

Digital Divide of Intangible Cultural Heritage and Innovative Inheritance Countermeasures

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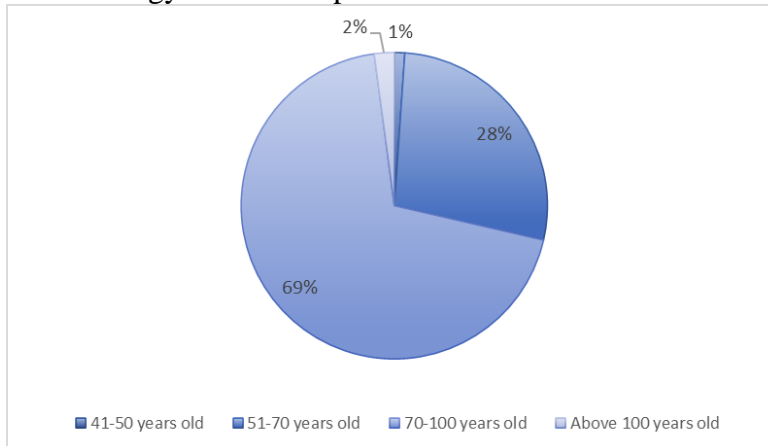
Keywords: ICH digital divide, ICH innovative inheritance, ICH inheritors, digital literacy

Abstract: The rapid growth of the digital economy has sparked interest in digital innovation for intangible cultural heritage (ICH) in recent years. Progress has been made in digital storage, creation, and dissemination of ICH. However, senior ICH inheritors face a significant challenge known as the "digital divide", which includes the "digital access divide", "digital capability divide", and "digital output divide". Subjective factors contributing to this issue include inheritors' willingness, access conditions, physical capabilities, and education levels, while objective factors consist of the complexity of digital equipment, lack of social support, digital security concerns, and difficulties in ICH inheritance. To address these divides, collaborative governance involving multiple societal actors is crucial. This paper recommends that the government implement policies supporting ICH digitization, social groups enhance digital education for senior ICH inheritors, enterprises establish a digital platform for ICH, and ICH inheritors foster the interest of young people in learning about ICH. Implementing these measures can eliminate the ICH digital divide, expand the ICH bearer community, enhance digital literacy, and promote the protection and inheritance of ICH.

1. Introduction

China is currently in the process of constructing "Digital China", characterized by the rapid advancement of digital technologies such as 5G, the Internet of Things, big data, cloud computing, and artificial intelligence, and their significant impact on social production and daily life. The implementation of a national strategy for the digitization of culture has strengthened the protection, creation, transformation, dissemination, and experiential aspects of Intangible Cultural Heritage (ICH). The 14th Five-Year Plan for Culture and Tourism Development has further emphasized the importance of identifying and managing ICH inheritors, promoting workshops and training opportunities for national representatives of ICH, and initiating training programs for young inheritors. However, it is crucial to acknowledge the issue of the aging population of ICH inheritors. As of November 2022, out of the 3,057 national-level representative inheritors of ICH, 1,345 inheritors are aged 70 and above, accounting for 71.5% of the total, while only 18 inheritors are under the age of 50, making up just 1% (Figure 1). Given the intervention of digital technology in ICH, it is imperative for inheritors to continually enhance their digital literacy to adapt to the

evolving landscape. However, senior inheritors, who belong to the digitally disadvantaged group, face a significant digital divide. Moreover, finding young heirs for ICH is challenging as younger generations often lack deep insights into ICH and a strong desire to carry it forward. In these circumstances, digital technology serves as a potential solution to alleviate the loss of ICH.



Note: At present, of the 3057 representative inheritors of national intangible cultural heritage, a cumulative total of 1882 has announced their birth age.
Data source: China Intangible Cultural Heritage Website

