

Article

Cultural Narratives in Augmented Reality: Enhancing Interactivity and Accessibility in the Salt Ritual

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Abstract: In Taiwan, salt serves as a sacred medium that connects the human and spiritual realms, warding off misfortune and inviting good fortune. The Nankunshen Daitian Temple hosts an annual salt ritual, a cultural event that intertwines local traditional industries with religious practices. However, the cultural significance of the ritual can be difficult for the general public to understand due to its intricate procedures. This research aims to simplify the complex ritual processes through visual narratives, making it easier for visitors to understand the procedures and essence of the salt ritual. The research team gathered historical and cultural information about the ritual using a comprehensive methodology that included a literature review, field investigations, and semi-structured interviews. A two-line narrative approach was employed to reconstruct the cultural narrative of the ritual process through augmented reality applications on mobile devices. Research indicates that presenting cultural content via an interactive two-line narrative enhances narrative flow, transforming the audience from passive viewers into active explorers. In conclusion, the narratives provide audiences with diverse perspectives, increasing their understanding and willingness to engage in the salt ritual. To ensure clarity and maintain comprehensibility, the structure and content design of the narrative must be more rigorous.

Keywords: Salt ritual, Augmented reality, Two-line narrative

1. Introduction: The Folk Culture and Religious Significance of Salt

In the trajectory of human civilization, salt has remained one of the most essential seasonings and preservatives. In agrarian societies, its significance extended beyond mere food preservation, becoming integral to community survival and development. In Taiwanese culture, salt transcends its role as a daily necessity, embodying rich folkloric meanings and spiritual symbolism. Within traditional belief systems, salt is imbued with sacred properties, including purification, apotropaic functions, and protective qualities (Fu-Ming, Meng-Mei, Chiung-Chiao, & Chun-Yu, 2009).

Beginning in the third year of the Jiaqing period (1798) of the Qing Dynasty, salt farmers began to expand coastal salt flats to increase production in response to market demand. The salt farmers in the ‘Nankunshen’ (南鯤鯓) area gradually became devoted followers of ‘Kungshen Wangye’ (鯤鯓王). Due to the deep religious connection between the Nankunshen Daitian Temple and the salt farmers, the ‘Kungshen Wangye’s Salt for Peace Festival’ (南鯤鯓平安鹽祭) has been held annually since 2004, merging the worship of Kungshen Wangye with salt culture (Huang, 2022). The ritual structure of the Salt for Peace Festival consists of three main stages: the Invocation of Salt, the Sacred offering of salt, and Thanksgiving for salt. These three ritual phases symbolize the quest for divine blessings, the veneration of the sanctity of salt, and the expression of gratitude to both deities and salt. This structure fully embodies the significance of salt in religious beliefs and everyday life, while also reflecting the interactions between humans, nature, and divine spirits.

During the “Invocation of salt” stage, salt is imbued with sacred significance, serving as a bridge that connects humans and deities. This stage reflects the deep reverence that traditional agricultural societies hold for both nature and the divine. The “Sacred offering of salt” stage constitutes the heart of the entire ritual, where salt is elevated to an almost sacred status, acting as an intermediary that links humans, nature, and divine spirits. This stage embodies the dialectical unity of the material and the spiritual within traditional culture. In the final stage, the “Thanksgiving for salt” stage, salt transforms into a symbol of blessing, with ritual participants reaffirming the reciprocal relationship between humans, nature, and divine spirits. This component transcends a mere religious ceremony; these three ritual stages collectively form a cultural narrative that illustrates the multifaceted meanings of salt in Taiwanese folk beliefs. They create an imagined community through shared symbols (Anderson, 1983) while also representing the inheritance and reconstruction of cultural memory.

Eliade (1987) identified that the experience of space, which transforms property from the profane to the sacred, consists of three stages: interruptions, break effected, and fixed point. The first stage involves interruptions in experience; the second stage pertains to the mystical intervention that occurs during the break effected, such as the conversion stage during the progression of experience. Finally, the last stage involves finding a fixed point within this sacred space. According to Bowie's (Bowie, 2006) ritual theory, which emphasizes the symbolic significance and cultural interpretation of rituals, the ritual process is divided into three phases: Preliminal, Liminal, and Postliminal. These phases represent participants' transition from the everyday state to the sacred state, their experience within the sacred state, and their process of returning from the sacred state to daily life. Simply stated, the preliminal stage corresponds to separation, the liminal stage corresponds to transition, and the postliminal stage corresponds to incorporation.

