

Digital Storytelling Strategies for Cultural Heritage and Cultural Identity of Young Audiences--A Case Study of the 'Cloud Tour Dunhuang' Mini Program

Xiaoxuan Lu^{1*}, Yefei Pan²

¹*Greater Bay Area Film and Television College, Zhujiang College of South China Agricultural University, Guangzhou, China*

²*College of Literature and Journalism & Communication, Sanjiang University, Nanjing, China*

**Corresponding Author. Email: xiaoxuanlu86@gmail.com*

Abstract. Digital technology is driving the transformation of cultural heritage communication towards interactive, experiential digital storytelling. The "generational gap" between young people and traditional culture, along with the risk of cultural content weakening in digital communication, makes it an important issue to explore how digital storytelling can revitalize cultural heritage and build deep cultural identity among youth. This paper takes the "Cloud Tour Dunhuang" mini-program as a case study and, based on the Lasswell 5W model, systematically analyzes its digital storytelling practice from five dimensions: communication subject, content, channel, audience, and effect. The study finds that the mini-program effectively promotes youth cultural identification on cognitive, emotional, and behavioral levels through implicit authority of the subject, contextualized content, lightweight channels, and audience participatory design using multimodal storytelling. However, it also has limitations such as superficial narrative, insufficient multimodal coordination, and a lack of deep audience engagement. Based on this, the paper suggests strengthening the systematic design of cultural depth, enhancing deep multimodal integration, and guiding deep audience participation to balance technological interaction with cultural content transmission, promoting the transformation of youth from shallow experiences to deep cultural identification.

Keywords: Digital Storytelling, Cultural Heritage, Youth Audience, Cultural Identity, Virtual Dunhuang

1. Introduction

In the digital age, relying on technology to facilitate the creative transformation and innovative development of China's excellent traditional culture has become a key issue in enhancing cultural confidence and solidifying young people's cultural identity. There exists a "generational gap" between the ways traditional cultural heritage is communicated and the media usage habits and aesthetic preferences of younger generations. Digital storytelling, characterized by interaction, experience, and emotional connection, is an important path to link centuries-old cultural heritage

with contemporary youth and to "revitalize" cultural heritage. However, the actual effectiveness of this approach still needs to be thoroughly examined.

Existing research has extensively explored the phenomenon of digital cultural heritage. Scholars such as Murray focus on technical characteristics of digital narratives, such as immersion and interactivity, laying a theoretical foundation for formal analysis. Jenkins' theory of participatory culture emphasizes the value of audience participation, but related studies mostly remain at the level of technical application description. Empirical studies on digital cultural heritage projects by scholars like Wang Chaoqun and Chen Qiao also revolve around measuring audience attitudes. Although research has made progress, it has not systematically revealed the specific impact of particular narrative strategies on young people's cultural cognition and emotional identification throughout the entire communication process.

To solve the above problems, this paper will choose as a representative case, the mini program known as the Cloud Tour of Dunhuang, with the Lasswell 5W communication model serving as the analytical basis. The analysis of the communication subject, content, channels, audience, and effect of narratives is conducted to shed light on the precise mechanisms whereby digital narratives impact the development of youth cultural identity. The expected outcome of this research is to give an integrated view of the theoretical convergence of culture and communication studies and to provide tactical directions about how cultural heritage and cultural education of the youth can be disseminated online.

2. Case analysis of "Cloud Tour Dunhuang" based on Laswell's 5W model

2.1. Case introduction

Cloud Tour of Dunhuang is an online cultural project launched simultaneously by the Dunhuang Academy and Tencent. Mini programs are used as vehicles of this platform to investigate alternative forms of digitalization of cultural heritage. This means breaking down the authorized expert information of the Dunhuang culture into virtual components and combining it into a form of digital interactivity that can be explored by users at their own will. As an example, high-definition panorama images and other technologies are used to create immersive cave spaces where users can learn and experience cultural implications via gamified storytelling. This strategy has enabled not only audio-visual and spatial representation of cultural data, but also contemporary construction and transfer of cultural significance by means of two-way communication.

