

Publication Date: 15 May 2024

Archs Sci. (2024) Volume 74, Issue 2 Pages 84-90, Paper ID 2024212.
<https://doi.org/10.62227/as/74212>

Digital Preservation of Intangible Cultural Heritage and Exploration of Network Communication Issues

Ziying Mo¹ and Guiming Huang^{2,*}

¹School of Tourism and Physical Education, Hezhou University, Hezhou, Guangxi, 542899, China.

²School of Culture and Media, Hezhou University, Hezhou, Guangxi, 542899, China.

Corresponding authors: (e-mail: M524461699@163.com).

Abstract Intangible cultural heritage nurtures the heritage of Chinese excellent traditional culture and is the root of Chinese national culture. This paper combines relevant literature to design a questionnaire on the effect of digital preservation and network communication of intangible cultural heritage to explore the effect of network communication of intangible cultural heritage. Before the questionnaire was distributed, the reliability and validity of the questionnaire was tested using Cronbach's coefficient, KMO and Bartlett's Sphericity Test to determine the reasonableness of the questionnaire. Further, the questionnaire data were collected to quantitatively analyze the cognitive, attitudinal and behavioral dimensions of the audience in the communication process of ICH. The audience recognizes the communication content of ICH on the online platform, and the communication content positively influences the audience's cognition of ICH. The average score of audience's attitude towards ICH communication was 3.55, and it was also found that 50.44% of the audience would share and forward the content for secondary communication of ICH, and only 57 audiences did not participate in the interaction of ICH online communication. This paper provides decision-making support for governmental decision-making departments to strengthen the inheritance and protection of intangible cultural heritage, and the proposed optimization strategies can also provide a path for thinking about the creative revitalization and development of intangible cultural heritage.

Index Terms cronbach's coefficient, kmo test, questionnaire, communication effect

I. Introduction

The new coronavirus epidemic of 2020 has had a significant impact on the world's political and economic landscape, and has also brought about adjustments and changes in human lifestyles and modes of thinking. The new barriers to real communication have given rise to a renewed interest in and awareness of the Internet and digitalization. This informational tool and virtual space, which has already changed human life and thinking, still has infinite possibilities for continuous cognition, utilization and management [1], [3].

Digital technology is an information processing, storage and dissemination technology centered on computers and software, which is one of the great inventions that have changed human life most drastically and profoundly. It breaks the situation of physical media being controlled by a few people, and makes civilianized telling possible. From the point of view of the dissemination of non-heritage culture, the intervention of the Internet has changed the mainstream writing habits of folk culture, "only see the work but not the person" [4], [6]. Needless to say, in the dissemination of knowledge and information, the network has the characteristics of energy saving, rapidity, freedom, and wide range of its high-performance technological advantages are fully embodied. Accompanied

by the arrival of the 21st century, the network and digitalization go hand in hand and play a great role in knowledge storage and cultural dissemination [7], [9].

Intangible cultural heritage, as a treasure of culture and art, is the carrier of national spirit, which needs to be inherited and carried forward from generation to generation. Through digital technology and modern means of communication, the original empty concept of "intangible cultural heritage" culture can be turned into a combination of visual and audio images of intangible cultural heritage, and even allow the public to participate in the process of communication, so that the public can figuratively feel the "intangible cultural heritage" culture. "Intangible cultural heritage" cultural value, intuitively feel the "intangible" artistic charm. It not only explores a new path for the inheritance and development of intangible cultural heritage, but also enhances cultural confidence and realizes the win-win situation of integration and development [10], [11].

