



A Study on the Translation and Communication of Traditional Culture in the Age of Digital Intelligence

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Abstract. This study aims to explore the characteristics and challenges of the translation and communication of traditional culture in the age of digital intelligence. It analyzes the features and its impact on the translation and communication of traditional culture in the age of digital intelligence, summarizing the challenges and opportunities faced by the translation and communication of traditional culture.

Keywords: the age of digital intelligence, translation, communication, traditional culture

1 Introduction

With the rapid advancement of technology, we are stepping into a new era—the era of digital intelligence. The defining features of this era include the massive generation of data, the application of intelligent technologies, and the transformation of information communication methods (Yang, 2019)^[1]. The emergence of digital intelligence technology offers new possibilities for the translation and communication of traditional culture (Na, 2022)^[2]. However, the advent of the digital intelligence era also brings many challenges. How to ensure the integrity and accuracy of cultural information during translation and communication, how to cope with the fragmentation and rapid turnover of information in the online environment, and how to use new technologies to attract and guide the readers and the audience are all problems we need to think about and resolve (Feng & Zhang, 2022)^[3].

2 Literature Review

This paper aims to review recent research on artificial intelligence translation to explore its knowledge ethics, technological development, current application status, and future trends.

In terms of knowledge ethics, while providing convenient services, artificial intelligence translation has also raised many ethical issues (Shi, 2023^[4]; Wu & Chen, 2023^[5]). As for technological development, artificial intelligence translation technol

ogy has continuously made breakthroughs, bringing more possibilities to the translation industry. For instance, the rise of Neural Machine Translation (NMT) has significantly improved the quality of machine translation (Dai & Liu, 2023^[6]). As far as current application status is concerned, artificial intelligence translation has penetrated the translation practices of various fields (Zhang, 2020^[7]; Xia, 2022^[8]).

Scholars abroad, while preserving cultural diversity, emphasize equality and respect in cross-cultural communication (Lifintsev & Wellbrock, 2019) ^[9]. In terms of artificial intelligence and translation, Hussein (2024) ^[10] explored the application of AI in the translation of humor, revealing how AI can capture and convey humorous elements in language (Vassil & Bagryan, 2022) ^[11]. In addition, AI-based cross-cultural survey questionnaire translation research also provides new methods for cross-cultural study (Dooley & Darvin, 2022) ^[12]. The development of artificial intelligence has also brought new opportunities for language learning. For example, AI-based object detection translation applications in the learning of English vocabulary provide learners with more intuitive and efficient learning methods (Pei & Chiu, 2023) ^[13]. At the same time, AI-based English translation teaching systems, through technologies such as emotion recognition, provide a more personalized learning experience for online English learners (Yong & Wen, 2022) ^[14]. These studies not only improve the efficiency of language learning but also make the learning process more interesting and challenging.

However, there are still certain limitations in domestic and international research. First, there is a limitation in data sources. These studies are mainly based on literature reviews and theoretical analysis, lacking in-depth exploration of actual operations and cases. Although these studies provide theoretical guidance for the translation and dissemination of traditional culture in the digital intelligence era, their effectiveness and application in practical operations may require further verification. Secondly, there is a gap in cultural background. These studies mainly focus on the context of Chinese culture. While they have some reference value for other cultures, the particularity of their cultural background may limit the universal applicability of the research.

3 Features and Challenges of Traditional Cultural Translation and Communication

With the development of digitalization, informatization, and intelligentization, we have ushered in a new era—the Digital Intelligence Era. This era, with its unique characteristics, has had a profound impact on various fields, including the translation and communication of traditional culture.

3.1 Features of Traditional Cultural Translation and Communication

In the Digital Intelligence Era, data has become the core resource. Whether it is individuals, enterprises, or nations, all are continuously generating, collecting, and analyzing data to guide decisions and actions. This is known as data-driven decision-

making. Technologies such as digitalization, informatization, and intelligentization are no longer isolated; they have begun to deeply integrate, forming a complex yet efficient technological ecosystem (Hu, 2022)^[15].

The application of technologies like artificial intelligence and the Internet of Things has made our lives more intelligent and convenient. From smart homes to autonomous driving, the reach of intelligence has extended to every aspect of life. Fourthly, the development of digital intelligence technology has made connections around the globe more tightly knit. The flow of information, goods, and people have become more frequent and rapid.

