Research Article

Applications of AIGC Technology in the Innovative Dissemination of Traditional Chinese Culture in the Digital Media Era

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Abstract:

Because[2] of the advent of digital media, the propagation of traditional Chinese culture is confronted with both new opportunities and new obstacles.

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In order to investigate the novel use and implementation of Artificial Intelligence Generated Content (AIGC) technology in cultural communication, this article uses the Mid-Autumn Fantasia and Chinese Solar Terms produced by Henan Broadcasting System as case studies. According to the findings of the study, these programs make use of artificial intelligence and general computing technology in order to accomplish the virtual reconstruction of cultural settings, the dynamic display of pieces of intangible cultural heritage, and the digital manifestation of solar culture icons. In addition to enhancing the allure of traditional culture, this also broadens the scope of its influence across the world. In addition, the article examines the generative artistic potential of AIGC technology in the context of the development of cultural content, as well as the advantages of utilising this technology in conjunction with traditional culture. AIGC technology offers enormous promise in terms of multidisciplinary integration, worldwide transmission, and innovation in audience experience.

This is despite the fact that there are obstacles associated with creating cultural authenticity, striking a balance between human creativity and technological advancements, and intellectual property concerns.

We think that by doing this research, we will be able to give fresh viewpoints and references that will aid in the diffusion and preservation of traditional Chinese culture in the era of digital media.

Keywords: AIGC, traditional Chinese culture, digital media, cultural dissemination, artificial intelligence, innovation

1. Introduction

1.1 Research Background and Significance

In the digital media era, the methods of transmitting Chinese traditional culture are undergoing profound changes. With the rise of Artificial Intelligence Generated Content (AIGC) technology, traditional media platforms have begun using this cutting-edge technology to reshape cultural expressions (Liu, Z., Li, Y., Cao, Q., & Chen, J. 2023). As an important vehicle for Chinese cultural dissemination, Henan Broadcasting System (HBS) has launched programs such as Mid-Autumn Fantasia and Chinese Solar Terms, which showcase the essence of Chinese traditional culture using AIGC technology. These programs have not only sparked widespread attention domestically but have also earned high praise internationally. The innovative model of integrating digital communication with traditional culture has become a key focus in contemporary cultural communication studies.

The opportunities brought by digital technologies are evident. AIGC technology allows for the flexible, efficient, and creative reconstruction of traditional cultural content, overcoming regional and linguistic limitations, and enabling global audiences to experience the unique charm of Chinese culture (Tang, X.,Zhong, Q.,& Zheng, X. 2023: 225). However, challenges also arise, such as maintaining cultural authenticity in innovation and balancing technological and humanistic expressions. Therefore, studying the innovative practices of Henan Broadcasting System in these programs helps explore new paths for cultural communication and provides valuable reference for other media institutions.

1.2 Research Questions

RQ1. How does AIGC technology empower the creation of cultural content?

RQ2. What are the impacts of AIGC technology on cultural communication effectiveness?

2. The Phenomenon of AIGC-Enabled TV Programs
2.1 Characteristics of Mid-Autumn Fantasia

Mid-Autumn Fantasia stands out for its unique narrative structure and artistic techniques. By leveraging AIGC technology and virtual scene reconstruction, the program presents traditional Mid-Autumn imagery, such as the moon flight of Chang'e and osmanthus wine brewing, in dynamic ways. For instance, the scene of Chang'e flying to the moon not only accurately recreates the romantic atmosphere of ancient myths but also generates a strong visual impact through virtual lighting effects and real-time rendering techniques.

2.2 The Cultural Essence of Chinese Solar Terms

Chinese Solar Terms focuses on the cultural imagery of the 24 solar terms. Through carefully designed animations and symbolic representations, the program visually conveys the philosophical and practical meanings behind these terms. For example, in the segment on the "Rain Water" solar term, the program uses AI-generated dynamic images to depict the process from sowing to harvesting, with classical poetry accompanying the commentary, greatly enhancing the cultural depth and artistic impact. By combining the cultural symbols of the solar terms with modern digital media, this approach successfully breathes new life into traditional culture in a contemporary context.

2.3 Reasons Behind the Success of These Phenomena

In recent years, the Chinese government has emphasized the creative transformation and innovative development of Chinese traditional culture, a strategic deployment that reflects the public's genuine desire for new expressions of traditional culture. Starting from the perspective of "new culture" and "new missions," HBS has reinterpreted and elaborated on "solar terms," a form of excellent Chinese traditional culture, which aligns with the public's demand for innovation.

