Research on the Integration and Development of Digital Art and Cultural Tourism in Zhejiang

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Abstract: *The research on the integration of digital art and cultural tourism plays a significant role in improving the relationship between individuals and urban spaces. Integrating these two research orientations through interdisciplinary approaches is crucial for promoting the deep integration and development of digital art and cultural tourism. By combing and integrating relevant academic and case materials from both domestic and international sources, this study summarizes the development trends of the integration of digital art and cultural tourism in Zhejiang Province. These trends can facilitate innovation in the content and forms of digital art, transform the development approach of cultural tourism in Zhejiang Province, stimulate the innovative vitality of various participating entities, and create more innovative outcomes in the integration of art and tourism. Additionally, cultivating a high-level team of leading talents is also an important pathway to advance the deep integration of digital art and cultural tourism. Therefore, it is necessary to strengthen support for the construction of digital art-related disciplines in higher education institutions, encourage collaboration between academia, industry, and research organizations, and promote the joint cultivation of interdisciplinary talents, ultimately achieving systematic development in the field of integration research.*

Keywords: *digital art; cultural tourism; development trends in Zhejiang; integration*

1. Introduction

With the rapid advancement of digital technology, digital art has gradually become a key trend in the development of contemporary art. As a key cultural and tourism province in China, Zhejiang has rich cultural and tourism resources, providing a broad platform and numerous opportunities for the integrated development of digital art and Zhejiang cultural tourism.Digital art is an art form that uses digital technology as a means to present through creation, performance, display, and dissemination. It has the characteristics of interactivity, virtuality, and interdisciplinary, bringing a new artistic experience to the audience. Cultural tourism is based on cultural resources and allows tourists to understand and experience different cultural forms, customs and customs through tourism.This article aims to explore the integrated development of digital art and cultural tourism in Zhejiang, which can not only promote the application and development of digital art, but also inject new vitality into cultural tourism and promote the transformation and upgrading of the cultural industry and tourism industry. It provides an important reference for the upgrading of Zhejiang's cultural tourism industry and the development of digital art.

2. Significance of the Research

2.1. Theoretical significance

The current research on cultural tourism has been continuously focusing on the integration of "digital art and cultural tourism". Since the digital revolution in the late 20th and early 21st centuries, digital technology has rapidly developed and been widely applied in various industries, integrating into almost all aspects of social life. This has given rise to numerous new phenomena and entities. In this century, the latest information technologies such as cloud computing, Internet of Things, and big data have permeated the tourism industry, giving birth to smart tourism. Based on the understanding of the evolution mechanism of digital art services, this study aims to construct a cultural tourism service model based on digital art platforms, further improve the theoretical system related to cultural tourism, and provide scientific basis and theoretical support for future development planning of the tourism

industry.

2.2. Practical significance

The deep integration of digital art and cultural tourism is a future development trend in the tourism industry, attracting attention from the government, investment community, and tourism enterprises. This study adopts interdisciplinary approaches to provide creative means for cultural tourism, and proposes a service model for creative cultural tourism based on the role of digital effects in the evolution of cultural tourism. This model is of practical reference for the transformation of traditional tourism enterprises and the positioning of new entrants in the industry. The empirical analysis of cultural tourism in Zhejiang Province can also provide decision-making basis for the planning of smart tourism in the province, and important theoretical and methodological guidance for the development of "cultural tourism" and "creative cities" in Zhejiang Province.

3. Development and Research Trends in Related Studies

In 2004, the United Nations Educational, Scientific and Cultural Organization (UNESCO) launched a program called the "Creative Cities Network". This network aims to showcase cities worldwide that place creativity at the core of their sustainable urban development plans. Creative cities are categorized into seven different fields of creativity: crafts and folk arts, media arts, film, design, gastronomy, literature, and music. As of January 2020, the network has 246 members representing all categories.

