

The Cross-media Storytelling Method of Zhengzhou Shang Dynasty Site Museum from the Perspective of Cultural Memory Theory*

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Abstract

From the perspective of Jan Assmann's Cultural Memory Theory, this study explores the cross-media storytelling practices of the Zhengzhou Shang Dynasty Site Museum and examines how transmedia narratives contribute to the preservation and reconstruction of cultural memory. Employing literature research, field investigation, and case analysis, the study focuses on the museum's representative cross-media projects, including its digital exhibitions, immersive interactive installations, social media communication, and cultural and creative IP products, to analyze how different media platforms collaboratively construct coherent historical narratives. The findings reveal that the museum establishes a multidimensional storytelling framework through the integration of archaeological heritage, digital technologies, and participatory media, significantly enhancing audience engagement, cultural identity, and memory retention while expanding the accessibility of Shang civilization. Furthermore, the study identifies an innovative narrative model characterized by multi-platform content integration, audience participation, and dynamic memory reconstruction, providing a practical framework for cross-media communication in archaeological museums. Theoretically, this research bridges the gap between Jan Assmann's cultural memory framework and the practical design of transmedia museum exhibitions, demonstrating how cultural memory theory can guide museum storytelling strategies in the digital era. The findings offer both theoretical insights and practical references for heritage communication and digital museum innovation.

Keywords: Cultural Memory Theory; Cross-media Storytelling; Zhengzhou Shang Dynasty Site Museum; Museum Communication; Digital Heritage

Citation



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Introduction

In the digital era, the rapid convergence of communication technologies has fundamentally transformed the ways cultural heritage is preserved, interpreted, and disseminated. Museums are no longer limited to physical exhibition spaces but increasingly employ digital exhibitions, social media platforms, immersive technologies, and interactive cultural products to communicate historical narratives. (Assmann, 1995). In this context, cross-media storytelling refers to the coordinated construction of a unified narrative across multiple media platforms, where each medium contributes complementary content rather than merely reproducing identical information. Such an approach enables museums to extend audience engagement beyond exhibition halls and encourages more participatory and immersive experiences.

Among China's archaeological museums, the Zhengzhou Shang Dynasty Site Museum represents a particularly significant case. (Assmann, 2011). As the museum built upon the archaeological remains of one of the earliest confirmed capitals of the Shang Dynasty, it preserves invaluable evidence of early Chinese urban civilization, political organization, bronze culture, and ritual systems. Since its opening in 2022, the museum has actively integrated archaeological exhibitions with digital media, immersive technologies, online communication, and cultural and creative products, making it one of the country's most representative examples of digital heritage communication. Its combination of rich archaeological resources and diversified media practices provides an ideal case for examining how cross-media storytelling contributes to the reconstruction and transmission of cultural memory.



Figure 1 Zhengzhou Shang Dynasty Site Museum

Although museum cross-media storytelling has received increasing scholarly attention, existing studies primarily focus on communication strategies, digital technologies, or social media promotion. (Jenkins, 2006). Comparatively little research has systematically examined how different media platforms collaboratively construct coherent cultural narratives through the perspective of Jan Assmann's Cultural Memory

Theory. Existing studies often discuss theoretical concepts or practical applications separately, resulting in limited integration between cultural memory theory and museum storytelling practice.

This theoretical gap has practical consequences. Without a coherent cultural memory framework, museum narratives across different media platforms tend to become fragmented, reducing narrative continuity and limiting audiences' understanding of historical context. Such fragmentation may weaken visitors' cultural identity, diminish emotional engagement with archaeological heritage, and reduce the effectiveness of museums in transmitting historical memory across generations. (Jenkins, 2009). Consequently, while many museums have adopted diverse digital communication channels, the absence of a systematic theoretical model often leads to inefficient cultural communication and underutilization of cross-media storytelling's educational potential.



Figure 2 Preface hall of Zhengzhou Shang Dynasty Site Museum



Figure 3 The first exhibition hall of Zhengzhou Shang Dynasty Site Museum



Figure 4 The second exhibition hall of Zhengzhou Shang Dynasty Site Museum



Figure 5 The third exhibition hall of Zhengzhou Shang Dynasty Site Museum

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Objectives

1.To identify and analyze the cross-media storytelling methods employed by the Zhengzhou Shang Dynasty Site Museum, with particular attention to the integration of narrative elements, media platforms, and storytelling structures in reconstructing Shang cultural memory.

