

# Research on User Experience Based Digital Mural Interaction Design

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**Abstract:** With the rapid development of digital technology, digital mural, as a new art form, has attracted more and more attention. This paper aims to explore the interactive design concept and practice of digital murals based on user experience. Firstly, this paper expounds the core position of user experience in interactive design of digital murals, and points out its importance in improving user participation and satisfaction. Then, the current situation of interactive design of digital murals is deeply analyzed, including users' cognition of interactive design and its application value in digital murals. Through investigation and research, this paper reveals the problems and shortcomings in the existing design. On this basis, this paper puts forward a series of interactive design strategies of digital murals based on user experience, aiming at optimizing the interaction between users and digital murals and improving the overall experience of users. These strategies cover many aspects, such as interface design, interactive logic, feedback mechanism and so on, in order to provide useful reference and enlightenment for the designers of digital murals. Finally, the paper summarizes the main findings of the study and looks forward to the development direction of interactive design of digital murals in the future.

## 1. Introduction

Driven by the wave of digitalization, digital murals have emerged and become a model of the combination of art and technology. This emerging art form not only bears the profound artistic value of traditional murals, but also gives users an unprecedented immersive experience through interactive design [1]. However, how to make this artistic experience more deeply rooted in people's hearts and make users feel convenient and comfortable while enjoying art is the key problem faced by interactive design of digital murals [2]. User experience is the subjective feeling established by users in the process of interaction, which directly affects users' acceptance and love of digital murals [3]. Therefore, the interactive design of digital murals based on user experience becomes the key, which is related to the perfect combination of technology and art, and more importantly, how to immerse users in this unique artistic experience.

A successful digital mural work must pay attention to the needs and habits of users and design with users as the center. Interactive design in digital murals is not only a technical display, but also a deep artistic communication [4]. Through elaborate interactive design, users can deeply understand and feel the emotion and meaning contained in works of art.

With the rapid development of science and technology, digital murals, as a combination of art and technology, have broad development prospects. The interactive design of digital murals based on user experience will be the core driving force for its sustainable development [5]. This paper discusses the interactive design of digital murals from the perspective of user experience. We will analyze the present situation, challenges and put forward design strategies, aiming at providing useful reference for the designers of digital murals and promoting the innovation of this art form. At the same time, it is also expected that by optimizing interactive design, more people can immerse themselves in the unique charm of digital murals and enjoy the pleasure and enlightenment brought by art.

## **2. Analysis of the current situation of digital mural interactive design**

### **2.1. User's understanding of digital mural interaction design**

With the rapid development of digital technology, digital murals have gradually entered people's vision as a novel art form. The interactive design of digital murals, as a key link, has become a topic worth exploring in terms of its development status and user perception.

The interactive design of digital murals is currently in a stage of rapid development and continuous exploration. Designers are striving to combine the aesthetics of traditional murals with the interactivity of modern technology, creating a refreshing artistic experience. In terms of interactive design, digital murals are no longer limited to simple touch or click operations, but achieve deep interaction between the audience and murals through various sensors and interactive devices. This deep interactivity makes digital murals more vivid and interesting, and also more attractive to the audience's attention.

Although digital mural interactive design has made some technological breakthroughs, users' understanding of it is not complete. Many viewers still hold a relatively unfamiliar attitude towards the interactivity of digital murals, and they may simply view them as a new form of display without a deep understanding of the interaction design concepts behind them. This cognitive deficiency to some extent limits the development potential of digital mural interactive design.

In order to enhance users' understanding of digital mural interaction design, we need to start from multiple aspects. Designers need to pay more attention to user experience in the design process, ensuring the usability and intuitiveness of interaction design. Relevant institutions and organizations can promote the knowledge and concepts of digital mural interactive design to the public through exhibitions, lectures, and other activities. Media and social platforms can also play an important role in increasing the visibility and influence of digital mural interactive design through promotion and publicity.

Digital mural interactive design, as an emerging art form, has broad development prospects but also faces some challenges. Only through continuous exploration and practice, can we truly unleash the potential of digital mural interactive design and bring a more diverse artistic experience to the audience by improving their awareness and understanding of it.

### **2.2. The application value of interactive design in digital murals**

With the continuous innovation and popularization of digital technology, digital murals, as an emerging art form that integrates traditional mural art with modern technology, are gradually receiving widespread attention. The application of interactive design in digital murals not only enriches the forms of artistic expression, but also enhances the audience's sense of participation and artistic experience.

