| **RESEARCH ARTICLE**

Communication and Inheritance of Intangible Cultural Heritage: Puzzle-solving Games Help Spread Dunhuang Intangible Cultural Heritage

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| **ABSTRACT**

With the development of digital media and the continuous application of digital technologies means in the communication and inheritance of intangible cultural heritage, more and more intangible cultural heritage has found a new way out. However, there are still some problems in the communication and inheritance of intangible heritage, such as difficulty in retaining new blood, superficial output content, and boring long process content in the recording process. This paper takes Dunhuang non-legacy literature as an example, analyzes the current problems of the communication and inheritance of intangible cultural heritage, and puts forward the countermeasures and advantages of introducing puzzle games as a means of communication of long content.

1. Introduction

Intangible cultural heritage is a national memory passed down from generation to generation and a treasure in the long history of civilization. It not only marks the achievements in history and culture but also contributes to the excellent traditional culture. Hundreds of years ago, on the silk road of Dunhuang city, Gansu province in China, the world's four major intersections of civilization, has brought together who lived in each generation of northern frontier culture and central plains culture, minority culture and the western regions. The foreign culture was born in Dunhuang calligraphy, Dunhuang tiling, paper-cut, Dunhuang Dunhuang stone powder paint, colorful murals of Dunhuang, and many other intangible cultural heritage. In today's era of developed digital media, intangible cultural heritage has become more and more popular. The artistic works created by artisans thousands of miles away can break the limitations of time and space and be presented to the audience in high-definition, bringing the audience a flash in the pan. This kind of short-term surprise can only temporarily open the eyes of the audience, and the communication of intangible cultural heritage can not only be superficial but also sow the seeds of intangible cultural heritage spirit into the hearts of the people.

2. Historical Background
2.1 Material Civilization is Ephemeral, and Fresh Blood is Hard to Retain
Different from material cultural heritage, the core and most valuable resource for the inheritance of intangible cultural heritage lies in the inheritor. The material civilization produced by Dunhuang's intangible cultural heritage techniques is extremely rich and colorful. Lifelike colored sculptures, exquisite murals, and other art forms are enough to give people a sense of beauty and shock the soul.

But after the shock, many viewers just stay at this stage of intangible cultural heritage. In particular, many of the young generations do not have deep knowledge and understanding of intangible cultural heritage, and their cultural identity is not strong enough. They believe that it is difficult to gain enough value and self-achievement from engaging in intangible cultural heritage, and their

willingness to enter the intangible cultural heritage industry is low. As a result, the intangible cultural heritage industry is short of fresh blood and difficult to retain for a long time.

2.2 Bright Bright Appearance Often In, Thick History Endure Dust
The intangible cultural heritage we see is generally visible and explicit, but what condenses into these is the historical and cultural origin of thousands of years behind the dust. Dunhuang culture originated in the pre-Qin period of the Sixteen Kingdoms and has gone through the construction of the Sixteen Kingdoms, Northern Dynasties, Sui, Tang, Five Dynasties, Western Xia and Yuan Dynasties.

Nowadays, what modern people often see is the obvious intangible cultural heritage skills and material output, but the years of construction and boring and repeated hard years behind it do not often appear in front of people's eyes, which are left behind by the contemporary intangible cultural heritage communication.

2.3 Intangible Cultural Heritage is not Achieved Overnight but from Generation to Generation
Compared with material cultural heritage, intangible cultural heritage emphasizes the dynamic role of human beings and is a kind of handicraft inheritance. In the face of amazing material output, viewers are always willing to praise the inheritor, elevating the inheritor to the status of an artist in their hearts. However, this creates an invisible distance between the public and the inheritor, which will dissipate the public's enthusiasm for participating in the inheritance of intangible cultural heritage.

The output of non-intangible cultural heritage is not achieved overnight, and the inheritors of intangible cultural heritage are more national and public craftsmen. It is the dusty hands of generations of sculptors, the painted fingertips, and the calloused feet of dancers that bring the bright material civilization to the eyes of the people.