The Ministry of Culture and Tourism of the People's Republic of China officially released the 2019 Statistical Bulletin on the Development of Culture and Tourism which reveals that the domestic tourism in 2019 witnessed a total of 6.006 billion person-trips, an 8.4% year-on-year growth, with a total tourism revenue of 6.63 trillion yuan, an 11.1% year-on-year growth. By 2035, the goal is to establish a strong cultural nation and significantly enhance the country's cultural soft power. The main objectives during the "14th Five-Year Plan" period include further improving the public cultural service system and cultural industry system, as well as enriching the spiritual and cultural lives of the people. The implementation of the digitalization strategy in the cultural industry will accelerate the development of new cultural enterprises, cultural formats, and cultural consumption patterns. Efforts will be made to promote the integration of culture and tourism, establish a number of internationally renowned tourist attractions and resorts with rich cultural heritage, and create a series of nationally acclaimed tourism and leisure cities and districts with distinctive cultural characteristics.

3.1. Review of Foreign Research

3.1.1. Theoretical research

Cultural tourism is defined as "the movement of people from their normal place of residence to cultural attractions with the purpose of gaining new information and experiences to fulfill their cultural needs"[1]. As tourists increasingly pursue authentic and unforgettable cultural experiences, the close integration of culture and tourism has become an inevitable development trend, and this connection and integration development shows an increasingly close trend. Tourism destinations around the world are actively working to adopt and implement various models to showcase their unique cultural offerings[2]. Recently, there has been an increasing discussion on the "creative turn" in cultural tourism, promoting a shift towards tangible tourism assets and more actively engaged forms of tourist consumption[3]. A report by the OECD [4]also underlines the transformative impact of this shift on the relationship between the creative and tourism industries, significantly altering the ways in which cultural tourism is produced and consumed by tourists . Within the main driving factors of cultural tourism, the role of art is also continuously strengthening.

In specific circumstances, cultural tourism is evolving into "creative tourism". This entails a shift from simply providing information and services to fostering collaborative creative experiences, narratives, and dreams. These dreams are gaining increasing support and are also being facilitated through new technologies[5]. Smartphone and other portable digital devices have the capacity to enhance or even transform the experiences of individuals visiting cultural heritage sites[6]. Support for the application of virtual reality technology in the tourism sector is being encouraged, driving the development of interactive immersive digital experiences in scenic spots, resorts, districts, and other locations. This development aims to cultivate innovative tourism services such as immersive interactive experiences, virtual displays, and intelligent guidance. New forms of tourism, such as cloud tourism,

cloud broadcasting, and cloud exhibitions, are being nurtured, introducing a range of immersive tourism experience scenarios. Exhibitions, once limited to museums, have become a new trend in creative design thinking, showcasing ideas displayed in diverse spaces over the past few decades. For instance, the idea of planning through art and cultural activities has now become an integral part of urban design strategies worldwide. Cultural and artistic activities have already become the main pillar of cultural tourism. However, as the role of these activities continues to expand in the economic, cultural, and social spheres, large-scale events in public spaces may become one of the development trends in future urban tourism. Cultural tourism has a long history, but with the constant shifts and innovations of our time, these changes also indicate that digital art is likely to become increasingly important in the future development of cultural tourism.

3.1.2. Practical research

Numerous internationally renowned urban events that successfully integrate traditional culture, artistic creativity, and cutting-edge technology attract tens of thousands of people each year, allowing them to personally experience the visual impact brought by various cultural and artistic festivals. Serving as a bridge between video mapping scenes from around the world, iMapp Bucharest has formed an international digital art platform through collaborations with cultural and artistic festivals from six countries (Table 1). This platform encourages artists to participate in video mapping competitions, providing them with the opportunity to showcase their works in as many locations around the world as possible.