The success of these programs is attributed to multiple factors. On one hand, the widespread use of social media enables the programs to efficiently reach young audiences (Keke, M.E., 2022: 2579). For example, Mid-Autumn Fantasia 2022 saw over 10 billion views on a single hashtag on the Douyin platform, with a total viewership of 6 billion within 48 hours, becoming a model for traditional culture dissemination in the new media environment. On the other hand, the program team integrates an international perspective, designing content and visual language that not only meet the aesthetic demands of domestic audiences but also attract the attention of global viewers.

3. Characteristics and Core Capabilities of AIGC Technology

3.1 Definition and Development of AIGC Technology

AIGC (Artificial Intelligence Generated Content) refers to emerging technologies that generate content such as images, text, and audio using deep learning techniques. In recent years, AIGC has been widely applied in the field of content creation. Its core technologies include Generative Adversarial Networks (GANs),

Natural Language Processing (NLP), and Computer Vision (CV), which provide content creators with new tools to significantly improve the efficiency and creativity of cultural content generation (Yang. J. & Zhang. H., 2024: 1334).

3.2 Generative Artistic Capabilities of AIGC in Cultural Content Creation

The biggest advantage of AIGC technology in cultural content creation lies in its generative artistic capabilities (Zi, Y., H, U. 2024:921). For example, AI-driven large data algorithms can quickly generate visual materials that conform to traditional aesthetics, reducing production costs while enhancing image quality. It can also autonomously generate multimedia content that fits specific cultural themes, such as animations for traditional festivals or historical scene restorations, playing a crucial role in program production.

3.3 Advantages of Combining AIGC with Chinese Traditional Culture

The combination of AIGC technology and Chinese traditional culture not only significantly enhances the international dissemination of cultural content but also greatly enriches the diversity of cultural expression (Liu, Q.,Wang, X.,Xie, X.,Wang, W.,&Xu, L. 2024). Through the introduction of digital media technologies, intangible cultural heritage is presented in new dynamic ways, allowing traditionally static art forms to gain new vitality in virtual spaces. For instance, the creation process of traditional embroidery, pottery, and other handicrafts can be simulated and interactively displayed using AIGC technology, enabling viewers to experience the intricacies of craftsmanship and

the history of cultural heritage in virtual settings. This immersive experience not only enhances the emotional impact of cultural communication but also deepens the interaction between the audience and traditional culture.

4. Case Studies

4.1 AIGC in Mid-Autumn Fantasia

Mid-Autumn Fantasia makes extensive use of AIGC technology, such as the virtual reconstruction of cultural scenes, AI-driven historical cultural scene recreation, and dynamic presentation of intangible cultural heritage elements. Mid-Autumn Fantasia 2022 breaks away from the conventional human-centered perspective of admiring the moon and instead offers a "Moon Palace Fantasy Tour" from the perspective of Chang'e. The wishes made by humans during the Mid-Autumn Festival transform into fruits on the osmanthus tree in the Moon Palace, with Chang'e and the Jade Rabbit helping to fulfill those wishes. The stories behind each "wish ball" connect twelve artistic works, blending the cold and desolate moon palace with the vibrant and bustling human world.

I Wish to Ride the Wind tells the story of a Ming Dynasty scholar, Wan Hu, who pursued his dream of space exploration, engaging in a cross-time-space conversation with astronaut Chen Dong of the Shenzhou 14 mission. After the dream of flying to space became a reality, Chen Dong's message, "Thank you, Wan Hu," broadcast from the Chinese Space Station, became an emotional highlight for millions of viewers.

Picture 1. I Wish to Ride the Wind

The 2024 Mid-Autumn Fantasia features a dance segment, The Terracotta Warriors' Wild Night, in which dancers bring to life the terracotta figurines, such as the horse and camel riders, through graceful body language. These technological techniques seamlessly blend tradition and modernity, allowing the audience to feel the deep cultural fusion while enjoying the television program.

Picture 2. Horse and camel riders

4.2 AIGC in Chinese Solar Terms

Chinese Solar Terms is entirely AI-generated without any filming. Using keyframe generation through keywords and AI analysis of keyframes to fill in interpolated frames, the program

creates stunning visual effects. The rich variety of interpolated frames gives AI animations an incomparable advantage, and the incorporation of traditional Chinese elements makes the animation's content rich and colorful.