Literature [12] takes Dai ceramics intangible cultural heritage as an example, discusses the modern display technology of ceramics, and uses virtual reality technology and visualization technology to digitize and artistically process Dai ceramics, which ensures the authenticity of the ceramics and achieves the artistic effect at the same time. Virtual

visualization technology will be further popularized and promoted, giving more opportunities and development space for high-definition digital display of non-heritage. Literature [13] combines the characteristics of blockchain technology with distributed ledger, consensus mechanism, encryption algorithm, etc., and puts forward the intangible cultural heritage archive management based on blockchain technology in view of the problems of intangible cultural heritage archives which are complex, highly dispersed, large in quantity and low in quality. It helps to solve a series of problems in the process of intangible cultural heritage archive management. Literature [14] describes the design, development and evaluation of Cycladic sculptures, placing the user in the role of an ancient artisan who creates a statue with unarmed movements in a simplified virtual environment. A kinesthetic interaction in the museum was realized with positive results in terms of usability, fun and learning. Literature [15] developed a database platform and functional module model for direct dynamic management of websites. Uncertainty probabilities for web visualization are calculated and a meta-language for web cultural heritage modeling is completed for web cultural heritage classification. The method has high recall and low error, which can enhance the digital image of cultural heritage in a short time and effectively realize the digital protection of cultural heritage. Literature [16] data-mined the lyrics of Hua'er (a folk song popular in Northwest China) by constructing a recurrent neural network model of Hua'er and interconnected the built-in language module in Python with dynamic web pages. It provides new ideas for the protection and inheritance of musical intangible cultural heritage, and provides effective and high-quality information for researchers and enthusiasts of the art of flower children. Literature [17] This paper presents a working methodology for structuring elements of intangible cultural heritage, as well as a case study of such objects. A new approach to the study of artifacts is also proposed, one that brings expertise from several fields in addition to engineering: mechanics, architecture, material resistance, fluid flow, heat transfer, ICT and virtual reality. Literature [18] screened candidate neighbor sets through initial screening, then constructed time-based weight tensor scores by combining user activities, used tensor decomposition to obtain recommendation evaluation values, and finally used recommendation evaluation values for art recommendation. The fit between augmented reality and folk art appreciation classes is analyzed in an attempt to solve common problems in folk art appreciation classes.

Based on the existing research and the current situation of intangible cultural heritage protection and dissemination, this paper designs a questionnaire on the effect of digital protection and network dissemination of intangible cultural heritage, and distributes the questionnaire using a combination of online and offline methods. Before distributing the questionnaire, the reliability of the questionnaire was tested using the Cronbach's coefficient method to explore the consistency between the items and the quality of the questionnaire. At the same time, KMO and Bartlett's sphericity test methods were

used to test the effect of the questionnaire, analyze whether there is correlation between the items, and determine whether the items in the questionnaire are suitable for subsequent analysis. After the questionnaires are collected and the basic situation of the survey samples is analyzed, the effect of ICH network communication on the cognitive level of the audience is explored in terms of the audience's cognition and recognition of ICH, and the effect of the audience's attitudes and behavioral feedback on the digital preservation and network communication of ICH is also analyzed. Finally, combining the results of the analysis, we propose optimization strategies for the digital preservation and online communication of ICH in order to improve its preservation and communication effects.

II. Methods for Analyzing the Effectiveness of Safeguarding and Dissemination of Intangible Cultural Heritage

A. Questionnaire Design for Protection and Dissemination Effects

1) Questionnaire Content Design

This paper uses questionnaire analysis to study the effect of digital protection and online dissemination of intangible cultural heritage. Based on the existing research and the survey of intangible cultural heritage, the questionnaire was preliminarily designed, and the questionnaire was distributed to a small number of people around them. The questionnaire is divided into multiple-choice questions, scale questions and multiple-choice questions, and the scale questions are quantified by a 5-level Likert scale, and the question options are assigned separately, with 5 points for "strongly agree", 4 points for "agree", 3 points for "general", 2 points for "disagree", and 1 point for "strongly disagree".

