

Multimodal Translation Methodology for Intangible Cultural Heritage: A Case Study of Pingxiang Nuo Culture

Shanxiu He¹, Zeming Duan^{1,*}

¹*School of Foreign Languages, East China Jiaotong University, Nanchang, 330013, China*

**Corresponding author: decbridge@163.com*

Keywords: Nuo culture, Multimodal translation, Translation method

Abstract: The Pingxiang Nuo culture, steeped in rich cultural and historical connotations, consistently symbolizes the spiritual aspirations and worldviews of the people of Pingxiang. It is essential to preserve and enhance the tangible and intangible values of the Pingxiang Nuo culture in the modern era, thereby revitalizing its historical, cultural, and economic significance. Multimodal translation techniques, including hypertext techniques and augmented reality, hold significant potential for safeguarding and developing the traditional Nuo culture. They have proven to be effective in the preservation and evolution of Nuo culture through translation. Prior to their application, preliminary steps such as data collection, computer mapping, and 3D modeling technology are vital for preparing for these multimodal translation techniques. This comprehensive approach to multimodal translation of Nuo culture not only enhances tourism experiences but also fosters international understanding and dissemination of this unique heritage.

1. Introduction

Intangible cultural heritage evolves and endures through history within specific geographical contexts. Pingxiang, in Jiangxi Province, is known as the 'City of Nuo Culture' due to its extensive preservation of the 'Three Treasures' of Nuo Culture: Nuo Masks, Nuo Dance, and Nuo Temples. This translation necessitates a bilingual and bicultural approach (Al-Sofi, 2020), entailing dual efforts; first, to present an accessible translation globally, and second, to innovate translation methodologies in line with advancements in science and technology [1]. In this study, we employ Multimodal Translation to elucidate how the conservation of the Three Treasures of Pingxiang Nuo Culture can be refined, specifically through Web Hypertext and Augmented Reality (AR).

2. Multimodal Translation

A modality encompasses multiple symbolic forms such as images, text, web hypertext, sound, etc. (Yang Yanxia, 2023) [2]. With the progression of sociolinguistics and digitalization, multimodal research has undergone interdisciplinary development and has permeated various aspects of linguistics and international cultural exchange. Translation studies have identified the roles of multimodal translation methodologies in subtitle translation, literature translation, interpretation,

etc., offering an immersive experience for tourists and innovative methods for revitalizing cultural heritages. Scholars are striving to construct a systematic and practical paradigm of Multimodal Translation, with technologies including 3D modeling, Text Visualization (T-Visual), web hypertext, and Augmented Reality (AR) identified as the most promising competencies - the primary solutions proposed in this study.

3. Literature Review

Yang Yanxia (2023) discussed the overall development of multimodal translation and categorized different multimodal translation techniques[2]. Elliott et al. (2017) showcased the findings from the second shared task on multimodal machine translation and multilingual image description[3]. Lertola, Jennifer (2019) highlighted the multimodal education benefits of interlingual and intralingual subtitling in language lessons [4]. Xun Huang (2018) emphasized the importance of image-to-image translation and extended this framework to other domains, such as videos and text[5]. In addressing the cultural gap inherent in the names of Chinese cuisines, a multimodal translation approach was used, encompassing technologies that integrate visual, verbal, and aural modes. Christopher Taylor (2016) analyzed the multimodal approach in audiovisual translation (AVT) and emphasized the understanding of the interplay of semiotic resources[6]. Importantly, the advancement of multimodal translation is driven by technological innovation. M. Claudia tom Dieck (2017), starting from the stakeholder perspective, classified various values of augmented reality at cultural heritage sites to ensure high satisfaction rates and positive promotions[7]. Moro, S (2019) evaluated two multimodal technological breakthroughs that enhance reality perception: Virtual Reality (VR) and Augmented Reality (AR)[8]. Both have been implemented in tourism contexts to enrich the tourist experience. Bekele (2018) forecasted future research directions for augmented and virtual reality concerning interaction interfaces in the cultural heritage conservation sector[9].

4. Multimodal Translation of Intangible Cultural Heritage

This section will concentrate on two multimodal translation methodologies: Web Hypertext and Augmented Reality (AR), which are employed to safeguard and enhance Pingxiang Nuo Culture, particularly the Three Treasures of Pingxiang Nuo Culture: Nuo Masks, Nuo Dance, and Nuo Temples.

4.1 Web Hypertext in the Preservation of Pingxiang Nuo Culture

Web hypertext technology offers a means to represent content diversely by integrating hyperlinks within a specific domain or groups of domains or contents. In the Pingxiang Nuo Culture Museum, as well as the Nuo Culture Memorial Hall, numerous presentations of Nuo masks, Nuo dances, and culturally-rich words are displayed, most of which are shown in a unimodal manner. During the translation process, web hypertext technology can link culturally-loaded words with English translations, corresponding images, and audio or video, thereby not only augmenting visitor engagement but also illustrating an adaptive use of multimodal translation work. The table below provides translations of some of the museum's Nuo expressions, replete with cultural significance, along with a display of images for reference.