Figure1: Percentage of national-level ICH in different age groups

Therefore, while national policies already support the identification and protection of ICH inheritors, the pressing issue of an aging population of inheritors has exacerbated the digital divide between senior and younger inheritors, thus creating a potential talent gap in ICH projects. On one hand, there is a need to strike a balance between efficiency and fairness, enabling senior inheritors, who are at a relative disadvantage, to integrate into the digital society, thereby promoting inclusive and sustainable development for all ICH inheritors. On the other hand, it is essential to incentivize newcomers to learn, participate, protect, and transmit ICH, while also assisting older inheritors in integrating digital technology to facilitate their innovative preservation efforts, ultimately ensuring the continued lineage of China's ICH cultural heritage. Additionally, an (2020) proposes that the development of a cultural ecological reserve necessitates the involvement of ICH managers who play diverse roles^[1]. These roles extend beyond specific individuals and encompass various stakeholders, such as the government, social organizations, relevant disciplines and research institutes in higher education, local cultural figures, inheritors, and regional populations. They should assume responsibilities such as coordinating, guiding, mediating, interpreting, promoting, and innovating. Moreover, specific measures to bridge the digital divide have been proposed by Dibeltulo et al. (2020), who established the Historypin online archive dedicated to enhancing the digital engagement of older individuals and fostering the participation of younger generations in sharing cultural heritage in an online environment^[2]. Consequently, digital platforms provide older generations with opportunities to curate and utilize technology while supporting younger individuals in engaging with them. Ye and Yang (2020) also argue that digital mobile platforms play a crucial role in addressing the digital capability gap^[3]. These platforms should not only act as intermediaries but also focus on guiding and enhancing users' proficiency in utilizing them. By doing so, individuals' digital capabilities can be strengthened across structural, psychological, and resource dimensions. Consequently, both platform providers and governments assume pivotal roles in the task of bridging this divide.

To summarize, China's innovation and inheritance in ICH is confronted with the challenge of the digital divide, with particular focus on providing support to senior ICH inheritors. This study aims

to analyze the actual circumstances faced by the inheritors and, taking into account various factors that contribute to the emergence of the digital divide, suggest collaborative governance methods and countermeasures for ICH administrators.

2. Literature review

The term "digital divide" was coined in a 1999 report titled "Lagging Behind in the Network: Defining the Digital Divide," published by the National Telecommunications and Information Administration of the United States of America. It specifically refers to the "information gap resulting from disparities in access to and usage of new digital media, such as the Internet". The concept primarily focuses on the discrepancies in individuals' access to and utilization of digital technologies and devices. Individuals lacking such access are unable to benefit from the rapidly evolving information society, while simultaneously experiencing a widening gap in terms of opportunities, income, and wealth^[4]. As the integration of digital technology with production, daily life, and social governance continues to deepen, the concept and implications of the digital divide have become more nuanced. The digital divide has been divided into various levels, with the most fundamental being the access divide. This aspect examines the differences between those who possess and those who lack digital facilities and equipment (Kyriakidou et al., 2011)^[5]. The access divide encompasses both the physical gap between those who are connected and those who are not, as well as regional or organizational differences in digital penetration. The second divide pertains to the capability divide, which centers on the disparities in the utilization and implementation of digital technologies among distinct demographics, ultimately impacting their capacity to reap advantages from these technologies (Attewell, 2001)^[6]. Building upon the premise of these two digital divides, Dewan and Riggins (2005), scholars from the United States, put forth the concept of the third digital divide - the "digital output divide"^[7]. This divide denotes the discrepancy in individuals' innovation, production, and consumption as a consequence of variances in their ability to access and employ digital technologies.

When examining the digital divide in research, scholars have primarily focused on different categories of disadvantaged groups encompassed within the "three-level digital divide," including those with disabilities, women, and the elderly. Research has been conducted to explore various aspects of the causes, manifestations, and effects of digital divides. For instance, Macdonald and Clayton (2017) utilized quantitative research to examine the correlation between disability and the digital divide through the lens of the social model^[8]. Additionally, scholars have shed light on the digital gender divide by addressing gender-specific digital exclusions, highlighting how women in developing countries have limited access to digital resources. Meanwhile, in China, Liu and Su (2022) identified the silver digital divide, which denotes a digital divide among the elderly and is characterized by significant differences in accessibility and use of digital technology^[9]. Moreover, with regard to specific areas of ICH, Mu Yuan et al. (2022) noted that national-level ICH inheritors' age structures have experienced critical and severe aging^[10]. This suggests that senior ICH inheritors are particularly vulnerable to digital challenges affecting the elderly population. Consequently, senior ICH inheritors face similar digital access, usage, and output hurdles.