The questionnaire was designed with a total of 18 questions to explore the digital preservation of intangible cultural heritage and the effect of online communication, and it was divided into three parts. The first part is the basic information of the respondents, which is analyzed using demographic characteristics. The second part is a survey of online communication channels to understand what channels respondents generally base their concerns about ICH on. The third part is the digital preservation of intangible cultural heritage and the exploration of the effect of network communication, which investigates the respondents' concern for intangible cultural heritage intangible cultural heritage, and analyzes it from the cognitive, attitudinal and behavioral levels. The cognitive level is mainly to explore the respondents' familiarity with ICH and their cultural image. The attitudinal level includes the respondents' satisfaction with the digital dissemination efforts and the current development of ICH. The behavioral level includes whether the respondents will participate in the digital dissemination of ICH and whether they will participate in the transmission of ICH, and also to understand what problems exist in the process of digital dissemination of ICH.

Variable	Cronbach's Alpha	Term number
Cognitive level	0.914	8
Attitude level	0.875	5
Behavior level	0.906	5
Whole	0.957	18

Table 1: Cloning Bach reliability test

2) Method of Questionnaire Distribution and Recovery

The distribution of this questionnaire was divided into two channels: online and offline. The main research object of this paper is intangible cultural heritage, and the survey inquiry mainly centers on the residents of Guangdong Province, so the offline questionnaire was sent to the residents of Guangdong Province and the tourists of intangible cultural heritage as the target distribution. Online, using Questionnaire Star as a platform, the link and QR code of the questionnaire were sent to social platforms such as WeChat circle of friends, QQ space, Jittery Voice, Xiaohongshu, Weibo and so on. A total of 654 questionnaires were distributed, but 91 invalid questionnaires were generated due to the short filling time and incomplete completion of the questionnaires, resulting in 563 valid questionnaires. After the questionnaires were collected, the collected questionnaire data were statistically analyzed with the help of questionnaire star, SPSS24.0 and other software.

B. Analysis of Questionnaire Reliability Test

1) Reliability Test

The reliability test examines the trustworthiness of the questionnaire and the internal consistency of the scale is examined through the Cronbach's coefficient. Usually, a Cronbach's coefficient above 0.9 means that the internal consistency of the scale is very high. Cronbach's coefficient between 0.7 and 0.9 means that the internal consistency of the scale is good. In this study, SPSS24.0 software was used to carry out the reliability test, and the results of the reliability test of the questionnaire on the effect of digital preservation and network communication of intangible cultural heritage are shown in Table 1, the overall Cronbach coefficient of the questionnaire is 0.957, which indicates that the questionnaire quality is more satisfactory, with high internal consistency, and can be further analyzed in the future. In addition to the overall reliability test, the three variables were also analyzed for credibility, and the results of the credibility test for the cognitive level were 0.914, the results of the credibility test for the attitudinal level were 0.875, and the results of the credibility test for the behavioral level were 0.906, and the Cronbach's values of the variables in the questionnaire scales were more than 0.8, which indicates that the internal consistency is high, the data are applicable, and the questionnaire design is more scientific.

2) Validity Tests

The validity is to examine the energy efficiency of each item in the questionnaire on the effectiveness of ICH communication,

KMO sampling availability number		0.954
Bartlett sphericity test	Approximate card	3824.341
	Freedom	164
	Significance	0.000

Table 2: KMO and bartlett spherical test

i.e., whether each item plays an important role for the scale or not. The KMO takes a value between 0-1, the closer the value is to 1, the higher the correlation between the variables is. Bartlett's test of sphericity probability of significance p-value less than 0.05 is significant. This survey used SPSS24.0 software to carry out KMO sampling suitability test and Bartlett's sphericity test, the validity test results are shown in Table 2, the KMO value is 0.954, which is close to 1, indicating that there is a correlation between the variables. The probability of significance of Bartlett's sphericity test P value is 0.000, which is less than 0.05 and suitable for further analysis.