In this study, we correlate the three stages of the Salt for Peace Festival with the three phases of liminality theory, as shown in Fig. 1. The "Invocation of salt" corresponds to the "Preliminal" phase. During this phase, participants symbolically detach from their secular roles in daily life through specific ritual behaviors, entering a transitional state that prepares them to connect with the sacred realm. This stage signifies the separation between ritual participants and their everyday existence. The "Sacred offering of salt" corresponds to the "Liminal" phase. During this stage, salt is imbued with profound religious significance, serving as a medium that connects humans and deities. Participants exist in a unique, ambiguous state that bridges the secular and the sacred. The "Thanksgiving for salt" corresponds to the "Postliminal" phase. In this stage, participants conclude their interaction with the divine and return to their daily lives, carrying divine blessings. This phase marks a transformation in the participants' identities, as they embrace new faith and gain the strength to approach life with a more positive perspective.

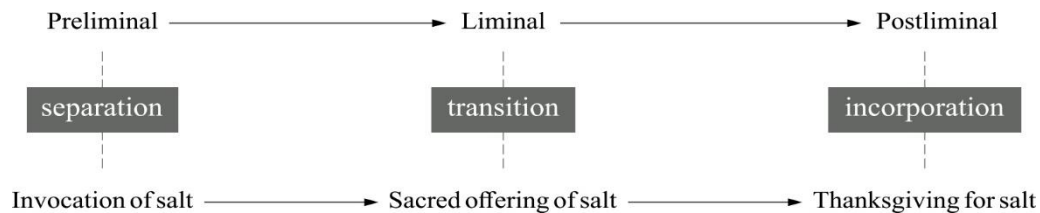


Fig. 1. The three stages of the Salt for Peace Festival "Invocation of salt, Sacred offering of salt, and Thanksgiving for salt" correspond to the "Preliminal, Liminal, and Postliminal" phase.

2. Methodology and data Analysis

This study employs a multi-methodological approach to investigate the religious implications and cultural significance of the Kungshen Wangye's Salt for Peace Festival at Nankunshen Temple. The research methodology consists of three primary components: a systematic literature review, semi-structured in-depth interviews, and fieldwork observations.

Firstly, through an extensive literature review, the research team gathered a diverse array of materials related to the Salt for Peace Festival. These materials encompass the history of salt field development, the surrounding ecological environment, the historical evolution of the Salt for Peace Festival, and the specifics of its rituals, thereby establishing a foundational framework for the study. In the second phase, semi-structured interviews were conducted to gain deeper insights into the cultural background, traditional production methods, religious significance, and ecological context of the 'Jingzaijiao' (井腳仔) Salt Fields. The interviewees primarily consisted of salt field managers, and the interview process was recorded mainly through video, supplemented by images and written notes. Prior to conducting in-depth interviews, the research team developed an interview guide to enhance the comprehensiveness of the data. By incorporating the interviewees' perspectives and anticipating logical gaps in the data (Patton, 1990). This study provides a complete transcription of the images and raw data from the interviews to ensure that both the verbal and non-verbal aspects of the experts' expressions are preserved. The transcribed content undergoes open coding to identify vocabulary, concepts, and cultural symbols associated with the salt festival rituals. The emphasis is on the experts' interpretations of the ritual process, the cultural symbolic meanings, and the historical context.

The third phase focused on fieldwork observations conducted at the Kungshen Wangye's Salt for Peace Festival. Researchers employed the participant observation method, actively engaging in the festival to observe and document the entire process. Key aspects of the observation included:

- (1) Ritual space configuration: This involves the planning and arrangement of the venue, as well as an exploration of the symbolic meanings associated with different spaces, including the distinction between sacred and secular areas.
- (2) Ritual process and steps: This section outlines the sequence of activities involved in the ritual, analyzing the cultural significance and purpose of each step.
- (3) Ritual artifacts: An investigation into the functions and symbolic meanings of instruments used in rituals.
- (4) Participants' interaction patterns: Analyzing the status and responsibilities associated with various roles within the ritual.

(5) Crowd Behavior Patterns: Observing the behaviors and interaction methods of individuals within crowds during ritual participation.

During the fieldwork observations, researchers employed notes, photographs, and videos to meticulously document their findings. Special emphasis was placed on capturing the interactions among participants and the shifts in atmosphere during the ceremonies. Through on-site observation, researchers were able to thoroughly document and understand the cultural essence, ritual context, and significance of the festival within local religious practices.

