

Revitalizing Non-Popular Destinations as Digital Information Systems: An LIS Perspective on AR Gamification, Information Engagement, and Generation Z's Visit Intentions

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Abstract

Based on the Tri-component Attitude Model, this study explores the antecedents of Generation Z tourists' actual visit intention in the context of augmented reality (AR) gamified tourism experiences at non-popular scenic spots in China. The research investigates the impact of gamification (stimulus) and psychological factors (flow, enjoyment, destination knowledge, and place attachment) on actual visit intention (response). This study aims to investigate the AR-gamified tourism phenomena from a digital perspective, particularly as a mediated information system, supporting the retrieval, communication, and sense-making as well as cognitive engagement processes. A scenario-based quantitative study was conducted, where 360 adult Generation Z tourists with prior AR experience viewed a high-fidelity AR video simulation before completing an online questionnaire. Data were analyzed using SmartPLS. Results indicate that gamification significantly enhances flow and enjoyment. Subsequently, enjoyment and flow positively influence destination knowledge and place attachment. Crucially, the findings reveal that place attachment serves as a potent driver, alongside

destination knowledge, in directly promoting actual visit intention. As a result, further reaches of LIS theory were demonstrated due to the immersion of the adaptable, ICT-based environment that transforms a destination into an interactive information repository, changing the information behavior of individuals along with knowledge-based decision making.

Keywords: Augmented Reality, Gamification, Information Behavior, Digital Information Systems, Communicative Sense-Making, Cognitive Information Engagement, Generation Z.

Introduction

The tourism industry faces critical challenges, particularly in non-popular scenic areas where low visibility and declining tourist interest have significantly impacted local economies (Döringer et al., 2020). To address this, Augmented Reality (AR) has emerged not only as an on-site experiential tool but also as a transformative marketing strategy (Flavián et al., 2019; Tom Dieck and Han, 2022). By overlaying digital gamification onto real-world environments, AR can vividly showcase a destination's unique appeal to potential tourists before they even visit, thereby bridging the gap between digital engagement and physical footfall.

As competition intensifies, destinations must innovate to captivate tourists' attention remotely. AR gamification, which integrates game elements into non-game contexts, offers an immersive "preview" of the destination (Deterding, 2011). Game-based reward

mechanisms and immersive narratives allow users to experience the fun of a destination virtually, fostering emotional connections and driving actual visit intention (Xu et al., 2017). Empirical studies indicate that such gamified previews not only increase destination knowledge (Jo and Shin, 2025) but also effectively stimulate the desire to explore the site physically (Lacka, 2020). Moreover, the research pertaining to the digital marketing field showcases the research novelty of AR (Shah et al., 2025; Shah et al., 2024).

This study focuses on Generation Z (born 1997–2012), a pivotal demographic in the tourism market known for their preference for interactive and personalized experiences as digital natives (Gretzel et al., 2015; Xu et al., 2017). This cohort seeks uniqueness and authentic interactivity, which significantly influences their emotions and electronic word-of-mouth (Buhalis and Karatay, 2022; Lam et al., 2025). Research suggests that Generation Z expects high-quality, gamified interactions in virtual settings (Komarac and Ozretić Došen, 2024), and providing experiences such as collaborative battles or virtual rewards is essential for enhancing their engagement. Consequently, Generation Z views gamification as a key driver of appeal in cultural tourism, emphasizing sustainability and personalization (Buhalis and Karatay, 2022).

Despite the growing attention on AR, significant research gaps remain. Existing literature predominantly focuses on the post-arrival satisfaction of tourists at museums and heritage sites (Han et al., 2021; Jo and Shin, 2025), leaving the pre-visit marketing potential of AR gamification for non-popular attractions largely underexplored. Furthermore, there is a scarcity of systematic research on how Generation Z's simulated or virtual AR experiences translate into actual visit intention. Previous studies have often overlooked how AR can serve as a “teaser” to convert digital audiences into real-world visitors.

