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Analysis of the digital dissemination path of intangible cultural heritage from the perspective of grounded theory

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Abstract. Intangible cultural heritage is a valuable asset of Chinese civilization, playing an indispensable role in shaping cultural confidence and pride. However, in the context of the internet and new media, there has emerged a scenario of cultural inheritance stagnation and financial difficulties. This study collects data from 300 users regarding the digital content of intangible cultural heritage through semi-structured interviews, utilizing NVivo12 software and based on a three-level coding framework of grounded theory. It discusses solutions for the digital dissemination path of culture and builds a model for its dissemination and development. The study finds that user willingness, technical support, dissemination media, and cultural plasticity have significant effects on the digitalization of intangible cultural heritage.

Keywords: intangible cultural heritage, grounded theory, digital technology, influencing factors, semi-structured interviews

1. Introduction

The execution of a national cultural informatization strategy has become a key policy in China in recent years, urging the need to seize the opportunity and promote the timely transformation of appropriate intangible cultural heritage projects into digital forms, aiming to prevent the loss of skills caused by interruptions in technological inheritance. The exploration of digitalization in intangible cultural heritage has achieved more mature and distinctive results in the rapid development of the new era. Scholars such as Hua Yuwen and others, through studying the user demand for the digital construction of rural public cultural services in Jiangsu Province, established an optimization framework based on user needs, providing empirical support for the digital dissemination of intangible cultural heritage [1]. Similarly, Jinliang Niu and Yinggang Gao focused on ancient murals as their analysis center, discussing the empowering space of digital technology and its governance logic, offering a new perspective for the digital dissemination of intangible cultural heritage [2]. However, cultural digitalization also faces various challenges and difficulties. In the era of multimedia, traditional media such as newspapers and television are gradually losing their influence in the media market. Problems such as a lack of awareness among communicators, commercialization of dissemination purposes, fragmentation of information, and narrowing and flattening of dissemination channels persist. This study aims to thoroughly analyze the current state of digital dissemination of intangible cultural heritage and explore the influencing factors behind it. The research team hopes to provide valuable insights into the healthy development of intangible cultural heritage by offering a more comprehensive understanding of cultural dissemination in the digital age.

2. Literature review

In recent years, the application of grounded theory has been increasingly prevalent in the fields of computer science and humanities and social sciences. Grounded theory, with its unique advantages, allows researchers to inductively derive theories from data, offering a new perspective for understanding complex user behaviors. For example, some scholars have used grounded theory to analyze the social and cultural motivations behind ChatGPT users' adoption of new technologies, and to explain the adoption process of new technologies [3]. Additionally, scholars such as Xinyuan Lu and others [4] have applied grounded theory to study users' privacy paradox behaviors in a multi-social media platform environment, expanding the scope of grounded theory research in the context of new media. However, there are still gaps in the existing literature on the digitalization of cultural heritage. First, most studies focus on the Western cultural context, with limited research on Chinese culture. Secondly, most digitalization studies adopt quantitative methods, while qualitative research has not yet been widely applied. Finally, although grounded theory has

shown its potential in privacy research and has been applied in various contexts, it has yet to be systematically applied to the digitalization of cultural heritage. To fill these research gaps, this study adopts the grounded theory method for a qualitative in-depth analysis of the digital dissemination path of culture. Through in-depth interviews and content analysis, this research provides new theoretical support and practical guidance for the protection and inheritance of intangible cultural heritage (ICH).

With the rapid development of digital technologies, the protection and inheritance of intangible cultural heritage (hereinafter referred to as "ICH") has ushered in new opportunities and challenges. Gang Hu and Hui'er Yang analyzed the impact of digitalization on rural revitalization in China from a macro perspective, pointing out the role of digitalization in promoting cultural production, dissemination, and consumption, while also highlighting issues such as the weak digital capacity of rural cultures [5]. Xiaoge Wang and Suqiu Zhang discussed the importance of digitalization in the protection of traditional culture from a theoretical standpoint, emphasizing the role of media technology in the innovation of traditional art inheritance [6]. There are also studies proposing innovative strategies for the digital innovation of culture. For instance, Liquan Yao and Yini Zheng reviewed research on the digital protection of ICH in ethnic minority regions and proposed the principles of "from storage to consumption" and "from one-way to interactive," providing new perspectives for the digital protection of ICH [7]. Jingya Li and others used the gamification of Nuo culture as their research subject, demonstrating the practical application of ICH digitalization and emphasizing the importance of gamification design strategies in cultural dissemination [8]. Solutions to address issues in digital cultural dissemination have already emerged. Ping Wang and Jiangxia Lei summarized the current state and problems of digital dissemination of traditional village culture in China and proposed strategies to address these issues, offering practical guidance for the digital dissemination of ICH [9]. This paper aims to build upon the work of previous scholars and explore the development and dissemination of ICH culture in light of the impact of digitalization and AI-generated technologies.