3. Cultural Imagery Narratives: The Integration of Augmented Reality and Two-line Narrative

UNESCO defines Intangible Cultural Heritage (ICH) as forms of cultural expression that encompass oral traditions, performing arts, social practices, rituals, and festive events (UNESCO, n.d.). This research utilizes Kungshen Wangye's Salt for Peace Festival at Nankunshen Daitian Temple as a case study of ICH and draws upon Huizinga's (2008) theory, which posits that culture fundamentally originates from forms of play and evolves through playful behavior. Within our cultural systems, various domains such as law, religion, politics, and science have all emerged from playful actions. Once the rules of play are clearly defined, they transform into binding social norms. Therefore, exploring the interplay between play and culture offers a novel interpretive perspective for designing cultural experiences.

In the field of Cultural Heritage (CH), Augmented Reality (AR) technology is employed to enhance visitor experiences, reconstruct historical scenes, digitally preserve cultural artifacts, and vividly recreate historical events. With its immersive and interactive features, AR bridges the gap between users and traditional culture (Boboc, Bautu, Gîrbacia, Popovici, & Popovici, 2022). Augmented Reality technology creates a mixed reality that enables users to maintain a comprehensive view of their real environment while seamlessly integrating virtual elements (Azuma, 1997). By overlaying multi-sensory information—such as visual and auditory elements—AR creates immersive experiences that offer a stronger sense of presence compared to traditional text-based approaches. (Tussyadiah, Jung, & Dieck, 2018). Furthermore, AR not only embodies the core characteristics of games—such as interactivity, immersion, and goal orientation—but is also gradually emerging as a new narrative tool. AR operates in accordance with Huizinga's concept of the "Magic Circle," overlaying virtual information onto the real world to create an interactive space that merges reality and virtuality, thereby expanding the scope of the "Magic Circle" (Salen & Zimmerman, 2003). This innovation allows narratives to transcend closed systems, occurring synchronously with reality in open spaces, ultimately redefining users' experiential modes and patterns of participation.

Looking ahead, the applications of augmented reality technology in cultural heritage are gradually evolving from a unidirectional presentation of information to more experiential domains characterized by social interactivity. Recent research indicates that Social Augmented Reality (SAR) can effectively simulate the co-viewing experience of physical exhibition visits. This technology enables multiple users to synchronously manipulate cultural heritage models, engage in voice conversations, and make annotations within the same virtual scene, thereby enhancing social presence and engagement (Ch'ng, Cai, Feng, & Cheng, 2023). When participants perceive the presence and real-time responses of others, it not only fosters emotional exchange and knowledge sharing but also strengthens their understanding of cultural meanings and aids in memory construction. Such multi-user interactive scenarios redefine exhibition modes and underscore the potential for social connection that AR technology offers in cultural communication.

This study integrates AR technology with the concept of two-line narratives to design an interactive poster that presents the complete ritual process of the Kungshen Wangye's Salt for Peace Festival. The two-line narrative structure allows for the simultaneous unfolding of two independent storylines, often featuring different sets of characters that develop concurrently. These narratives may consist of intersecting or non-intersecting lines (Shen, 2023). Two-line narratives can create dramatic contrasts and enhance thematic parallels between distinct plotlines. Ultimately, these narrative lines may converge or remain separate while generating meaningful contrasts (Thompson & Bordwell, 2012).

To implement this narrative model, this study employs the Artivive mobile application to create an interactive augmented reality experience. The platform employs image recognition technology to identify specific visual targets and instantly overlay digital content. By utilizing a markerless tracking approach that eliminates the need for QR codes or additional markers, it effectively preserves the visual integrity of the original artwork. The platform supports various multimedia formats—including videos, animations, and audio—and offers stable image tracking and real-time rendering capabilities, providing users with a more immersive and interactive experience. By combining digital interactivity with the seamless integration of virtual and physical elements, this solution is well-suited for professional applications in cultural heritage exhibitions. It also applies to the preservation and presentation of intangible cultural heritage, enhancing audience engagement and emotional resonance.

Although existing AR technology has been widely applied in the cultural industry, most applications still rely on single-point triggering for interaction, which limits the development of multi-linear narratives and real-time user engagement. Narrative design through animated characters is employed to empower users with selective interaction capabilities, enabling them to navigate between

different ritual stages and narrative axes. This visual cue-based operational approach aims to create more dynamic narrative experiences within technological constraints, effectively enhancing users' perception and engagement with traditional ritual connotations.