Table 1: Globally Recognized Video Mapping Festivals

Art Festivals	Introduction
iMapp Bucharest (Romania)	The iMapp Bucharest Light Festival is one of the world's largest 3D video mapping competitions held annually in September. It showcases designs and contemporary art directly on the façade of the Parliament Palace, spanning over 23,000 square meters. The festival attracts over 300,000 spectators and serves as a reference for international audiovisual industry experts.
Borealis (United States)	The Borealis Light Festival, held in October, combines video mapping competitions and exhibitions with music and street performances. It represents a new fusion of art and technology, and in its four-day event in 2018, over 120,000 spectators enjoyed the live artworks.
Genius Loci Weimar (Germany)	The Genius Loci Weimar International Video Mapping Festival was launched in 2012. It now receives over 50,000 visitors annually, making it one of the most popular events among all Weimar summer activities. Situated in this city of poets, musicians, and thinkers, as well as the birthplace of the Bauhaus movement, the festival has become a significant cultural event for the state of Thuringia.
Kyiv Lights Festival (Ukraine)	Using advanced technology, the festival transforms the city into an open-air art gallery, featuring colorful light sculptures, installations, and projections. Media artists from different countries are invited to transform the facades of buildings in the square into giant screens and present spectacular videos. Spanning over a duration of three luminous days, the Kyiv Lights Festival in 2018 drew an awe-inspiring crowd of over 220,000 eager attendees.
1minute projection mapping competition (Japan)	As one of the largest video mapping competitions showcasing on buildings in the Asian region, "1minute projection mapping", initiated in 2012, has presented numerous great artworks at the festival. It provides an opportunity for many to understand and enjoy video mapping in an open space, attracting an increasing number of tourists each year.
Zsolnay Light Festival (Hungary)	The Zsolnay Light Festival has evolved into one of Hungary's most fascinating events, offering three-dimensional dynamic light designs, street art installations, and concerts on the massive facade of the local cathedral. It achieved great success in 2018, attracting over 75,000 visitors.
Luz y Vanguardías (Spain)	The event covers the streets and iconic buildings of the UNESCO World Heritage site for four evenings, featuring art and light projections. Visitors and residents can wander through the city, gaining insights into the latest art trends while appreciating the local history and universal heritage from different perspectives. In 2018, the festival drew over 366,000 people from 10 different countries.

3.2. Overview of Domestic Research

3.2.1. Theoretical research

From a macro perspective, the China Tourism Academy (Data Center of the Ministry of Culture and Tourism) has a mission to promote the integrated development of Chinese culture and tourism, as well

as international exchanges. It operates as a government think tank, industry consultant, and theoretical research institute. The academy is primarily responsible for policy and theoretical research in the tourism industry, research on the integration of culture and tourism development, as well as statistical analysis of culture and tourism. It publishes series of books on contemporary tourism development theories, along with academic journals such as Tourism Internal Reference, China Tourism Review, and China Culture and Tourism Big Data. Additionally, it publishes reports including Annual Report on China's Tourism Economy and Development Forecast, Annual Report on China's Accommodation Industry Development, Annual Report on China's Travel Service Industry Development, Annual Report on China's Tourist Attractions Development, Annual Report on China's Tourism Group Development, Annual Report on China's Inbound Tourism Development, Annual Report on China's Outbound Tourism Development, Annual Report on China's Domestic Tourism Development, and Annual Report on China's Leisure Development.

On a micro level, the discussion surrounding the concept of cultural tourism can be broadly divided into four aspects: historical culture, modern culture, folk culture, and moral ethics. For instance, since 2010, the Guan Shan Yue Art Museum in Shenzhen has been utilizing technology as a medium for culture, striving to create a virtual digital art museum that goes beyond the physical boundaries of a traditional museum[7]. It explores the application of creativity and design in various stages of tourism products[8], using urban brand visual identity design as an entry point to summarize the fundamental principles and design methods suitable for enhancing urban brand image and tourism image. The aim is to explore how urban brand image design and the enhancement of tourism image can contribute to the city's development capabilities[9]. Furthermore, an analysis has been conducted on the relationship between the development of urban art and culture in Guangzhou, and its impact on the city's commercial transformation and tourism development. The study also explores the integration mechanisms and methods of urban art with commerce and tourism in Guangzhou, fostering a win-win development for both sectors[10].

3.2.2. Review of research on journals and papers

Using the Chinese National Knowledge Infrastructure (CNKI) as the source for literature statistics, a precise search was conducted with the theme "cultural tourism", resulting in a total of 43,000 relevant articles. A further search was performed with the theme "art and cultural tourism", which yielded 699 articles. The cutoff date for this data is May 4, 2021.

