Digital Application Strategies of Traditional Culture from the Perspective of New Media Technology

Daiyao Chen

Shenzhen Polytechnic University, Shenzhen, Guangdong 518055

Abstract: This paper explores the pivotal role of new media technology in the digital revitalization of traditional culture. It underscores the transformative impact of interactive platforms, virtual reality (VR), and augmented reality (AR) on cultural heritage, facilitating immersive and engaging experiences. The study highlights the necessity of digital transformation for cultural preservation and innovation, addressing the challenges of authenticity, accessibility, and the digital divide. International case studies, including the Palace Museum's digital initiatives and the African Digital Heritage project, exemplify successful integration models. The paper concludes by advocating for a balanced approach that harnesses new media technologies to preserve and innovate traditional culture, ensuring its relevance in the digital age.

Keywords: New Media Technology; Digital Revival; Traditional Culture; Virtual Reality (VR); Augmented Reality (AR); Cultural Heritage; Digital Transformation

1. Current Analysis

1.1 Definition and Characteristics of New Media Technology

New media technology, which stands as a significant creation of the information age, holds an indispensable position in the digital rejuvenation of traditional culture. It generally encompasses various media formats that facilitate the spread of information via the internet and digital technologies, and is distinguished by its interactive nature, immediate accessibility, personalized experiences, and seamless integration of multiple forms of media. For example, social media platforms such as Weibo and WeChat, along with video-sharing websites like YouTube and Bilibili, exemplify the essence of new media technology. These platforms have revolutionized the traditional methods of information dissemination and have opened up novel pathways for the expression and communication of cultural content. Through these digital channels, the reach and impact of cultural heritage have been greatly expanded, allowing for a more dynamic and engaging interaction between creators and consumers of cultural content. This transformation not only preserves the essence of traditional culture but also adapts it to the rapidly evolving digital landscape, ensuring its relevance and accessibility in the modern world.

1.2 The Necessity of Digital Transformation of Traditional Culture

In the current era, where new media technologies are rapidly advancing, the digital revival of traditional culture has emerged as an inevitable outcome of technological evolution. It also represents a pressing necessity for the preservation and innovative development of cultural heritage. As the internet, big data, cloud computing, and various other technological advancements continue to surge forward at an unprecedented pace, the process of digital transformation has evolved into a crucial strategy for safeguarding and disseminating the richness of traditional culture. According to authoritative statistics released by UNESCO, it is estimated that approximately 30% of the world's cultural heritage is facing the threat of vanishing into oblivion. However, the strategic application of digital technology can play a pivotal role in effectively mitigating this alarming trend.

In the face of this cultural crisis, the digital revival of traditional culture has become a beacon of hope. By harnessing the power of digital technology, we can create virtual museums, digital archives, and interactive exhibitions that allow people from all corners of the globe to experience the wonders of cultural heritage without the constraints of time and space. For instance, virtual reality (VR) technology can transport users to ancient civilizations, enabling them to walk through the streets of long-lost cities or witness historical events unfold before their eyes.

Moreover, the integration of digital technology with traditional culture has sparked a renaissance in the arts. Artists and craftsmen are now able to share their work with a wider audience through online platforms, while also gaining access to a wealth of inspiration from the digital archives of cultural artifacts. This cross-pollination of ideas fosters innovation and ensures that traditional arts remain relevant in con-

temporary society.

The education sector has also benefited greatly from the digital revival of traditional culture. Interactive educational software and online courses provide students with immersive learning experiences that bring history and culture to life. This not only enhances their understanding and appreciation of cultural heritage but also equips them with the digital literacy skills necessary for the 21st century.

1.3 Comparison of Domestic and International Cases of Digital Transformation of Traditional Culture

Around the world, there has been a significant trend towards the digital revitalization of traditional cultures, with various nations and regions showcasing their distinctive approaches and innovative application models throughout this process. For instance, the digital initiative undertaken by the Palace Museum in China stands out as a quintessential example. This project involves the preservation of invaluable cultural artifacts and ancient architectural structures in digital formats, achieved through the use of high-definition scanning and three-dimensional modeling technologies. Consequently, the public is granted the opportunity to immerse themselves in the grandeur and intricacies of the Forbidden City from the comfort of their own homes, thanks to the wonders of virtual reality technology. On the other hand, European countries such as France have also amassed considerable expertise in the digital transformation of their cultural heritage. The digital project of the Louvre Museum in France is particularly noteworthy, as it employs augmented reality technology to offer visitors an enhanced interactive experience. This allows individuals to access the historical context and detailed information about artworks directly on their mobile devices, thereby enriching their understanding and appreciation of the cultural treasures housed within the museum.

