

Methodology for Immersive Experience Design in Chinese New Media Art

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ABSTRACT

This paper aims to conduct an in-depth exploration of the methodology for immersive experience design in Chinese new media art. By analyzing the concepts of new media art and immersive experience, and dissecting the unique presentation and integration methods of traditional Chinese cultural elements within them, new media art breaks through the limitations of traditional media with the help of emerging means such as digital technology, possessing characteristics like interactivity and digitalization. Meanwhile, immersive experience emphasizes the integration of multiple senses to enable participants to be deeply involved. It studies the design strategies of interactivity and narrativity, analyzes the key points of technological application and space creation, and explores the path of user experience evaluation and optimization, so as to build a relatively comprehensive and systematic methodological framework for immersive experience design in Chinese new media art. This methodological system is conducive to inheriting Chinese culture, promoting the innovative development of Chinese new media art, and also providing diverse creative ideas and cultural reference examples for the global art community. It fills the gaps in systematic research in related fields and promotes the mutual progress of theory and practice in the field of immersive experience design in new media art.

KEYWORDS

New media art; Immersive experience; Traditional cultural elements; User experience

1 Introduction

Since its emergence, new media art has witnessed a rapid development process. From the initial application of early computer technology to the in-depth integration of various digital technologies nowadays, it has continuously broken through the boundaries of traditional art and demonstrated unlimited innovation potential. In the surging wave of the booming global new media art, Chinese new media art has its own unique charm.

China's rich traditional cultural heritage has injected unique connotations into new media art, enabling it to stand out on the world stage. From ancient art forms such as calligraphy, painting, and opera to modern digital presentations, Chinese new media art has found a unique balance between inheritance and innovation, ingeniously integrating traditional cultural elements with cutting-edge technologies and highlighting distinct ethnic characteristics and cultural identities. However, in the development process of new media art, how to create immersive experiences through effective design methodologies has become a key issue^[1].

As audiences' demands for art experiences are increasing day by day, mere visual displays can hardly meet their needs. This paper aims to conduct an in-depth exploration of how to build a comprehensive immersive experience design methodology in Chinese new media art. The research on this core issue is of great significance. For the Chinese art community, it helps to further tap into traditional cultural resources, promote the innovative development of new media art, create artworks with international influence, and facilitate the prosperity of cultural inheritance and the cultural industry.

From the perspective of the global art community, the exploration of Chinese new media art can provide diverse creative ideas and cultural references for other countries and regions, enriching the creative vocabulary and forms of expression of global new media art. Looking back at the existing research on new media art and immersive experiences, although there have been numerous achievements in aspects such as technological application and interactive design, there are still deficiencies in the systematic research on the methodology for immersive experience design in Chinese new media art. This paper will be committed to filling these gaps and providing a comprehensive, in-depth methodological framework with practical guiding significance for the immersive experience design of Chinese new media art.

2 Overview of New Media Art and Immersive Experience

2.1 Overview of New Media Art

New media art is an art form created by using emerging technological means such as digital technology, computer graphics, and network communications. It has broken the medium boundaries of traditional art and has remarkable characteristics like interactivity, digitalization, and cross-mediality^[2]. Artists can create dynamic, multi-dimensional, and variable artworks with the help of software and hardware devices, enabling the audience to no longer be just passive

viewers but to be able to participate in the interactive process of the artworks.

2.2 Connotations and Characteristics of Immersive Experience

Immersive experience refers to creating an all-round and multi-sensory environment, enabling participants to be deeply involved both psychologically and physiologically, and generating a sense of being personally on the scene. Its characteristics include a high degree of immersion, concentration, emotional resonance, and a temporary weakening of the perception of the real world. In new media art, through the synergistic effect of various sensory stimuli such as visual, auditory and tactile ones, combined with carefully designed scenes and plots, the audience is guided into a virtual or semi-virtual art world, thus realizing the immersive experience.

3 The Integration of Traditional Chinese Cultural Elements in Immersive Experience Design

3.1 The Application of Traditional Visual Elements

Traditional Chinese culture boasts rich and diverse visual elements, such as calligraphy, painting, paper-cutting, embroidery, patterns of traditional architecture and so on. In the immersive experience design of new media art, these elements can be reinterpreted and presented through digital technology. For example, the dynamic effects of calligraphy strokes can be combined with interactive functions. When triggered by the audience's actions, the strokes of calligraphy will be displayed smoothly on the screen, as if a calligrapher were writing on the spot. The modeling elements of traditional architecture like dougong (brackets) and upturned eaves can be transformed into three-dimensional models to build virtual spaces with a classical Chinese charm, allowing the audience to stroll around in them and experience the unique charm of traditional architecture^[3].

