

DIGITAL EXPERIENCE DESIGN OF GUANGDONG PIAOSE UNDER AR INTERACTIVE MODES

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ABSTRACT

The combined protection of folk customs and digital technology has become an important topic in the discussion of digital cultural heritage. Digital technology can effectively broaden the channels for folk custom display, enrich the space and scene expression of traditional folk customs, and break the time and space boundaries of cultural inheritance and development. Piaose is a kind of folk art spread in central and southern coastal areas of China. It has extremely high artistic and social value. However, due to the impact of modern urbanization, Guangdong Piaose has gradually lost its living environment and cultural heritage. This study takes Piaose, Shawan, Panyu, Guangdong as a case study to explore the digital experience of Guangdong Piaose folklore under the AR interaction mode. constitute a mechanism to establish a new interactive communication relationship between folk culture and the audience. Based on the relevant case analysis and research on the digital application of cultural heritage, this study focuses on the theoretical methods and design practical experience of augmented reality technology in the application of folk culture, and develops products that are in line with the concept of "living protection" of folk culture and have the Shawan regional culture. A unique Piaose folk digital brand. Combined with the theory of Nathan Shedroff's experience design, we focus on exploring the digital experience means, experience channels and experience effects of Shawan Piaose, so as to obtain the public's experience and perception of Guangdong Piaose's digital interaction, stimulate the endogenous power of folk culture inheritance, and provide folk customs Provide suggestions for the innovative development of cultural digitalization.

Keywords: Guangdong Piaose, Digitization of cultural heritage, Augmented reality, Experience design

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INTRODUCTION

Piaose is a folk art spread in central China and the southern coastal areas. It has a long history and integrates drama, magic, acrobatics, music, and dance. It uses mechanical principles to skillfully fix actors on stands to perform parades. It has extremely high artistic value and social value. Piaose is widely popular in Guangzhou, Zhanjiang, Zhongshan, Jiangmen, Shaoguan and other areas of Guangdong. Among them, Guangzhou Panyu Shawan, Jiangmen Taishan Pumice, Zhongshan Nanlang Yayou, and Zhanjiang Wuchuan Meilong are the most typical ones. Over the years, it has transformed from an original activity to play or entertain the gods to an original art of mass entertainment. The specific time and place meet the special atmosphere needed for the ceremony, and people temporarily break away from the normal daily life and enter a state of aesthetic selflessness. Ritual behaviors and aesthetic activities have similar spiritual needs and are transformed into aesthetic realms, providing possibilities and realms for aesthetic activities, and daily behaviors are subsequently transformed into aesthetic behaviors.



Figure 1: Shawan Piaose held in Shawan Town, Guangdong Province on April 22, 2023
Source: Guangzhou Daily reporter Xiao Guilai (2023)

"Digitization of cultural heritage" can be explained as "the use of digital technologies such as digital collection, digital storage, digital processing, digital display, and digital dissemination to convert, reproduce, and restore cultural heritage into a shareable and reproducible digital form, and use it in a new Interpret it from different perspectives, preserve it in new ways, and utilize it according to new needs." At present, the academic community has accumulated certain experience and consensus in the aspects of problem awareness, top-level design, standard development, and digital value of folk cultural resource digitization research, and research on the application level of folk digitization is involved. The development of information technology and new media technology has provided new means for the protection and inheritance of folklore. However, the research on digitalization strategies of folklore culture in academia is still in the development stage. There is a lack of in-depth exploration and analysis of the pros and cons of existing folklore digitization, and cultural resources. There is insufficient research on issues such as dissemination, sharing and utilization.

