overall, graphic design may place greater emphasis on audience engagement and interactivity in the future trend of digital museums, while also being influenced by technological advancements and changes in audience demand. Designers need to constantly pay attention to new technologies and trends, innovate and optimize their designs to meet the needs of audiences and enhance the attractiveness of digital museums.

To sum up, the combination of UI and graphic design of museums in the digital age requires designers to integrate innovative design concepts, use technical means to improve the display effect, pay attention to user experience and interactivity, and maintain brand consistency and cultural characteristics. Such design strategies will help museums better convey cultural connotation in the digital age, improve user experience, and realize the inheritance and innovation of traditional culture.

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