III. Analysis of the Effect of Intangible Cultural Heritage Network Communication

A. Analysis of the Basic Situation of the Survey Sample

In this section, the basic information of the audience surveyed and analyzed in the digital preservation of intangible cultural heritage and the effect of network communication is counted, including gender, age, occupation and literacy level, and after these data are analyzed, the specific analysis results of the survey sample are shown in Table 3. From the perspective of the gender of the audience, there are significantly more women than men. Among the 563 valid questionnaires, there are 315 female respondents and 248 male respondents. This shows that women's behavior of using new media is more positive and active than men's. In terms of the age distribution of the audience, the 40-49 age group has the largest number of respondents, with a high number of 129 respondents, accounting for 22.91% of the total number of respondents. Compared with the youth and middle-aged groups, the number of older groups aged 60 and above is only 65, accounting for 11.55%. Meanwhile, the number of teenagers under 18 years old who use new media is the fourth largest group, which also accounts for a small proportion. In terms of audience occupation, the numbers of school staff and students are located in the first and second place, with 92 and 87 respectively, accounting for 16.34% and 15.45% of the total number of respondents. It can be seen that the groups of students and school staff are more concerned about the information of ICH disseminated on online platforms due to the characteristics of more free time and less work pressure. In terms of the cultural level of the audience, the number of people with bachelor's degree is the most, with 193 people, accounting for 34.28% of the total number of surveyed people, followed by those with specialist degree and graduate degree and above. The number of people with high school education or below is 68, accounting for 12.08%. From the data, it can be seen that people with high education are more eager to learn about

intangible cultural heritage than those with low education, and they also have the demand and motivation to learn new knowledge by means of online communication. Finally, in terms of whether the audience knows about ICH or not, the number of people who know about it is 473, and the number of people who don't know about it is only 90. From this point of view, ICH has achieved a certain degree of communication effect and popularity through digital preservation and network communication in the early stage.

B. Analysis of the Audience's Cognition of Non-Heritage Conservation and Dissemination

This section explores the audience's perception of ICH in digital preservation and online communication of ICH, and analyzes the audience's perception level and recognition to reflect the communication effect of ICH.

1) Cognitive Level Analysis

The results of the analysis of the audience's cognitive level of digital preservation and network communication of intangible cultural heritage are shown in Figure 1. The mean value in the box plot represents the average score obtained from the questionnaire survey on this topic, which can intuitively reflect the dissemination effect of the audience's cognitive level, and the normal curve can intuitively see that the scores are centrally distributed in the range of the interval. A-E in the figure represent "feeling the profoundness of intangible cultural heritage", "feeling the responsibility of inheriting and promoting intangible cultural heritage", "high quality of the short video and enjoyment of the video", "the importance of the short video", "the importance of the short video", "the importance of the short video", "the importance of the short video", and "the importance of the short video", respectively. "Impressed by ICH" and "No effect on cognition". In the survey on the topic "Feeling the profoundness of intangible cultural heritage", 214 out of 563 audiences scored 4 or more, indicating that the dissemination of intangible cultural heritage on online platforms has affected the audience's cognition to a certain extent. The average score for the questionnaire on "Feeling the responsibility of inheriting and promoting intangible cultural heritage" is 3.99, which indicates that the audience has a certain understanding of the cultural attributes of intangible cultural heritage, and at the same time, they also feel a sense of responsibility for promoting and inheriting intangible cultural heritage, as well as the vastness and depth of intangible cultural heritage. However, in the survey on the topic of "deep impression of ICH", the average score of the audience is only 2.72, which is in the range of "general" and "disagree". This indicates that the communication methods and video contents of ICH on the current online platforms are not innovative enough to leave a deep impression on the audience, and there is room for improvement in this regard.