In recent years, the Guangdong government and all sectors of society have attached great importance to the digital protection of cultural heritage and have launched many intangible cultural heritage digital construction projects. For example, the first batch of traditional Guangzhou furniture was 3D scanned and digitally converted to form a digital resource library of Guangzhou furniture; game companies used motion capture technology to incorporate "Hongquan" elements into game research and development; schools and enterprises jointly used 3D animation technology , adding trendy elements to the traditional patterns of "Guangcai", and developing electronic picture frames, digital animations and other products;

the Guangzhou Intangible Cultural Heritage Protection Center actively builds an intangible cultural heritage + short video platform to build a " Tik Tok Guangzhou" with normal operation and multi-dimensional communication "Intangible Cultural Heritage Museum"; the Foshan government takes traditional intangible cultural heritage such as Kungfu, Lion Dance, and Dragon Boat as an entry point, and creates Non-Fungible Token of videos or pictures to provide scientific theories for the protection and development of traditional crafts in Guangdong. Support and extensive practical experience. Digital research on Lingnan culture has paid less attention to Shawan Piaose culture, and there is still a lot of room for exploration in the research on the above-mentioned emerging digital methods.

This study is based on the research case of Piaose in Shawan, Panyu, Guangzhou, and explores the composition mechanism of Guangdong Piaose folk digital mass experience under the AR interactive mode, in order to establish a new communication relationship between folk culture and the audience. With the rapid changes of the times, communication is no longer limited to a single channel, and diversified technical means have put forward new requirements for the development and update of folk culture. Based on the analysis and research of relevant cases of the application of cultural heritage digitization, this article focuses on the theoretical methods and design practical experience of augmented reality technology in the application of folk culture, and develops products that are in line with the concept of "living protection" of folk culture and have the Shawan regional culture. A unique Piaose folk digital brand. At the same time, combined with the theory of Nathan Shedroff's experience design, it focuses on analyzing the digital experience means, experience channels and experience effects of Shawan Piaose, with the research objectives of exploring how to enhance the digital public experience of Guangdong Piaose through AR interaction mode, and providing research on folk digital branding. Provide theoretical support and practical cases.

This research aims to explore ways in which AR interactive mode can enhance Guangdong Piaose's digital public experience.

LITERATURE REVIEWS

Piaose is a kind of folk parade and gathering. The study of folk gathering culture has always been a common concern of anthropology, sociology, folklore, even history and religion. Since the 1980s, with the revival of the field of folklore, folk gatherings that integrate religious beliefs, cultural parades, production and life have gradually attracted the attention of researchers. Therefore, from the macro level to the micro level, from fieldwork to theoretical research, research on this topic has gradually shown a multi-disciplinary integration situation. On the one hand, it is necessary to study the protection and development of Piaose from the perspective of intangible cultural heritage, so as to promote the excellent traditional culture of the Chinese nation; but at the same time, it is necessary to study the digitalization of Piaose in Guangdong under the background of the new era. To achieve its innovative activation is an inevitable requirement for realizing cultural innovation. At present, the research on Piaose art in my country's academic circles mainly has the following perspectives.

First, study the Piaose art as an important intangible cultural heritage, and elaborate on the development process, development methods and protection policies of intangible cultural heritage. Scholar's study Piaose from the perspective of protection and development. Representative studies include Tang Lei and Zhang Mu's (2011)"Research on the Interactive Relationship between Folklore Intangible Cultural Heritage Protection and Tourism Development - Taking Piaose in Shawan, Guangzhou as an Example" , Zeng Yanling (2007) "A Brief Analysis of the Piaose Art and Tourism Development Strategies of Shawan in Guangzhou", etc. These studies mainly analyze the historical evolution, location characteristics and artistic value of Piaose in Shawan, and elaborate on the performance of Piaose in Shawan. The specific content and tourism development strategy for experiencing the beauty of Shawan.

In addition, some scholars conduct comparative research to compare folk art forms from different regions or types to highlight their characteristics. For example, "Comparative Research on Traditional Festival Tourism in China and Japan" (Liu, 2008) focuses on the perspective of urban tourism, using the theory of folk tourism to compare the Kawagoe Festival in Tokyo, Japan, and the Piaose activities in Panyu, Guangzhou, and analyze their origins and cultural display. and protection measures to provide reference and suggestions for building local cultural and economic development.

