

Generative AI–Enabled Storytelling for Bashu Cultural Heritage in Smart Guide Systems: A Conceptual Framework

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Abstract: This article examines how generative artificial intelligence (AI) can support context-sensitive storytelling for Bashu cultural heritage in Southwest China. Current digital communication has improved the visibility of Bashu culture through short videos, social media and cultural IP, but it often remains fragmented, visually driven and weak in narrative depth. Adopting a conceptual and analytical approach, this study reviews existing discussions on Bashu cultural communication and generative AI, identifies Bashu culture as a layered narrative resource, and proposes a three-layer, four-module framework for AI-enabled smart guide systems. The framework links cultural knowledge preparation, narrative generation and scenario-based application, and is illustrated through Sanxingdui-related museum interpretation and urban cultural routes in the Chengdu-Chongqing region. The paper argues that generative AI should be embedded in a culture-first, scene-led and human-AI collaborative process, so that smart guides can move beyond information delivery and become narrative practices connecting heritage spaces, visitors and local cultural meanings.

1. Introduction

The Bashu region, broadly covering today's Sichuan Province and Chongqing Municipality, is widely recognised as an important cradle of Chinese civilisation and a key resource of the contemporary Tianfu cultural brand. In recent years, cultural tourism corridors, red heritage routes, short-video platforms and smart tourism systems have made Bashu culture increasingly visible. Yet visibility does not necessarily produce understanding. Many digital projects still depend on panoramic images, check-in scenes and standardised slogans, reducing Bashu culture to recognisable tags such as hotpot, pandas and a laid-back lifestyle, while its historical depth and internal complexity remain underrepresented.

This problem becomes more urgent with the rise of generative AI. AI can rapidly produce texts, images and virtual-guide responses, but if it is not constrained by cultural knowledge, it may amplify vague and stereotyped narratives. Chinese studies have shown that AIGC is reshaping content production, discourse organisation and cultural expression [1, 7, 13]. Studies on Bashu

communication also suggest that documentaries, cultural IP, short-video platforms and museum communication have improved visibility, but often still rely on fragmented symbols rather than coherent storytelling [1, 4, 6, 11].

Against this background, this article asks how generative AI can support more grounded storytelling for Bashu cultural heritage in smart guide systems. Rather than testing algorithms or conducting large-scale empirical research, it develops a conceptual framework for subsequent system design and pilot practice. Section 2 reviews related literature; Section 3 explains the research approach; Section 4 analyses Bashu culture as a narrative resource; Section 5 proposes the framework; Section 6 discusses application scenarios; and Sections 7 and 8 present implications and conclusions.

2. Literature review

2.1. Bashu culture and heritage tourism

Bashu culture is both historically deep and emotionally distinctive. Studies on ancient Shu civilisation emphasise Sanxingdui, Jinsha, mythological motifs and transregional links in early Chinese civilisation [15]. Recent scholarship further connects Bashu culture with regional development, cultural tourism and cultural IP, treating Tianfu culture as a contemporary re-articulation of ancient Shu civilisation, red heritage and modern urban lifestyle [5]. Other studies examine red cultural resources and their integration into tourism routes [3, 10], while dialect research shows how local speech and humour help construct identity and belonging [8]. These works indicate that Bashu culture should be understood not only as monumental heritage, but also as lived experience, speech practice and everyday storytelling.

2.2. Digital communication of Bashu culture

With the rise of mobile internet and platformised media, Bashu culture has become a frequent subject of online communication. New media has broadened the channels and forms of Bashu cultural dissemination [2], while cultural IP projects in the Chengdu-Chongqing area try to connect intangible heritage, creative industries and digital platforms [5]. However, existing communication still shows several limitations: spectacularised symbols such as hotpot, pandas and night views are repeatedly circulated; narrative framing is often weak; user participation tends to remain shallow; and digital tools sometimes replicate conventional explanation rather than reorganising cultural stories. Sanxingdui studies similarly show that cross-media visibility does not automatically create sustained interpretation [6, 11].

2.3. Smart cultural guiding and narrative limitations

Digital and intelligent guide systems have entered many museums, heritage sites and tourism spaces, but their narrative design remains limited. In many cases, smart guiding only means pre-recorded audio, QR-code access or automatic explanation. The delivery channel is upgraded, while the narrative logic remains unchanged. This problem is visible in Bashu-related communication: Sanxingdui, Bashu cultural IP, red cultural resources and dialect-based identity all possess rich symbolic resources, yet strong symbolic presence does not necessarily produce strong narrative structure [3, 5, 6, 8, 10, 11]. Therefore, smart guide systems need to move from explaining information to telling stories that connect cultural knowledge, spatial context and visitor experience.