2.4 Research Method: Literature Reading Analysis
2.4.1 Data Collection
This paper takes journal papers in the CNKI database as the research object. In the advanced search, the title is "Intangible cultural heritage communication," and the set period is 2014-2022. A total of 367 journal papers are listed in the search results (as of September 25, 2022). The research content of this paper is limited to the dissemination of Dunhuang's intangible cultural heritage in the new media era. Through browsing and careful reading, 38 papers are determined as the research objects of this investigation.

2.4.2 Comprehensive Analysis
These papers can be divided into two categories according to their research content: new media (17 papers, including 1 document focusing on Dunhuang intangible cultural heritage) and cultural communication (21 papers, including 1 document focusing on Dunhuang intangible cultural heritage). New media papers mainly discuss the dissemination and inheritance of intangible cultural heritage in the era of new media, while cultural communication mainly focuses on the strategies adopted in the communication of intangible cultural heritage.

2.4.3 Conclusion
Overview of the New Media Era: With economic development and scientific and technological progress, the information age has arrived, and emerging media emerge in endlessly, making the dissemination and reception of information increasingly convenient (Xu, 2022).

Intangible culture dissemination status: modern and contemporary intangible culture is more and more inseparable from the environmental background of the digital era; the traditional way of spreading gradually reached the bottleneck, the transmission of intangible with the integration of new media is the trend, but the new media for intangible cultural heritages is a double-edged sword, it can bring new vitality for intangible cultural transmission, but also easy to the extreme of the entertainment.

Divergence of intangible cultural heritage communication strategies: The communication strategies of intangible cultural heritage discussed in the literature mainly focus on intangible cultural heritage + new media, such as helping the cultural communication of intangible cultural heritage by means of games, animation, cultural and tourism integration, micro-recording, and non-legacy cultural creation APP.

3. Analysis of Cultural Communication of Intangible Cultural Heritage
3.1 The Fragmentation of Information, the Heart Blundering
In today's era of rapid development of science and technology and rapid development of digital media, we have already entered the "accelerated society" referred to by the scholar Rosa of Frankfurt School. Social acceleration has caused a new "alienation" form of modern lifetime alienation. Entertainment relying on digital media occupies a lot of fragmented time, but the individual

does not leave a long-term memory. In the context of new media, under the influence of information fragmentation, intangible cultural heritage will produce certain variations and deletions in the process of communication (Luo & Chen, 2021).

Fragmented information is engulfing people every day, which is gradually eroding people's ability to think independently and retain long-term memory. Modern and contemporary people's psychology is gradually impetuse, especially the young generation who have been in contact with electronic media for a longest time. Once young people become impetuous, they will not be able to sit on the bench of inheritance, which will lead to the lack of fresh blood in the inheritance of intangible cultural heritage.

For example, on TikTok, the makeup, dancing, and editing videos under the topic "Dunhuang Flying Dance" are popular among young netizens. Although these short videos are labeled as "intangible cultural heritage" or "Dunhuang Flying Dance," and most netizens can watch the graceful Dunhuang dance for a short time, the netizens still focus on the superficial content such as music and makeup rather than the dance itself. The Dunhuang intangible cultural heritage dance in the short videos is only skimming in people's minds and cannot be retained for a long time or attract new blood.

3.2 The Form is Diversified; the Content is Relatively Single
As a living culture in development, intangible cultural heritage itself is highly malleable. The creative development of intangible cultural heritage in new media has adapted to contemporary social psychology and expression methods, thus realizing the diversification of intangible cultural heritage culture presentation forms (Luo & Chen, 2021). An endless stream of short video clips and even the use of VR, AR, and other new media communication means, with the help of scientific and technological means, all kinds of communication forms have brought new vitality to traditional culture.

However, most of the output content of intangible cultural heritage communication is easy to be superficial and focuses on single display content. Whether it is a few seconds carefully edited in a short video, or a close and high-definition look at statues and murals in a virtual reality experience, they are all biased to display content. Such output is undoubtedly able to attract a considerable number of audiences but often only can not retain them. For instance, Websites such as Dunhuang Digital Museum and Digital Dunhuang absorb the rich local cultural relics resources in Dunhuang and apply AR technology to present the grottoes, colored sculptures, and murals of Dunhuang online, which is conducive to visitors to feel the details of cultural relics closely. However, the display content of the digital exhibition hall mostly focuses on the output of intangible cultural heritage technology, and it is difficult to touch the essence of intangible cultural heritage technology, namely the process of cultural heritage production.