3. Research design

In 1967, American sociologists Barney G. Glaser and Anselm Strauss jointly pioneered grounded theory. This theory aims to explain social activities and emphasizes abstracting concepts and constructing systems from practical insights and social events, reflecting an inductive research method that moves from the concrete to the abstract [10]. The research steps in grounded theory typically include four stages: problem formulation, data collection and organization, coding, and model construction. In this study, we adopted Strauss's three-level coding system (which includes open coding, axial coding, and selective coding [11]) as our methodological guide. At the beginning of the study, we collected data from the internet regarding privacy protection on WeChat Moments and drafted an interview outline. We then conducted semi-structured face-to-face interviews with WeChat Moments users, continuously refining the interview outline based on multiple rounds of conversation to collect raw interview data. Next, using Strauss's systematic grounded theory approach [12], we utilized NVivo 12, a coding support software, to deeply analyze and process the collected interview data. Through a three-phase coding process and a test of theoretical saturation, we gradually constructed a theoretical model to describe the influencing factors of privacy paradox behaviors.

In-depth interviews are typically not randomly selected, but rather use more flexible and random non-random sampling methods [13]. Given the diversity of users in social media platforms and the goal-oriented nature of the research, certain criteria must be followed when selecting interview samples: 1) interviewees must be active users of at least two social media platforms; 2) there should be a balance between male and female interviewees, and they should differ in terms of statistical attributes such as education level, major, profession, and work experience. In general, the selection of interviewees must ensure the sample is representative and diverse, in order to provide rich and detailed interview data for the study. The interviewees chosen for this paper were primarily university students aged between 20 and 30. Semi-structured interviews were conducted with a total of 300 samples, using a combination of online and offline methods, and either one-on-one or group interviews. During the interviews, the researchers did not actively guide the interviewees' opinions or preferences but allowed for flexible questioning to delve deeper into the topics. Each interview lasted on average 20 minutes. Referring to the interview outline in Table 1, the researchers took notes and recorded the interviews after obtaining the participants' consent. Then, using Feishu's transcription function, the audio content was converted into text, resulting in a total of 39,877 words. The researchers stored the raw text in the "A--" format (e.g., A-1-1 represents the first sentence of the first interviewee) as the original material for coding. The useful resources were then imported into NVivo 12 for node-based coding and organization, selecting 250 samples for basic theoretical analysis, while the remaining 50 samples were used for testing theoretical saturation.

Table 1. Interview outline

Section	No.	Specific Question
Part One	1	Age, gender, education level, and occupation
	2	Monthly income
	3	Awareness of cultural digital dissemination
Part Two	4	Does digital technology help increase the visibility and recognition of intangible cultural heritage?
	5	Can digital display enhance people's immersive experience of intangible cultural heritage?

Table 1. Continued

Part Three	6	What is your opinion on promoting intangible cultural heritage through mobile internet platforms (e.g., apps, social media)?
	7	Does the digital protection and transmission of intangible cultural heritage require interdisciplinary collaboration?
	8	Should the digital dissemination of intangible cultural heritage emphasize the subjectivity and participation of inheritors?
	9	Does digital dissemination contribute to international exchange and promotion of intangible cultural heritage?
	10	Should the digital dissemination of intangible cultural heritage focus on preserving its originality and authenticity?
	11	Does digital technology play an important role in rural cultural revitalization?
	12	Do you support using big data analysis to evaluate the effectiveness of intangible cultural heritage dissemination and audience preferences?
	13	Should the digital dissemination of intangible cultural heritage innovate in conjunction with the modern creative industries?
	14	Can the use of digital technology in cultural product design better inherit and innovate traditional culture?
Part Four	15	The digital dissemination of intangible cultural heritage requires the joint efforts of the government, academia, and the public.
	16	How do you usually respond when facing privacy paradoxes?