In conclusion, the convergence of the aging crisis and the digitalization trend in the ICH sphere has led to both an inheritance predicament and a transformation dilemma for ICH inheritors. Regarding the task of narrowing the digital divide, Ji Xiaoping et al. (2023) pinpointed the digital gap faced by remote areas and economically disadvantaged ICH inheritors through a digital communication lens^[11]. Similarly, Xue Ke and Long Jingyi (2021) employed the "three-level divide theory" to identify strategies for bridging the ICH inheritors' digital divide^[12]. However, none of them specifically analyzed the digital predicament encountered by senior ICH inheritors in light of

their age, nor did they propose corresponding countermeasures. Furthermore, in addressing the issue of bridging the digital divide for the elderly, Fang Ti and Zhang Xiaowen (2023) delved into the usage behaviors of smart products among this demographic^[13]. They identified influential factors affecting their willingness to utilize these products and provided suggestions to enhance the usability of such technology in order to integrate the elderly into the digital society. However, no research to date has presented age-appropriate measures tailored specifically for the ICH industry. Moreover, the application of digital technologies, such as social media, electronic archiving, and digital display screens, in the digitization of ICH has inadvertently aggravated the ICH digital divide by neglecting the needs of senior ICH inheritors. Consequently, this paper will initially leverage the "three-level digital divide" theory to analyze the current challenges faced by senior ICH inheritors in the digital age and the influencing factors affecting them. Subsequently, we will propose a viable solution to bridge the digital divide accordingly.

3. Research method

This study employs various research methods, including literature review, data analysis, and case study, to conduct a comprehensive investigation into the issue of the digital divide in ICH. Firstly, by analyzing official public data and literature research results, we identify the actual challenges faced by the ICH digital divide. Secondly, through the citation of empirical data and case studies, we pinpoint the key factors contributing to the formation of the "three-level divide" in ICH. Finally, based on the findings of this study, we propose specific strategies for ICH managers to bridge the digital gap in Intangible Cultural Heritage.

4. The Realistic Dilemma and Influencing Factors of the Digital Divide of ICH

4.1. Digital access trench: difficulties in accessing usable digital equipment

More than 70% of China's national-level inheritors of ICH are over 70 years old, and the degree of digitization in the field of ICH is significantly lower than that of other industry standards. The difference in information accessibility between the elderly inheritors and the younger generation leads to the formation of the digital access divide, which further leads to the uneven allocation of social resources and the "echo chamber effect" formed by the isolation of the elderly from the surrounding digital environment^[14]. The reasons for this result are twofold: psychological willingness to access and physical access conditions.

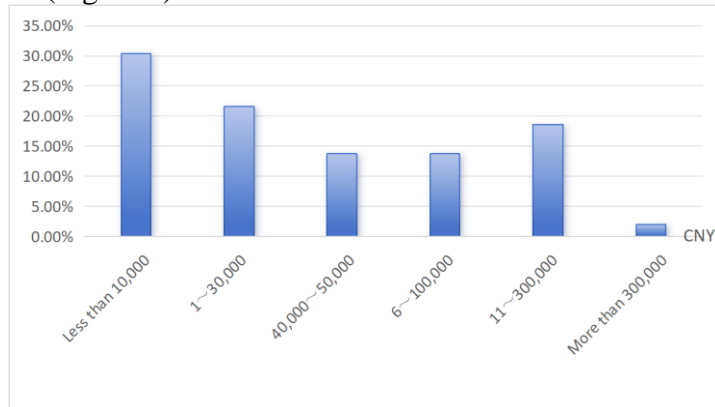
4.1.1. Psychological willingness to access

The digital divide manifests itself in the willingness of the inheritors to access psychologically. First, access confidence is insufficient. Unfamiliar digital environment is easy to trigger cultural panic, senior inheritors face the digital world lack of trust and confidence in integration, the attitude of using the Internet is negative^[15]. Secondly, traditional thinking hinders. Especially the inheritors of traditional houses in more remote areas, based on the traditional ICH authenticity protection idea, they are closed and conservative to digital things. Moreover, some of the senior people think that smart devices are an expansion of offline socialization or entertainment, with weak relevance to their own ICH inheritance activities. Third, the adherence to the principle of ICH inheritance. ICH inheritance has different attributes from other culture and arts, and liveliness is one of its basic attributes^[16]. The inheritance of ICH all need language and behavior, and traditional music, dance, drama and other types of performing arts are completed in dynamic performance. Inheritors adhere to the principles of authenticity and wholeness of ICH protection and inheritance, so the enthusiasm

of adopting digital media communication forms such as webcasting and online publicity is not high.

