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# An evaluation model to assess the communication effects of intangible cultural heritage



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#### ABSTRACT

Intangible cultural heritage is confronted with the communication dilemma of a narrow audience and a lack of inheritor. With the development of digital technologies, the use of digital communication methods to reduce the communication gap has become a vital approach. Therefore, the process of changing the current conventional communication of intangible cultural heritage and improving the presentation of traditional treasures to the public, combined with digital communication technologies, has become the focus of the academic field. Based on the technology acceptance model and the attention-interest-desire-memory-action audience response model, this paper defines three layers of key factors that influence the digital communication effects of intangible cultural heritage and their respective weights. In-depth interviews with 50 experienced experts from six major areas related to this research are conducted with the assistance of the Delphi method. A theoretical evaluation model of the digital communication effects of intangible cultural heritage is constructed using the analytic hierarchy process. Through its findings, this research expects to provide academic references and operative guidelines for the practical application of digital communication technologies in cultural communication and to aid in the communication and safeguarding of intangible cultural heritage.

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#### 1. Research aims

This paper explores the factors that influence the practical communication of intangible cultural heritage (ICH), especially under digital conditions, and it proposes a theoretical evaluation model for assessing the communication effects of ICH under those conditions. The aim of the research is to provide academic references and operative guidelines for the practice of digitally communicating ICH.

In particular, an effects index system of ICH communication is proposed in order to meet the urgent demand for assessing

### 2. Introduction

The Convention for the Protection of World Cultural and Natural Heritage was proposed in 1972 to focus on the "protection of cultural and natural heritage in their respective countries." Intangible cultural heritage as a multidimensional, rich, and dynamic value system for humankind and history pertain to the precious treasure of traditional culture worldwide (Yang, 2017). However, factory with high-tech equipment induced by the rapid development of modern industrialization have replaced many ICH skills. Additionally, other projects are progressively fading from people's daily lives because of the limitation of their relatively single traditional communication methods. China is an example of this: The recognition rate of embroidery in Harbin is merely 3%, and the recognition rate of "lamp decoration in Luoyang" is only 5% (embroidery and lamp

and promoting the digital communication effects of ICH. Different from a traditional analysis, this paper adopts a multidisciplinary research approach, using the Delphi method to collect and revise the influencing factors and the analytic hierarchy process (AHP) to define the respective weight of each influencing factor. The result of the analysis is embedded into mathematical formulas, which become an interdisciplinary tool for evaluating the communication effects of ICH.

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decoration are both national ICH projects in China). Research on intangible cultural heritage has since been brought up gradually. A review of the literature on the communication and safeguarding of ICH reveals that most studies have focused on their traditional aspects, namely the concepts, forms of performance, and characteristics of ICH [1,2], including its economic, human, historical, and modern social values ([3,4]; Yuan, 2008; [5]).

The emergence of digital technologies has transformed the traditional communication environment and begun to play an increasingly important role in the communication and safeguarding of ICH. Nevertheless, research on the digital communication of ICH is relatively scarce. Robbins and Christopher (2010) have employed an application strategy for its digital expression, virtual museum exhibition, and digital story arrangement. Moreover, the communication effects of ICH have been investigated based on acculturation theory and the technology acceptance model (TAM), proposing a mechanism paradigm of the digital dissemination of ICH [6,7]. Still, the evaluation system of the communication effects of ICH is not quite complete. With the help of the existing theories and evaluation models, we can analyze and detect the communication effects of ICH from a macro-perspective; however, exploring which specific factor is affecting the entire communication process and what the effects are from a micro-perspective will be challenging tasks. At the same time, with the increasing integration of digital technology into the communication and safeguarding of ICH, existing theories and models have made it difficult to evaluate the unique effects of digital dissemination of ICH.

Therefore, this paper hopes to build an evaluation model to detect the digital communication effects of ICH from a microperspective to improve the integrity of the existing evaluation system. This paper is intended to enhance the public's awareness and comprehensive understanding of ICH through its digital communication. We explore the various factors that influence the communication effects of ICH under digital conditions using the Delphi method and the AHP to construct the evaluation model. The findings of this study are expected to address the lack of research in the field and to provide operative guidelines for the practical application of digital communication technologies in ICH.