Secondly, from the perspective of folklore and sociology, study what kind of traditional folk culture is behind Piaose as a folk tradition, as well as the specific process of cultural change. Research from this perspective usually combines sociology, Religious studies and other theories, multi-disciplinary analysis, and a large amount of field work data are used at the same time, which is more convincing. "The Origin and Historical Development of Piaose" (Li, & Li, 2014) discusses from the origin that Piaose evolved from an ancient religious ritual, and was eventually introduced to Guangdong and became a folk performing art. "A Comparative Study of the Story of Majitang and Piaose in Guangdong" (Cao, 2011) introduced the origin and characteristics of the story of Majitang in Taojiang, Hunan and Piaose in Guangdong respectively, and concluded that both "Ma" and "Piao" belong to Lifting the pavilion was introduced from Jiangxi in the late Ming Dynasty. The difference lies in the skills, Piaose is more skilled, and it is not just an ornamental activity, but the article does not conduct further in-depth research. The difference between the article "Tai Pavilion: An Ancient and Extensive Square Performing Art" (Che, 2008) is that behind the elaboration of Pavilion Pavilion as an art form, it is also a way of social integration based on common beliefs, enhancing people's sense of identity and emotional connection. "The Relationship between Shawan Piaose and Folk Beliefs" (Li, 2013) believes that Piaose is a form of entertainment for the gods. Through the analysis of the ritual field structure, ritual behavior structure, ritual sound structure and other perspectives, it explains the Shawan Piaose's folk beliefs. Piaose not only has rich intangible cultural value, but also has unique functions of aggregation, communication and education. The article "Wandering Gods and Acting - Aesthetic Research on Guangdong's Piaose Art" (Zhang, 2014) analyzes Piaose from the perspectives of sacrificial rituals and performing arts, focusing on explaining its specific expression forms, procedures and cultural connotations, and further Discuss its cultural function.

Thirdly, from the perspective of art, we study the aesthetic value and function of Piaose as a unique art form, and analyze the artistic beauty from various aspects such as form, content, technique, color and so on. Piaose is not only a kind of plastic art, but also has unique aesthetic taste and cultural function. Not only the Piaose art in Shawan, but also the research on Piaose art in Zhanjiang and other places can also be used as a reference for this article. "The wonderful and ingenious folk art - On Wuchuan's "Piaose" using dramatic plots and appearance as the carrier" (Tan, 2011) "A brief discussion of the humanistic significance of Zhanjiang's "Dragon Dance" and "Piaose" (Wang, 2004) analyzed the aesthetic value and characteristics of Piaose art in Zhanjiang area. This folk art not only has wonderful performances, but also has ingenious skills. "Exploring the Aesthetic Value of "Piaose" Art" (Huang, 2011) mainly analyzes the aesthetic value of "Piaose" art, and believes that "Piaose" is not only a flowing art, but also a condensed drama with difficult to solve mysteries and unique characteristics. The wonderful structure is a movable sculpture. This is a relatively comprehensive study of Piaose from an artistic perspective and has certain reference value.

RESEARCH METHODOLOGY

This study plans to adopt the idea of "literature review - theoretical analysis - refine elements - propose strategies - summarize methods - demonstrate evaluation - method improvement", and conduct AR interaction through theoretical research, literature review and case analysis.

Conduct systematic research on the application strategies of Piaose experience design in Guangdong, enrich the application model of AR interaction in folk digitization, improve the audience's perceptual experience in participating in folk activities, and provide information for Shawan Piaose inheritors, tourism managers and tourism products Developers provide valuable reference. Based on the above research ideas, this article uses the following research methods:

1. Literature research method

Through the collection of secondary materials such as local literature and local chronicles in Panyu, Guangdong, as well as the current research status of digital transformation of cultural heritage, the application field of experience design theory, the current research status of AR interaction model application, and the application dimensions of AR interaction in the digital experience of cultural heritage, etc. Sort out and analyze relevant domestic and foreign literature to understand the basic status of the research issues and the application of relevant theories, etc., and explore and explore the basic theories, research methods and research contents involved in the study of experience design under the augmented reality interactive mode in Guangdong Piaose. To summarize, analyze the relevant applications and shortcomings of AR interaction in folk digital experience, and expand the scope of related research.