2.2. Mechanism analysis

The proposed communication model of Lasswell consists of 5Ws, particularly Who (communicator) - Say What (content) - In Which Channel (channel) - To Whom (audience) - With What Effect (effect), which systematically outlines the main communication links and offers an easy way to examine diverse communication phenomena. The specified theory will be used in this paper to perform a particular analysis of the research topic.

2.2.1. Communication subject -- "Wandering Dunhuang in the Cloud"

Dunhuang Research Academy is the most significant disseminator of the Cloud Tour of Dunhuang due to its professionalism and authority, which make up the backbone of its trustworthy story. Following the emergence of the so-called New Museology in the 1970s, the concepts of people-orientedness and unity between people and things were identified as the central goals of a museum.

Museums should also be oriented towards the needs of the population in the current era (Sustainable Development) [1]. In addition to that, the National Library of China has over 20 years of experience in participating in the international Dunhuang projects along with other global institutions and has developed the database of Dunhuang Treasures that can be accessed publicly without paying any charges [2]. It is interesting to note that the novelty of the Cloud Tour of Dunhuang is in the implicit identity of its sender, which is a mini-program that combines the authoritative narrative with user-led exploration, avoiding explicit didacticism. Such a strategy can retain authority and bring it to the reach of a young reader and form the grounds upon which cultural identity can be constructed.

2.2.2. Communication content--from knowledge to accessible "scenarios"

Creation of a digital content storytelling system. The idea of the book is to focus on the cave art and re-arrange the cultural heritage of Dunhuang using digital storytelling as an integration of cave spaces with mural images and historical knowledge to create a visible and interactive digital content system. The platform creatively uses a flexible and non-linear narrative format that allows users to determine their own routes through the material, disrupting the conventional timeline and educational logic paradigm of exploration, and providing users with the opportunity to take responsibility.

The Cloud Tour Dunhuang is an interactive technology-based tour. It uses the focus on high-resolution images and localized zooms enhanced with accompanying texts. It creates explorable spaces by converting the still cultural objects into explorable ones by leveraging technologies like a virtual tour, thus increasing realism and presence, which is typical of the nature of digital dissemination. Other museum information presents artifacts in terms of their relationship to "cute culture", where internet speak is used to debunk stereotypes and connect with young people, encouraging them to participate in exploratory efforts [3]. It legitimizes the notion of the chronotope proposed by Bakhtin, who brings together time and space in the virtual setting. Researchers observe that the use of various technologies builds a real environment in the Digital Sutra Cave that brings multi-dimensional immersion and brings out the opportunity of digital dissemination of cultures [4].

2.2.3. Communication channels--"lightweight" platforms integrated into daily life

The WeChat mini-program is also one of the main platforms that the author uses to disseminate information about this tour and is based entirely on the simplicity and high rate of use of the device. In comparison with conventional museum web pages or applications, the mini-programs are much easier to use and spread faster. Since they are "lightweight", open and available, and provide functional services based on scenarios, culture tourism and mini-programs have become a significant type of digital culture tourism in terms of development since their content integrates with the daily life of media and entertainment [5].

The platform is based on the deep integration of digital technologies that extends the variety of cultural communication forms. It can produce a multi-modal communication situation with the aid of high definition imagery, panoramic displays, and a variety of interactive collaborations that enable the communication of cultural meaning to not only be through text but also in combination with other modalities such as images, interaction, etc. At the same time, the way it selects channels indicates a move of digital cultural communication towards decentralised reach instead of centralized display, which opens up additional opportunities to disseminate cultural heritage through mobile devices.