3.2 Integration of Traditional Auditory Elements

Traditional auditory elements such as classical music, operas, and folk art forms have added a rich cultural atmosphere to the immersive experience of new media art. The music played by ethnic musical instruments like the guzheng, erhu, and pipa can be matched with the plots and rhythms of new media works^[4]. For example, in an immersive new media art work with the theme of ancient immortals and martial heroes, the melodious tunes of the guzheng, accompanied by the hazy and fairyland-like images, make the audience feel as if they were in the world of immortals and martial heroes. The arias and spoken parts in operas can also be integrated into the works as voice-overs or character dialogues, enhancing the narrativity and cultural connotations of the works.

3.3 Exploration of Traditional Stories and Themes

China's long history encompasses countless well-known stories and themes, such as mythological legends, historical allusions, and folk tales. These stories provide abundant creative materials for new media art. Take the story of "Chang'e Flying to the Moon" as an example. Through virtual reality technology, a realistic scene of the Moon Palace can be created, allowing the audience to follow Chang'e on her journey to the moon from a first-person perspective and experience the fantasy and romance of ancient myths during the journey. Meanwhile, by combining the moral concepts and emotional connotations in traditional stories with modern values, the works can have contemporary significance while inheriting culture.

4 Application Practice of Immersive Experience

4.1 Application of Interactive Design Strategies in Immersive Experience

4.1.1 Interactive Experience Based on Motion Capture

Motion capture technology can record the body movements of the audience in real time and convert them into digital signals that are then fed back into new media artworks. In the design of immersive experiences, a variety of interactive sessions based on motion capture can be set up. For example, in a new media art exhibition with the theme of martial arts, after the audience's fist and foot movements are captured, corresponding special effects of martial arts moves will be presented on the screen, accompanied by powerful sound effects at the same time. This makes the audience feel as if they have become martial arts masters and can freely display their martial arts skills in the virtual world of martial heroes. This interactive method greatly enhances the audience's sense of participation and immersion.

4.1.2 Touch Interaction and Interface Design

Touch interaction is a common form of interaction in new media art. For immersive experiences, simple, intuitive and aesthetically pleasing touch interaction interfaces can be designed. For example, in a new media work showcasing traditional Chinese handicrafts, by touching different areas on the screen, the audience can learn in detail about the production process, historical background and other information of the handicrafts. They can also simulate some aspects of handicraft production through touch operations, such as the cutting actions when doing paper-cutting and the stitch simulation when embroidering. Interface design should focus on the unity with the overall style of the work and use elements such as traditional Chinese colors and patterns for decoration, so that the audience can feel a strong cultural atmosphere during the operation process^[5].

4.1.3 Synergistic Effect of Multi-sensory Interaction

In addition to visual and tactile interactions, multi-sensory interactions such as olfactory and gustatory ones are also gradually being applied to the immersive experience design of new media art. For example, in a work themed on ancient court banquets, through multi-sensory stimuli like emitting the aroma of food and simulating the taste of wine, combined with exquisite visual images and elegant music, the scene of the court banquet is restored in an all-round way, making the audience feel as if they have traveled through time and space and personally participated in the grand feasts of the ancient court. The synergistic effect of multi-sensory interactions can further strengthen the audience's sense of immersion and enable them to experience more deeply the emotions and cultural connotations conveyed by the works.

4.2 Construction of Narrative Design in Immersive Experience

4.2.1 Arrangement of Storylines and Rhythm Control

In the immersive experience of new media art, the arrangement of storylines is of vital importance. A good storyline should have a clear beginning, development, climax and ending, which can attract the audience's attention and guide them to gradually immerse themselves in the work. For example, in an immersive new media art work with the theme of the ancient Silk Road, it can start from merchants preparing for a long journey, experience all kinds of hardships and adventures during the trip, such as crossing deserts, encountering storms, and communicating with exotic cultures, and finally arrive at the destination to complete trade and cultural dissemination. During the progression of the storyline, the rhythm should be reasonably controlled, alternating between tense and exciting plots and soothing and peaceful ones, so that the audience's emotions will rise and fall accordingly, maintaining a high level of attention and immersion.

4.2.2 Character Building and Emotional Resonance

By creating vivid character images, it is possible to make the audience have emotional resonance in the immersive experience. The characters can be historical figures, mythological roles or fictional images. For example, in a new media art work with the theme of "Liang Shanbo and Zhu Yingtai", the appearance, personality, emotional changes and other characteristics of Liang Shanbo and Zhu Yingtai are carefully depicted. Through delicate animation expressions, moving voice-overs and interactive sessions with the audience, such as allowing the audience to participate in the emotional choices of Liang Shanbo and Zhu Yingtai, the audience can deeply feel the love tragedy between them, thus triggering emotional resonance and strengthening their sense of identity with and memory of the work.