Heidegger's philosophy emphasizes the extreme importance of concealment to brightness and absence to presence, which is also the case for intangible cultural heritage inheritance. The explicit display content most easily seen by viewers is behind the accumulation of inheritors. To expand the communication content, we should pay attention to the part behind the absence.

3.3 Long Content is Boring, Communication is Difficult to Innovate
The communication of intangible cultural heritage needs to pay attention to the detailed process of intangible cultural heritage techniques. The hard work of generations will be recorded in the form of long content output. The long content output at a slow pace is easily disconnected from today's fast-paced society full of fragmented time.

For example, the documentary Dunhuang, produced by CCTV, carries the mission of publicizing traditional culture, but the content of the documentary is too grand, and the details are slightly pale. No matter the description of ancient or contemporary times, there is a lack of smoke and fire in the life of the people in Dunhuang, causing the disconnection between the intangible cultural heritage of Dunhuang and the social life in Dunhuang in the audience's understanding (Cao & Yang, 2021); In addition, the teaching video launched by Mogaoli Artisan Village comprehensively records the process of intangible cultural heritage production techniques. However, in terms of entertainment and recreation, the form of long content teaching is obviously difficult to fit in the modern era when short videos are popular and the audience is relatively narrow.

"Poverty leads to change, change leads to success, and generality leads to longevity." The dissemination of intangible cultural heritage urgently needs to explore the profound content and find the dissemination mode to adapt to the new trend of the new era, but innovation is not easy.

4. The Solution

4.1 Tell the Story of Intangible Cultural Heritage

4.1.1 Explore the Historical Origin of Intangible Cultural Heritage

The Dunhuang intangible cultural heritage embodies the wisdom of our predecessors and the hard work of people from all walks of life. In order to improve people's sense of identity, inheritance consciousness, and sense of mission of intangible cultural heritage, it is necessary to tell the historical stories of intangible cultural heritage and excavate cultural identity from the depth of historical origin.

Take cave digging, for example; after the cliff surface is repaired and leveled, it is necessary to build scaffolding or pile up the earth and stone to climb the excavation; there is a bright window (the lighting mouth above the door) type of cave is dug from the bright window, dug into a certain distance after digging up. From the top of the cave, cut out the shape of the top of the cave, and then cut from top to bottom, and then dig through the tunnel until the completion of the cave. No bright window of the cave is dug from the door, dig enough tunnel distance is also dug up and then from top to bottom. Top-down construction method, one is to avoid landslides and ensure construction safety; Two is to save labor and effort, and easy to send the sand from high to low (Du, 2018).

The painted sculptures and murals in the Mogao Grottoes and other works of art are of great value. They do not seem to come from the hands of ordinary craftsmen at all but more like the crystallization of great masters. These exquisite works of art are not inferior to the works of some great masters of that time. But the Dunhuang grottoes only leave us these great works of art, but not the names of the "artists" who created them; None of the famous artists in the history of painting participated in the painting of Dunhuang frescoes or left traces in Dunhuang. The limited records tell us that the creators of Dunhuang art were indeed ordinary craftsmen (Ma, 2018).

4.1.2 Be Close to the Inheritors of Intangible Cultural Heritage

To tell the story of intangible cultural heritage well, in addition to tracing the source history, we should also focus on reality. Non-inheritor is the main force of intangible cultural heritage inheritance. Only by telling their stories well can the broad masses see the hardships behind the gloss of intangible cultural heritage.

Intangible cultural heritage skills need the original ecology and the whole process of recording, but they also need formal innovation, such as micro-recording, interactive live broadcasting, and so on.

4.2 Interactive and Immersive Communication

4.2.1 Immersive Communication

Scholar Li Qin put forward the concept of "the third Media Age," defining that "the third media age is a ubiquitous communication age characterized by immersive communication and based on the ubiquitous network" (Li & Xiong, 2013). In the Internet era, the application field of immersive communication has been broadened, and the mechanism of playing a role has become more complex, forming a new communication landscape. It is foreseeable that immersive communication will bring new vitality and good prospects to the publicity of intangible cultural heritage.

