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2025 Volume 3, Issue 10
Lecture Notes in Education, Arts, Management and Social Science
ISSN(Online): 2705-053X

Personalized Narration of Cultural Heritage and Construction of Tourist Experience Based on AIGC

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Abstract: The homogenization of cultural heritage narration and the superficialization of tourist experience are core issues facing current heritage protection and tourism development. With its content generation and personalized adaptation capabilities, AIGC provides a new path for the innovation of cultural heritage narration and the upgrading of tourist experience. Based on this, this paper focuses on the application of AIGC in the field of cultural heritage, explores the implementation paths of personalized narration and experience construction, aiming to contribute to the inheritance and sustainable development of cultural heritage.
Keywords: AIGC; cultural heritage; tourist experience; data processing; multi-sensory experience

Online publication: November 26, 2025

1. Introduction

Cultural heritage is an important carrier of human civilization, and its living inheritance and innovative utilization have become core issues in cultural development in the new era. Currently, cultural heritage tourism faces the dual dilemmas of homogenized narration and superficial experience, which affect the inheritance efficiency of cultural heritage and the improvement of the value of the tourism industry. The rapid development of AIGC provides technical possibilities to solve this dilemma. Its powerful capabilities in content generation, data processing and personalized adaptation can break the limitations of traditional narration and build a differentiated and personalized cultural heritage narration system[1]. Therefore, applying AIGC to the personalized narration of cultural heritage and the construction of tourist experience can not only create multi-sensory participation experience scenarios, promote tourists to transform from cultural recipients to participants and co-creators, and improve tourist satisfaction, but also promote the activated inheritance of cultural heritage and the high-quality development of the tourism industry.

2. Application advantages of aigc in personalized narration of cultural heritage and tourist experience

2.1. Realize precise and personalized adaptation of narrative content

Traditional cultural content presentation models are single and cannot take into account the differences in tourists' age, knowledge background, interests and hobbies, leading some tourists to find it difficult to generate deep resonance

because the narrative content does not match their own needs. With its powerful data processing and content generation capabilities, AIGC can collect and analyze tourists' basic information, browsing trajectories, interactive feedback and other data to build multi-dimensional tourist portraits and accurately grasp the cultural needs and cognitive characteristics of different tourists [2]. On this basis, AIGC can automatically generate narrative content suitable for different tourists. For example, for young tourists, it can generate more narrative texts with storytelling and fun, integrating interactive Q&A and other elements. This not only allows each tourist to obtain cultural information that meets their own needs, but also uses the precise matching of content to enhance tourists' willingness to actively read and perceive, transforming tourists from passive recipients to active explorers, thereby deepening their understanding and recognition of the connotation of cultural heritage and laying a content foundation for the upgrading of tourist experience.

2.2. Promote diversified innovation of narrative forms

AIGC has the ability to generate multi-modal content such as text, images, audio, video and virtual scenes, and can transform historical scenes, character stories, artistic details and other aspects of cultural heritage into multi-dimensional narrative forms [3]. Using AIGC to generate animated short films, virtual character dialogues, interactive comics and other content related to cultural heritage can make static cultural heritage more vivid and intuitive. It can not only greatly enhance the interest and attractiveness of cultural heritage narration, but also strengthen tourists' perceptual memory of cultural heritage scenes and connotations by mobilizing multiple senses of tourists, enabling tourists to deepen their emotional connection with cultural heritage in an immersive experience and realize in-depth interaction between culture and tourists.

2.3. Improve the efficiency of integration and utilization of cultural heritage resources

Cultural heritage resources include various types such as historical documents, archaeological data, folk legends and works of art. These resources are often scattered in different platforms and cultural institutions, and most exist in static forms, making integration and utilization difficult and hard to quickly transform into narrative content suitable for tourists' needs[4]. AIGC can systematically collect, classify and integrate scattered cultural heritage resources with the help of big data technology to build a standardized, systematic and comprehensive cultural heritage narrative resource library. Specifically, on the basis of resource integration, AIGC can dynamically update and iterate the content of the narrative resource library according to new discoveries in cultural heritage research, new changes in tourists' needs and new trends in the times, ensuring the timeliness and richness of cultural heritage narrative content[5]. At the same time, AIGC can also carry out innovative transformation of existing resources. For example, converting text records in ancient books and documents into vivid visual content, and integrating fragmented folk legends into complete narrative stories, so as to improve the utilization value of resources, provide continuous and stable content supply for the personalized narration of cultural heritage, promote the transformation of cultural heritage into experience content that meets tourists' needs, and inject continuous momentum into the inheritance of cultural heritage and tourism development.