## 3. Intangible cultural heritage and the communication thereof

At the 32nd UNESCO session in October 2003, the General Assembly on the Safeguarding of Intangible Cultural Heritage adopted the definition of intangible cultural heritage as a legacy that includes "the practices, representations, expressions, as well as the knowledge and skills, that communities, groups and, in some cases, individuals recognize as part of their cultural heritage." Japan introduced the idea of safeguarding ICH in the 1950s. Research on ICH has since begun with the definition of concepts and characteristics (Mackinnon & Richard, 2014) and has gradually deepened into the study of ICH resources (Gabriel & Festo, 2015), category research [8], development research (Cardinale & Stefania, 2015), regulations research ([9]; Voivode, 2010; Lixinski & Lucas, 2013), and many other fields. In addition, several researchers have investigated ICH from different angles, for example the various safeguarding methods of productive protection, museum exhibitions, and tourism resource development, among other elements [10-12].

With the continuous development of digital technology, the enhanced use of digital methods to strengthen the communication and safeguarding of cultural heritage has become a central issue globally. Joint efforts on this topic can be traced back to the 1970s; UNESCO and regions and countries such as the EU, the US, and Japan have all undertaken studies and practices on the digitalization of cultural heritage [13]. Varieties of digital technologies, such as 3D

information systems [14]; big data technologies [15]; augmented reality (AR), virtual reality (AR), and mixed reality (MR) technologies [16]; and digital fabrication techniques [17], have also been implemented and adopted in the dissemination and safeguarding of cultural heritage. Therefore, as can be seen, the practical applications of digital technologies in the field of cultural heritage are evidently mature, and the same is true of theoretical research. Ramírez-Gutiérrez et al. [18] have proposed a methodology that focuses on the processes of knowledge activation of the experience and can be used to analyze tourists' perceptions of cultural heritage experiences. Also, a collaborative model has been proposed and analyzed (from multiple perspectives) to provide an integrated method for heritage documentation, management, and dissemination [19].

However, the previous operations and research have mostly concentrated on tangible cultural heritage. Only a few practical and theoretical studies have been carried out on the use of digital technologies to disseminate ICH. Tamborrino and Wendrich [20] have explored the possibility of using digital technologies to safeguard cultural content. Meanwhile, Haddad [21] has focused on the conceptual approach of "edutainment" and "serious games," using it for ICH communication and education. Moreover, intangible cultural heritage's digital communication measures, such as the combination of digital integration, digital virtual museums, electronic pedigree, information resource metadata, and digital scenic areas, have also been proposed gradually [13,22–24].

Nonetheless, major deficiencies and gaps still exist in the academic research on the communication effects of ICH. Bai [6] focused on the cognitive understanding of the public, proposing a safeguarding concept of ICH in combination with acculturation theory. Three challenges that might emerge in the evaluation of cultural heritage digitalization projects [25], the concept and practice of "art casting," which is an explicit response to the need for more imaginative approaches to the evaluation of engagement and learning, have also been proposed in the process of continuous research in the academic field.

Although a study of the communication effects of ICH is crucial for the dissemination and safeguarding of ICH, the academic field still lacks research in this regard. Only a few studies have examined the factors that influence the communication effects of ICH, and this is motivation for further exploration. Therefore, based on the literature review and insufficient research area in the academic field, this study raises the following two research questions:

- Q1: What are the factors that influence the digital communication effects of intangible cultural heritage?
- Q2: From which aspects can the communication effects of intangible cultural heritage be comprehensively evaluated under digital conditions?

#### 4. Digital technologies in cultural communication

"Digital technology" primarily refers to computer information processing technology, which is used for processing, storing, and propagating the information by computers (Peng, 2012). The digital technology system of ICH largely pertains to the use of existing information technology for preserving and presenting ICH digitally through pictures, audio, videos, and interactive displays (Robbins & Christopher, 2010; [26]). Therefore, digital communication technologies have begun to play an increasingly important role in communicating and safeguarding ICH; these technologies include database technology, digital imaging technology, 3D imaging technology, VR technology, and AR technology, which have been applied more frequently (Lindgren et al., 2016). In addition, the communication scope and the speed of digital communication methods on

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