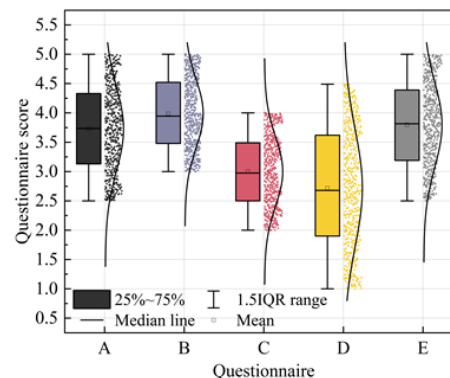


Figure 1: Analysis of the effect of the audience's cognitive level

2) Audience Recognition Level Analysis

This section analyzes the audience's recognition of video duration, video release subject and video release theme in intangible cultural heritage network communication, and the results of the analysis of the audience's recognition of intangible cultural heritage network communication are shown in Table 4. In terms of the duration of short videos of ICH network communication, 36.19% of the audiences are more willing to accept short videos of ICH communication of about 15s to 60s. According to the analysis of the survey, it can be seen that most of the durations of short videos of intangible cultural heritage on online platforms are concentrated between 15s to 60s and 60s to 300s, and according to the questionnaire survey, it is found that these audiences are more willing to accept medium-length videos, which reminds that in the future, we should pay attention to the change of the reading habits of the current Internet audiences, and make more use of the videos of 15s to 60s for the preservation and dissemination of intangible cultural heritage. This reminds us that we should pay attention to the changing reading habits of the Internet audience in the future and use more videos of 15 seconds to 60 seconds for the protection and dissemination of ICH. Different audience groups have different tendencies towards the main body of video creation for ICH dissemination, with the largest proportion of media organizations (25.65%) and individual users of ICH (30.74%), which are more recognized by the audience. The second is the number of videos by ICH enthusiasts totaling 110, accounting for 19.54%. The last ones are ICH institutions and governmental organizations. It is also found that audiences are more interested in the theme of inheritors in ICH communication (34.37%). In summary, digital preservation of intangible cultural heritage and network communication have changed the perception of the audience to a certain extent and gained a certain degree of recognition from the audience, and the communication of intangible cultural heritage is effective.

Classification	Options	Number	Proportion
Gender	Man	248	44.05%
	Female	315	55.95%
Age	<18	68	12.08%
	18-29	79	14.03%
	30-39	115	20.43%
	40-49	129	22.91%
	50-59	107	19.01%
	>60	65	11.55%
Occupation	Agricultural and forestry fishery production personnel	42	7.46%
	Business worker	54	9.59%
	School staff	92	16.34%
	Soldier	69	12.26%
	National staff	57	10.12%
	Student	87	15.45%
	Business, service personnel	65	11.55%
	Production operator	34	6.04%
	Professional technician	29	5.15%
	Other	34	6.04%
Cultural degree	High school	68	12.08%
	Specialty	157	27.89%
	Undergraduate	193	34.28%
	Graduate student	145	25.75%
Know about non-physical culture	Yes	473	84.01%
	No	90	15.99%

Table 3: Analysis of the basic situation of the survey

Item	Recognition(%)	
Video duration	<15s	28.94
	15s-60s	36.19
	61s-300s	22.77
	>300s	12.10
Video release subject	News media	25.65
	Intangible cultural heritage institution	11.84
	Government media	12.23
	Inheritors	30.74
Video issue	Hobbyist	19.54
	Intangible cultural heritage activities	18.52
	Immaterial cultural heritage	34.37
	Intangible cultural heritage organization	26.40
Intangible cultural heritage innovation spread	20.71	

Table 4: Audience’s analysis of network communication

C. Analysis of the Attitudinal Level of the Effectiveness of NRM Communication

Studying the overall perception of the content of digital protection and online dissemination of intangible cultural heritage on the audience is a key part of analyzing the effect of intangible cultural heritage communication effect on the audience’s emotional attitude. Figure 2 shows the results of the audience’s analysis of their attitudes towards intangible cultural heritage, and the peak of the normal curve in the graph can directly reflect the mean score of the questionnaire items. In the figure, A-E represent the five questions at the attitude level in the questionnaire, which are "Diversified forms of presentation of intangible cultural heritage communication content", "Written descriptions in intangible cultural heritage communication are easy to understand", "The dissemination of intangible cultural heritage in the region is real", "The content of intangible cultural heritage communication is vivid and specific, which helps to understand national culture", and "The online communication channels of intangible cultural heritage