To bridge these gaps, this study utilizes the Tri-component Attitude Model to explore: (1) How does the AR gamified experience (as a marketing stimulus) affect Generation Z's destination knowledge, emotional connection, and actual visit intention? and (2) What are the preferences of Generation Z for these AR tourism experiences? Practically, it offers innovative strategies for destination managers to use AR as a promotional tool to revitalize non-popular attractions.

Thus, this research situates AR-gamified tourism not merely as a promotional tool for destination marketing but as a usable digital information system

that reframes the triad of challenges of library and information science: information access, information interpretation, and information interaction.

The redefinition under consideration is in line with the recent developments in Library and Information Science (LIS) that consider immersive technologies the socio-technical information systems that enable cognitive processing, sense-making, and knowledge construction in a variety of contexts (Huvila and Gorichanaz, 2025). In the African and Global South contexts, where digital infrastructure is heterogeneous, the understanding of AR gamification as an ‘interactive information repository’ with cultural heritage sites, museums, and tourism boards, who often need to do a great deal with a modest budget, is invaluable. By illustrating the digital gamified interfaces as mediators of information (destination knowledge) and sense-making communication (place attachment) and of the behavioral intention (visit intention), this study contributes to the LIS framework in immersive tourism and addresses the need for digital innovation relevant to the context (Bawden and Robinson, 2020).

Literature Review

Tri-Component Attitude Model

This study employs the Tri-component Attitude Model to investigate how emotional responses triggered by AR games influence tourists' attitudes toward destinations, thereby addressing the limitations of previous studies. The model encompasses three dimensions: cognition, emotion, and behavior, emphasizing the dynamic interaction among them (Adam et al., 2023; Makanyeza et al., 2016). In the context of AR gamified tourism marketing, the cognitive component involves the understanding of AR functions or safety features; the emotional component reflects states such as immersion or enjoyment; and the behavioral component is manifested as the actual visit intention towards the destination (Agyeiwaah et al., 2021; Jo and Shin, 2025).

Previous research supports this framework. For instance, Adam et al. (2023) demonstrated that emotional responses during the pandemic affected travel intentions through cognition. Agyeiwaah et al. (2021) noted that backpackers' cognitive motivations and emotions drive sustainable behaviors. Similarly, Han (2020) emphasized that emotions (such as pride) promote green consumption, while Lee et al. (2022)

found that sustainable intelligence influences protective behavior through cognitive-emotional pathways. Sun and Hou (2021) also indirectly supported the model's application in sustainable tourism behaviors.

Furthermore, Makanyeza et al. (2016) verified that emotional attitudes are driven by cognitive values. In the specific context of AR gamification, Jo and Shin (2025) confirmed that cognition (destination knowledge) and emotion (place attachment) significantly promote visit intention. Thus, the Tri-component Attitude Model provides robust theoretical support for analyzing how AR technology enhances gamified tourism marketing and drives actual visit intention.

AR-Gamified Tourism as Information System

From a library and information science perspective, augmented reality (AR) gamified tourism can be conceptualized as an applied digital information system that mediates information access, sense-making, and knowledge construction. Rather than treating destinations solely as physical or experiential entities, this study conceptualizes destinations as information repositories whose symbolic, narrative, and contextual data are accessed and interpreted through ICT-enabled interfaces. However, AR is focusing on international and behavioral data collection considering consumer privacy in digital information environments (Ahmad and Khan, 2024). This framing aligns with LIS scholarship that defines information systems as socio-technical environments facilitating information acquisition, meaning construction, and cognitive engagement (Buckland, 1991; Hjørland, 2016; Huvila and Gorichanaz, 2025). Furthermore, users' proficiency in ICT plays very critical intermediary role that signifies engagement and performance outcomes (Basir et al., 2023).

Gamification in the Tourism Industry

Gamification refers to the application of game design elements in non-game contexts to enhance user participation and interactive experiences, emerging as a pivotal strategy for the tourism industry to enhance its appeal (Deterding et al., 2011; Pradhan et al., 2023). By leveraging information and communication technologies (ICT), such as smartphones, gamification transforms the tourism experience into dynamic and participatory activities (Pradhan et al., 2023; Xu et al., 2021). It attracts Millennials and Generation Z through mechanisms like points, rewards, challenges, and social interactions, thereby promoting deep

connections with destinations (Malik et al., 2024; Skinner et al., 2018).