The overall narrative structure revolves around the three main ritual stages of the Salt Festival: "Invocation of salt (A)," "Sacred offering of salt (B)," and "Thanksgiving for salt (C)." The vertical axis illustrates the temporal sequence of the ritual, progressing from top to bottom. Each stage comprises three interactive posters. The central poster (A-1, B-1, C-1) showcases the core imagery associated with the corresponding ritual stage. When users scan the central image, an animated short film is activated, initiating the narrative for that stage. Within the animation, a character guides the user to make a choice: to the left, exploring ritual details (A-2, B-2, C-2), such as ceremonial procedures and spatial configurations; or to the right, delving into cultural symbolism (A-3, B-3, C-3), which encompasses religious beliefs and the relationship between humans, nature, and deities. The narrative paths on both the left and right sides—"ritual detail" and "cultural interpretation"—create a selective two-line narrative structure that allows users to choose their viewing sequence based on their personal interests. Through interactive exploration, users cultivate a personalized understanding of the cultural content. The flow of this two-line narrative interaction is illustrated in Fig. 2.

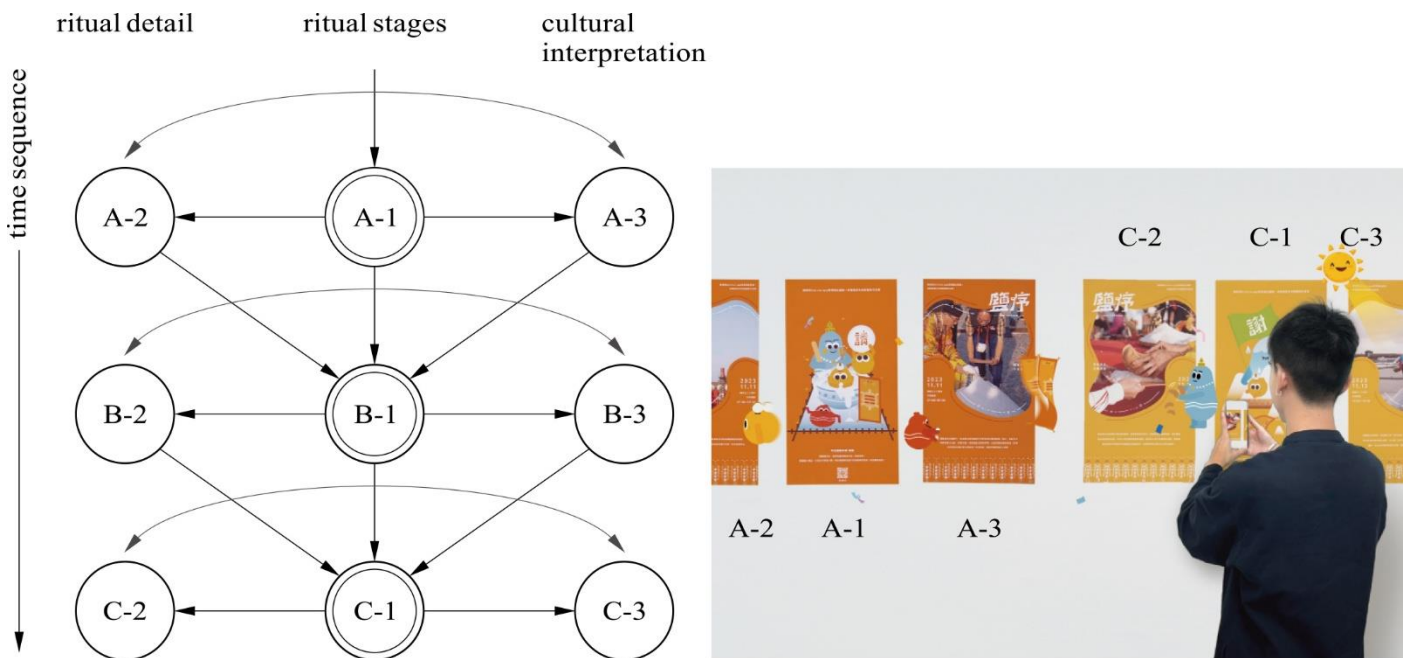


Fig. 2. Two-line narrative interaction flowchart. The three-stage ritual structure is centered around key nodes that represent the animation trigger points activated by image scanning. The left and right branches correspond to the ritual details and cultural interpretations.

Based on the design principle of Linear Structure Variation, this two-line selection mechanism empowers users by giving them a sense of agency within a defined set of options. Users can determine their own viewing sequence based on personal interests or seamlessly switch between narrative lines, thereby creating a personalized viewing experience. This interactive design aligns with Huizinga's (2008) perspective that culture is driven by play, transforming users from passive viewers into active participants.