4.1.2. Physical access conditions

The digital divide manifests itself in ICH physical access conditions. First, the digital infrastructure is unevenly allocated. Even if some inheritors have the ability and willingness to access digital devices, they are often unable to truly guarantee the smooth implementation of ICH inheritance due to lagging access conditions. Solitary senior ICH inheritors belong to the lower economic income group, and their access to usable devices and sufficient Internet connection is the primary challenge. In addition, 73% of ICH inheritors are preserved in the countryside, and there is a large gap between urban and rural areas in terms of the construction of information infrastructure and connected grid service facilities. The ownership of Internet devices and the lack of Internet infrastructure for ICH inheritors to utilize are relatively low in remote rural areas, which has resulted in senior inheritors being unable to have access to information technology and smart devices. Secondly, the cost of digitization is high. The digitization of ICH contains a series of activities in the whole digital technology environment, involving recording, preservation, display, dissemination and other links, and most of the main technological applications stay in the recording, organizing, retrieving and displaying based on text, pictures, audio and video [17]. The purchase of digital equipment such as cameras and computers require a high cost, which is difficult for most inheritors to afford, and even some inheritors have the trouble of maintaining their livelihood. The data of Minsheng Think Tank 2020 shows that the annual income of ICH inheritors is 30.39% below 10,000 yuan, 21.57% from 10,000 to 30,000 yuan, 13.73% from 40,000 to 50,000 yuan, 13.73% from 60,000 to 100,000 yuan, 18.63% from 11,000 to 300,000 yuan, and 1.96% from 300,000 yuan and above (Figure 2) [18].



Data source: Minsheng Think Tank

Figure2: Annual Income of ICH Inheritors

4.2 The digital capacity gap: issues of use of digital information

The "digital capability gap" is the second gap in the digital divide, which is based on the individual's ability to use the Internet as a criterion, and portrays the difference in the ability of different individuals to perform after receiving information. After the first digital divide, the senior inheritors and the young inheritors show great differences in their ability to receive and express information, thus affecting the overall ability of the innovative inheritance of ICH.

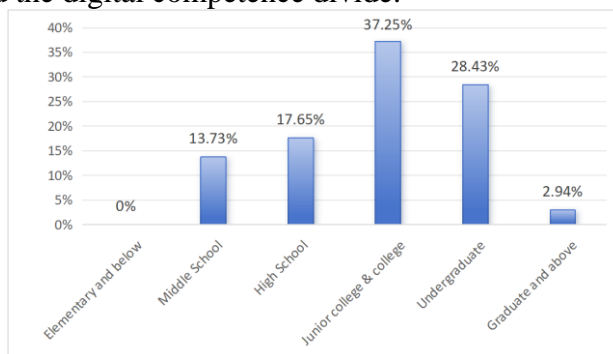
4.2.1. Physical condition

The acceptability and effectiveness of digital devices for senior inheritors are largely determined

by differences in bodily functions. As individuals age, various bodily functions gradually deteriorate, including vision, hearing, finger and joint flexibility, memory, and cognitive abilities. These changes make it more challenging for senior inheritors to familiarize themselves with and embrace mobile devices compared to younger individuals. Consequently, the learning curve for acquiring new skills becomes steeper for them. Moreover, their inability to filter internet information further hampers their use of the internet.

4.2.2. Educational attainment

Educational attainment greatly influences the digital accessibility of individuals, particularly in terms of literacy levels. Elderly individuals who have received higher education are more likely to actively engage with the Internet, as it provides them with a wide array of social benefits [19]. Moreover, senior inheritors with stronger literacy skills tend to be more proficient in navigating digital technologies and display a greater willingness to learn. In contrast, those with lower levels of cultural education often struggle to comprehend digital devices, which not only hinders their access to online information, but also restricts their ability and desire to utilize digital technology for inheriting ICH. Data from 2020 surveys reveals that over 60% of China's ICH inheritors possess a specialization-level education or lower, while less than 3% have attained postgraduate degrees (Figure3). These disparities in educational backgrounds among senior groups within the ICH industry have exacerbated the digital competence divide.