Typical applications include geocaching and letterboxing. Treasure hunting games utilize GPS positioning to guide tourists in searching for "treasures," such as the Pentati Pirate Trail on the Greek island of Corfu, which stimulates a sense of belonging (Skinner et al., 2018; Xu et al., 2013). Mailbox games enhance fun and satisfaction by finding stamps through clues, exemplified by the Kim Nyeong Maze Park on Jeju Island, South Korea (Kim et al., 2021). Online travel platforms (OTAs), such as Booking.com's "Genius" program and Airbnb's "Superhost" badge, enhance user engagement through points and badges (Malik et al., 2024). Mobile games like REXplorer in Regensburg, Germany, promote on-site experience co-creation through treasure hunting (Xu et al., 2021). Furthermore, gamification fosters positive tourism behaviors through reward mechanisms (Jo and Shin, 2025; Negrușă et al., 2015).

Although gamification holds significant potential, it faces challenges such as insufficient technical infrastructure (Skinner et al., 2018; Xu et al., 2013). However, the ubiquity of mobile devices and the success of "Pokémon GO" highlight the opportunity to attract young tourists (Jo and Shin, 2025; Serino et al., 2016). Gamification enriches experiences through intrinsic motivations (such as social interaction and challenges) and extrinsic motivations (such as rewards), effectively promoting brand awareness and driving the intention to visit (Çeltek, 2010; Xu et al., 2013). By providing a "taste" of the destination's fun through digital channels, gamification acts as a powerful motivator for potential tourists.

Existing research confirms that players of AR games like Pokémon GO already possess high receptiveness to gamified mechanics (Williams and Slak-Valek, 2019). Therefore, targeting this experienced demographic allows for a more precise assessment of how AR gamification can be strategically redirected to revitalize non-popular destinations.

AR in Tourism Industry

Augmented Reality (AR) technology serves not only as an on-site experiential interface but also as an innovative marketing tool for the tourism industry by superimposing virtual content onto the real environment (Azuma et al., 2002). AR applications encompass virtual tours, interactive interpretations, and gamified experiences. For

non-popular destinations, AR can function as an “immersive brochure,” allowing users to visualize and interact with the site’s hidden gems remotely or through simulation (Jiang et al., 2023; Jingen Liang and Elliot, 2021). For instance, participating in Pokémon GO-style treasure hunts or collecting virtual rewards offers a glimpse of the destination’s fun factor, which is particularly popular among Generation Z (Jingen Liang and Elliot, 2021). Research indicates that high-quality AR previews significantly enhance tourist satisfaction and the intention to visit AR-enabled destinations by generating vivid mental imagery and narrative transportation (Jung et al., 2015; Zhu et al., 2024a).

In the context of heritage tourism, AR has proven effective in enhancing engagement by virtually recreating historical scenes and cultural stories. For example, the “Great Wall Guards” game at the Badaling Great Wall adds novelty and knowledge (Jiang et al., 2023), while AR guided tours at the Forbidden City and the Ruins of St. Paul’s in Macau significantly enhance the sense of presence (Zhu et al., 2024b). Similarly, AR applications in Dublin attract young tourists through personalized content (Han et al., 2018), and AR at the Mandarin’s House in Macau vividly presents historical stories, stimulating tourists’ interest (Zhu et al., 2024b). These successful applications demonstrate AR’s capacity to transform

static locations into dynamic narratives, a capability that is crucial for marketing lesser-known sites.

AR expands its influence in marketing through gamified tasks and social media sharing (Wut and Ng, 2026; Yung and Khoo-Lattimore, 2019). However, its adoption faces challenges such as GPS accuracy, interaction convenience, and data costs (Carmigniani et al., 2011; Kounavis et al., 2012). Nevertheless, with the growing popularity of AR glasses and mobile AR, the potential of AR to engage Generation Z—especially as a pre-travel stimulus—is expected to be further realized (Chung et al., 2015; Guttentag, 2010).