Table 2: Number of cultural tourism-related literature collected by CNKI (Unit: Pieces)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cultural tourism	1917	2310	2659	2903	2931	3066	3294	3294	2773	3641	3363
Art and cultural tourism	31	42	58	60	65	70	68	51	56	77	70

Table 2 Upon analysis, it is evident that from 2010 to 2020, the overall number of literature on cultural tourism showed an increasing trend. Research in this field has been fruitful, indicating a significant interest in cultural tourism studies. However, the literature specifically focusing on the integration of art and cultural tourism shows a relatively lower quantity, indicating slower research progress and a lack of authoritative research outcomes.

In summary, scholars have conducted extensive research in various areas. Overseas scholars have focused on exploring how to digitize cultural tourism in the context of development and integration with emerging technologies, emphasizing the effects of application and the experiences of residents. In a time when the pace of cultural tourism development is accelerating, it is crucial to create a new form of cultural tourism that is rooted in culture and supported by technology, where digital technology serves not only as a tool for construction but also as an effective means to innovate cultural tourism and preserve urban culture. Chinese scholars have paid attention to the macro-level top-down design of cultural tourism, the analysis of current development status, as well as the micro-level theoretical exploration of the integration between cultural tourism and emerging technologies. Currently, in China, research on digital art and cultural tourism is still in its early stages and requires continuous improvement.

4. Development Trends in the Integration of Digital Art and Cultural Tourism in Zhejiang Province

4.1. Creating Cultural Tourism Landmarks through Digital Interfaces

By adopting the "digital interface + architectural landscape" model, a new cultural tourism landmark can be built in Hangzhou. Cultural landmarks represent the most charming and iconic images of a city, such as a pavilion, a bridge, a sculpture, an artifact, or a tower. Just mentioning the Jia Yu Pass, Yellow Crane Tower, Nanjing Yangtze River Bridge, Mao Zedong Youth Sculpture at Orange Island, Mogao Grottoes in Dunhuang, and Bao Ta Mountain in Yan'an evokes immediate associations with the geographical beauty, cultural allure, commemorative significance, and rich history of these architectural landmarks. In 2019, Hangzhou released the Hangzhou City Cultural Facilities Short-Term Construction Plan (2019-2025) (hereinafter referred to as the Plan), which has been successfully implemented. In the future, Hangzhou will promote the concentration of cultural facilities in the spatial pattern of the "Two Belts, Three Zones, and Multiple Areas", and add a batch of provincial and municipal large-scale cultural landmarks. According to the Plan, Hangzhou has the potential to integrate digital screens into its cultural infrastructure, thus enhancing the development of distinctive cultural tourism. Embracing the essence of digital visual culture, there is a need to strengthen the capacity for original content creation, paving the way for a plethora of digital cultural tourism products that not only cater to the cultural needs of the people but also fortify their spiritual vitality.

For example, in 2023, during the 19th Asian Games in Hangzhou, a spectacular light show (Figure 1 and 2) creatively illuminates the architectural interfaces to create a vibrant Asian Games atmosphere, showcasing the unique temperament and profound cultural heritage of areas south of the lower reaches of the Yangtze River.

Figure 1: Light show at the Hangzhou Olympic Sports Center

Figure 2: Light Show along the banks of the Qiantang River in Hangzhou

4.2. Virtual Public Art: A Innovative Approach to Cultural Tourism

In the post-pandemic era, virtual public art has created endless possibilities for cultural tourism. The widespread application of digital technology has blurred the boundaries between the virtual and the real