2.2.4. Communication audience--co-creating meaning driven by participatory experience

In audience targeting, it can be said that Cloud Tour of Dunhuang is targeting young people. Its interface, functionality, and content delivery are closely associated with the digital behaviors of the youth, which focus on the autonomy and the involvement of users. Young people become involved in the narrative via interaction, including clicking and zooming, and change into active constructors of cultural meaning, which matches Henry Jenkins' concept of the so-called participatory culture. Also, the mini-program decreases the barrier to entry of young participants with the use of colloquialisms and keyword extractions that produce a synesthetic experience via audiovisual multimodal integration, which is an example of the applicability of the theories of cultural synesthesia and multi-sensory immersion [6].

2.2.5. Communication effects--the impact of digital narratives on youth cultural identity

According to the mentioned strategies, the cultural identity impact of "Cloud Tour of Dunhuang" on youth is presented in three levels: cognitive (systematic awareness of history and art), emotional (immersive experiences associated with pride and closeness), and behavioral (sharing encouragement and a wish to visit in person). As an example, one of the comments a user made after using the application was: Upon seeing the layers of color that were in the murals and even when I zoomed in, I could see that there were faint underdrawing lines, and suddenly I understood that Dunhuang is not mere still photographs in a textbook, but a living code of civilization [7]. Additionally, the research also notes that emotional immersion may help to improve the sense of cultural relics preservation among the users and cultural revival, which will enable them to feel in the narrative journey the change of emotions between the feeling of curiosity and the sense of regret, thus increasing the emotional aspect of the cultural identity [8].

When distributing digital cultural heritage, it is necessary to take into consideration the fact that users can develop a so-called superficial sense of identity as they engage in what is known as check-in type of browsing. Hence, the question of how to balance captivating interactive experiences with the transmission of profound cultural values in design is a crucial matter when it comes to attaining true cultural recognition and is an area that should be pursued further in the future.

3. Limitations of digital storytelling strategies for cultural heritage

Even though digital heritage narrative practices, namely the "Cloud Tour of Dunhuang" mini-program, have produced impressive outcomes in linking ancient civilization with new generations, and have revitalized the modern relevance of cultural heritage based on scenarios, light delivery, and engagement in design, these practices have not yet eliminated the typical problems confronting the sector regarding the application of technology and the flexibility of cultural expression, the level of information, and its effectiveness in communication balances. In the context of research agreement between the areas of study, including digital storytelling and cultural heritage, the current ones have certain restrictions of the narrative logic, coordination of modalities, and involvement of users at larger scale. They not only compromise the efficacy of digital narratives in transmitting the essence of cultural heritage but also obstruct the change of young audience into deep value recognition, which has become one of the main bottlenecks that prevent the long-term evolution of the distribution of digital cultural heritage. Thus, it becomes vital to consider the constraints of their communication strategies that may serve as a basis for future optimization options.

3.1. Surface-level narration and weakening of cultural connotation transmission

In the case of digital stories of cultural heritage that aim at being more of an interactive experience, they are vulnerable to the problem of form over content. Although light interaction and visual representation meet the media practices of youth, they reduce and compartmentalize the cultural meanings. Others concentrate on surface-level experiences and do not have a structured analysis of the historical background, art content, and spiritual essence behind the cultural heritage, thereby creating symbolic and categorically perceived audiences. It is similar to the superficial trap of short video narratives: "Short video narratives are centered on some superficial aspects to engage people, failing to dig deeper into the substance, which might only increase short-term engagement but cannot create long-term stickiness or achieve long-term communication benefits [9].