Furthermore, AR gamification has emerged as a powerful tool for revitalizing the tourism industry, especially in declining or lesser-known destinations. For instance, the “Legend of Doremi” AR tourism game in Jung-dong, Wonju, South Korea, provides educational and entertaining experiences by blending virtual elements with the real environment (Jo and Shin, 2025). These games enhance tourists’ cognition of the destination (such as historical understanding) and foster place attachment through mechanisms like tasks and narratives. For potential tourists who engage with these AR demonstrations, the virtual experience acts as a strong motivator, ultimately inspiring them to visit and explore the destination in person to complete the experience (Oleksy and Wnuk, 2017).

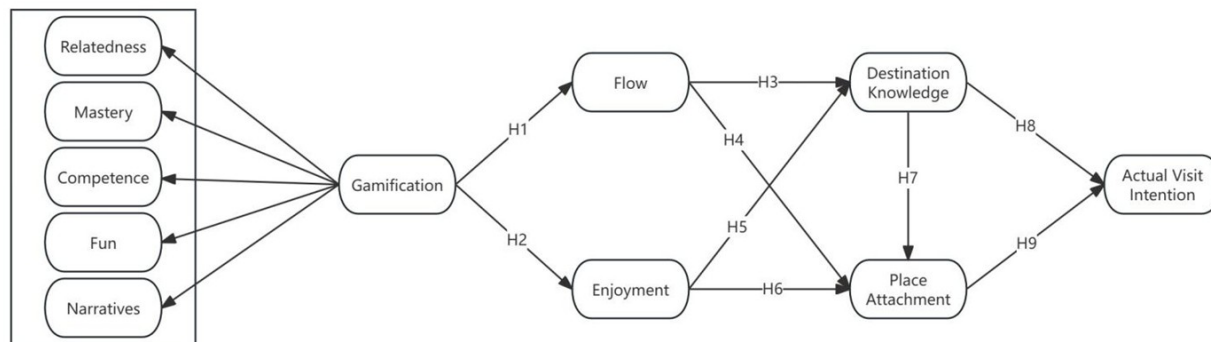


Figure 1: The Concept of the Research.

Hypothesis Development

Gamification and Flow

Gamification enhances user engagement by incorporating game elements such as points and tasks. Flow experience is defined as a psychological state in which an individual is fully immersed and highly focused during an activity (Csikszentmihalyi,

1990). In tourism contexts, AR technologies (e.g., virtual tasks) amplify the immersive nature of gamification, thereby facilitating flow. Thomas and Baral (2023) experimentally confirmed that gamification strengthens behavioral and emotional engagement through the mediation of flow. Similarly, Gupta and Priyanka (2022) found that gamification stimulates flow and improves concentration in

e-learning environments. Oliveira et al. (2021) systematically reviewed gamification elements (such as leaderboards) and noted their frequent use to induce flow in scenarios like tourism, although effects vary by design. Xu et al. (2021) studied AR games (e.g., Pokémon GO) and demonstrated that blending virtual and reality significantly deepens tourists' immersion. However, Lee (2019) cautioned that overly difficult tasks might disrupt flow, emphasizing the need for a balance between challenge and skill. Recent studies have shown that sustained flow with digital technology can lead to cognitive fatigue as sustained flow of consciousness may be disrupted if individuals are supported by leadership structures (Raouf et al., 2024).

H1: In AR gamified tourism, gamification is positively affecting the flow experience of Generation Z tourists.

Gamification and Enjoyment

Gamification is widely recognized for its ability to enhance user enjoyment across various contexts by integrating game mechanics. Gerdenitsch et al. (2020), As related to Library and Information Studies (LIS), the function of gamification is to be an interactive control system of digital information that manages the flow of information, channels the user's attention, and modifies user behavior in information seeking through rule-based communicative affordances (Bawden and Robinson, 2020).

Using the Habitica tool, found that gamification significantly boosts enjoyment, which correlates positively with satisfaction. Shahzad et al. (2023) further highlighted that perceived enjoyment mediates the impact of gamification on behaviors, such as green consumption. Wibisono et al. (2023) demonstrated that satisfying basic psychological needs indirectly elevates enjoyment among Millennials. Raman (2020) showed that PBL elements (points, badges, leaderboards) significantly enhance the online shopping experience for young consumers. Additionally, Oliveira et al. (2022) found that specific game preferences contribute to enjoyment. Yee (2006) emphasized that gamification stimulates intrinsic pleasure through immersion and interest.