2. Participant observation method:

The core of experience design research is observation. Through observation, we can understand specific information such as users' motivation, behavior, and operation process in the environment. In order to collect the most authentic visiting behaviors and attitudes of the research subjects when participating in Shawan Piaose, and to explore the needs that the users themselves are not aware of, we adopted a hidden observation method that does not affect or disturb the users, and always keep a certain distance from the users during the observation process. Conducting on-site research on the central area of Shawan Town, which has a permanent population of 30,000 and a floating population of 30,000, requires in-depth analysis of the specific context of the Shawan Piaose Parade, with participant observation as the primary method, and a survey of people who spontaneously visited the Shawan Ancient Town. Tourists conduct observations, and the observation contents include the visiting methods and specific behaviors during the visit, and the AEIOU observation framework is used to record the information. AEIOU is an organizational framework that classifies and summarizes activities, environments, interactions, objects, and users, which can help researchers quickly edit observation results.

3. Questionnaire survey method:

Questionnaire surveys conduct extensive and rapid surveys of users in a structured and standardized form, and are one of the common methods of empirical research. The target population of this questionnaire is 150 residents of Shawan Town and 150 tourists who have watched and participated in Shawan Piaose. The purpose of the survey is to quickly understand users' behavioral preferences and interactions with performers when watching Shawan Piaose. situation and the degree of awareness of the application of augmented reality in cultural heritage dissemination, providing a basis for subsequent research.

The questionnaire will use the Likert scale, adopt 5 levels of options, digitize the option scores, and use qualitative and quantitative analysis methods to conduct statistical analysis on the survey results to obtain clear user experience needs to guide the design:

1. Mobile phone usage habits: In order to understand the user's daily use of mobile phones, the main purpose and the main types of applications in the mobile phone, verify the development possibility and potential promotion of Piaose AR mobile applications.
2. User visit behavior: Understand the willingness of residents and tourists to visit Shawan Piaose again.
3. User pain points and expectations: Among various folk digital display methods, do users prefer interactive multimedia display?
4. Users' cognition and preference for AR: Users' attitude

towards AR technology itself and its application in the cultural field, and whether they are willing to actively try and experience it.

4. User interview method:

User interviews are one of the common methods to deeply explore user needs and study user attributes. They can supplement aspects that designers fail to consider or involve in questionnaire surveys and observation methods. Through visitor inquiry guidance, users can clearly express their subjective intentions and their own needs. First, the researchers will select one Piaose inheritor from each of the four villages in Shawan Town, Guangdong, namely He Xiehe (Shawan North Village), Li Hanming (Shawan East Village), Li Xingxian (Shawan West Village), He Weijian (Shawan South Village) conducted an in-depth interview to interpret the origin, transformation, foundation, performance, and aesthetics of Shawan Piaose, explore its value in all aspects, as well as the willingness and demand for the digitalization of cultural heritage, and finally return to the inheritance we are currently facing. Dilemmas and problems.

5. Design practice and case analysis method:

Analyze excellent digital interaction cases on traditional cultural themes such as intangible cultural heritage and folk customs, and explore innovative design research ideas and perspectives. Oriented by user experience, we conduct research on online and offline cross-media multi-sensory visual interaction design and virtual experience technology, and explore diversified forms of Piaose folklore communication and information interaction experience design that meets the needs of the audience. The practical case is based on the Piaose parade route and performance characters in Shawan Ancient Town, Guangzhou, and develops the 3D characters of "Se Boy" and "Se Girl" in Guangdong Piaose, as well as digital interactive applets of Piaose's classic performance repertoire, and uses AR to enhance reality. Technology has set up multiple immersive multi-sensory interactive experience points in the streets, alleys and buildings along the Shawan Piaocese Parade route, providing tourists with a multi-sensory, personalized and empathic limited knowledge perspective, allowing "bystanders" to transform into "Co-creator".