3. Current situation of tourist experience supported by aigc

3.1. Superficial application of aigc

With its powerful data processing and content generation capabilities, AIGC has become the core driving force for the reconstruction of tourist experience and provides more diversified presentation forms, such as virtual tour guides and personalized story generation, which effectively improve the convenience and fun of tourist experience. However, in practical applications, the application of generative artificial intelligence technology is mostly superficial. On the one hand, in terms of the application of AIGC technology, it is mostly dominated by one-way content output. Although it can push customized information according to tourist portraits, it lacks the excavation and transmission of the deep value of cultural heritage, leading tourists to find it difficult to form a systematic cognition and emotional resonance of the heritage

connotation[6]; on the other hand, as an intelligent and model-based content generation tool, AIGC technology mostly relies on standardized input content, and the integration of implicit knowledge such as the historical context and folk context behind the heritage is insufficient. The generated narrative content is prone to fall into the dilemma of stylization and homogenization, making it difficult to achieve in-depth understanding and recognition of cultural heritage. Finally, the memory points of the experience are weak, and the deep goals of cultural inheritance and education are not achieved [7].

3.2. Insufficient participatory experience and interactive depth

Although AIGC technology can realize personalized content push based on tourist portraits, some interactions still stay at the level of simple selective feedback, such as adjusting cultural categories according to tourists' preferences, which does not allow tourists to truly participate and cannot form a subjective in-depth experience[8]. In addition, the integrated application of multi-modal interaction technology is not sufficient. The combination of narrative content generated by AIGC with immersive technologies such as virtual reality and virtual simulation often stays at the superposition of sensory levels, and fails to build a dynamic interaction system based on situational perception and emotional feedback. Tourists find it difficult to obtain a more concrete sense of participation in the experience and to truly integrate into the narrative scene of cultural heritage, leading to the formalization of interactive behaviors.

3.3. Lack of connotation and value behind cultural heritage

Cultural heritage is a product of historical development and innovation, with certain authenticity. It is not only reflected in the fidelity of material form, but more importantly, it has significant and profound cultural symbolic significance, historical context and emotional value in modern society. When using AIGC to integrate, reorganize and personalize the narration of cultural heritage, it is easy to be affected by data algorithms, weakening the original historical background and symbolic significance of cultural symbols, and transforming complex cultural phenomena into standardized digital products, resulting in the simplification and distortion of cultural connotation[9]. In addition, data algorithms are affected by mainstream culture, and it is easy to re-interpret cultural heritage, thereby strengthening the manifestation of mainstream culture and weakening the expression of cultural heritage, leading to the lack of historical significance and cultural connotation behind cultural heritage.

4. Construction paths of personalized narration of cultural heritage and tourist experience based on aigc

4.1. Precisely match tourists' personalized needs and improve cultural narrativeness and perception

The rapid development of a new generation of information technology provides a broader innovative path for the application of cultural heritage in the field of tourism development. With the changes in tourists' needs, generative artificial intelligence technology has become the core interface in cultural tourism[10]. With its advantages in natural language processing, semantic retrieval and generative adversarial network technology, generative artificial intelligence significantly improves the narrative ability, cultural expression ability and experience boundary of cultural heritage, generates highly realistic cultural content, and expands the boundary and possibility of cultural heritage display. First of all, relying on AIGC technology, it can generate suitable narrative content according to tourists' personalized needs, such as ancient street scenes, to achieve precise experience supply of "one thousand people, one thousand faces". Specifically, the construction of tourist portraits needs to be based on multi-dimensional data collection, including tourists' basic information, interests and preferences, behavioral data, etc., and form a three-dimensional tourist label system with the help of data integration and analysis.

Secondly, after receiving the tourist portrait data, AIGC technology can rely on the cultural heritage narrative resource library and use deep learning algorithms to perform personalized marking and adaptation of cultural heritage, so as to adjust the depth and breadth of cultural narration according to the tourist's portrait. For example, tourists interested in architectural art focus on the narrative of the architectural style and craftsmanship of the heritage, and tourists interested

in historical stories focus on the narrative of character deeds and historical background[11]; finally, AIGC can generate narrative content in various forms such as text, audio, comics and short videos to adapt to tourists' receiving habits in different scenarios. For example, push graphic introductions during the online reservation stage, provide voice explanations during the on-site tour stage, and generate short video highlights during the follow-up review stage, so as to make cultural heritage narration accurately match tourists' needs and improve the cultural perception fit of tourists.

