

Research on the Digital Dissemination of Non-heritage Traditional Culture in the Context of the Meta-universe

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Abstract. The study on the digital dissemination of non-heritage traditional culture in the context of the meta-universe aims to explore how meta-universe technologies and digital tools can be used to transmit, preserve and disseminate traditional cultural heritage. The meta-universe provides a new digital communication platform for non-heritage traditional culture, which attracts a wider audience, especially the younger generation, and increases their interest and participation in traditional culture through virtual environment, interactivity and innovation. Digital communication not only provides new ways of cultural experience, but also promotes cultural innovation, stimulates cultural sharing and community interaction, and revitalises traditional culture. However, digital communication is also accompanied by challenges, including the balance between cultural preservation and respect, technology, accessibility and legal issues. Addressing these issues requires interdisciplinary collaboration and innovative solutions. Researchers need to continuously explore new methods and tools to adapt to the rapid development of the meta-universe and digital technologies in order to achieve sustainability and innovation in the digital dissemination of NRM traditional culture. In summary, the study of digital dissemination of NRM traditional culture in the meta-universe represents a future trend in the fusion of cultural heritage and digital technology, which breathes new life into our cultural heritage and presents a series of exciting opportunities and challenges.

Keywords: Non-heritage Traditional Culture; Meta-universe; Digital Communication; Cultural Heritage; Virtual Reality.

1. Introduction

The digital dissemination of non-heritage traditional culture in the context of the metacosmos is a research area of great cultural and technological significance. The purpose of this study is to explore how to use meta-universe technology and digital tools to transmit, preserve and disseminate NRM traditional culture to meet the needs of modern society.

The study begins with an overview of the metaverse and non-heritage traditional culture, clarifying the background and motivation of the study. With the continuous development of digital technology, the meta-universe has become an innovative platform that provides previously unimaginable opportunities for cultural dissemination. However, the transmission of non-heritage traditional culture faces multiple challenges, including the gradual loss of interest among the younger generation and the decline of traditional skills [1][5].

By analysing digital modes of communication in the meta-universe, including virtual cultural exhibitions, virtual cultural festivals and digital interactive experiences, this study explores how NRM traditional culture can be integrated into these platforms and appeal to a wider audience. The study also looks at technologies and tools, including different meta-universe platforms, virtual reality and augmented reality technologies, and data visualisation tools, which can be used to present NRM cultural content [6].

However, digital dissemination of NRM also faces a number of challenges, including the balance between cultural preservation and respect, accessibility issues, and legal and ethical issues. Therefore, the study calls for considering cultural diversity and sensitivity in digital communication and ensuring respect and preservation of NRM traditional culture.

Through case studies and data analyses, this study draws some conclusions that point to the great potential of meta-universes in the digital dissemination of NRM traditional culture [7]. However,



future research needs to continue to explore this area in depth in order to address the technical, cultural and legal aspects and provide more opportunities and strategies for the sustainable transmission and dissemination of NRM traditional culture. This study provides a useful reference for the integration of cultural preservation and digital technology, and helps to promote the transmission and dissemination of NRM traditional culture in modern society.

2. Related Work

The digital dissemination of NRM traditional culture in the context of the metaverse is an emerging area of research, and although work on it is relatively limited at present, a number of studies and projects have begun to explore this area.

A number of cultural institutions and museums have begun to create digitised museums and cultural exhibitions showcasing NRM traditional culture in the metaverse. These exhibitions provide interactive and immersive experiences that appeal to a global audience. Some regional cultural festivals have moved their events into the metaverse to appeal to a wider audience [8]. These virtual cultural festivals include traditional music, dance, and handicraft demonstrations, enabling participants to experience NRM culture first-hand in a virtual space. A number of research institutes and organisations have started to create digital NRM archives to collect, preserve and share information about traditional culture. These archives can be accessed in a meta-universe to facilitate cultural transmission. Virtual reality and augmented reality technologies have been used to bring NRM cultural content into virtual environments [9]. These technologies provide a more immersive cultural experience, such as watching a traditional performance through VR glasses or participating in the virtual production of a traditional craft. Some social media and digital platforms have begun to promote the digital dissemination of NRM traditional culture. For example, some short video platforms allow users to upload and share traditional cultural content for wider understanding and appreciation [10]. Research on the fusion of NRM traditional culture with the metaverse usually involves interdisciplinary collaboration, including experts in the fields of cultural studies, digital technology, design and social sciences.

While there has been some relevant work and projects, this is an area that still needs further in-depth research and practice. Future work could include broader collaboration, more case studies, more comprehensive data analysis, and the development of best practices and guidelines for the digital dissemination of NRM [11]. This will help to promote the digital dissemination of NRM traditional culture in the meta-universe even further, facilitating cultural transmission and global dissemination.