RESEARCH RESULTS

From a new concept, augmented reality has transformed into one of the high-profile interactive technologies. In this technology, computer-generated data is subtly integrated with the real environment to present users with a richer cognitive experience of the environment. Different from virtual reality technology, augmented reality integrates virtual content into real scenes through the combination of virtual and real, so that the real environment can be enhanced rather than replaced, so that tourists can experience wonderful visual effects in an immersive environment. At the same time, immersion and interactivity also have similarities in augmented reality. Through tourists' visual, auditory and tactile perception channels, tourists are guided to a pre-constructed virtual scene to achieve multi-sensory real-time interaction. Augmented reality is always closely attached to the real world, and its sense of immersion is based on the sense of reality of the fusion of virtual and real. This composite scene brings a unique interactive experience to users. As the user moves, the scene where virtual and reality are intertwined is constantly changing, and the user can operate at any time to feel its charm from multiple angles. Augmented reality technology is a natural extension of virtual reality and is widely used in many fields today. Therefore, augmented reality technology is applied to Guangdong Piaose experience. Augmented reality technology crosses the boundary between virtual and real, greatly improves the media environment, changes the way of information access and human-computer interaction, and provides users with a sense of mystery and technology that transcends the times.

DISCUSSION & CONCLUSION

Today's traditional non-heritage folk customs are impacted by urbanization, and gradually lose the environment on which they live and the cultural soil for inheritance. Guangdong Piaose has also faced the problem of survival and continuation in recent years. Problems such as insufficient talent training, insufficient financial support, and difficulty in subject innovation have emerged one after another. In the development in recent years, it has shown that the meaning of the story is difficult to convey, and the experience needs to be strengthened. Limited to the local cultural environment, tourists cannot learn more about the floating color culture and cannot form a benign communication model.

Augmented reality (AR) is a new technology that superimposes and displays virtual information in the real environment through computer technology, combined with communication technology and multimedia technology, and interacts with virtual content through multi-modal interactive technologies such as motion capture and gesture recognition. The AR interactive mode provides a new way of cognition and experience for the digital communication of intangible cultural heritage folk customs.

AR interaction expands the audience's sense of experience

The augmented reality interaction mode presents information in a variety of forms, including text, video, graphics and models. It is not only displayed on a two-dimensional plane, but can also be extended to three-dimensional space, thus enriching the way of perceptual experience and expanding the scope of information display. range, meeting the audience's needs for diverse information. Take the AR experience Cyberspace (Figure 2) created by Huawei for the Dunhuang Mogao Grottoes as an example. The application consists of three parts: virtual object display, AR navigation and AR tour guide. Virtual object displays are mainly 3D models and high-precision murals, among which 3D models are the most eye-catching. The display models include the Nine-Colored Deer, Feitian and the Nine-Story Buddha. In addition to simply watching, users can also take interactive photos with the Nine-Colored Deer. This method provides a multi-dimensional source of information for the audience's experience and perception, and enriches the channels for information acquisition. Visitors can also conduct detailed observations from different angles, which satisfies their thirst for knowledge and understanding of folk culture.



Figure 2: Dunhuang Mogao Augmented Reality Application “Cyberspace”

Source: Huawei Application (2020)

AR interaction gives audience independent experience choices

Audiences are often guided by specific experience expectations when participating in folklore activities. This trend appears in the digitization of folklore as the initiative of participants to spontaneously seek information. Augmented reality technology integrates with the Internet to

provide viewers with rich content quickly and accurately. During the perceptual processing process, the augmented reality interaction mode can present input information that is consistent with the audience's expectations, thereby effectively reducing interference in the information processing process. This allows the audience to no longer be limited to a specific location or the realistic attributes of objective things, but can freely explore the connotation and additional information of things with the help of the augmented reality interaction mode, thereby simplifying the process of obtaining information. Take the "Digital Forbidden City 2.0" (Figure 3) applet jointly created by the Palace Museum and Tencent as an example, with AR real-time navigation function. With the help of this technology exploration, the audience can explore the path in the Forbidden City in real time through AR real-time scenes, unlock the three-dimensional models of auspicious animals, and try a more "three-dimensional" visiting experience.