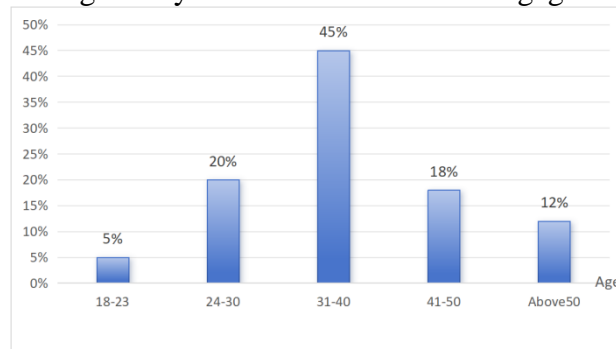
Data source: Minsheng Think Tank

Figure4: Educational level of ICH inheritors

4.2.3. Operational complexity of digitizing equipment

The complexity of digital device operation has made it challenging for older individuals to utilize the internet effectively. On one hand, the interaction and operation design of intelligent platforms have become increasingly complex, often youth-oriented, leaving the senior generation struggling to navigate the process. For instance, complicated web interface design and unfriendly operation lead to inheritors feeling apprehensive and unsure how to use such interfaces effectively, thus hindering them from making optimal use of the technology; the inadequacy of the design to cater to an older population makes it difficult to achieve compatibility between functions and equipment; the overabundance of mandatory advertisements can mislead the elderly and impede their ability to obtain accurate information. On the other hand, vertical communities with relevant knowledge content are scarce, significantly limiting access to exclusive spiritual resources for middle-aged and elderly netizens. Despite having sections dedicated to ICH on popular social media platforms, the utilization rate of senior ICH inheritors in areas such as live broadcasting, e-commerce, and short videos is substantially lower compared to young ICH inheritors. According to the 2022 Mega Engine ICH White Paper, between June 2021 and May 2022, a total of 1,557

national-level ICH projects achieved a coverage rate of 99.74% on TikTok. However, it was observed that only 45% of ICH inheritors aged 31-40 years old utilized the TikTok platform, while a mere 12% of ICH inheritors aged 50 years old or above were engaged in it (Figure 4)^[20].



Source: Mega Engine Urban Research Institute

Figure5: Distribution of age groups of ICH inheritors

4.3. Digital output gaps: misallocation of information resources

The "digital output gap" represents the third divide in the digital realm, and its measurement is primarily contingent upon the degree to which Internet proficiency translates into economic benefits. Upon examining this phenomenon in detail, we discern that the concept pertains to the influence of the Internet on access to knowledge for ICH inheritors. Disparities in Internet access and utilization capabilities generate divergent outcomes with regard to information acquisition for this group. Notably, the "digital output divide" intensifies societal disparities, culminating in an illogical and unequal distribution of informational resources in the domain of culture^[21].

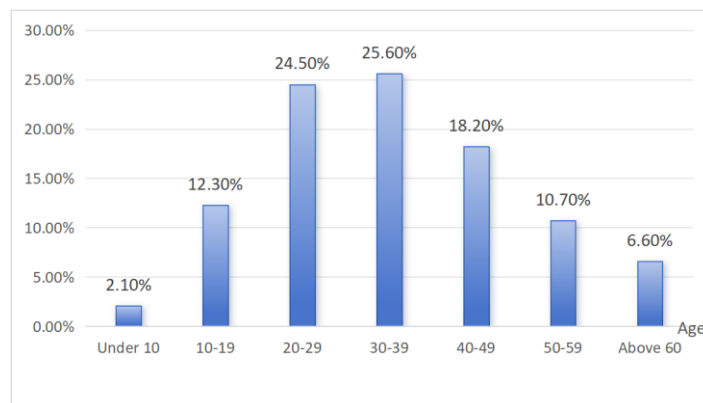
4.3.1. Inadequate social support systems

The support provided by society and families for integrating senior heritage groups into the digital society lacks continuity and regularity. Firstly, family members, especially children and grandchildren, fail to provide sufficient guidance to the elderly. Digital feedback is primarily emotional support and is limited to within the family. Factors influencing digital feedback include the level of intergenerational interaction, closeness, and support. From the perspective of the elderly receiving feedback, those who have more frequent interactions with family members, longer communication time, and closer relationships are more likely to receive digital feedback successfully. Secondly, considering the nature of the non-family-based business of heritage inheritors, young inheritors' assistance is particularly crucial. Young inheritors have an obligation to help senior inheritors adapt to the digital society while also undertaking the historical mission of innovating and preserving cultural heritage in the new era. Having lived with senior inheritors for an extended period, their internet thinking and daily behaviors consistently influence the elderly, thereby enhancing their effectiveness in utilizing digital technology. Finally, peer-to-peer knowledge sharing holds significant value in providing emotional support to senior heirs. In contrast to the conventional Chinese familial setting, which emphasizes hierarchical relationships between elders and children, peer exchanges foster a more relaxed and comfortable environment within a group. Due to the geographical dispersion of ICH practitioners, opportunities for communication and learning among the senior cohort are limited. Therefore, it becomes imperative to seek assistance from fellow ICH practitioners to facilitate online meetings and foster increased peer-to-peer communication.