H2: In AR gamified tourism, gamification is positively affecting the enjoyment of Generation Z tourists

Flow and Destination Knowledge

With regard to LIS, the flow state is the state characterized by the optimal level of functioning in a cognitive task as a result of the cognitive phenomenon

of information engagement, in which one sustains attention, processes information deeply and utilizes one's cognitive resources efficiently when one is absorbing... information in a digital environment (Csikszentmihalyi, 1990). Cognitive information processing theories also consider with regard to information engagement situations the phenomena of focus, absorption and task-resource fit as a successful construct predicting the engagement of information (Fidel et al., 2004; Marchionini, 1995). In tourism, AR gamification stimulates intrinsic motivation through tasks and real-time feedback, facilitating this state (Lee, 2019).

A meta-analysis by Jinmin and Qi (2023) indicates that learning flow is positively correlated with performance, suggesting that flow enhances cognitive engagement and knowledge absorption. Yan et al. (2013) demonstrated that knowledge-seeking behaviors in virtual communities foster creativity through flow, indirectly supporting its role in knowledge acquisition. Specifically, AR gamification applications (e.g., "Gyeongbok Palace in My Hand") guide tourists to explore scenic spots in depth via interactive tasks, significantly enhancing cultural and historical knowledge (Lee, 2019). McLeod (2020) also emphasizes that information flow within knowledge networks strengthens destination knowledge dissemination. As per LIS as an academic discipline, flows are when people are mentally involved, more focused, and able to elaborate cognitively.

H3: In AR gamified tourism, the flow experience of Generation Z tourists has a positive impact on destination knowledge.

Flow and Place Attachment

Place attachment represents the emotional, cognitive, and behavioral bond between an individual and a specific place, comprising place dependence and place identity (Scannell and Gifford, 2010). In AR gamified tourism, flow stimulates immersion through tasks and rewards (Csikszentmihalyi, 1990), which fosters emotional connections. Zheng and Huang (2025) found that flow in e-sports games promotes tourism willingness by enhancing game attachment, suggesting a parallel effect on place attachment. Shen et al. (2025) observed that flow in tabletop games indirectly strengthens emotional connection through activity attachment. Pai et al. (2025) verified that aesthetic experiences in sports events enhance event attachment via flow. Similarly, AR gamification

apps facilitate deep connections between tourists and destinations through interactive tasks, significantly boosting place attachment (Lee, 2019). Li and Peng (2021) also noted that flow in live streaming influences behavioral intentions through emotional attachment.

H4: In AR gamified tourism, the flow experience of Generation Z tourists has a positive impact on place attachment

Enjoyment and Destination Knowledge

Enjoyment refers to the pleasure or satisfaction experienced during an activity, including the fun of using technology (Moghavvemi et al., 2017; Schneider et al., 2016). In AR gamified tourism, such as collecting rewards via AR glasses, enjoyment can promote the acquisition of cultural or historical knowledge (Schneider et al., 2016). Studies show that hedonic value positively affects subjective knowledge formation by enhancing cognitive engagement (Möller and Boukes, 2023; Schneider et al., 2016). Moghavvemi et al. (2017) found that enjoyment drives knowledge sharing, indicating that pleasant experiences stimulate information processing. Knop-Huelss et al. (2020) further discovered that hedonism significantly predicts subjective knowledge. Jirout et al. (2023) verified the bidirectional link between enjoyment and knowledge growth. Thus, AR gamification can deepen understanding of destination knowledge by enhancing the hedonic experience.