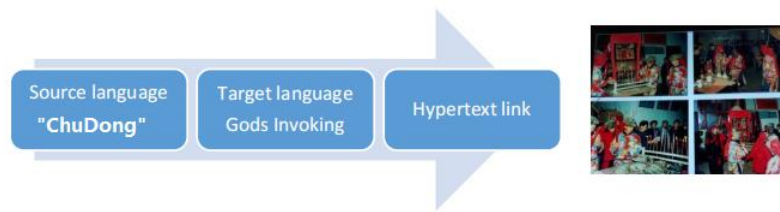


Figure 1: Examples of Hypertext “Chudong”.

The multimodal translation number 1: The ritual process of Pingxiang Nuo culture is intricate and ritualistic. The first stage of the Nuo ritual, known as the “exit from the hole”, typically occurs before the year begins, when members of the Nuo team remove the Nuo masks from the altar, box, or cabinet, cleanse them with water or incense oil, and offer them to the gods with the lighting of incense and candles, and the bursting of firecrackers. Without a clear explanation, foreign readers may misconstrue that the Pingxiang people have placed the Nuo god in a cave. By fixing the keywords within the phrase “Chu Dong”, clicking on it enables the ritual of exiting the cave to be viewed along with the music of Nuo or other models. This multimodal translation not only enhances the reader’s retention but also offers a new methodology for executing the translation work (See Figure 1).

4.2 Augmented Reality in the Preservation of Pingxiang Nuo Culture

Augmented Reality (AR) technology continually creates new experimental environments, projecting specific spaces, scenes, and parts of physical objects into the user’s environment through specific three-dimensional image acquisition techniques. M.J. Merchán (2021) [10] highlighted the benefits of AR for facilitating a better understanding and appreciation of architectural heritage. It is envisioned that AR technology will aid in preserving this unique cultural memory for future generations through data retrieval and other means (See Figure 2).

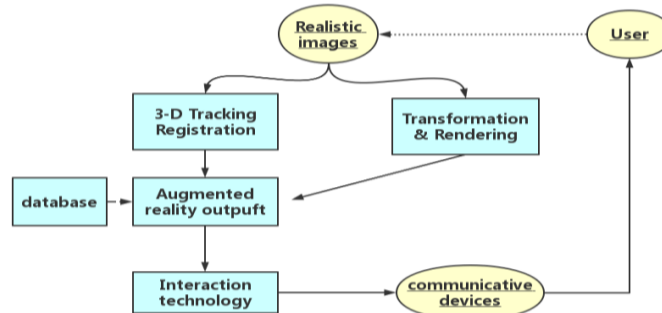


Figure 2: Diagram Illustrating the Functioning of AR Technology



Figure 3: The AR View of Pingxiang Museum.

The diagram illustrates the role of AR technology in preserving non-traditional cultures. This paper uses the AR display in the Nuo Culture exhibition hallway on the fourth floor of the Pingxiang Museum as an example to delineate the specific process of AR, from live image capture to user-side imaging (See Figure 3).

Stage 01: 3-D Tracking Registration: The system, employing 3-D tracking registration technology, initially captures a real image of the environment before calculating registration information such as the position and pose of the Pingxiang Museum within the real scene.

Stage 02: Database messages append details about Nuo culture, including translations and multimodal introductions like sound or pictures.

Stage 03: Through Transformation and Rendering as per specific needs, the AR output is produced.

Stage 04: The composite image is presented to the user through a visualisation device, including but not limited to helmet monitors, personal mobile devices, digital assistants, and so forth.

The current AR technology project provides only a few basic databases about Nuo masks, Nuo dance graphics, and live action. The treasures of Pingxiang Nuo Culture - Nuo masks, Nuo dance, and Nuo temples - each possess unique characteristics. Given the numerous Nuo temples and their unique design of religious architecture in the southern part of the Yangtze River, the AR project of the Nuo temple merits attention. Furthermore, the Nuo culture embodies profound humanistic concepts and local customs, which should have a more significant representation in the Nuo culture exhibition hallway. Also, the current Pingxiang Museum's Nuo culture AR project could enhance the enjoyment, entertainment, and user experience by capitalizing on AR technology's interactive potential to create Nuo dance experience projects, enabling visitors and researchers to fully engage. This is another implication of multimodal translation research.

Interactive technology poses a technical challenge and a technological breakthrough for AR projects. To propagate and develop Nuo masks, the development team can, through AR imaging technology, render the process of mask-making for visitors, as well as the image profile of the mask. 3D modeling technology can also be employed to provide visitors with a wearable experience, enhancing the sense of touch and integrating textual, visual, and tactile modalities to provide a multimodal translation solution for Nuo masks. For Nuo dance, work needs to be conducted on translating the dance introduction and chants, while the offline experience of Nuo dance, as well as the online AR Nuo dance game, are resources ripe for future development.