3. Digital Dissemination of Non-heritage in a Meta-universe

Digital dissemination of NRM in the meta-universe is an exciting field that combines traditional NRM culture with digital technology in order to disseminate and preserve this valuable cultural heritage in the virtual world. Virtual museums or cultural exhibitions are created in the metaverse to display various artefacts, handicrafts, traditional costumes, etc. of traditional NRM culture [12]. These virtual exhibitions allow visitors to explore and learn about traditional culture in an interactive way. Organise virtual cultural festivals to bring traditional cultural performances, concerts, dances and celebrations into the metaverse. These events can attract participants from all over the world, providing them with the opportunity to engage with and experience non-heritage culture. Virtual Reality (VR) and Augmented Reality (AR) technologies are utilised to allow people to experience traditional cultural activities, such as traditional dance, craft making or traditional ceremonies, first hand [13]. Such experiences can lead to a deeper understanding and appreciation of NRM culture. Create digital interactive platforms that enable users to engage in interactive traditional cultural activities, such as learning to play traditional musical instruments or making traditional crafts. Such platforms can facilitate skills transfer and knowledge dissemination. Create virtual cultural villages that simulate the life and culture of traditional communities, including architecture, food, dress and lifestyle. This can help people understand the NRM culture of different regions [14]. Create digital NRM archives

to collect, preserve and share documents, videos, audios and pictures related to traditional culture. This helps in the long-term preservation and study of the culture. Use social media and online communities to share stories, traditional knowledge and artistic expressions of NRM culture. This can widen the audience and facilitate the dissemination of the culture.

While the digital dissemination of NRM in the meta-universe offers many opportunities, it is also accompanied by a number of challenges, including the balance between cultural preservation and respect, technological accessibility, legal and ethical issues, and so on [15]. Therefore, researchers and practitioners need to work closely together to ensure that NRM is properly presented and respected in digital communication.

In conclusion, the meta-universe offers exciting new opportunities for the digital dissemination of NRM traditional cultures, helping to promote the transmission and dissemination of these valuable cultural heritages, as well as fostering the integration of culture and technology.

4. Techniques and Tools

The digital dissemination of NRM traditional culture in the meta-universe requires the use of various technologies and tools for the digital presentation and interactive dissemination of cultural content. The following are some of the key technologies and tools that can be used to support this area of research.

VR technologies allow the creation of virtual environments that immerse the user in a traditional cultural experience, such as a virtual visit to a traditional village or watching a traditional performance. AR technologies allow the superimposition of virtual content onto the real world, such as enjoying traditional artefacts or navigating to cultural attractions through AR glasses [16]. 3D modelling tools such as Blender, Unity and Unreal Engine for creating virtual cultural exhibitions, virtual buildings and artefacts. use of meta-universe platforms for building and presenting NRM cultural content, e.g. Meta (formerly a Facebook company), Decentraland, Roblox and other virtual worlds. Tools for presenting NRM cultural data as visualisations, including data visualisation software and libraries, and visualisations in virtual reality [17]. User interfaces and tools for the design of virtual cultural exhibitions and interactive experiences, ensuring that users can navigate and interact easily. Digital archive management systems for collecting, storing and managing data, images, audio and video related to NRM traditional culture. Use of social media platforms and online social networking tools to share and promote NRM cultural content, interact with audiences and build communities [18]. Use of 3D scanning technology to digitise traditional cultural objects, artefacts and handicrafts for display in virtual environments. Devices that provide virtual reality experiences, including VR head-mounted displays, grips and sensors. Cloud computing and network infrastructure to support the storage, transmission and presentation of large-scale NRM cultural content. Data analytics tools for analysing user interactions, feedback and dissemination effects to improve presentation and dissemination strategies for traditional cultural content.

These technologies and tools can be combined with each other to create diverse digital communication experiences that make NRM traditional culture more attractive and accessible. In research and practice, the selection of appropriate techniques and tools depends on the specific objectives of the research and the availability of resources [19]. At the same time, interdisciplinary cooperation is a key factor for successful research on digital communication of NRH, requiring the integration of expertise from different fields such as cultural experts, technologists and designers.

5. Challenges and Opportunities for Digital Communication of Intangible Heritage

The digital dissemination of NRM traditional culture in the context of the meta-universe faces a series of challenges and opportunities. These challenges and opportunities are significant both in terms of cultural transmission and the integration of digital technologies.

Digital dissemination may raise issues of cultural respect and preservation, such as cultural plagiarism and misunderstanding. Ensure that digital communication respects the values and sensitivities of NRM traditional culture, and develop cultural preservation policies and ethical guidelines [20]. Not everyone has easy access to metaverse or virtual reality devices. Optimise content to accommodate a wide range of devices and network connections, taking into account the digital divide and providing multiple modes of access. Legal and ethical issues such as intellectual property, data privacy and cultural sensitivity need to be addressed. Work with legal experts to ensure that digital communication activities are legally compliant and respect cultural sensitivities. Some NRM traditional cultural content may not be easily digitised or may require expensive technical support. Invest in technological research and development to improve the efficiency and cost-effectiveness of digitisation and virtualisation processes [21]. There are uneven digitisation capacities and resources in different regions and communities. Support the sustainability of digitisation projects, including training, resource sharing and collaboration.