in our everyday lives. As a result, virtual public spaces have become an essential realm for contemporary art. In terms of its medium characteristics, public art in virtual spaces eliminates physical limitations and provides ample room for artists to engage with online visitors, fostering convenient cloud communication. Its digital nature also allows audiences to have more flexible and personalized experiences of cultural tourism through their interactions with smart devices. Overall, the transition from offline to online exploration has unveiled new forms of cultural tourism in the realm of spiritual spaces. In 2021, during the "Cultural and Natural Heritage Day" with the theme of "Sharing the Intangible Cultural Heritage with the People", Zhejiang Province empowered the event through the "Cloud Intangible Cultural Heritage" initiative. It attracted nearly tens of millions of participants through activities such as pre-event announcements and online and offline interactions during the event. On the opening day alone, the number of livestream viewers reached a remarkable 3.265 million. Since November 2022, the Hangzhou Nansong Deshou Palace Site Museum has undergone four transformations. With the theme of "Reviving the Glory of Deshou", the museum has utilized AR digital technology (Figure 3 and 4) to integrate the virtual with the real. By combining archaeological relics, Hangzhou's intangible cultural heritage, and elements of Song Dynasty floral and bird paintings, it vividly recreates the prosperous scene of the Southern Song Dynasty when "the east wind blows and thousands of flowers bloom". By immersing visitors in the experience of ancient life and providing a more intuitive understanding of the historical site, it allows them to truly appreciate the cultural beauty embodied by these cultural relics.

Figure3: Hangzhou Nansong Deshou Palace Site Museum

Figure 4: Hangzhou Nansong Deshou Palace Site Museum

4.3. Constructing an Immersive Art Experience for Cultural Tourism

By developing cultural tourism products such as holographic interactive projection, drone performances, and nighttime light shows, we can transform existing cultural tourism content into immersive entertainment experiences, enriching the overall visitor experience. It aims to integrate immersive art with urban public spaces and characteristic towns, creating a synergy between them. Through the development of immersive tourism performances and experiential entertainment products, it can elevate the digitization level of tourism performances and offline entertainment. Furthermore, we will foster the development of the digital art exhibition industry, promoting innovative applications of

digital art in key areas and settings, while preserving the essence of Chinese aesthetics. In 2019, during the New Year's Eve celebration in Hangzhou, Wulin Square presented a mesmerizing light show with the theme of "Telling the Story of Hangzhou". Utilizing 3D mapping technology, the visuals were projected onto the exterior wall of the Zhejiang Exhibition Center's southern side (Figure 5 and 6). The show portrayed the magnificent rivers of the poetic and picturesque areas south of the lower reaches of the Yangtze River, showcasing the rich historical and cultural heritage, as well as highlighting the endeavors of the people of Zhejiang in the new era towards ecological conservation and the creation of a better future, coined as "Five Waters Joint Governance".

Figure 5: 3D mapping light show at Wulin Square, Hangzhou

Figure 6: 3D mapping light show at Wulin Square, Hangzhou

4.4. Advancing the Digital Talent Development Strategy for High-Quality Cultural Tourism

In order to promote the development of high-quality cultural tourism, the cultivation of a pool of innovative and highly skilled talent in the digital cultural industry is deemed necessary. It is essential that these individuals possess both cultural depth and technological expertise, along with the ability to innovate. The focus lies upon enhancing the mechanisms for talent training, evaluation, motivation, and allocation in the digital cultural industry, with management guidance, innovative thinking, and practical training being prioritized. To achieve this objective, national cultural talent training bases will be utilized, and collaboration with relevant universities will be sought to strengthen talent cultivation in the digital cultural industry. The establishment of collaborative training centers will be encouraged, fostering innovative cooperation models between universities and enterprises. Furthermore, expediting the internationalization of talent development in the digital cultural industry will be pursued.

5. Conclusion

Research on the integration of digital art and cultural tourism plays an irreplaceable role and holds significant social significance in enhancing the humanistic and artistic qualities of urban public environments, optimizing the quality of life for citizens, expanding the overall aesthetic and cultural education of society, fostering public awareness and a sense of belonging, as well as reinforcing social welfare and showcasing the cultural landscape of cities. This study focuses on "Digital Art and Cultural Tourism in Zhejiang", systematically investigating the theories and methods of utilizing digital artistic techniques to promote the development of cultural tourism. It aims to explore the future trends and

creative approaches in the field of cultural tourism while providing theoretical references and practical guidance for the advancement of digital art.

Acknowledgments

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