2.To reveal the mechanisms through which cross-media storytelling preserves, transmits, reconstructs, and innovates cultural memory by applying Jan Assmann's Cultural Memory Theory, thereby explaining how different media jointly transform communicative memory into cultural memory.

3.To develop an integrated analytical framework that combines Cultural Memory Theory with museum cross-media storytelling practice, providing both theoretical contributions to museum communication studies and practical guidance for archaeological museums seeking to strengthen digital heritage communication and public cultural identity.

Literature review

Cultural Memory Theory

This study adopts Jan Assmann's Cultural Memory Theory as its primary analytical framework. Cultural memory refers to the institutionalized preservation, transmission, and reconstruction of collective memory through cultural symbols, rituals, texts, monuments, and social institutions across generations. (Yang, 2023). Unlike communicative memory, which relies on interpersonal communication and is limited to living generations, cultural memory is sustained through material and symbolic carriers that enable societies to maintain a shared cultural identity over long historical periods. Within the museum context, cultural memory theory provides a valuable framework for understanding how archaeological heritage is transformed into meaningful public knowledge. Museums function not only as repositories of historical artifacts but also as cultural institutions that actively reconstruct historical narratives and reinforce collective identity. (Zhou, 2023). Accordingly, this study examines how cross-media storytelling contributes to the preservation, transmission, and innovation of Shang Dynasty cultural memory through multiple media platforms.

Cross-media Storytelling

Cross-media storytelling refers to the coordinated presentation of a unified narrative across multiple communication platforms, in which each medium contributes complementary rather than repetitive content. In the Zhengzhou Shang Dynasty Site Museum, cross-media storytelling integrates archaeological artifacts, historical narratives, cultural symbols, digital exhibitions, immersive interactive technologies, social media communication, and cultural and creative products into a coherent narrative ecosystem.

This study analyzes cross-media storytelling from three dimensions:

- Narrative element integration: the coordinated presentation of archaeological artifacts, historical events, and symbolic representations of Shang civilization;

- Narrative structure: the construction of interconnected online and offline storytelling pathways across multiple media platforms;

- Platform differentiation: the adaptation of storytelling strategies according to the characteristics and audiences of different media channels.

Relationship between Cultural Memory Theory and Cross-media Storytelling Cultural Memory Theory provides the theoretical explanation for why cross-media storytelling matters, while cross-media storytelling represents how cultural memory is operationalized in museum practice.

From the perspective of Cultural Memory Theory, archaeological artifacts function as memory carriers, while digital media serve as contemporary mechanisms for memory reconstruction and dissemination. (Zhu, 2023). Through coordinated storytelling across exhibitions, digital platforms, social media, and interactive technologies, fragmented historical information is transformed into coherent cultural narratives, enabling communicative memory to evolve into enduring cultural memory. Therefore, cross-media storytelling is not merely a communication strategy but a mechanism for strengthening collective identity, cultural continuity, and public engagement with archaeological heritage.

Current Situation and Problems

Overreliance on Promotional Communication

Field observations indicate that although the Zhengzhou Shang Dynasty Site Museum has actively adopted digital communication channels, much of its online content remains promotional in nature, including exhibition announcements, artifact introductions, and event publicity. Narrative continuity between online and offline experiences remains relatively limited. For example, many social media posts introduce individual artifacts without extending their historical context or connecting them to broader Shang civilization narratives. Consequently, audience engagement often remains episodic rather than cumulative, reducing the effectiveness of long-term cultural memory construction.

Insufficient Cross-platform Synergy

The lack of synergy exists at three interconnected levels.

Content level. Narrative themes are not consistently extended across exhibitions, social media, digital exhibitions, and cultural products. Each platform tends to present information independently rather than contributing complementary chapters of a unified story.

Platform and user experience level. Limited integration exists between online and offline visitor experiences. Digital interactions before, during, and after museum visits are insufficiently connected, reducing opportunities for continuous audience engagement.