The metaverse provides a global platform for the dissemination of NRM traditional culture to a worldwide audience. Take advantage of this opportunity to increase the visibility and international impact of NRM culture. Digital communication can provide an interactive, immersive experience that allows users to gain a deeper understanding of NRM culture. Capitalise on this opportunity to attract younger generations and new audiences, increasing their engagement and interest. Digital communication can provide cultural scholars and researchers with access to a wider range of data and documentation on NRM culture. Use this opportunity to promote in-depth research and academic exchange on NRM traditional culture. Digital communication can encourage innovation, such as combining traditional culture with modern technology to create new cultural forms and expressions. Use this opportunity to stimulate cultural creativity and innovation. Virtual communities can be built on shared cultural interests and values, facilitating cultural sharing and social interaction. Take advantage of this opportunity to foster community support and mutual assistance for NRM traditional culture.

In conclusion, the digital dissemination of NRM traditional culture in the meta-universe presents both challenges and great opportunities. Successfully addressing these challenges and making the most of the opportunities will contribute to the preservation, transmission and dissemination of NRM traditional culture so that it can continue to flourish and develop. This requires interdisciplinary cooperation and collaboration between cultural organisations, technologists and communities to achieve common cultural goals.

6. Case Studies

One of the projects of Decentraland, a virtual world based on blockchain technology, is the creation of a virtual non-heritage cultural village. This village simulates the lifestyle, architecture and cultural activities of a traditional community. Users can explore, interact and learn about NRM culture in this virtual environment, for example by participating in traditional crafts or visiting virtual cultural exhibitions. Meta (formerly Facebook Inc.) has created virtual museums on its Horizon Worlds meta-universe platform, with a number of exhibitions focussing on the digital dissemination of NRM traditional culture. These virtual museums showcase artefacts, artefacts and history of traditional cultures and allow users to learn about and appreciate this cultural heritage in an interactive way. Virtual cultural festivals were organised on several meta-universe platforms, one of which was the "Night of Non-Heritage". This event brought together artists, performers and culture bearers from around the world to showcase various non-heritage traditions, including music, dance, crafts and food, to a global audience through virtual performances and presentations. A number of Metaverse projects offer virtual interactive experiences that allow users to learn and try out the process of making traditional crafts. This includes wood carving, weaving, pottery, etc., where users can use virtual tools and materials to experience the skills of these traditional crafts. A number of NCS traditional culture preservation organisations have begun to place their digitised archives and documents into the

metaverse for wider sharing and research. Users can browse and search these cultural resources in the metaverse to learn about the history and context of NRM culture.

These case studies highlight how the metaverse can be a powerful tool for the digital dissemination of traditional culture, providing users with opportunities to interact and engage with traditional culture. They also highlight how digital dissemination can contribute to the preservation and transmission of traditional culture, as well as injecting new vigour and innovation into traditional culture. With the further development of technology, it is expected that more similar projects will emerge to promote greater achievements in the digital dissemination of NCS traditional culture in the metaverse.

7. Conclusion

Meta-universe technologies and virtual environments provide new opportunities and platforms for the digital dissemination of non-heritage traditional culture, enabling cultural content to be disseminated in an interactive, immersive and innovative manner. Through virtual cultural exhibitions, virtual cultural festivals and digital interactive experiences, digital dissemination can attract a wider audience, especially the younger generation, increasing their interest and participation in traditional culture. There is a need to balance the protection of and respect for culture in digital communication, and to avoid cultural plagiarism and misunderstanding. It is important to develop cultural protection policies and ethical guidelines. Digital communication still faces challenges such as technical barriers, unequal digital capacity in different regions, legal and ethical issues. Addressing these issues requires interdisciplinary cooperation and innovative solutions. Virtual interactive experiences and online social interactions help revitalise traditional culture, stimulate cultural innovation, and increase cultural sharing and community support. Digital archives and online libraries facilitate cultural research by providing researchers with access to a wider range of cultural resources and data. The meta-universe and digital technologies continue to evolve, and thus continued research and practice are needed to address emerging issues and capitalise on new opportunities to advance the digital dissemination of NRM traditional culture.

In conclusion, the digital dissemination of NRM traditional culture in the metaverse is a multi-layered and complex field with potential and challenges. Through cooperation, innovation and interdisciplinary research, we can achieve sustainable transmission and dissemination of non-heritage traditional culture, while promoting the integration of culture and technology, so that traditional culture can be revitalised in modern society. This field of research will continue to lead the future of cultural preservation and digital communication.

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