H5: In AR gamified tourism, Generation Z tourists' enjoyment has a positive impact on destination knowledge

Enjoyment and Place Attachment

In AR gamified scenarios, the pleasure derived from virtual tasks can enhance tourists' place attachment, manifested as emotional bonds and a sense of belonging (Chiengkul and Kumjorn, 2024). Research indicates that hedonism promotes attachment by triggering positive emotions. Chiengkul and Kumjorn (2024) found that enjoyment in cultural immersion significantly predicts place attachment. Johnson et al. (2015) verified the positive impact of shopping enjoyment on place attachment, while Kim et al. (2016) showed that enjoyment promotes website attachment, a mechanism applicable to tourism. Kim et al. (2025) found that users develop attachment due to interaction pleasure. Xu (2023) noted that the hedonic value of social media enhances user engagement

through emotional attachment. AR gamification can similarly strengthen the emotional connection with a destination by providing immersive fun.

H6: In AR gamified tourism, Generation Z tourists' enjoyment has a positive impact on place attachment

Destination Knowledge and Place Attachment

Destination knowledge is the ability to identify the origin of information where the user has digital access and evaluates and synthesizes information of the destination. Place attachment is constructed through cognitive, emotional, and behavioral interactions (Hidalgo and Hernández, 2001). Acquiring historical or cultural knowledge enhances familiarity and meaning, thereby fostering attachment (Lewicka, 2011). Location-based AR games significantly enhance destination knowledge by guiding exploration, which strengthens place attachment (Oleksy and Wnuk, 2017). Jo and Shin (2025) verified that AR gamification promotes emotional connections by providing historical and terrain knowledge. Huang and Lin (2023) found that learning ecological knowledge fosters dependence and identification. Furthermore, Qu et al. (2021) revealed that destination knowledge, as initial cognition, triggers emotional responses that form attachment. Cognitive Evaluation Theory (CAT) supports this, emphasizing knowledge acquisition as a precursor to emotional bonding (Huang and Lin, 2023). Such a process exemplifies standard information behavior and access as well as theories on relevance judgment and internalization as unique knowledge creation processes found in a digital context (Case and Given, 2016; Huvila and Gorichanaz, 2025).

H7: In AR gamified tourism, Gen Z tourists' destination knowledge has a positive impact on place attachment

Destination Knowledge and Actual Visit Intention

Research demonstrates that destination knowledge significantly promotes tourists' intention to visit by enhancing cognitive and emotional connections. For instance, Wang et al. (2018) found that environmental knowledge indirectly enhanced tourists' intention to visit green hotels. Salem et al. (2024) noted that customer knowledge of ethnic culture influences perceptions of authenticity, thereby enhancing behavioral intention. Hasan et al. (2019)

confirmed that destination image (including cultural knowledge) significantly influences the intention to visit destinations. Tan and Wu (2016) found that familiarity acts as a knowledge source that promotes the intention to visit Hong Kong. Jo and Shin (2025), in their study on AR gamified tourism, found that destination knowledge positively affects behavioral intention and the tendency to play games.

For Generation Z, who are tech-savvy and value immersive experiences, gamified knowledge acquisition is particularly effective (Jo and Shin, 2025; Salem et al., 2024). Through the virtual experience provided by AR demos, tourists gain a deeper understanding of a destination's unique attributes. This reduced cognitive uncertainty and increased familiarity significantly enhanced their actual visit intention, motivating them to verify their virtual knowledge in the physical world.

H8: In AR gamified tourism, Gen Z tourists' destination knowledge has a positive impact on their actual visit intention.

Place Attachment and Actual Visit Intention

Considering the information science viewpoint, place attachment is considered as communicative sense-making, where places are symbolic information objects that provide identity, meaning, and emotion through mediated discourses. Place attachment shows a significant positive impact on actual visit intention. Isa et al. (2020) verified the mediating role of place attachment between the environment and behavioral intention in Indonesia. Kil et al. (2012) found that place dependence mediated the relationship between expected benefits and visit intention. Neuvonen et al. (2010) showed that place attachment directly enhances the intention to visit. Hosany et al. (2020) pointed out that media representations form attachment through narrative, stimulating the intention to visit. Kala (2021) found that attachment in religious tourism is associated with a peaceful atmosphere, enhancing visitation willingness. Nursyamsiah and Setiawan (2023) verified the role of attachment in the intention to visit revitalized parks. Social connections further strengthen attachment and actual visit intention (Neuvonen et al., 2010).