4.2.3 Non-linear Narrative and Multi-perspective Presentation

The non-linear narrative approach can break the limitations of traditional linear narrative and provide the audience with a richer and more diverse experience. In new media art, the non-linear narrative technique with multi-perspective presentation can be adopted. For example, in a work showcasing ancient Chinese wars, the audience can choose to experience the whole picture of the war from different perspectives such as that of the general, the soldier, and the common people. Each perspective has its own unique storyline and plot development. Through this way, the audience can understand the themes and connotations expressed by the work in a more comprehensive and in-depth manner, and further enhance their sense of immersion and participation in the process of exploring different perspectives.

4.3 Key Points of Technology Application and Space Creation in Immersive Experience

4.3.1 Application of Virtual Reality (VR) and Augmented Reality (AR) Technologies

VR technology can create a completely virtual immersive environment, enabling the audience to be fully immersed in

the virtual world. In new media art, VR technology can be used to create highly realistic recreations of historical scenes, fantasy adventure experiences and so on. For example, with VR technology, the audience can walk into the interior of the Terracotta Army in the Mausoleum of the First Qin Emperor, observe the details of the Terracotta Army up close, and experience the mystery and grandeur of the ancient imperial mausoleum.

AR technology combines virtual information with real scenes, adding a new dimension to the real world. For instance, in a museum, through AR technology, when the audience views cultural relics, they can see virtual displays of the historical stories and manufacturing techniques behind the cultural relics, making the visiting experience more enriching and interesting.

4.3.2 Projection Mapping and Space Transformation

Projection mapping technology can project dynamic images onto the surfaces of various objects, achieving dynamic transformation and decoration of space. In the design of immersive experiences, projection mapping technology can be utilized to project traditional Chinese paintings, patterns and so on onto spatial elements such as the walls and floors of buildings, creating a spatial environment rich in cultural atmosphere. For example, in a night scene display of an ancient town, ancient landscape paintings are projected onto the walls of the buildings beside the river. As the water flows and the light and shadow change, the pictures seem to come to life, making the night in the ancient town full of poetry and a dreamy feeling. Meanwhile, combined with movable spatial installations such as rotating stages and lifting platforms, dynamic transformation of space can be achieved, enhancing the visual impact and immersion of the audience.

5 Exploration of User Experience Evaluation and Optimization in Immersive Experience Design

5.1 Establishment of User Experience Indicators

In order to evaluate the immersive experience effect of new media artworks, it is necessary to establish a set of scientific and reasonable user experience indicator systems. These indicators can include the degree of immersion, the smoothness of interaction, the intensity of emotional resonance, cognitive load and so on. For example, the degree of immersion of the audience during the experience process can be measured through methods such as questionnaires and monitoring of physiological indicators (such as heart rate, brain waves, etc.); the smoothness of interaction can be evaluated by observing the operation error rate and response time of the audience during the interaction process; the intensity of emotional resonance can be judged through the audience's self-reports, facial expression analysis, etc.; and the cognitive load can be evaluated by comparing the audience's mastery of relevant knowledge about the works before and after the experience.

5.2 Collection and Analysis of User Feedback

Collecting user feedback is a crucial step in optimizing the design of immersive experiences. Comment boxes can be set up at the exhibition site of the works, on-site interviews can be carried out, or the opinions and suggestions of the audience can be collected through online platforms such as social media and specialized feedback websites. Conduct in-depth analysis of user feedback to understand how the audience felt during the experience, the problems they encountered, and the directions they expect for improvement. For example, if many viewers feedback that the operation of a certain interactive session is too complicated and difficult to understand, then it is necessary to simplify and optimize the design of that interactive session to improve the user experience.

5.3 Iterative Optimization Design Process

Based on the evaluation results of user experience indicators and the analysis of user feedback, conduct iterative optimization design for new media artworks. In each round of iteration, make targeted improvements for the existing problems. For example, optimize the application of technology to enhance the sense of immersion, adjust the narrative structure to strengthen emotional resonance, and improve the interaction design to boost the smoothness of interaction, etc. Through continuous iterative optimization, the immersive experience effect of the works will be continuously improved, better meeting the needs and expectations of the audience. Meanwhile, it will also promote the continuous improvement and development of the methodology for immersive experience design in Chinese new media art.

6 Conclusion

The methodology for immersive experience design in Chinese new media art is a multi-dimensional and

comprehensive system. By integrating elements of traditional Chinese culture, applying interactive and narrative design strategies, reasonably using technological means to create a spatial atmosphere, and establishing an effective user experience evaluation and optimization mechanism, it is possible to create immersive new media artworks with unique charm and profound connotations. In the future, with the continuous progress of science and technology and the sustained prosperity of the cultural and creative industries, the immersive experience design of Chinese new media art will embrace broader development prospects. It is necessary to keep exploring and innovating to meet the needs of the times and the increasingly high aesthetic expectations of the audience.

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