3.2. Lack of synergy in multimodal narratives

The ability to integrate several media channels is one of the main aspects of digital storytelling in cultural heritage, but in contemporary approaches, different forms of modalities can be poorly integrated naturally into the overall context. The same problem is reflected in the literature about meaning-making in short videos; the available literature shows that it is stated: Most current studies fail to address the complexity of meaning-making in short videos... There is no overall analysis of the meaning-making elements present in those videos and general methodologies of interpreting the multimodal coordination within the videos. Text can be separate in some products, sound design is simply decorative, and interactive features are shallow in these products, so that multimodal resources cannot be effectively combined as they should be when they communicate. Such inability to coordinate has negative effects, not only limiting the audience immersion but also may cause misperception of cultural meaning, failing to integrate the audience's sensory experience and comprehend the essence of their cultural values, hence constraining the other deeper functions of digital storytelling in building a cultural identity.

3.3. Lack of depth and continuity in audience engagement

The digital narrative creation process, as part of cultural heritage, has largely been constrained to surface-level actions to click on content or switch between scenes and has not incorporated pathways that encourage deep reflection and creativity among its audiences. The current mechanisms fail to involve the initiative of the audience, and thus, it is hard to create a well-established process of receiving-participating-co-creating-disseminating. Products have been updated by operators, often unilaterally, with minimal methods to optimize on audience feedback, leading to a reduced sense of novelty and long-term engagement in users. The prevention of forming a consistent community and the inability of audiences to act as the co-creators of meaning limit both the scope of distribution and the duration of influence, as well as inhibit the transition of short-term experience into long-term cultural identity. At present, the creation of stories usually focuses on the popularity of the internet, the approach based on internet traffic to produce emotion-filled material, which meets the desires of the audience to experience excitement and emotional value, but fails to bring about deep cultural reflection and value awareness [10]. This deficiency of positive value direction also applies to short videos in the digital narrative context. The corresponding studies note that: There is no clear connection between adolescents engaging in short videos and their prosocial behavior, most of the literature on the topic of the effect that social media has had on youth deals with the negative aspects of social media use and not the positive ones, such as promoting prosocial

behavior, this demonstrates the lack of positive value direction in the short video narratives [11]. These common issues also help to reveal that there is no value guidance in the digital narrative, and the ability of digital narratives regarding cultural heritage to reach an inner layer of cultural messaging and the development of cultural identity is not reached.

4. Insights on balancing technological innovation and cultural depth

4.1. Strengthening the systematic design of cultural depth

Digital storytelling must strike the right balance between interactive experience and cultural depth. Although in the case of Cloud Tour of Dunhuang, the level of user engagement is increased, it still requires a more structured approach to explaining the mural technique, historical background, and so forth, so as not to simplify or fragment the cultural implications. Rather than an algorithmic product whereby technology serves to serve the market, which is the modernization of traditional culture, there is also a need to seek the most appropriate transformation directions within the context of new media, preserving the internal cultural value using technological empowerment [6].

4.2. Deep integration in multimodal narratives

The multimodal elements must interact more tightly to ensure that the cultural contents are deeply transmitted. As an illustration of this, using Cloud Tour Dunhuang, the recent imagery and interaction design have a strong effect and user experience, but sound guidance and written explanations should be more consistent with cultural meanings so as not to have fragmented or oversimplified meanings in presentation. The mini-program has done well in making constructive efforts in building cross-media symbols, creating a multi-layered combination communication medium, that of diverse construction of visual symbols, extensive explanation of textual symbols, and generation of audio symbols. It needs to build upon this base and further improve the semantic associations and empathetic resonance between the different modalities in the future [1].

4.3. Guiding deep engagement and long-term commitment

In future digital storytelling product development, there ought not to be shallow check-in type interaction with the audience, but rather design paths of deep interaction that direct users to ponder over cultural materials and achieve an overall understanding of cultural heritage. As an illustration, projects such as the Cloud Tour Dunhuang and Digital Patrons convert cultural responsibility into specific deeds that are facilitated through visual cues to inspire the conversion of online emotional involvement into offline behavioral acknowledgment [7]. Knowledge-based creators of cultural heritage can also be supported with resources, content planning, and other methods, which will develop the so-called knowledge influencers, or those who have cultural depth and communicative force. Taking advantage of the fan economy and converting traffic into money can aid in building a stable business value chain within the cultural industry [12].