The application of interactive design in digital murals significantly enhances the interactivity and fun of artistic works. Through various interactive devices such as touch screens and sensors, viewers can interact with digital murals in real-time and participate in the process of creating and displaying art works. This interactivity not only breaks the limitations of traditional mural one-way information transmission, but also allows the audience to have personalized communication with artistic works based on their interests and preferences.

The application of interactive design in digital murals helps deepen the audience's understanding and perception of artistic works. Through interactive design, digital murals can showcase more information and content, such as the artist's creative ideas and the background story of the artwork. During the interactive process, the audience can gain a deeper understanding of the connotation and value of artistic works, thereby deepening their understanding and perception of art.

The application of interactive design in digital murals has also promoted the integration of art and technology, promoting innovation and development of digital mural art. With the help of advanced interactive technology and equipment, designers can create more unique and innovative digital mural works, bringing audiences an unprecedented artistic experience.

The application value of interactive design in digital murals cannot be ignored. It not only enriches the expression forms of digital murals, but also enhances the audience's sense of

participation and artistic experience, promoting the integration and innovation of art and technology. In the future, with the continuous development and improvement of digital technology, the application of interactive design in digital murals will be more extensive and in-depth.

### 3. User experience based digital mural interaction design strategy

#### 3.1. The importance of user experience in digital mural interaction design

The importance of user experience in digital mural interaction design is self-evident. As an emerging art form that combines traditional mural art with modern technology, the quality of interactive design of digital murals directly affects the audience's participation and artistic experience. Placing user experience at the core of digital mural interaction design is the key to enhancing the artistic value of digital murals[6].

User experience is the soul of digital mural interaction design. Digital murals are different from traditional static murals[7]. Through interactive design, they allow the audience to participate in the world of murals and interact with them. The quality of this interaction is directly related to the audience's understanding and perception of digital murals. An excellent digital mural interactive design should be able to evoke emotional resonance among the audience, immerse them in the world of art, and feel the charm of murals. And all of this cannot be achieved without in-depth research and precise grasp of user experience.

User experience is a key factor in improving the dissemination effect of digital murals. In the digital age, the way art is disseminated has undergone earth shattering changes. As a new form of art, digital murals must have unique appeal in order to stand out among numerous works of art. The quality of user experience is directly related to the dissemination effect of digital murals. An interactive design that is easy to understand and easy to operate can attract more viewers to appreciate, thereby enhancing the popularity and influence of digital murals[8].

User experience can also drive innovation and development in digital mural interactive design. Through in-depth research on user experience, designers can more accurately grasp the needs and expectations of the audience, and then integrate more creativity and elements into interaction design. This innovation can not only enhance the artistic quality of digital murals, but also inject new vitality into the future development of digital murals[9].

User experience plays a crucial role in digital mural interaction design [10]. Designers should always prioritize user experience and create more attractive and influential digital mural works by conducting in-depth research and accurately grasping the audience's needs and expectations. We should also continuously promote innovation and development in digital mural interactive design, and contribute more to the protection and dissemination of traditional murals. Table 1 clearly demonstrates the importance of user experience in digital mural interaction design.

Table 1 The Importance of User Experience in Digital Mural Interaction Design

| The Importance of User Experience               | The Impact of Digital Mural Interaction Design                   | Conclusion   |
|---|--|--|
| Soul and Core                                   | Audience engagement and artistic experience                      | Enhancing the artistic value of digital murals                         |
| Emotional resonance and immersive experience    | Audience's cognition and perception of digital murals            | Deeply research and accurately grasp user experience                   |
| Key factors for communication effectiveness     | The popularity and influence of digital murals                   | Easy to understand and user-friendly interactive design                |
| The driving force of innovation and development | The Art Quality and Future Development Vitality of Digital Mural | Deeply study user needs, integrate creativity and elements             |
| A crucial role                                  | The attractiveness and influence of digital mural works          | Putting user experience first and promoting innovation and development |

### 3.2. Interactive design strategy of digital mural

In designing digital murals, user experience stands as a pivotal consideration. To craft digital mural works that captivate and endure, designers must delve deeply into comprehending user needs, expectations, and behavioral patterns. Based on this understanding, a series of interactive design strategies rooted in user experience should be devised. Designers must pinpoint the intended audience and undertake comprehensive research on them. This involves grasping their demographics, cultural backgrounds, artistic tastes, and usage tendencies. Methods like surveys, interviews, and observations yield invaluable insights, bolstering the foundation for subsequent interactive designs.