Institutional coordination level. Cross-media communication appears to emphasize platform operation rather than integrated narrative planning. Different

communication channels function relatively independently, limiting the development of a systematic transmedia storytelling strategy.

Limited Application of Cultural Memory Theory

Current museum research has increasingly acknowledged Cultural Memory Theory; however, most studies remain conceptual and provide limited guidance for practical storytelling design. Existing research rarely explains how archaeological artifacts, digital technologies, and audience participation collectively contribute to the reconstruction and transmission of cultural memory through cross-media communication.

Limited Research on the Zhengzhou Shang Dynasty Site Museum

Despite the museum's importance as one of China's representative archaeological museums, systematic research on its cross-media storytelling remains limited. Existing studies primarily describe communication channels or exhibition design but rarely investigate the mechanisms through which cross-media storytelling reconstructs Shang cultural memory or strengthens collective cultural identity. Consequently, a theoretical gap remains between Cultural Memory Theory and practical museum communication, providing the basis for the present study.

Methodology

This study employs a qualitative case study supported by complementary quantitative survey data. By integrating perspectives from Jan Assmann's Cultural Memory Theory, communication studies, and museum studies, the research examines how the Zhengzhou Shang Dynasty Site Museum constructs and disseminates Shang cultural memory through cross-media storytelling. To enhance methodological rigor, four complementary research methods are adopted.

Literature Review

A systematic literature review was conducted to establish the theoretical foundation of the study. Academic publications concerning Cultural Memory Theory, cross-media storytelling, museum communication, digital heritage, and transmedia narratives were collected from international and Chinese academic databases. The literature was analyzed to identify existing theoretical perspectives, research gaps, and analytical dimensions relevant to museum cross-media storytelling.

Field Observation

Field research was conducted at the Zhengzhou Shang Dynasty Site Museum through non-participant observation. An observation protocol was developed to ensure consistency and objectivity across all observations. The protocol focused on four dimensions:

exhibition layout and spatial narrative design;

presentation of archaeological artifacts and historical interpretation;

application of multimedia and immersive interactive technologies;

visitor interaction and engagement with exhibitions.

Field notes, photographs (where permitted), exhibition documents, and publicly available digital materials were collected to document the museum's storytelling practices. The observation results were subsequently coded according to the analytical

dimensions derived from Cultural Memory Theory and cross-media storytelling research.

Case Study Analysis

The research adopts a single-case study design, selecting the Zhengzhou Shang Dynasty Site Museum because of its representative role in integrating archaeological heritage with digital communication technologies.

Representative cross-media projects including digital exhibitions, immersive interactive installations, official social media content, online promotional campaigns, and cultural and creative products were selected according to three criteria:

1. relevance to Shang cultural heritage;
2. integration of multiple media platforms;
3. accessibility for observation and analysis.

Each case was analyzed from three perspectives:

narrative element integration;

cross-platform narrative structure;

contribution to the preservation, reconstruction, and dissemination of cultural memory.

Visitor Questionnaire Survey

To evaluate audience perceptions of cross-media storytelling, a visitor questionnaire survey will be conducted.

A convenience sampling

strategy will be employed by inviting visitors who have completed the museum exhibition to participate voluntarily. Approximately 200 valid questionnaires are expected to be collected, providing sufficient data for descriptive statistical analysis and comparison across visitor groups.

The questionnaire consists of five sections:

demographic characteristics (age, education, occupation);

museum visiting behavior;

evaluation of cross-media storytelling experiences;

perceived historical understanding and cultural identity;

memory retention, revisit intention, and willingness to share museum content.

Responses will be measured using a five-point Likert scale. The survey data will be analyzed using descriptive statistics, reliability analysis (Cronbach's alpha), and correlation analysis to examine relationships between visitors' perceptions of cross-media storytelling and indicators of cultural memory.

Data Triangulation

To improve the validity and credibility of the findings, this study adopts methodological triangulation by integrating evidence from literature review, field observation, case analysis, and visitor questionnaire data. Qualitative findings will be compared with quantitative survey results to identify consistent patterns and reduce potential researcher bias. This triangulation strategy enhances the robustness of the conclusions regarding how cross-media storytelling contributes to the reconstruction and transmission of Shang cultural memory.