4. Discussion

This study employs augmented reality (AR) technology to expand cultural contexts by integrating the Salt for Peace Festival at Nankunshen Daitian Temple into a narrative framework that enhances local specificity and immersive engagement. Unlike most previous AR applications in museums or religious sites, which primarily focus on knowledge supplementation, artifact guidance, or site reconstruction, these experiences often depend on unidirectional, linear narratives with limited user interaction.

To overcome the limitations of linear storytelling, this research employs a two-line narrative strategy, constructing two parallel narrative paths: one focused on ritual procedures and the other on cultural meanings. Guided by animated characters and visual cues, users are invited to navigate the content according to their interests and preferences. This design reflects Huizinga's concept of the play element of culture—cultural actions that express autonomy within a framework of established rules—thereby embodying a model of freedom within limited choice.

From a technical perspective, the transmission and representation of culture are closely linked to symbolic systems. AR technology enables the transformation of static cultural symbols into interactive and dynamic experiences. Through AR, symbolic imagery can be presented with simulated, contextual interactions that revive and reanimate their cultural significance. This process of cultural activation reestablishes the connection between cultural symbols and playful behavior, reinforcing the participatory and interactive nature of heritage experiences.

In visual storytelling, the use of visual cues and character guidance enables viewers to become active participants. By enabling free switching between two narrative paths, users can explore content based on their interests, fostering a multifaceted understanding of ritual meanings, symbolic systems, and spiritual contexts. This approach not only enhances user engagement and immersion but also deepens their comprehension of ritual procedures and symbolic significance.

To systematically analyze users' interactive experiences and feedback, this study employs Thematic Analysis. Following Braun and Clarke's (2013) six-phase process—familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and writing up—the research team inductively identified three key thematic dimensions: technical application, visual design, and cultural understanding. Regarding technical application, most participants reported that the augmented reality (AR) experience enhanced narrative appeal and encouraged deeper cultural engagement. In terms of visual design, the integration of character guidance and contextual simulation effectively stimulated interest in traditional culture and fostered emotional resonance, thereby bridging the emotional distance between users and the narrative content. Concerning cultural understanding, this interactive narrative approach not only facilitated comprehension of ritual processes but also guided users to approach the experience from the perspective of cultural subjectivity, enabling them to perceive the belief systems and social values embedded in the rituals.

5. Conclusion

This study focuses on the Salt for Peace Festival at Nankunshen Daitian Temple as a central case to explore the potential of integrating intangible cultural heritage into digital storytelling through the application of Augmented Reality (AR) technology and a two-line narrative strategy. By implementing and observing this narrative framework, the research demonstrates that AR, as a mediating technology, has the potential to disrupt traditional linear narrative structures and reshape cultural experiences. Users can autonomously switch between two narrative lines, transforming cultural content delivery from passive knowledge transmission into active cultural participation.

At the level of interactive design, the two-line narrative method creates dual exploratory pathways—one focusing on ritual phases and the other on cultural interpretation—allowing users to engage in meaningful interactions within a limited set of choices. This process helps construct layered understandings of ritual practices, symbolic systems, and belief contexts. With the aid of visual cues and animated characters, users navigate the three ritual stages of the festival and make decisions accordingly, transitioning from observers to participants. This design reflects Huizinga's concept of play as a cultural act that demonstrates creativity and autonomy within a set of rules, embodying a balance between structure and freedom in interactive media. Rather than fully decentralizing the narrative, this approach employs character-driven guidance and visual prompts to reorganize the relationship between the cultural subject and the narrative space, balancing order and reinterpretation.

In conclusion, this research demonstrates that combining AR technology with a two-line narrative strategy not only serves as a tool for cultural representation but also enhances accessibility and resonance with cultural meanings. However, there are several limitations. First, the technical constraints of AR restrict the complexity of interactions, making multi-user collaborative experiences difficult to achieve. Second, the study focuses exclusively on a single Taiwanese cultural case, necessitating cross-cultural validation to assess the framework's applicability to other ritual traditions. Third, the long-term effects of digital cultural experiences on actual cultural participation remain underexplored. Future research could further develop a theoretical framework for playful narrative by investigating how digital storytelling mechanisms contribute to meaning-making, memory construction, and identity formation across diverse cultural contexts. This approach would offer more open and in-depth interpretive perspectives for digital humanities research and cultural preservation.

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