The Summer Solstice episode uses "Qi" (energy) as a unique first-person perspective to explore the origins of life. It incorporates grand poetry, mythical creatures from the Shanhaijing (Classic of Mountains and Seas), expansive landscapes from Chinese landscape paintings, and the distant sounds of Chinese traditional music. The program leads the audience to explore the origins of life, with abundant animal elements providing rich visual possibilities and diverse rhythmic changes. Animal elements from Chinese traditional culture are represented not only with Eastern facial features but also with Eastern behaviors, reflecting the millennia-old cultural heritage of China and the ancient Chinese respect for nature and its laws. This highlights the natural Taoism of "unity of heaven and humanity," a core idea in Chinese culture.


Picture 3. Shanhaijing

In the music creation process, AI-generated "sound waves of the sun" were used to create music based on the sounds simulated by the Chinese Academy of Sciences.

Picture 4. Sound waves of the sun

Using AI software such as Midjourney and Stable Diffusion, the program integrates Chinese classical poetry with various forms of Chinese opera, simulating the growth of plants and animals like cicadas and grass. These innovations allow modern audiences to view the growth processes of all living things from a new perspective.
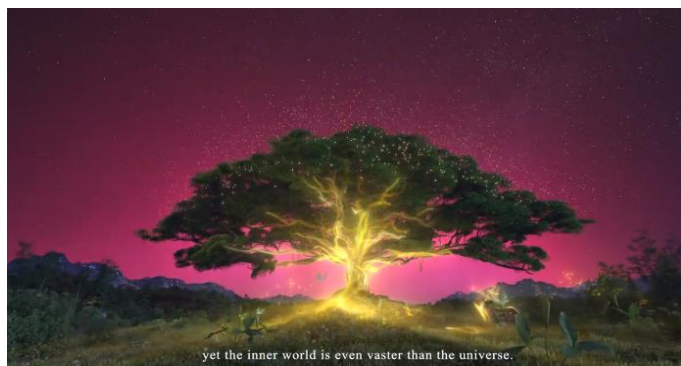
Picture 5. Growing tree

4.3 Analysis of Cultural Communication Effectiveness

Feedback from viewers indicates that these programs' digital innovations have significantly enhanced the attractiveness of traditional cultural content. According to social media interaction data, the 2024 Henan TV Chinese Solar Terms Summer Solstice episode had a total viewership of 6.3 billion by June 22 at noon. It topped national hot lists on platforms such as Douyin, Kuaishou,

Tencent News, and Weishi, with Kuaishou topic readings totaling 4.55 billion, Douyin topic readings at 640 million, and Weibo readings reaching 900 million. Overseas platform views exceeded 1.6 million. The dynamic visual elements and immersive storytelling methods used in the program received high praise, leading to a surge in secondary creations. This indicates that AIGC technology not only facilitates cultural dissemination but also increases audience participation and cultural identification.

5. Challenges in Applying AIGC Technology to Cultural Communication

While AIGC technology shows great potential in the field of cultural communication, its widespread application still faces many challenges that need to be studied and addressed (Guo, D.,Chen, H.,Wu, R.,&Wang Y. 2023:329). One of the key issues is how to maintain the authenticity of cultural content and prevent AI-generated content from deviating from the core values of traditional culture. Although AIGC technology can generate aesthetically pleasing content that closely resembles the original, the algorithms used for training and the data sources are limited, which can result in some biases or even misinterpretations of traditional culture. For example, when reconstructing historical scenes or restoring intangible cultural heritage, AI-generated content may lack accurate historical references and cultural context, which could lead to the commercialization or distortion of cultural elements. This could not only damage the authenticity of the culture itself but also cause misunderstandings when the content is shared internationally.

Another issue to consider is the potential conflict between AI-assisted creation and human originality (Iaia, V. 2022: 793). AIGC

generates content based on big data, which often involves referencing or mimicking existing works. This raises intellectual property concerns. For example, if AI-generated content is based on traditional cultural symbols, the question arises as to who owns the copyright of these generated works. Should the creators of traditional culture have a say in these AI creations? Moreover, the moral regulation of AI-generated content is also a challenge. If an AI-generated cultural piece contains errors or inappropriate expressions, how should accountability and corrections be handled?