4.3.2. Digital security issues

In the era of the Internet, the issue of digital privacy has always been present, particularly for marginalized groups such as the elderly. The emergence of "digital human rights" relating to digital privacy has become increasingly prominent in technologically advanced society. This concept is rooted in the theory of technological empowerment and underscores the idea that civil rights, such as the right to data and the right to information, will be considered fundamental human rights in smart society^[22]. The network society's distinctive features, including its uneven distribution of resources and the coexistence of truth and falsehood in the information society, have further exacerbated the integration barriers faced by those who are digitally disadvantaged. Consequently, elderly individuals struggle to access, comprehend, and effectively utilize information in a timely manner. This, in turn, results in a detrimental impact on their interests and widens the digital divide. Even when utilizing smart media applications, inheritors of ICH remain deeply concerned about their personal privacy and the security of their assets. Specific issues such as the leakage of personal information, the use of ICH copyrighted material, and online transactions are of particular worry within the inheritor community. These concerns not only affect the safeguarding of personal rights and interests but also have implications for the preservation and advancement of ICH culture. Therefore, it is essential that society address and resolve these issues in order to offer safer, more reliable, and more convenient services to ICH inheritors. Additionally, doing so will contribute to the solid protection of human rights in the construction and development of this smart society.

4.3.3. Difficulties with ICH inheritance



Source: China Internet Network Information Center

Figure6: Distribution of Chinese Internet Users by Age Group

Regarding digital acceptance, younger generations have a distinct advantage in their ability to access and utilize digital knowledge, easily retrieving a vast array of online information resources and proficiently distributing digital content. According to the 2023 Statistical Report on China's Internet Network Development, as of June 2023, the total number of internet users in China surpassed 1.051 billion, with individuals under 50 years old accounting for approximately 82.7% of the total (Figure 5)^[23]. On the contrary, the elder generation lags in their ability to access and utilize online information, thus requiring the new generation to act as digital bridges to close the digital divide that exists within the industry of ICH. However, the inheritance of ICH represents a challenging and long-term task, demanding a tremendous amount of time and energy. Unfortunately, young people are not necessarily eager to carry on this heritage. In comparison to other sectors, ICH itself has a lengthy production cycle with high design costs and relatively low input-output ratios. Additionally, as society progresses at a rapid pace, younger generations face difficulties in focusing

on long-term ICH projects requiring significant investments. For example, wood carving, embroidery and other traditional handicrafts, the production of complex and time-consuming, low economic returns. Therefore, ICH projects are not always attractive to younger individuals, leaving ICH inheritors at risk of losing their craft.

5. Response strategy: Multi-body collaboration to eliminate the ICH digital divide

To eradicate the three "digital divides" in the preservation and innovation of ICH, it is imperative to foster collaborative efforts among ICH administrators in the digital era. The government must propose and implement comprehensive digital policies tailored for elder ICH inheritors. Likewise, social organizations, relevant academic disciplines within higher education institutions, and research institutes should give increased consideration to the matter of digital education for elderly inheritors. At the same time, social enterprises shall endeavor to develop customized digital platforms conducive to the needs of various age groups in relation to ICH. Additionally, ICH inheritors should prioritize the promotion of ICH, thereby nurturing the youth's eagerness to explore and appreciate it. Through the collective endeavors of these multiple stakeholders, the digital gap in ICH will gradually diminish, thus furthering the advancement of ICH preservation and inheritance.

5.1. Governments need to play a policy-guiding role

Digitalization will also continue to reshape the way organizations respond to challenges, and the capacity of organizations can be leveraged to facilitate the enhancement of digital skills of disadvantaged and marginalized groups, such as the elderly and women^[24]. As a segment particularly susceptible to digital exclusion, older custodians of ICH require governmental support to enhance their digital literacy. The government, assuming a leading role, should proactively shoulder the responsibility of formulating high-level strategies and providing policy guidance. They should take into consideration the varying degrees of aging and information technology development among the diverse group of custodians, and employ appropriate policies, regulations, funding, and public advocacy to steer and bolster social and market forces at the local level.

Firstly, in relation to the policy regarding the safeguarding and transmission of ICH, the government has already taken steps to address the needs of representative inheritors facing challenging circumstances. For instance, the Measures for the Recognition and Management of National-Level Representative Inheritors of Intangible Cultural Heritage specifically outlines policy measures aimed at encouraging social organizations and individuals to offer financial assistance to ensure their essential living requirements are met. Despite these efforts, these measures fail to adequately address the challenges faced by senior inheritors in the context of a digital society. Therefore, it is imperative for the government to supplement its policy with new regulations that specifically address the digitalization of national-level ICH inheritors.