2.4. Generative AI, cultural narration and gaps

Research on generative AI in China has focused mainly on content production, knowledge communication and risk governance. Scholars argue that AIGC restructures the order of content creation and media ecology [1, 13], participates in knowledge production and dissemination [7], and brings risks such as misinformation, hallucination and governance challenges [9, 12, 14]. However, these studies pay more attention to journalism, education and general information production than to regional cultural guiding. Existing Bashu studies discuss media representation, cultural branding, documentaries, dialect identity and red cultural communication, but seldom ask how cultural stories should be generated, adapted and delivered through intelligent guide systems [1, 4, 5, 8, 11]. This article addresses that intersection.

3. Research approach

This study adopts a conceptual and analytical approach. It draws on three types of material: Chinese scholarship on Bashu culture, red heritage, dialect media and new media communication; local cultural tourism planning documents and public descriptions of smart tourism systems in Sichuan and Chongqing; and case descriptions related to Sanxingdui Museum and urban cultural routes in the Chengdu-Chongqing region. The aim is not to test hypotheses, but to build a narrative framework that clarifies the relation among Bashu cultural resources, generative AI constraints and smart guide scenarios. Methodologically, the article organises existing insights into a conceptual model for later system design and practical testing.

4. Study of Bashu culture as narrative resource

4.1. Layered narrative resources

From a storytelling perspective, Bashu culture contains several layers of narrative resources. Mythic and ancient Shu narratives, including Cancong, Yufu, Sanxingdui and Jinsha, provide material for origin stories and civilisation imagination [15]. Literary and intellectual traditions present Bashu as a space of landscape, exile, memory and creativity. Red heritage links revolutionary history with local cultural memory and can be integrated into regional cultural systems [3, 10]. Everyday life, dialect, teahouses, cuisine and popular humour form the affective texture of Bashu; dialect studies show how local speech constructs identity and emotional bonds [8]. These layers intertwine across space and time and should be structured clearly before they are used in AI-generated narratives.

For AI-enabled storytelling, the key issue is not to collect more symbols, but to organise cultural resources into reliable narrative units. Ancient Shu motifs can connect with contemporary cultural IP; red heritage can connect with city routes and public memory; everyday humour can support conversational guiding. Without such structuring, generative AI may blend Bashu culture into vague and generic Chinese culture.

4.2. Structural problems in current narratives

Current digital communication of Bashu culture shows four structural problems. First, spectacularisation and labelling make a small set of iconic images overly dominant. Second, narrative thinness prevents visitors from linking specific sites to broader historical processes. Third, fragmented projects and platforms make Bashu culture appear as scattered clips rather than a layered story. Fourth, local communities and front-line cultural workers are often absent from

digital interpretation, even though they carry important cultural memory. These problems suggest that AI should not simply produce more content; it should support narrative reorganisation.

5. Generative AI-enabled smart guide framework

5.1. From language output to narrative practice

Large language models generate plausible text by learning patterns from massive corpora. This gives generative AI advantages in fluency, stylistic variation and rapid adaptation, but it also creates risks of inaccurate description, unstable knowledge boundaries and stereotyped expression [7, 9, 12, 14]. For cultural guiding, generative AI should therefore not be treated as an autonomous storyteller or free-floating text generator. It must operate within a controlled narrative process defined by cultural knowledge, contextual boundaries and human supervision. On this basis, this article proposes a three-layer, four-module framework for Bashu smart guide systems.

5.2. Three layers: knowledge, narrative and scenario

(1) Knowledge and corpus layer: This layer provides the cultural base for AI generation. It includes a Bashu cultural knowledge graph of sites, artefacts, figures, events and stories; a curated narrative corpus drawn from academic studies, museum scripts, documentaries, oral histories and quality media content; and value guidelines that clarify boundaries around contested histories, red heritage, minority cultures and sensitive topics.

(2) Narrative generation layer: This layer defines how stories are told. It includes narrative templates for origin, biographical, everyday-life and comparative stories; tone and style controllers for different visitor groups; and fact-checking or risk filters that compare AI outputs with the knowledge graph and guidelines, reducing hallucinations, anachronisms and inappropriate wording.