Furthermore, designers must prioritize the interface design of digital murals, aiming for simplicity, intuitiveness, and ease of use. This entails a logical layout, harmonious color schemes, and clear, precise text. Additionally, designers must ensure compatibility across various devices and screen sizes, guaranteeing an optimal visual experience in diverse settings. When it comes to interaction, designers should strive for naturalness and fluidity. By leveraging cutting-edge technologies like touchscreen, gesture recognition, and speech recognition, designers can introduce a myriad of interactive modes, facilitating effortless engagement with digital murals. It's crucial to consider users' cognitive abilities, avoiding overly complicated operations and ensuring intuitive usability.

A real-time feedback system is also pivotal in enhancing user experience. As users engage with digital murals, the system should provide immediate feedback, such as auditory cues or visual shifts, bolstering engagement and aiding comprehension. Moreover, designers should consistently gather and analyze user data to assess the effectiveness of the digital mural's interactive design. This data-driven approach helps identify potential issues and areas for improvement, enabling refined and optimized designs.

The strategy of user experience-based digital mural interaction design is a comprehensive undertaking. It demands that designers consider user needs, expectations, and behaviors from multiple angles. Only through this holistic approach can we create digital murals that truly resonate with users, offering a richer and deeper artistic journey. Figure 1 clearly illustrates the key aspects that designers need to consider in the digital mural interaction design process.

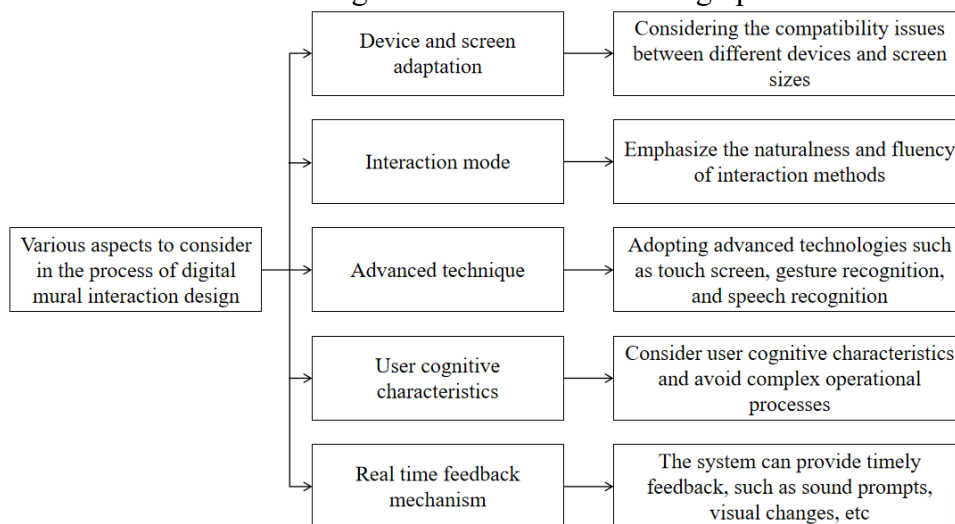


Figure 1 Key aspects that designers need to consider in the process of digital mural interaction design

### 4. Conclusions

This paper discusses the interactive design of digital murals based on user experience. User experience is the core of interactive design of digital murals, which directly affects whether users are willing to interact with digital murals and the depth of interaction. Therefore, designers must

always pay attention to and optimize the user experience in the creative process.

Through the analysis of the current interactive design of digital murals, it is found that there are still some problems and challenges, such as the unnatural interaction mode and the unsmooth user experience. Aiming at these problems, this paper puts forward a series of practical design strategies, aiming at improving the interactivity and user experience of digital murals.

As a new art form, digital mural has a bright future, but it also needs constant exploration and innovation in practice. The research results and design strategies are aimed at providing useful reference for the designers of digital murals, promoting the better development of digital mural art and enabling more people to enjoy this unique artistic experience.

Through in-depth research and practical exploration, this paper provides some suggestions for the interactive design of digital murals, hoping to have a positive impact on the development of digital mural art.

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