Results

Cross-media Storytelling Strategies of the Zhengzhou Shang Dynasty Site Museum

1.Integration of Narrative Elements

The findings indicate that the Zhengzhou Shang Dynasty Site Museum constructs cross-media narratives by integrating archaeological artifacts, historical narratives, and Shang cultural symbols across multiple communication platforms. Rather than presenting artifacts as isolated museum objects, the museum embeds them within historical stories and symbolic interpretations, allowing audiences to understand both their historical significance and cultural meaning.

Digital technologies such as three-dimensional (3D) modeling, high-resolution visualization, and multimedia interpretation enhance visitors' cognitive engagement by enabling detailed observation of artifacts that are difficult to appreciate through conventional display methods. More importantly, these technologies transform audiences from passive recipients of historical information into active interpreters who explore relationships between artifacts, historical events, and cultural identity. Consequently, digital storytelling supports the reconstruction of cultural memory rather than merely improving information presentation.

2.Multi-platform Narrative Structure

The museum establishes an integrated storytelling ecosystem through the complementary operation of physical exhibitions and digital media platforms.

Offline exhibitions provide authentic spatial experiences and emotional immersion, while online platforms including the museum's official website, social media accounts, and digital exhibitions extend historical narratives beyond the museum visit. Rather than simply repeating exhibition content, different platforms contribute complementary narrative functions. Social media stimulates initial interest and public discussion, digital exhibitions provide deeper historical interpretation, and offline exhibitions offer authentic encounters with archaeological heritage.

This coordinated narrative structure encourages audiences to move continuously between online and offline experiences, facilitating an ongoing process of cultural learning and memory reconstruction instead of a single exhibition visit.

Mechanisms through Which Cross-media Storytelling Reconstructs Cultural Memory

Preservation of Cultural Memory

Digital technologies preserve Shang cultural heritage by transforming fragile archaeological materials into sustainable digital resources. However, the findings suggest that preservation extends beyond digital archiving. By organizing artifacts, historical documents, images, videos, and multimedia narratives into interconnected knowledge systems, the museum maintains the historical context necessary for future interpretation. Digital preservation therefore safeguards not only cultural objects but also the relationships among artifacts, historical events, and collective memory.

Transmission of Cultural Memory

Cross-media storytelling expands cultural memory transmission through differentiated communication channels that accommodate diverse audience needs.

Physical exhibitions promote experiential learning through direct engagement with archaeological remains, while digital platforms remove temporal and geographical barriers, allowing broader public access to Shang civilization. Interactive

communication through social media further enables visitors to discuss, reinterpret, and share museum narratives, transforming one-way information dissemination into participatory cultural communication.

As a result, audiences become active contributors to cultural memory rather than passive receivers of historical knowledge.

3. Innovation of Cultural Memory

The findings demonstrate that cultural memory innovation is achieved not simply through the application of new technologies but through the reinterpretation of historical heritage within contemporary communication environments.

Immersive technologies such as virtual reality (VR) and augmented reality (AR) reconstruct historical settings that allow visitors to experience aspects of Shang civilization from first-person perspectives. Interactive exhibitions, digital storytelling, and social media participation encourage audiences to interpret, discuss, and recreate historical narratives according to their own experiences.

This participatory process transforms cultural memory from static historical preservation into a dynamic and continuously reconstructed cultural practice. In Jan Assmann's terms, communicative memory generated through audience interaction is gradually institutionalized as enduring cultural memory, thereby strengthening cultural identity across generations.

Theoretical and Practical Contributions

Theoretical Contributions

This study extends the application of Jan Assmann's Cultural Memory Theory by demonstrating how cross-media storytelling functions as a mechanism for transforming archaeological heritage into collective cultural memory. Based on the Zhengzhou Shang Dynasty Site Museum, the research proposes an analytical framework linking narrative element integration, cross-platform storytelling, audience participation, and cultural memory reconstruction.

The findings therefore bridge the gap between Cultural Memory Theory and practical museum communication, contributing to museum studies, heritage communication, and transmedia storytelling research.

Practical Contributions

The study provides practical guidance for museums seeking to strengthen cultural communication through cross-media storytelling.