4.2. Build a cultural resource library and generate cultural narratives of different styles

The application of AIGC in the personalized narration of cultural heritage is not only a modal transformation at the technical level, but also an intelligent structure from static culture to concrete content presentation. The narrative value of cultural heritage is reflected not only in explicit data such as historical documents and cultural relics themselves, but also in implicit content such as folk traditions, craft processes and emotional memories. Therefore, the construction of the resource library needs to break the limitation of a single text form and realize the multi-modal presentation of cultural resources. Use natural language processing, computer vision and other technologies to structurally process the original data, and comprehensively integrate the multi-dimensional information of cultural heritage, including not only core knowledge such as historical background, artistic characteristics and craft techniques, but also extended content such as related folk legends, celebrity anecdotes and historical background, forming a three-dimensional and rich cultural information network to provide rich materials for narrative creation[12]. At the same time, perform semantic annotation of text data, content recognition and feature extraction of images and videos, speech transcription and emotional analysis of audio data, etc., to build a cultural heritage knowledge graph with rich metadata labels.

In addition, based on large language models, AIGC can generate text interpretations of different styles to provide personalized services for different types and needs of tourists. On the one hand, preset diversified narrative style dimensions, including academic rigorous type, vivid story type, emotional resonance type, interactive participation type, etc. Each style corresponds to different language characteristics, narrative structures and expression focuses[13]; on the other hand, accurately match tourists' needs with the labeled information in the resource library to find cultural materials that meet the style positioning, so as to break the limitation of a single traditional narrative style and meet the preference needs of different tourists for cultural interpretation.

4.3. Create immersive cultural narrative scenarios and enhance tourists' participation and experience

At present, with the continuous updating and iteration of information technology, AIGC is not only an auxiliary tool for cultural heritage, but also an active participant in its personalized reconstruction process. On the one hand, as an important means of activating digital cultural heritage, generative artificial intelligence technology can form multi-modal forms, such as images, audio, video, etc., emphasizing the dynamics, interactivity and real-time iteration of content[14]; on the other hand, as a content generator of cultural heritage, AIGC can directly participate in the re-integration and innovative expression of cultural heritage resources with the help of natural language processing and image generation technology, including narration, exhibition and tourist interaction, etc. At multiple levels such as content generation, interaction guidance, knowledge recommendation and emotional guidance, it realizes the transformation of cultural heritage from passive display to dynamic narration, and strengthens the multi-dimensional perception and modern inheritance of cultural heritage. First, virtual reality technology, augmented reality technology, etc. can be used to create cultural heritage experience scenarios with multi-sensory participation. In the process of creating virtual scenarios, it is necessary to take AIGC personalized narration as the core content, transform abstract and static cultural heritage into perceptible and concrete content, and then use virtual reality technology to reproduce the historical original appearance of cultural heritage, allowing tourists to experience the historical background and style of the heritage immersively, and enhancing the sense of participation and immersion of cultural heritage.

Second, pay attention to tourists' sensory experience and emotional resonance, and enhance the authenticity and sense of substitution of the scene through multi-sensory stimulation such as vision, hearing and touch, so that tourists can deepen

their understanding and recognition of cultural heritage in an immersive experience. For example, AR technology can be used to overlay virtual historical figures and events into real scenes. Tourists can interact with virtual elements through gestures, voices and other ways and participate in the narrative process[15]; third, use virtual simulation technology to create scene interactive games, allowing tourists to carry out interactive activities with virtual historical figures in specific scenes to obtain story clues, trigger different plots and endings, promote tourists to transform from passive reception to active participation and in-depth immersion, improve the depth of tourist experience and emotional connection, and realize the dual upgrading of cultural heritage inheritance and tourism experience.

5. Conclusion

In summary, AIGC provides a breakthrough path for the personalized narration of cultural heritage and the upgrading of tourist experience. Through paths such as precisely matching tourists' personalized needs, building a cultural resource library, and creating immersive cultural narrative scenarios, it breaks the limitations of traditional static display and homogenized narration, realizes the transformation of cultural heritage from static display to dynamic presentation, improves the depth of tourists' cultural perception and emotional resonance, and contributes to the inheritance and development of cultural heritage.

Disclosure statement

The author declares no conflict of interest.

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