4. Research based on grounded theory

4.1. Open coding

Open coding, as the initial stage of grounded theory, requires researchers to maintain an open and impartial attitude, establishing clear concepts and a classification system based on the existing data. Through detailed analysis and induction, this study extracted 40 concepts and 20 categories from the collected raw data. NVivo 12 software was used to assist with the coding process, ensuring both accuracy and efficiency. To reflect the "natural emergence" principle of grounded theory, the researcher made every effort to preserve the original structure of the sentences during the process of converting audio to text.

4.2. Axial coding

Within the framework of grounded theory, axial coding serves as an extension of open coding and is focused on revealing and constructing the deep logical relationships between concepts and categories. This study further explored the internal relationships between the 40 concepts and 20 sub-categories identified in the open coding phase, and recoded them to develop the main and sub-categories. The analysis revealed that there are tight interrelationships between the 20 categories. Based on this, the study integrated and refined the categories, ultimately forming 4 main categories: user willingness, technical support, communication media, and cultural plasticity. This process not only deepened the understanding of the influencing factors of digital culture but also provided a solid foundation for constructing a more systematic theoretical framework. Through axial coding, the study successfully transformed initial concepts and categories into a higher-level theoretical construction, offering important theoretical support for subsequent research.

4.3. Selective coding

In grounded theory, selective coding is considered a higher-level refining process, primarily focused on identifying and deeply exploring the core category, and establishing a theoretical structure that accurately reflects the essence of the original data. In this study, through systematic analysis of the main categories, digital cultural heritage behavior was identified as the core category. In-depth discussions and analyses were conducted regarding the logical relationships between the core category and four main categories: users, technology, media, and culture. This process integrated and refined the results of axial coding, establishing a grounded theory model based on the interactions between categories. Additionally, this theoretical model was visualized, resulting in a structured model that provides a new perspective for understanding the digital dissemination path of culture.

4.4. Theoretical saturation test

According to the theoretical saturation acceptance standards of grounded theory, the dialogues and analyses in the study are mutually reinforcing and closely connected. Therefore, after each interview, I collected and analyzed the interview data, carefully organizing my thoughts and extracting key points. Based on the preliminary analysis results, I continuously refined the interview outline until the information gathered during the interviews began to repeat. Even at this point, I continued with several more interviews. During the formal data processing and analysis, I followed the processes of open coding, axial coding, and selective coding. I conducted coding on fifty randomly selected interview samples to test the theoretical saturation. The test results indicated that the categories formed by the coding of the sample matched the previous coding results, with no new concepts or categories identified, in accordance with the principle of theoretical saturation. Therefore, it was confirmed that the model of influencing factors of privacy paradox behaviors among WeChat Moments users has reached theoretical saturation.

5. Conclusion and outlook

This paper uses the three-level grounded theory approach as a qualitative research tool, employing semi-structured interviews to collect initial data. The study aims to explore strategies for digital cultural dissemination and builds a framework for communication growth. The research findings indicate that user willingness, technical support, communication media, and cultural plasticity have significant impacts on the digitalization of intangible cultural heritage. By examining these four core categories, we conclude that the complex characteristics exhibited by culture in the digital communication process are the result of the interaction and combined influence of multiple factors. To address this complexity, technical support from digital platforms is a prerequisite, while data also shows that users have a strong willingness to engage in digital dissemination. The focus of this study mainly lies in the following areas: first, by using grounded theory, the study summarizes 300 interview data points, and the coding process using NVivo 12 software accurately reflects users' real perceptions of digital cultural communication, further investigating the reasons behind users' behavioral intentions. Second, based on the results of grounded analysis, the study investigates the influencing factors of digital dissemination and provides corresponding strategies for optimizing communication channels and media. However, this study also has certain limitations. On one hand, while many scholars have explored digital cultural content, communication path behaviors are relatively complex. Therefore, the conclusions and related propositions of this study still require further research to verify and supplement. On the other hand, potential errors may arise during the process of extracting core elements of interview data through three-stage coding due to unclear responses from some interviewees and the need to expand the interview sample size.

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