Secondly, aside from providing basic subsistence allowances, it is imperative to make financial investments in the digitization of ICH. This will enable ICH inheritors to fully utilize modern scientific and technological resources to more effectively document and transmit ICH. While addressing the essential needs of inheritors, traditional service methods can still be preserved, while additional measures such as door-to-door notification services and streamlined procedures can be implemented to accommodate senior inheritors with limited mobility and other challenges. By means of proactive government guidance, the predicaments faced by elderly inheritors in the digital era can be effectively resolved, thus enhancing public awareness and support for the safeguarding and transmission of ICH, and further fostering the preservation and advancement of China's exceptional traditional culture.

5.2. Social groups need to strengthen digital education for senior ICH inheritors

Improving the digital literacy of the elderly is paramount in bridging the social digital gap and promoting digital inclusion^[25]. Digital education can foster digital literacy in the senior ICH population through endogenous and exogenous factors, which interact with digital attitudes and digital knowledge and skills^[26].

On the one hand, regarding endogenous motivation, families and communities must increase incentives for elderly learners to embrace the "digital world". Considering that older generations were raised in a communication era that was one-way, this population may feel perplexed, even resentful, of the Internet, which is characterized by multi-directional interactive communication and emphasizes the building of relationships and connections. Therefore, it is critical to help them authentically comprehend the Internet, beyond perceiving it merely as a versatile communication tool. Moreover, it is crucial for the learners to grasp the practical benefits of smart media applications for ICH, particularly with respect to the perpetuation of ICH skills through technological means.

On the other hand, to address the external push and pull factors, senior inheritor's media literacy and digital literacy must be bolstered. Firstly, to promote the advancement of digital education, it is essential to heighten media education of ICH inheritors. This will enable them to develop a proper perspective towards smart media and overcome subjective dilemmas, such as mistrust and lack of confidence. Additionally, it will bridge the digital divide and empower ICH to better leverage smart media tools to transfer and promote their cultural heritage more effectively. Secondly, augmenting the digital literacy of senior ICH will positively impact their ability to upload and access ICH information. Nonetheless, this is a gradual developmental process that encompasses five crucial aspects: information, communication, content, security and problem solving. This process begins with mastering basic information skills, followed by the acquisition of search engine functions, utilizing basic text input and interaction methods, and finding appropriate digital channels for ICH-related content communication. Therefore, to enhance senior inheritor's digital literacy, societal collaboration and support are required.

5.3. Enterprises need to create age-appropriate ICH digital platforms

ICH enterprises are mainly middle-aged and old-aged, and the third platform provides a reference for digitizing processes and narrowing the digital divide for small, medium and micro enterprises in the service industry^[27]. ICH enterprises should guide third-party forces to participate in the development and operation of digital platforms, age-adaptation of products, and service provision.

Firstly, the platform should streamline the operational process and incorporate features tailored to the needs of elderly individuals. Enterprises should design and offer intelligent equipment catered to senior inheritors, ensuring that the interfaces and application settings take into full consideration the physical functionality and cognitive abilities of this age group. Moreover, to address potential issues concerning privacy and property security, the platform application should be equipped with functions such as screening undesirable and inaccurate information, thus safeguarding users' personal privacy and ensuring information security from the very beginning. Besides transforming existing smart media applications to be age-appropriate, another feasible approach is to create a social platform imbued with the cultural essence of senior groups. Developing smart applications that specifically target senior ICH inheritors and those interested in their cultural heritage aligns more closely with the needs of elderly individuals aiming to expand their social circles and social capital.

Secondly, the platform must facilitate the connection between creators and users. In order to

accomplish this, ICH inheritors can utilize e-commerce platforms as a means to promote and sell ICH products. By transforming ICH into tangible and exquisite commodities, the platform can effectively showcase the allure of ICH in a more visually captivating and concrete manner. This will ultimately establish a swift and seamless link between ICH creators and potential buyers. For instance, during the "Cultural and Natural Heritage Day" in 2020, prominent figures such as the Ministry of Culture and Tourism, alongside the Ministry of Commerce, collaborated with renowned online platforms like Alibaba and Jindong to orchestrate an unprecedented "ICH shopping festival". This event aimed to underscore the craftsmanship exhibited by ICH inheritors, amplify public engagement in ICH preservation, distribute the rewards of conservation efforts, and further champion exceptional traditional culture. According to available data, the volume of ICH products sold on e-commerce platforms during this occasion surpassed 8 million, encompassing an impressive range of approximately 4,500 ICH items. Consequently, the cumulative sales reached a staggering total of nearly 400 million yuan. Thus, it is imperative that senior ICH inheritors be given ample opportunity to vividly present their ICH creations to the wider public through online platforms. Third-party platforms should actively prioritize and provide this esteemed group with elevated attention and enhanced prospects.