(3) Scenario application layer: This layer anchors storytelling in concrete spaces. It includes route and node matching in museums, archaeological parks or city streets; interaction interfaces such as apps, mini-programmes or on-site screens; and multimodal presentation through text, audio, images or simple animations. Multimodality is useful only when visual cues, audio guidance and narrative structure are coordinated.

5.3. Four cross-cutting modules

Across these layers, four modules support operation. The content production module brings together curators, scholars, guides and community members to identify stories and annotate materials. The narrative control module allows institutions to approve core scripts and decide which parts may be dynamically generated. The interaction feedback module records visitor choices, questions and drop-off points to improve later versions. The communication evaluation module combines observation, feedback and sharing data to judge whether AI-guided storytelling improves understanding rather than merely adding technological spectacle.

6. Application scenarios

6.1. Archaeological settings: Sanxingdui

Sanxingdui Museum is a suitable prototype for AI-enabled storytelling because its artefacts are visually striking but often difficult to interpret. The proposed system could organise interpretation around three templates. A discovery-and-debate storyline explains excavation history and scholarly

discussion. A biography-of-an-artefact storyline links selected objects to myths, rituals and cross-regional connections while marking speculative elements. A past-present storyline connects ancient motifs with contemporary cultural IP and design. At each node, visitors could choose short, medium or extended versions and follow branches such as ritual practice, technological skill or mythic imagination.

6.2. Urban cultural routes and everyday spaces

Urban cultural routes in Chengdu and Chongqing provide another scenario. Unlike museums, these routes combine historic streets, red heritage sites, teahouses, markets and parks with everyday life. Smart guides can weave stories about craft shops, urban change and local biographies; connect red heritage sites with national history and local memory; and explain dialect expressions, teahouse customs or neighbourhood micro-histories. Such continuity across locations may strengthen visitors' sense of place and help them understand Bashu culture as living heritage rather than isolated attractions.

6.3. Cross-cultural and multilingual extensions

AI-enabled guides can also support multilingual storytelling for international visitors, explaining terms such as Tianfu, Shu Road and Sichuan opera in accessible language. Yet translation and cross-cultural interpretation are never neutral. Multilingual guiding should be treated as an interpretive layer, not a purely technical conversion. Human experts still need to curate key terms, avoid orientalist clichés and prevent Bashu culture from being flattened into exotic images.

7. Discussion

7.1. Theoretical implications

The main theoretical contribution of this study is to connect generative AI with regional cultural communication. Existing Chinese studies show that AIGC reshapes content production, discourse order and knowledge communication [1, 7, 13], while Bashu studies show that regional culture is communicated through documentaries, media convergence, cultural IP, dialect media and red cultural communication [3, 4, 5, 8, 10, 11]. By bringing these strands together, this article understands smart guide systems as narrative practices rather than simple information services. It also emphasises spatial experience: Bashu culture is embedded in archaeological sites, museums, historic streets, red routes and everyday urban life, so AI-guided storytelling must be designed with place in mind.

7.2. Practical implications

Practically, cultural institutions should first reorganise cultural content into narratable forms before adding new devices. Museums, heritage sites and urban routes need clear storylines, structured corpora and interpretive priorities. Second, generative AI should work within a human-AI collaborative model, because curators, guides, scholars and community participants provide contextual judgement and cultural sensitivity that AI cannot replace. Third, smart guides should be connected with broader communication strategies, since memorable on-site narratives can influence what visitors later retell and circulate online.

7.3. Limitations and future research

This study is limited by its conceptual nature and its focus on one regional culture. It does not provide empirical user data, and the proposed framework has not yet been implemented in a real system. It remains unclear whether AI-enabled guides can consistently deepen visitor understanding or cultural memory across different contexts. Future research could develop prototypes for selected sites, compare AI storytelling across heritage types, and examine governance issues such as responsibility allocation, community participation and cultural diversity protection.

8. Conclusion

This article examined how generative AI may support context-sensitive storytelling for Bashu cultural heritage in smart guide systems. It argued that Bashu culture contains layered narrative resources, but current digital communication often emphasises visibility while neglecting depth and dialogue. To address this tension, the article proposed a three-layer, four-module framework that links cultural knowledge preparation, narrative generation, scenario application and feedback-based evaluation. The Sanxingdui and urban-route examples show how this model may work in practice. If carefully governed, generative AI can become not only a tool for producing content, but also a means of reorganising how regional cultures are narrated and experienced in smart tourism.

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