These examples from around the world demonstrate the transformative power of digital technology in the preservation and revitalization of cultural heritage. As technology continues to advance, it offers new opportunities for the safeguarding of our shared human history, making it more accessible and engaging for people everywhere.

2. Key Technologies and Transformation Strategies

2.1 Innovative Applications of New Media Technology in Cultural Fields

The creative utilization of cutting-edge new media technology within the realm of cultural preservation and dissemination has opened up unprecedented avenues for the digital rejuvenation of age-old traditions and customs. This innovative approach not only breathes new life into the heritage of bygone eras but also significantly enhances the cultural experiences available to the general populace. A prime illustration of this is the Palace Museum's remarkable transformation of invaluable cultural artifacts, such as the celebrated "Along the River During the Qingming Festival, " into digital formats through the employment of high-definition scanning and sophisticated 3D modeling techniques. Through the magic of these technologies, the public is now able to engage with these artistic treasures in a manner that was previously unimaginable, offering a fresh perspective that allows for a deeper appreciation of the intricate details and beauty of these works.

Interactive platforms have been developed to facilitate this novel form of cultural interaction, enabling individuals to explore these digitized masterpieces in an immersive and engaging way. This means that art enthusiasts and casual observers alike can now scrutinize every brushstroke and nuance of these paintings, something that was once only possible for those who could visit the museum in person. The beauty of this technological application lies not only in its ability to safeguard these precious relics from the wear and tear of physical handling but also in its capacity to transcend the traditional barriers of time and space. By digitizing these cultural assets, the reach of these artifacts extends far beyond the walls of the museum, allowing people from all corners of the globe to access and enjoy these treasures at their convenience. This democratization of culture ensures that the legacy of our ancestors can be appreciated and cherished by future generations, fostering a deeper connection to our shared human history and promoting cultural diversity and understanding on a global scale.

2.2 Overview of New Media Technology

The classification of new media technology is numerous, and its applications are extensive, especially in the process of the digital revival of traditional culture, where it plays a crucial role. Taking social media platforms as an example, the rise of platforms such as Weibo, WeChat, and Douyin has provided a new channel for the dissemination of traditional culture. For instance, the "National Style Plan" on Douyin presents traditional music, opera, calligraphy, and other art forms in a way that conforms to modern aesthetics and consumption habits, attracting a large number of young viewers. According to the "China Internet Development Report 2021, " the short video user base has exceeded 800 million, providing a huge potential audience base for the digital transformation of traditional culture.

2.2.1 The Integration of Traditional Culture with New Media Technology

The integration of traditional culture with new media technology has given rise to innovative digital applications that cater to the preferences of the modern audience. For instance, the use of mobile applications to showcase traditional art forms such as calligraphy, opera, and folk dances has made these cultural expressions more relatable to younger generations. These apps often incorporate interactive elements, such as gamification, where users can learn and practice traditional skills in a fun and engaging manner.

2.2.2 Challenges and Opportunities

Despite the promising potential, the integration of traditional culture with new media technology also presents several challenges. One of the primary concerns is the preservation of cultural authenticity in the digital realm. As traditional culture is adapted for digital platforms, there is a risk of diluting its core values and meanings. Therefore, it is crucial to strike a balance between innovation and preservation, ensuring that the digital applications remain true to the original cultural expressions.

Another challenge is the digital divide, which refers to the gap between individuals who have access to modern information and communication technology and those who do not. Bridging this divide is essential to ensure that the benefits of digital applications of traditional culture are accessible to all, regardless of socioeconomic status or geographic location.

2.3 Key Technologies for Digital Transformation

With the rapid development of new media technology, high-definition scanning and 3D modeling technology have become important tools for the digital revival of traditional culture. These technologies not only capture the details of cultural heritage accurately but also provide immersive interactive experiences for the public through 3D reconstruction. For example, the Dunhuang Research Institute has digitally preserved the murals of the Mogao Caves using high-definition scanning technology, and through 3D modeling technology, the public can observe every stroke of the murals in a virtual environment, even magnifying to the microscopic level to observe the layers and details of the pigments. The application of this technology not only helps protect cultural heritage but also provides new perspectives and methods for education and research.

3. Application, Promotion, and Future Prospects

3.1 Strategies and Methods for Digital Transformation

At the intersection of new media technology and the digital revival of traditional culture, the digital collection and storage of cultural heritage have become a crucial task. With the rapid development of high-definition scanning and 3D modeling technology, we can capture every detail of cultural heritage with unprecedented precision. For example, the Dunhuang Research Institute has used 3D laser scanning technology to meticulously digitize the murals of the Mogao Caves, providing solid data support for the protection of cultural relics and offering virtual access to researchers and the public worldwide. According to relevant data, the digitized data volume of the Dunhuang murals has reached several TB levels, which not only tests the capacity of storage technology but also poses challenges to the long-term preservation and management of data.