are diverse, which is convenient for reading and viewing in various forms". The average score of the five questions was between 2.9 and 4.0 points, which was a large difference. The audience’s scores for the two survey questions of "Diversified Presentation of Intangible Cultural Heritage Content" and "Diverse Online Communication Channels of Intangible Cultural Heritage, Convenient for Reading and Viewing in Various Forms" were 4.00 and 3.93 points, respectively, between "satisfied" and "very satisfied". In the investigation and analysis of the topic of "Written Descriptions in the Dissemination of Intangible Cultural Heritage", it was found that the average score of the audience was only 2.93 points, which indicated that in the process of online dissemination of intangible cultural heritage, some communication texts were obscure and difficult to understand, and should be improved in the future communication strategies to further improve the audience’s attitude towards the dissemination of intangible cultural heritage.

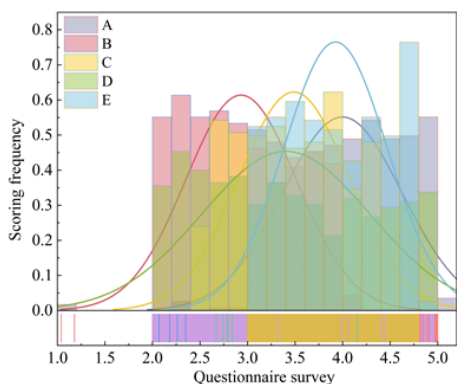


Figure 2: The audience analyzes the attitude of non-heritage propagation

D. Analysis of the Behavioral Levels of the Audience’s Communicating Behavior Toward NRM

This section mainly explores the digital preservation of intangible cultural heritage and the effects of online communication at the level of audience behavior. For the content of network dissemination may have the following effects on audience behavior, firstly, attention, that is, the audience will pay attention to the corresponding account of ICH dissemination after reading the relevant content. The second is reading, when the audience sees the NRM communication related content, they will also be interested in other NRM communication content on the network platform. The third is sharing, which means that the audience will forward the NRM communication content to their own social accounts after reading it. Fourthly, guiding practice, which means that when audiences read or see relevant NRM communication content, if they have a strong interest in it, they will take actions corresponding to it in real life.

This paper mainly explores the audience’s secondary communication behavior on the protection of intangible cultural heritage. The network communication effect of intangible cultural heritage can be measured from several aspects, and the audience’s secondary communication behavior on the related communication content is the deep communication effect on intangible cultural heritage. The more times the content of ICH online communication is forwarded, the greater the influence of communication, so the audience’s sharing of ICH content is used as the main feedback indicator of the communication effect at the behavioral level. The results of the analysis of the secondary dissemination of the non-heritage network communication content by the audience are shown in Figure 3, in which A-E represent the audience’s behavioral level of "liking the content", "commenting on the content", "favoriting content A-E in the figure represent five survey questions of audience behavior: "Like content", "Comment content", "Favorite content", "Share and forward content" and "No interaction". Consistent with the opportunity for audiences to pay attention to ICH communication, the majority of audiences are willing to like the content, accounting for

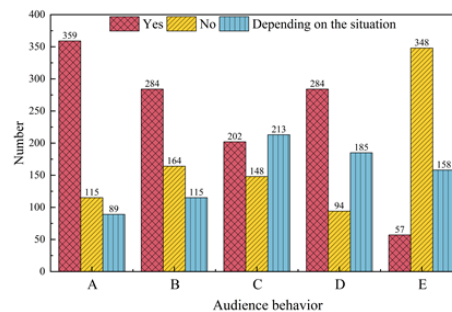


Figure 3: The audience’s analysis of non-genetic levels

63.77% (359 people), and 284 audiences will participate in the interaction of commenting on ICH communication content. In terms of whether or not they would share and forward ICH content, 284 audiences would share and forward content for secondary dissemination of ICH, only 94 audiences would not share and forward content, and another 185 audiences would share and forward ICH content they are very interested in, depending on the situation, which requires that the content of future ICH online dissemination needs to be more appealing. 35.88% of the audience would favorite ICH content in online communication, and only 57 audiences would not participate in the interaction of ICH communication. Overall, the proportion of audiences who are willing to share and forward excellent ICH communication content is in the second place, indicating that the digital preservation and online communication of ICH is more effective. The reasons for those who do not share and forward are twofold: first, the contents of ICH online communication are not infectious enough to make them want to share, and second, they are reluctant to have the contents of ICH on their social media. Audiences with the possibility of sharing and forwarding are in the former category, which suggests that the content of ICH online communication needs to be more infectious.