3.2 Impact on Traditional Cultural Translation and Communication

The Digital Intelligence Era provides strong technical support for translation work. The application of technologies such as machine translation and speech recognition has greatly improved translation efficiency (Sun, Li & Lu, 2021)^[16]. Digital intelligence technology has not only changed the way traditional culture is communicated but also provided possibilities for the innovation of its content (Jia, Cui & Zhang, 2024)^[17]. For example, through Virtual Reality (VR) and Augmented Reality (AR) technologies, we can create immersive experience environments for traditional cultural content, allowing the readers and the audience to understand and feel the charm of culture deeply.

The acceleration of globalization in the Digital Intelligence Era poses dual challenges of globalization and localization to the dissemination of traditional culture. On one hand, we need to ensure that traditional culture is not marginalized or homogenized in the context of globalization; on the other hand, we also need to use digital intelligence technology to combine traditional culture with local characteristics, creating cultural products that have global appeal while maintaining local characteristics (D'Silva & Atay, 2020)^[18].

In summary, the Digital Intelligence Era has brought unprecedented opportunities and challenges to the translation and dissemination of traditional culture. We need to fully utilize the advantages of digital intelligence technology while also being vigilant about the potential problems it may bring, to ensure that traditional culture can be better inherited and developed in the context of the new era.

4 Challenges and Opportunities in the Translation and Communication of Traditional Culture

As digital technology and artificial intelligence become deeply integrated, we have entered the era of digital intelligence. This era has brought unprecedented opportunities for the translation and communication of traditional culture, but it also comes with numerous challenges.

Table 1. The Communication of Digital Dunhuang

Time	Technology	Achievements
2011	Digital Image	Resource Library online
2022	World Internet Conference	Material Pool Online
April, 2023	Space-time Museum	Digital Sutra Cave Online
June, 2023	Digital Technology	Digital Cooperation Case Studies"
November, 2023	World Internet Conference	International Version of Digital Sutra Cave

Table 2. Versions of the Translation of “静夜思”

Different Translation Engines	The Title of Translation of “静夜思”
Ernie Bot	Thoughts on a Quiet Night
DeepL	Thoughts during the Silent Night
Youdao	In the Silence of Night
Kimi	Quiet Night Thoughts

4.1 Challenges in the Translation and Communication of Traditional Culture

The table 1 shows that the communication of digital Dunhuang is supported by Technology. The digital intelligence era provides a wealth of channels for the communication of traditional culture, such as social media, short video platforms, and online education. These channels not only have a wide reach but also enable real-time interaction with the readers and the audience, greatly enhancing the effectiveness of communication.

Digital intelligence offers endless possibilities for the innovative presentation of traditional culture. For example, through Virtual Reality (VR) technology, audiences can immerse themselves in traditional cultural activities; through Augmented Reality (AR) technology, traditional cultural elements can be integrated into modern life. Fourthly, digital intelligence promotes cross-cultural exchanges on a global scale. Traditional culture can resonate with people around the world through these technologies, fostering cultural diversity and mutual understanding. Lastly, for researchers of traditional culture, the digital intelligence era provides a vast amount of data and advanced analytical tools, enabling them to study traditional culture from new perspectives and methods.

4.2 Opportunities in the Translation and Communication of Traditional Culture

From the table 2, We can see that the title of Translation of “静夜思” has different versions by four types of translation engines. Every engine has its features but is not the perfect tool for expressing the meaning of “静夜思”.

Digital intelligence technologies such as machine translation, while improving translation efficiency, often struggle with complex cultural contexts and deep mean-

ings. This may lead to cultural distortion in translation, preventing the full conveyance of the original culture's charm and depth. If one solely relies on machine-generated translations, the history and emotions behind the culture may be overlooked (Ciorogar, 2022) ^[19]. Despite the limitations of machine translation, its accuracy and fluency are continuously improving with technological advancements. Artificial intelligence can also assist human translators, improving translation efficiency and quality.

5 Conclusion

The digital intelligence era provides robust technical support and innovative space for the translation and communication of traditional culture. Through the application of intelligent speech recognition, big data analysis, VR/AR technology, and more, we can translate and spread traditional culture more efficiently, breaking down linguistic and cultural barriers and allowing more people to appreciate the charm of Chinese traditional culture (Sheng, 2022) ^[20]. Looking ahead, with the continuous development and innovation of digital intelligence technology, we have reason to believe that the translation and communication of traditional culture will embrace an even broader future. We anticipate that more works of traditional culture will leverage the power of digital intelligence to take center stage on the world platform, becoming a shared cultural treasure for humanity.

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