As we delve deeper into the digital age, the preservation of cultural heritage through technology is not only a matter of data storage but also of ensuring accessibility and longevity. The digital archives of cultural artifacts must be maintained in a way that future generations can access and interpret them. To address this, cloud computing and distributed storage systems are being implemented to provide scalable and reliable solutions for the vast amounts of data involved.

For instance, the Palace Museum in Beijing has embarked on a comprehensive digital initiative, creating high-resolution images and 3D models of its vast collection of art and historical artifacts. This allows for detailed study and virtual exhibitions that can reach a global audience without risking damage to the originals. The museum's digital repository is hosted on robust cloud platforms, ensuring that the data is protected against physical damage and can be easily updated and expanded.

3.2 Application of Digital Content in the Field of Education

At the intersection of new media technology and the digital revival of traditional culture, the field of education is undergoing a profound transformation. The introduction of digital content not only enriches teaching resources but also greatly improves the interactivity and interest of learning. For example, through virtual reality (VR) technology, students can experience ancient civilizations' remains, such as the grandeur of the Forbidden City or the magnificence of the Great Wall, in an immersive learning experience that is more engaging than traditional textbook learning. According to a study, the historical knowledge mastery of students in classes using VR technology for history teaching has increased by more than 30% compared to traditional teaching methods. In addition, digital technology also makes the sharing of educational resources possible, such as the "Digital Dunhuang" project, which not only protects precious cultural heritage but also allows students and researchers worldwide to access these resources through the internet.

3.3 Innovative Application of Digital Traditional Culture in the Tourism Industry

With the rapid development of new media technology, the innovative application of digital traditional culture in the tourism industry has become an important force in promoting the development of cultural tourism. For example, the Palace Museum has used digital technology to transform precious cultural relics and historical scenes into virtual reality experiences, attracting a large number of domestic and foreign tourists. According to statistics, the digital exhibitions of the Palace Museum can attract more than ten million visits each year, which not only

enhances the interactive experience of tourists but also greatly promotes the protection and dissemination of cultural heritage. In addition, the use of big data analysis models allows tourism companies to provide personalized cultural experience services based on tourists' interests and behavior patterns, thereby increasing the added value of tourism products.

As the integration of digital technology with traditional culture continues to deepen, more and more cultural heritage sites are following the Palace Museum's lead in leveraging innovative technologies to enhance visitor experiences. For instance, the Great Wall has recently launched an augmented reality (AR) app that allows tourists to visualize the wall's historical evolution directly on their smartphones. This interactive tool provides a vivid depiction of the Great Wall's construction process and the various dynasties it has weathered, making the educational aspect of the visit more engaging and accessible.

4. Conclusion

The rapid advancement of new media technology has opened up unprecedented opportunities for the digital revitalization of traditional culture. Utilizing cutting-edge techniques such as high-definition scanning and sophisticated 3D modeling, we are now able to preserve invaluable cultural heritage in a high-precision digital format that can withstand the test of time. A prime example of this is the digital project of the Mogao Caves in Dunhuang, which not only safeguards the delicate murals from deterioration but also enables people from all corners of the globe to virtually explore and experience these artistic masterpieces online. The deployment of virtual reality (VR) and augmented reality (AR) technologies has further revolutionized the way we interact with cultural artifacts. For instance, the VR experience offered by the Palace Museum allows visitors to immerse themselves in the opulent and intricate details of ancient royal life, significantly amplifying the reach and impact of cultural dissemination. Despite these advancements, the process of digital transformation is not without its hurdles. Challenges such as the lack of standardized technical protocols, insufficient financial resources, and a shortage of specialized talent can impede progress. By examining both domestic and international case studies, it becomes evident that successful digital transformations are often the result of a synergistic collaboration between governments, businesses, and academic institutions, coupled with a profound comprehension and innovative application of new media technologies. Looking ahead, as new media technology continues to evolve, the digital revival of traditional culture is expected to place an even greater emphasis on enhancing user experience and interactivity, paving new avenues for the preservation and evolution of traditional culture.

References

[1] Wang M.Research on the Innovative Development Model of the Chinese Museum Cultural Creative Industry in the New Media Era[J]. Journal of Northeast Asian Arts and Cultural Management, 2024, 1(1).

[2] Yan C.Modern Translation of Rural Traditional Culture Led by Digital Art[J].Applied Mathematics and Nonlinear Sciences, 2024, 9(1).