4.2.2 Communication Benefits from Games

The advantages of game communication: As the ninth art, games closely affect people's "body" from the senses, psychology, and so on, with a high degree of immersion inherent (Li & Xiong, 2013). The game is also highly interactive, which can keep the audience's sense of participation for a long time. The fun of the game is also a big advantage that it can bring vitality to the content of the communication. With games as the transmission carrier, intangible cultural heritage will be more widely spread, deeply rooted in people's hearts, and attract the young generation. For example, Yue Xiaoling took the communication practice of the news game Bury Me, My Love as an example and affirmed the role of news games in making up news cognition, providing an immersive experience, and realizing viral communication in the article (Li, 2022).

The material sources of the game: As a content bearer with strong advantages, games are very suitable for the export of rich content of intangible cultural heritage in the new era. The exploration of the historical origin of intangible cultural heritage skills and the understanding of the experience and life of non-inheritors are the bluebooks of historical stories and inheritance stories, which will become the solid foundation of communication games.

Game Content Ideas: Story content can be combined with mystery game output. Mystery solving games, also known as adventure solving games, are a sub-category of the adventure game category. Different from the wide range of puzzle games, mystery games focus more on plot arrangement and characterization. By setting a number of puzzles and obstacles in the game, completing each puzzle opens up more of the game world to explore. The story of the game expands as the player solves more puzzles (Rouse,

2004). By introducing the game to record the story of adaptation level, have the experience to modern identity into the ancient builders, as lovers into a contemporary inheritance, immersive experience non-material cultural heritage skills, experience in the game since ancient time, story plot in series, each witness intangible output skill, the development of material civilization, Get a sense of participation and accomplishment from the flow of the game. Through games, people can enter the "flow experience." The combination of intangible cultural heritage and games makes games enter the field of intangible cultural heritage with profound connotation from the pure entertainment of one dimension, which can also eliminate the dull feeling of recording the long content of intangible cultural heritage and make the dissemination of intangible cultural heritage more interesting, closer to reality and deeply rooted in people's hearts.

5. Conclusion

In today's era, when social life and culture are changing with each passing day, the dissemination and inheritance of intangible cultural heritage are facing huge challenges. Dunhuang's intangible cultural heritage needs to pay attention to the record of the intangible cultural heritage craftsmanship process. At the same time, games, an innovative and interesting means of communication, can be introduced to inject young vitality into the culture and conform to the trend of the new era, which is no longer superficial but deeply rooted in people's hearts.

5.1 Summary of Current Situation

The fine traditional Chinese culture is the spiritual lifeblood of the Chinese nation, an important source for the preservation of core socialist values, and a solid foundation for China to stand firm in the world's cultural turbulence.

With the rapid development of social life and culture, we have entered the digital era. In the face of endless new technologies and new media, the spread and inheritance of intangible cultural heritage are facing great opportunities and challenges.

5.2 Future Prospects
5.2.1 Prospects of the Solution

The article aims to add new vitality to the spread of intangible cultural heritage in the digital era by taking advantage of immersion communication and interactive game communication. This paper puts forward a mode of intangible cultural heritage communication with micro records as the material and adventure puzzle solving games as the carrier.

Microdocumentaries can not only be directly output as communication content but also increase their story as the material of the game. However, we should always pay attention to intangible cultural heritage technology itself. The stories of inheritors and historical stories are the living carriers of intangible cultural heritage technology. Microdocumentaries need to emphasize the key points clearly.

The advantage of using adventure puzzle solving games to spread intangible cultural heritage lies in immersion, interactivity, and interest. However, puzzle solving games also have their disadvantages in cultural communication, that is, one-way. After users experience the whole process once, if they play again, their concentration will drop. It is necessary to strengthen the penetration of cultural communication in the first game process and explore the degree of interest and innovation in subsequent multiple experiences.

5.2.2 Future Prospects

The penetration of new media in people's lives is getting higher and higher, and intangible cultural heritage + digitalization will become the general trend of intangible cultural heritage dissemination. Dunhuang culture should adapt to and catch up with the trend of two-way penetration of science and technology, and culture. It should not only pay attention to the recording of the process of intangible cultural heritage techniques but also introduce innovative and interesting communication means of games so as to inject young vitality into itself, which is no longer superficial but more deeply rooted in people's hearts.

Conflicts of Interest: The authors declare no conflict of interest.
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