The large number of Nuo temples scattered across a vast geographical area in Pingxiang are of high research value. Nuo temples serve as repositories for Nuo masks and Nuo tools, and also function as venues for promoting Nuo Culture and exchanging Nuo events. Given the vast number of Nuo temples in Pingxiang, the first consideration for AR technology would be the collection of 3D real-world data from representative Nuo temples, presenting the features of Nuo temple structures through 3D modeling technology for visitors. Additionally, AR technology can construct an ecosphere of Nuo temples, tightly linking Nuo dance and Nuo masks, transforming Nuo temples into ecological bearers showcasing Nuo people's cultural sites.

5. Conclusion

The preservation and study of intangible cultural heritage hold immense value for cultural perpetuation and cultural exchange. The Nuo culture of Pingxiang, particularly the three treasures of Nuo culture, forms a cornerstone of the cultural characteristics in the Pingxiang region. This culture encapsulates local hopes for a better life alongside simple totemistic and deity worship expressions. The Nuo masks, with their myriad forms, mask-making techniques, and cultural connotations, deserve in-depth study. The comprehensive and voluminous procedures of Nuo dance

hold aesthetic, cultural, and economic merit. Furthermore, the extensive range of Nuo temples necessitates a considerable commitment to preservation work.

With today's technological advancements, the safeguarding and translation of Nuo culture should progress in tandem with these developments. Embracing new technologies and methodologies can augment the translation of Nuo culture. This paper proposes multimodal translation as the primary approach for rendering Nuo culture into other languages. It specifically scrutinizes the textual visualization output of current academic translation research on Nuo culture, the networked hypertext potential of translation research, the translational practice of sub-Nuo culture, and the application of AR technology to the three treasures of Nuo culture. Additionally, it provides recommendations for enhancing the multimodal translation of Nuo culture within Pingxiang, with the aim of fostering a more vibrant portrayal of Nuo culture in the contemporary age. Multimodal translation research and methodologies offer a fresh perspective on the external communication of Nuo culture and the transformation and growth of intangible cultural heritage across textual, visual, auditory, and video modalities. The hope is that future research will lead to more standardized and streamlined multimodal developments, ensuring better preservation of intangible cultural heritage.

Acknowledgments

This research received financial support from the Program “Study on Translation Strategies of Overseas Dissemination of Intangible Cultural Heritage in Jiangxi Province from a Multi-dimensional Perspective” (grant number: YG2022146).

References

- [1] Al-Sofi, Bakr B. M. A., and Hassan Abouabdulqader. “Bridging the Gap Between Translation and Culture: Towards a Cultural Dimension of Translation.” *International Journal of Linguistics, Literature and Culture*, vol. 6, no. 1, 9, 2020.
- [2] Yang Yanxia. *English Translation Strategies of Traditional Chinese Cultural Terms in Multimodal Context*. *China Terminology*, 2023, 25(01):49-56.
- [3] Elliott, Desmond, Stella Frank, Lo ë Barrault, Fethi Bougares and Lucia Specia. “Findings of the Second Shared Task on Multimodal Machine Translation and Multilingual Image Description.” *Conferences and Workshops WMT 2017*, 215-233
- [4] Wan Yan. *Cultural and Creative Design Language Assists the Inheritance of Intangible Cultural Heritage: A Case Study of Pingxiang Xiangdong Nuo Cultural Product Creation [J]*. *Footwear Crafts and Design*, 2022 (20): 52-54
- [5] Lertola J. *Second language vocabulary learning through subtitling [J]*. *Revista Española de Lingüística Aplicada/ Spanish Journal of Applied Linguistics*, 2019, 32(2): 486-514.
- [6] Huang Xun, Mingyu Liu, Serge J. Belongie and Jan Kautz. “Multimodal Unsupervised Image-to-Image Translation.” *European Conference on Computer Vision*, 2018.
- [7] Christopher Taylor. *The multimodal approach in audiovisual translation [J]*. *Target. International Journal of Translation Studies*, 2016, 28(2): 222-236.
- [8] M. Claudia tom Dieck, Timothy Hyungsoo Jung, *Value of augmented reality at cultural heritage sites: A stakeholder approach [J]*. *Journal of Destination Marketing & Management*, 2017, 6(2): 110-117.
- [9] Moro S, Rita P, Ramos P, et al. *Analysing recent augmented and virtual reality developments in tourism[J]*. *Journal of Hospitality and Tourism Technology*, 2019, 10(4): 571-586.
- [10] Bekele, Mafkereseb Kassahun, Roberto Pierdicca, E. Frontoni, Eva Savina Malinverni and James Edward Gain. *A Survey of Augmented, Virtual, and Mixed Reality for Cultural Heritage.*” *Journal on Computing and Cultural Heritage (JOCCH)*, 2018, (11): 1 - 36.