The findings suggest that effective museum storytelling requires not only technological innovation but also coordinated narrative design across multiple platforms and active audience participation. Museums should integrate exhibitions, digital media, social media communication, immersive technologies, and cultural and creative products into coherent storytelling systems that encourage audiences to participate in meaning-making and cultural memory reconstruction.

Discussion

1. Cross-media Storytelling as a Mechanism for Cultural Memory Reconstruction

The findings demonstrate that the cross-media storytelling practices of the Zhengzhou Shang Dynasty Site Museum extend beyond digital communication and function as an effective mechanism for reconstructing cultural memory. Consistent with Jan Assmann's Cultural Memory Theory, archaeological artifacts serve as material carriers of historical memory, while digital media provide new symbolic spaces in

which these memories are interpreted, transmitted, and reconstructed. Unlike traditional museum exhibitions that primarily emphasize the preservation and display of artifacts, the museum's integrated use of physical exhibitions, digital exhibitions, social media, immersive technologies, and cultural and creative products enables audiences to participate actively in historical interpretation. (Nora, 1989). Through this process, visitors move from passive observation to active meaning-making, thereby transforming communicative memory into more enduring forms of cultural memory. This finding supports the view that cultural memory is continuously reconstructed through social interaction rather than merely preserved as historical information.

2. Cross-media Storytelling Enhances Audience Participation

One of the major findings of this study is that audience participation constitutes the central mechanism linking cross-media storytelling and cultural memory reconstruction. Technologies such as three-dimensional (3D) visualization, virtual reality (VR), augmented reality (AR), and interactive social media do not simply improve the presentation of historical content; rather, they create opportunities for visitors to interpret, discuss, and share historical narratives. (Fu, Shao, 2021). This participatory communication model extends the temporal and spatial boundaries of museum experiences. Visitors continue interacting with museum narratives before, during, and after their physical visits through multiple digital platforms. Such continuous engagement strengthens historical understanding, emotional attachment, and cultural identity, demonstrating that effective museum communication depends not only on information dissemination but also on sustained audience participation.

3. Theoretical Contributions

This study contributes to museum communication research in three important ways.

First, it extends the application of Jan Assmann's Cultural Memory Theory to cross-media storytelling in archaeological museums. Previous studies have generally discussed cultural memory and museum communication separately, whereas this research demonstrates how Cultural Memory Theory can explain the design and effectiveness of transmedia museum narratives. (Huang, 2022). Second, the study develops an analytical framework that connects narrative element integration, cross-platform storytelling, audience participation, and cultural memory reconstruction. This framework provides a systematic explanation of how museums transform archaeological heritage into collective cultural memory through coordinated communication strategies. Third, the research shifts the focus of museum storytelling studies from technology-centered perspectives toward memory-centered communication. Rather than evaluating digital technologies solely according to their technical functions, the study demonstrates that their value lies in facilitating cultural interpretation, public participation, and identity construction.

4. Practical Implications for Museum Communication

The findings provide practical implications for archaeological museums undergoing digital transformation. Museums should regard digital media as components of integrated storytelling ecosystems rather than isolated promotional tools. Different communication platforms should perform complementary narrative functions while maintaining historical coherence and scholarly accuracy. Establishing interdisciplinary

teams that include curators, archaeologists, communication specialists, educators, and digital media designers can improve the planning and implementation of cross-media storytelling. (Wang, 2019). Furthermore, visitor analytics should be used to understand audience engagement patterns and optimize communication strategies. However, data-driven decision-making should support rather than replace professional historical interpretation. Curatorial expertise remains essential to ensuring the authenticity and integrity of cultural heritage narratives.

Limitations and Future Research

Several limitations should be acknowledged.

First, this study adopts a single-case design based on the Zhengzhou Shang Dynasty Site Museum. Although the museum represents an important example of archaeological heritage communication in China, the findings may not be directly generalizable to museums with different historical contexts, organizational structures, or communication strategies.

Second, the study focuses primarily on museum storytelling practices and visitor perceptions. Future research could incorporate longitudinal audience studies to examine how cross-media storytelling influences cultural identity and memory retention over time.