The application boundaries of AIGC technology also need to be clearly defined. In cultural communication, AI's role should be auxiliary, not a complete replacement for human creativity. Currently, over-reliance on AI-generated content in certain areas may lead to reduced involvement of human creators in content design, which could affect the emotional depth and artistic impact of cultural expression (Caporusso, N. 2023). Particularly when dealing with sensitive or sacred cultural content, balancing technical efficiency with emotional and cultural expression remains a challenge.

6. Future Prospects

In the future, the international dissemination of Chinese traditional culture through AIGC technology will be a key development direction. With practices combining education, cultural tourism, media, and other interdisciplinary fields, AIGC technology is expected to further expand the application scenarios of cultural content, providing global audiences with more diverse and immersive cultural experiences (Rhodes, G.A., Huang, S. 2024: 227). Additionally, as technology continues to evolve, the

potential for collaboration between AIGC technology and human creativity will further enhance, bringing more possibilities for cultural innovation. This fusion of technology and creativity is expected to open up new pathways for cultural innovation, offering modernized and diversified expressions of traditional culture, which will further increase its global appeal and influence. It will help Chinese culture transition from simply "going global" to "staying global."

7. Conclusion

Supported by AIGC technology, Henan Broadcasting System (HBS) has explored new paths for integrating traditional culture with cutting-edge digital technologies through programs like Mid-Autumn Fantasia and Chinese Solar Terms. These programs have successfully achieved innovative practices in cultural dissemination, providing new reference models for cultural communication. They also highlight the unique charm of Chinese traditional culture in the digital age. Future research into the application potential of AIGC technology in cultural content creation will further enhance the global influence of Chinese traditional culture.

This innovative practice not only provides a highly operable reference model for traditional cultural dissemination but also demonstrates the immense potential of AIGC technology in cultural content creation and international communication. Through techniques such as virtual reality, dynamic cultural element generation, and AI-driven historical scene recreation, these programs break the time and space limitations of traditional cultural communication, laying a technological foundation for the global spread of culture.

References:

1. Caporusso, N. (2023). Generative artificial intelligence and the emergence of creative displacement anxiety. *Research Directs in Psychology and Behavior, 3*(1). https://doi.org/10.53520/rdpb2023.10795.

2. Guo, D., Chen, H., Wu, R., & Wang, Y. (2023). AIGC challenges and opportunities related to public safety: a case study of ChatGPT. *Journal of Safety Science and Resilience, 4*(4), 329-339. https://doi.org/10.1016/j.jnlssr.2023.08.001.

3. Iaia, V. (2022). To be, or not to be… Original under copyright law, that is (one of) the main questions concerning AI-produced works. *GRUR International, 71*(9), 793-812. https://doi.org/10.1093/grurint/ikac087.

4. Keke, M. E. (2022). The use of digital marketing in information transport in social media: the example of Turkish companies. *Transportation Research Procedia, 63*, 2579-2588. https://doi.org/10.1016/j.trpro.2022.06.297.

5. Liu, Z., Li, Y., Cao, Q., Chen, J., Yang, T., Wu, Z., Liu, T. (2023). Transformation vs tradition: Artificial general intelligence (agi) for arts and humanities. arXiv preprint *arXiv:2310*.19626. https://doi.org/10.48550/arXiv.2310.19626.

6. Liu, Q., Wang, X., Xie, X., Wang, W., & Xu, L. Innovative Design Research on Jiaodong Peninsula's Marine Folk Culture Based on AIGC. https://doi.org/10.62531/14270.2024.32910.723.

7. Rhodes, G. A., & Huang, S. (2024). Augmented and Virtual Reality in the World of GPT Text and Image Creations: AI, Metaverse, and Art. In Augmented and Virtual Reality in the Metaverse (pp. 227-246). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-57746-8_12.

8. Tang, X., Zhong, Q., & Zheng, X. (2023, November). Exploring the Design of Digital Twin Virtual Space for The Awaken Lion Culture Based on Technology Acceptance Modeling. In Proceedings of the Eleventh International Symposium of Chinese CHI (pp. 225-240). https://doi.org/10.1145/3629606.3629627.

9. Yang, J., & Zhang, H. (2024). Development And Challenges of Generative Artificial Intelligence in Education and Art. Highlights in Science, Engineering and Technology, 85, 1334-1347. https://doi.org/10.54097/vaeav407.

10. Zi-yang, H. U. (2024). AIGC Related Context: A New Communication Culture For Human Journal of Literature and Art Studies, 14(10), 921-931. https://doi.org/10.17265/2159-5836/2024.10.016.