IV. Strategies for Optimizing the Safeguarding and Dissemination of Intangible Cultural Heritage

The ultimate purpose of digital safeguarding of intangible cultural heritage and network communication is to safeguard and pass on intangible cultural heritage, and the effect of its communication lies in the fact that the network communication activities have realized this purpose to a large extent. Combined with the above analysis of the effect of network communication of ICH, this paper proposes optimization strategies for the protection of ICH and network communication in the future. The first is to strengthen the traditional cultural characteristics of ICH. Under the impact of the tide of modernization, traditional arts should retain and strengthen their traditional cultural characteristics so as not to go into the whirlpool of cultural convergence. The second is to emphasize the combination of tradition and reality. Intangible cultural protection should not only emphasize tradition, but also innovation. Any kind of culture, without innovation will lose the vigor of development. The third is to strengthen the

protection of the inheritors of intangible cultural heritage. Intangible cultural heritage, as a kind of living cultural heritage, takes sound, form and technique as its main means of expression, and its inheritance is mainly carried out through oral transmission, through which the intangible cultural heritage can be passed on from generation to generation and survive in the development of society. This oral transmission cannot take place without the participation of the bearers of such cultural heritage, so the core issue in the transmission and safeguarding of intangible cultural heritage is the training of and attention to the bearers.

V. Conclusion

This paper designs a questionnaire on the protection and dissemination effect of intangible cultural heritage, and analyzes the dissemination effect from the three aspects of audience's cognition, attitude and behavior, and the results show that:

- (1) 214 audiences scored 4 or more on the question "Feeling the profoundness of intangible cultural heritage", indicating that the dissemination of intangible cultural heritage on the online platform has affected the audience's cognition to a certain extent. However, the average score of the survey on the topic of "leaving a deep impression on ICH" is only 2.72 points. In terms of the duration of short videos of ICH online communication, 36.19% of the audiences are more willing to accept short videos of ICH communication of about 15s to 60s.
- (2) The average scores of the attitudinal level of ICH communication range from 2.9 to 4.0, with a big difference in the scores. The average score for the question of "easy-to-understand text descriptions in ICH communication" is only 2.93, which indicates that some of the communication texts are obscure and difficult to understand in the process of online communication of ICH.
- (3) 284 audiences would share and forward the content for secondary communication of ICH, and only 94 audiences would not share and forward the content. Most of the audiences would like to like the content, and 284 of them would participate in the comments of the ICH communication content.

Aiming at the problems existing in the process of intangible cultural heritage protection and dissemination, this paper proposes optimization strategies for the path of intangible cultural heritage dissemination and protection, to further improve the effect of online dissemination of intangible cultural heritage, and to strengthen the digital protection of intangible cultural heritage.

Acknowledgments

1. 2023 Guangxi Philosophy and Social Sciences Research Project "Research on Creative Transformation and Innovative Development Path of Yao Folk Songs in Guangxi (Fund Number: 23FXW019)".
2. 2022 Guangxi Education Science 14th Five Year Plan Project: "Research on the Construction of the Research

and Education System for Intangible Cultural Heritage in Guangxi Universities (Fund No.: 2022ZJY1802)".

3. Project of Guangxi Education Science's 14th Five Year Plan for 2023: "Research on Strategies for Strengthening the Awareness of the Chinese National Community among College Students in the Era of All Media" (Fund No.: 2023B144).