Third, while this research combines qualitative analysis with visitor surveys, future studies may employ comparative case studies, social network analysis, digital ethnography, or experimental research to investigate the effectiveness of different cross-media storytelling strategies across diverse museum contexts.

Overall, this study demonstrates that cross-media storytelling is not merely a technological innovation but a cultural communication mechanism that reconstructs collective memory through coordinated narratives, audience participation, and digital heritage practices. As museums continue their digital transformation, integrating Cultural Memory Theory into cross-media storytelling offers a promising pathway for strengthening cultural identity, enhancing public engagement, and ensuring the sustainable transmission of archaeological heritage.

Knowledge Contribution

This study generates new knowledge by advancing the theoretical understanding of cross-media storytelling in archaeological museums and demonstrating how Cultural Memory Theory can be operationalized in museum communication practice. The contributions extend beyond describing the Zhengzhou Shang Dynasty Site Museum and offer broader implications for museum studies, heritage communication, and digital storytelling.

1.A New Analytical Perspective on Cross-media Storytelling

Existing studies primarily examine museum cross-media storytelling from the perspectives of digital technology, communication strategies, or media convergence. This study introduces Jan Assmann's Cultural Memory Theory as the central analytical framework, demonstrating that cross-media storytelling is not merely a communication technique but a mechanism for reconstructing collective cultural memory.

The research reveals that the effectiveness of cross-media storytelling depends not only on technological innovation but also on the integration of narrative elements, coordinated multi-platform storytelling, and audience participation in meaning-making.

This perspective shifts scholarly attention from technology-centered analysis to memory-centered communication.

2.A Mechanism Explaining Cultural Memory Reconstruction

A major contribution of this study is the identification of the mechanism through which cross-media storytelling reconstructs cultural memory.

The findings indicate that archaeological artifacts function as memory carriers, while digital media provide platforms for interpretation and interaction. Through coordinated storytelling across physical exhibitions, digital platforms, immersive technologies, and social media, visitors move from passive observation to active participation in interpreting historical narratives. This participatory process enables communicative memory to be transformed into enduring cultural memory, thereby strengthening collective identity and historical consciousness.

Accordingly, this study proposes the following mechanism:

Narrative Element Integration → Cross-platform Storytelling → Audience Participation → Cultural Memory Reconstruction → Cultural Identity Formation

This mechanism provides a theoretical explanation for how digital museum communication contributes to long-term cultural heritage transmission rather than simply increasing information accessibility.

3.An Integrated Theoretical Framework for Museum Communication

This research bridges the gap between Cultural Memory Theory and museum cross-media storytelling by developing an integrated analytical framework that connects cultural memory, narrative design, media integration, and audience engagement.

The framework offers a systematic approach for analyzing how museums organize historical narratives across multiple communication channels while maintaining narrative coherence and cultural continuity. It therefore extends the application of Cultural Memory Theory beyond traditional historical and sociological research into the fields of museum communication and digital heritage studies.

4 Practical Knowledge for Digital Heritage Communication

Beyond its theoretical contributions, this study provides transferable knowledge for museums implementing cross-media storytelling strategies.

The findings suggest that successful digital heritage communication depends on the coordinated design of narrative content, differentiated media functions, immersive visitor experiences, and opportunities for audience participation. Rather than treating digital media as promotional tools, museums should develop integrated storytelling ecosystems that encourage visitors to participate actively in the reconstruction and transmission of cultural memory.

These principles provide practical guidance for archaeological museums seeking to enhance public engagement, strengthen cultural identity, and improve the sustainability of cultural heritage communication in the digital era.

Conclusion

The findings demonstrate that the Zhengzhou Shang Dynasty Site Museum employs cross-media storytelling by integrating archaeological artifacts, historical narratives, and Shang cultural symbols into a unified narrative system across physical exhibitions and digital platforms, enabling visitors to understand both the historical significance and cultural meaning of the artifacts. Digital technologies, including 3D