Thirdly, platforms should establish dedicated zones for ICH to bridge the gap between different generations. To enhance the interaction between various age groups, social media platforms have introduced innovative strategies for promoting ICH projects. For instance, TikTok has utilized digitalization to reinforce the traditional aesthetics of ICH. From June 2021 to May 2022, the cumulative video views of national-level ICH exceeded 372.6 billion, with more than 9.4 billion likes. These numbers exemplify the substantial attention attracted by videos created within the ICH special zones, capturing the interest of countless new users. Moreover, the fervor surrounding ICH within the cultural tourism industry remains steadfast. According to the Tong Cheng Travel's May Day holiday travel trend report, searches related to museum visits witnessed a significant increase of 184%, while queries concerning "ICH" experienced a rise of 43%. Consequently, platforms should actively encourage ICH creators to showcase their works and promote high-quality ICH-related content to younger users. Engaging in interactions such as likes, comments, and messages will foster a closer connection between the older and younger generations.

5.4. ICH inheritors need to enhance young people's willingness to learn about ICH

Establishing an optimal environment for the preservation of ICH necessitates, above all, the attraction and retention of ICH professionals. Young individuals are essential for the continuity of ICH, and senior inheritors can foster a greater eagerness to acquire and perpetuate ICH by piquing the interest of the youth and heightening their awareness of the ICH sector.

Firstly, with the swift advancement of information technology, the widespread adoption of digital technology in the development of ICH teaching resources has become an unavoidable trend^[28]. By leveraging technical means such as multimedia display of interactive learning content and virtual reality experiences, it is possible to captivate the attention of the younger generation and provide them with a more intuitive and enriching educational ICH experience^[29]. For instance, the utilization of live broadcasting as a medium to empower the ICH enables its presentation through popular video formats, garnering the attention of young people and fostering interactivity. Moreover, the incorporation of interactive games into digital teaching resources allows participants to immerse themselves in the prowess of ICH skills within the gaming environment. Furthermore, existing digital technologies including VR and AR can fashion a fully immersive portrayal of traditional crafts, thereby allowing young individuals to appreciate the historical heritage and cultural significance of ICH.

Secondly, it is essential to enhance young individuals' profound comprehension of ICH, including its working environment and societal background. On the one hand, the government is actively improving the working environment for ICH, fostering collaboration among academics and researchers in this field by establishing ICH workshops and creating employment platforms for entrepreneurial talents. Additionally, research institutions and enterprises are being directed to provide support for ICH, thus offering more opportunities and projects for the participation of young individuals in ICH activities. On the other hand, ICH inheritors can establish partnerships with educational institutions to impart teaching and training to students, enabling the integration of ICH into school curricula and enhancing young people's awareness of ICH. Recently, the Ministry of Education announced during a press conference that the cultivation of ICH talents would be given priority in national policies, with the comprehensive inclusion of ICH specializations in the national education system and school aesthetic education projects^[30]. Therefore, it is imperative for inheritors to strengthen their teaching efforts to showcase the cultural allure, profound aesthetics, and evocative techniques of ICH for future generations. It is important to note that ICH is not merely antiquated; its characteristic of "Lively Lineage" allows for its seamless integration into contemporary life. Whether inheritor be a potter or a craftsman, their artistic creativity is demonstrated through their work. By infusing traditional ICH wares with contemporary art and aesthetics, and by incorporating them into people's everyday lives, inheritors can achieve innovation and transformation, thus altering young individuals' inherent perceptions of ICH.

6. Conclusion

This paper offers a comprehensive analysis of the challenges presented by the digital divide in the context of the innovative preservation of ICH, with a particular focus on the disparities in digital access, capacity, and output among senior ICH inheritors. To address these issues, it is crucial to leverage the collaborative governance efforts of various societal actors. Considering this, the paper puts forward the following recommendations: the government should assume a guiding role in policy development; social groups should enhance digital education initiatives targeted towards senior ICH inheritors; social enterprises should create tailored ICH digital platforms to meet the specific needs of diverse age groups; and ICH inheritors should prioritize the promotion of ICH to cultivate young people's interest in learning about it. By implementing these measures, the digital divide in ICH innovation and preservation can be alleviated, thereby nurturing the sustainable development of ICH culture and the realization of its social value.

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