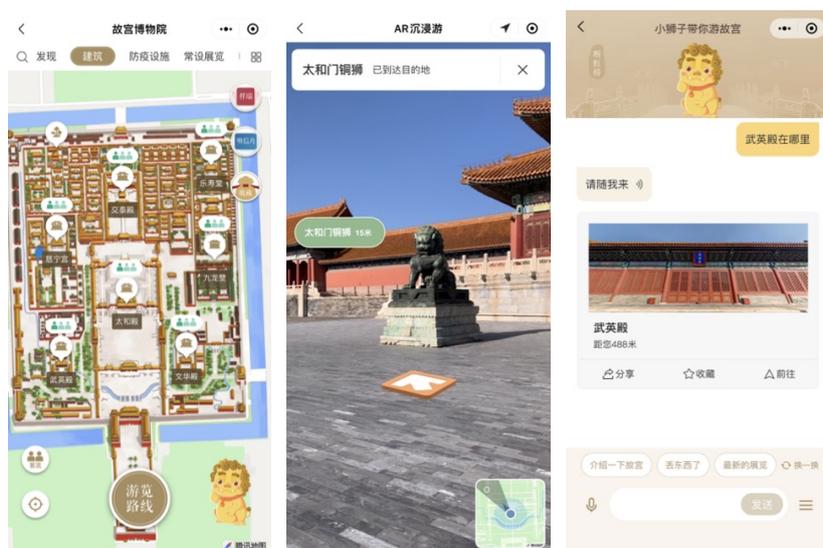


Figure 3: “Digital Forbidden City2.0” Online Digital Platform of the Palace Museum
Source: <https://www.mct.gov.cn/>

AR interaction deepens the audience’s understanding of folk culture

Folk experience activities cover the communication and interaction process between performers and audiences, objective things and situations. By using augmented reality interaction mode, the scope and intensity of this interaction can be expanded and strengthened, breaking the limitations of time and space, and improving immersion. For example, in the experience of folk activities, the audience's understanding of culture is no longer subject to real conditions such as the current time and place. Instead, using augmented reality interaction modes, they can explore, discover, and gain insights into relevant information about their surroundings at any time. Take the "Earth Speaker" (Figure 4) art project completed by artist Olafur Eliasson in collaboration with AKQA as an example. This app uses AR augmented reality technology to superimpose the different facial expressions of teenagers aged 7 to 17 years old on different Environmentally speaking, “digital faces” are generated to trigger people’s reflection on climate change and the natural environment. In addition, when the audience participates in the interaction of folklore situations in the form of games or entertainment, the use of augmented reality interaction mode can better mobilize the enthusiasm of the audience. This way of experience enables the audience to construct their understanding of folk culture and produce positive information output results more actively. In this case, the augmented reality interaction model can not only enrich the experience of folk culture, but also actively affect the audience's understanding and perception of folk culture.

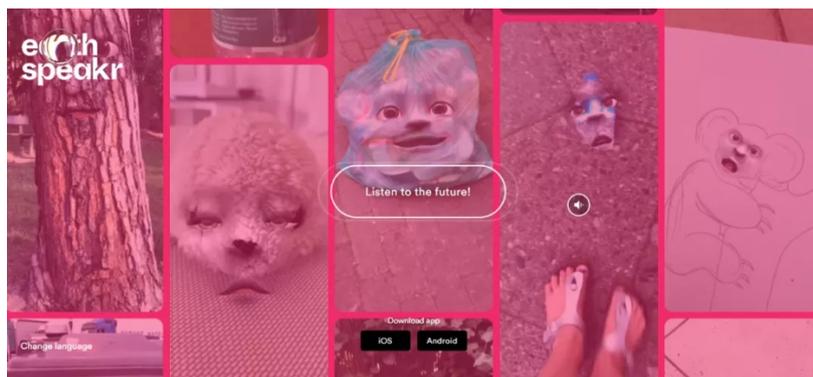


Figure 4: AR augmented reality for "Earth Speaker" art project

Source: <https://www.d-arts.cn/index/welcome.html>

The augmented reality interaction mode is gradually changing the information processing process, thereby affecting people's cognition and experience. This technology is increasingly integrated into people's daily life and plays an important role in the digital experience of cultural heritage. In the process of exploring how to improve the public experience of floating colors in Guangdong, tourists' autonomy is the leading factor, and the interactive mode of augmented reality is used to improve the audience's cognitive results and the quality of folk experience, so as to promote the comprehensive development of Guangdong folk digital innovation and activation.

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