modeling, high-resolution visualization, multimedia interpretation, virtual reality (VR), and augmented reality (AR), enhance cognitive engagement, immersive experiences, and audience participation by transforming visitors from passive recipients of information into active interpreters and co-creators of cultural meaning. The museum's coordinated use of offline exhibitions, official websites, social media, and digital exhibitions creates a complementary storytelling ecosystem in which each platform fulfills distinct narrative functions, encouraging continuous interaction between online and offline experiences and supporting ongoing cultural learning. Cross-media storytelling contributes to the preservation of cultural memory by digitally safeguarding not only archaeological objects but also their historical contexts and interrelationships, while expanding the transmission of cultural memory through accessible, participatory communication channels that overcome temporal and geographical limitations. Audience interaction further stimulates the reinterpretation and recreation of historical narratives, transforming cultural memory into a dynamic and continuously evolving cultural practice that reinforces collective identity across generations. The study extends Jan Assmann's Cultural Memory Theory by proposing an analytical framework that connects narrative integration, cross-platform storytelling, audience participation, and cultural memory reconstruction, thereby bridging theoretical perspectives with practical museum communication. It also offers practical implications by emphasizing that successful museum storytelling depends not only on technological innovation but also on coherent narrative design, coordinated use of multiple media platforms, immersive experiences, and active public participation to foster meaningful engagement and sustainable cultural memory reconstruction.

Recommendation

Based on the findings of this study, the following recommendations are proposed for museums seeking to strengthen cross-media storytelling and cultural memory communication.

1. Develop Integrated Cross-media Storytelling Strategies

Museums should move beyond using digital media primarily for promotional purposes and instead establish integrated storytelling strategies centered on historical narratives. Narrative content should connect archaeological artifacts, historical events, and cultural symbols into coherent stories that unfold across multiple communication platforms.

Different platforms should perform complementary rather than repetitive functions. For example, short-video platforms (e.g., Douyin/TikTok) can introduce key historical themes through concise visual storytelling to attract younger audiences, while the museum's official website and digital exhibitions can provide comprehensive historical interpretation, educational resources, and scholarly materials. This coordinated strategy strengthens narrative continuity and encourages audiences to progress from initial interest to deeper cultural engagement.

2 Establish Institutional Mechanisms for Transmedia Communication

To ensure sustainable implementation of cross-media storytelling, museums should establish dedicated organizational structures, such as a Transmedia Narrative Department or an interdisciplinary digital heritage team.

Such teams should include museum curators, archaeologists, communication specialists, digital designers, educational staff, and data analysts. Their responsibilities should include:

- coordinating storytelling across online and offline platforms;
- maintaining narrative consistency across media;
- evaluating audience engagement;
- ensuring that digital innovation remains historically accurate and academically rigorous.

Institutional coordination will improve communication efficiency while preserving the authenticity of archaeological heritage.

3 Utilize Data Analytics to Support Evidence-based Storytelling

Museums should employ visitor analytics and digital engagement data to optimize storytelling strategies while maintaining historical integrity.

Rather than allowing algorithms to determine historical content, audience data should be used to identify:

- which historical themes generate sustained visitor engagement;
- where visitors discontinue digital interactions;
- which media formats are preferred by different demographic groups;
- which educational resources promote longer learning experiences.

These insights can guide adjustments to narrative sequence, media presentation, and visitor interaction without altering the historical evidence or scholarly interpretation of archaeological materials. Historical accuracy should always remain under the supervision of museum curators and subject specialists.

4 Deepen the Application of Cultural Memory Theory

Future museum communication should incorporate Cultural Memory Theory not only as an interpretive framework but also as a practical guide for narrative design.

Storytelling should emphasize symbolic meanings, ritual practices, and collective identity embedded within archaeological heritage rather than focusing solely on artifact description. Interactive exhibitions, virtual reality (VR), augmented reality (AR), digital games, and participatory social media activities should encourage audiences to interpret, discuss, and reconstruct historical meanings, thereby transforming cultural memory into an active social process.

5 Promote Comparative and Interdisciplinary Research

Future studies should expand beyond single-case analyses by comparing archaeological museums with different historical backgrounds, communication strategies, and audience groups.

Interdisciplinary collaboration among museum studies, communication, archaeology, digital humanities, cultural studies, computer science, and data science can generate more comprehensive analytical frameworks. Such collaboration will facilitate the development of innovative methodologies for evaluating audience engagement, narrative effectiveness, and cultural memory reconstruction within digital heritage communication.

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