References

- [1] Kim, S., Im, D. U., Lee, J., & Choi, H. (2019). Utility of digital technologies for the sustainability of intangible cultural heritage (ICH) in Korea. *Sustainability*, 11(21), 6117.
- [2] Wang, X., & Su, P. (2019, November). Cadmium exposure in reproduction: Epigenetic effects. In *Basic & Clinical Pharmacology & Toxicology (Vol. 125, Pp. 9-9)*. 111 River St, Hoboken 07030-5774, Nj Usa: Wiley.
- [3] Wang, Y. C., Chen, C. L., & Deng, Y. Y. (2021). Museum-authorization of digital rights: A sustainable and traceable cultural relics exhibition mechanism. *Sustainability*, 13(4), 2046.
- [4] Korro Bañuelos, J., Rodríguez Miranda, Á., Valle-Melón, J. M., Zornoza-Indart, A., Castellano-Román, M., Angulo-Fornos, R., ... & Ferreira-Lopes, P. (2021). The role of information management for the sustainable conservation of cultural heritage. *Sustainability*, 13(8), 4325.
- [5] Zu, E., Shu, M., Huang, J., Wu, T., Hsu, C., & Chang, Y. (2021). Development of a monitoring and management system for nonheritage tourist attractions based on mobile GIS and multisensor technology. *Mobile Information Systems*, 2021, 1-11.
- [6] Tzima, S., Styliaras, G., Bassounas, A., & Tzima, M. (2020). Harnessing the potential of storytelling and mobile technology in intangible cultural heritage: A case study in early childhood education in sustainability. *Sustainability*, 12(22), 9416.
- [7] Champion, E., & Rahaman, H. (2019). 3D digital heritage models as sustainable scholarly resources. *Sustainability*, 11(8), 2425.
- [8] Gomez-Oliva, A., Alvarado-Urbe, J., Parra-Meroño, M. C., & Jara, A. J. (2019). Transforming communication channels to the co-creation and diffusion of intangible heritage in smart tourism destination: Creation and testing in ceuti (spain). *Sustainability*, 11(14), 3848.
- [9] Huang, Z., & Xu, T. (2022). Research on knowledge management of intangible cultural heritage based on linked data. *Mobile Information Systems*, 2022, 3384391.
- [10] Liu, X. Y., Zhang, Z. S., & Niu, S. Y. (2017). The memory loss and reconstruction of intangible cultural heritage of South China Sea's "Geng Lu Bu" collective memory. *Acta Geographica Sinica*, 72(12), 2281-2294.
- [11] Wang, X. (2022). Artificial Intelligence in the Protection and Inheritance of Cultural Landscape Heritage in Traditional Village. *Scientific Programming*, 2022, 1-11.
- [12] Xie, R. (2021). Intangible cultural heritage high-definition digital mobile display technology based on vr virtual visualization. *Mobile Information Systems*, 2021, 1-11.
- [13] Lvping, S. (2021). Blockchain technology for management of intangible cultural heritage. *Scientific Programming*, 2021, 1-7.
- [14] Koutsabasis, P., & Vosinakis, S. (2018). Kinesthetic interactions in museums: conveying cultural heritage by making use of ancient tools and (re-) constructing artworks. *Virtual Reality*, 22(2), 103-118.
- [15] Zhao, Y. (2022). Digital protection of cultural heritage based on web technology. *Mathematical Problems in Engineering*, 2022, 1-9.
- [16] Huang, L., & Song, Y. (2022). Intangible cultural heritage management using machine learning model: a case study of northwest folk song huaer. *Scientific programming(Pt.4)*, 2022, 1383520.
- [17] Butnariu, S. (2019). Engineering eHeritage—A New Approach for Study of Intangible Cultural Heritage. Case Study: The Analysis of the Noise Produced by the Dacian Dracon. *Sustainability*, 11(8), 2226.
- [18] Liu, L. (2022). The artistic design of user interaction experience for mobile systems based on context-awareness and machine learning. *Neural Computing and Applications*, 34(9), 6721-6731.

...