5. Conclusion

The author of this paper is inspired by the 5W communication model of Lasswell to analyze the digital storytelling phenomenon of the Cloud Tour of Dunhuang systematically and discuss its effects on youth cultural identity. According to the research, digital storytelling creates lower barriers to cultural engagement due to scenarization, participatory, and multimodal communication,

changes cultural content into experience, and increases cultural sensitivity, emotionality, and proximity among the young generations.

The current research indicates that this kind of identity is largely primary, based on experience and emotions; the process towards greater knowledge and more stable identity needs further development. This implies the importance of digital storytelling in not just the empowerment of technology but also in teaching young people how to move beyond the notion of immersive experience to identifying experiences that are meaningful by effectively narrating them.

The article is a combination of classical communication models and digital practices at the research level, which can help to obtain useful analytical models; at the practical level, it implies that the digital dissemination of cultural heritage in the future should consider authenticity of culture, narration level, identity guidance, alongside balancing efficiency in communication and cultural inheritance. Research in the future would be able to incorporate interdisciplinary viewpoints, add more flesh to the idea of audience-centredness, and also provide a more systematic approach both theoretically and practically.

Authors contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

- [1] Liu, Y. (2020). Examining Museums' "Persistence" and "Transformation" Through the Lens of Museum Live Streaming. *Cultural Relics Appraisal and Appreciation*, (18), 150-152.
- [2] Zhang, N. (2024-01-04). Promoting the Digital Sharing and Return of Dunhuang Cultural and Artistic Resources. *China Culture Daily*, 006.
- [3] Xie, Z. (2020). How Museums Innovate Cultural Communication in the Context of Media Convergence. *Northern Media Studies*, (06), 81-85.
- [4] Gao, J., Zhong, L., & Wang, Y. (2024). Exploring Immersive Communication in the Metaverse Digital Cultural Exhibition Through "Digital Dunhuang". *China Media Technology*, (10), 137-141.
- [5] Lyu, Q., & Wang, X. (2025). Service Innovations, New Communication Patterns, and Practical Benefits of Digital Cultural Tourism: An Investigation Based on WeChat Mini Program "YunyouDunhuang". *Journal of Northwest Minzu University (Philosophy and Social Sciences Edition)*, (02), 74-84.
- [6] Zhao, Q. (2022). The New Media Transformation and Communication Value of Digital Cultural Relics Resources: A Case Study of the "Yunyou Dunhuang" WeChat Mini Program. *Western Radio and Television*, 43(09), 63-65+88.
- [7] Hu, Z., & Wang, J. (2025). The Impact of Digital Exhibition of Cultural Heritage on Young People's Cultural Identity: A Case Study of the WeChat Mini Program "Yunyou Dunhuang". *Haihe Media*, (05), 58-63.
- [8] Wang, C., & Chen, Q. (2025). Exploring Interactive Digital Narratives in Virtual Museum Mini-programs: A Case Study of the "Yunyou Dunhuang" Mini-program. *China Media Technology*, (02), 18-24.
- [9] Simone, & Natal. (2016). Unveiling the biographies of media: on the role of narratives, anecdotes, and storytelling in the construction of new media's histories. *Communication Theory*, 26(4), 431-449.
- [10] Li, N. (2025). Story Crisis in the Era of Deep Media. *Chinese Literary and Art Criticism*, (06), 95-98+128.
- [11] Li, Q., & Li, N. (2024). Social media and adolescents' prosocial behavior: evidence of the interaction between short videos and social value orientation. *Psychology Research & Behavior Management*, 17.
- [12] Zhao, Z., & Fan, S. (2021). The Transformation and Communication Strategy of Cultural and Museological Industry in the Digital Age: Taking the Live Broadcast of Xi'an Stele Forest Museum as an Example. *News and Writing*, (06), 96-99.