Therefore, place attachment positively influences actual visit intention through direct and indirect paths. This is in accordance with LIS sense-making theory, which frames meaning and attachment as results of a cyclic interaction of information and

not just based on a physical proximity (Dervin, 2015; Shah, 2018).

H9: In AR gamified tourism, Gen Z tourists' place attachment has a positive impact on their actual visit intention.

Put together, these hypotheses can be used to model AR-gamified tourism as a system of information behavior whereby the digital interaction processes are seen to mediate between knowledge acquisition, communicative sense-making, and cognitively motivated behavioral intentions.

Research Methodology

This section outlines the methodological framework employed to examine the effectiveness of AR gamification as a marketing stimulus for non-popular destinations. The study adopts a scenario-based quantitative research design to investigate how a simulated AR gamified experience influences Generation Z tourists' cognitive, affective, and behavioral responses, specifically their intention to physically visit the destination.

Participants and Sampling Design

This study employed a scenario-based quantitative research design targeting Generation Z tourists with prior experience in AR technology. To ensure the ecological validity of the responses, a rigid filtering process was implemented.

First, Participant Screening: The target population was defined as Chinese Generation Z adults (aged 18–28) who possess domain-specific knowledge of AR gaming. As indicated in the screening question (“Have you had any experience with AR technology in the past year?”), only individuals with prior usage experience (e.g., players of location-based AR games like Pokémon GO or users of AR filters) were recruited. This criterion ensured that respondents could accurately evaluate the technical mechanisms (e.g., flow, mastery) without cognitive barriers.

Second, Experimental Stimulus: Since the study measures intention to visit a remote non-popular destination, participants were presented with a high-fidelity demonstration video of the specific AR gamified tour designed for the scenic spot. This video served as a contextual stimulus, allowing these experienced users to visualize how their familiar AR interactions are applied in this new tourism context.

Third, Data Collection: A convenience sampling

method was used via major social media platforms. Participants were required to watch the video in full before completing the survey. A total of 360 valid questionnaires were collected from this tech-savvy cohort, satisfying the sample size requirements for SEM analysis, adhering to the guideline of ten times the number of indicators for the most complex

construct (Hair Jr. et al., 2022). As detailed in Table 1, the sample comprised 31.11% males and 68.89% females. The majority of respondents were students (13.89%), office workers (30.56%), and entrepreneurs (28.89%), reflecting a diverse group with significant consumption potential.

Table 1: Respondents' Demographic Profile.

| Total Number of Respondents(360) | | Frequency | Percentage |
|--|-----------------|-----------|------------|
| Are you between 18 and 28 years old? | Yes | 360 | 100 |
| | No | 0 | 0 |
| Have you had any experience with AR technology in the past year? | Yes | 360 | 100 |
| | No | 0 | 0 |
| Gender | Male | 112 | 31.11 |
| | Female | 248 | 68.89 |
| Occupation | Student | 50 | 13.89 |
| | Office worker | 110 | 30.56 |
| | Freelancer | 96 | 26.66 |
| | Entrepreneur | 104 | 28.89 |
| | Others | 0 | 0 |
| Monthly Income(RMB) | 0-3000 | 126 | 35 |
| | 3001-6000 | 74 | 20.56 |
| | 6001-9000 | 66 | 18.33 |
| | Above than 9000 | 94 | 26.11 |

Due to the numerous screening conditions set, a total of 360 valid questionnaires were collected after distributing over 500. According to the statistics in Table 1, it can be seen that 68.89% (248 people) are female and 31.11% (112 people) are male. Office workers (30.56%) and entrepreneurs (28.89%) have a relatively high proportion, followed by students (13.89%) and freelancers (26.66%). Those with an income over 6,000 account for 44.44%, indicating that the current adult Z-generation tourists have diverse occupations and strong consumption capabilities. The research will strictly adhere to ethical requirements, including informed consent, anonymity, and data protection.

Measures

This study adapted mature scales from Jo and Shin (2025) and other relevant literature to fit the context of AR gamified tourism experience. All constructs were measured using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) to capture participants' perceptions. Gamification was measured using 15 items from Jo and Shin (2025) covering five dimensions: relatedness, mastery, competence, fun, narratives. Flow was adapted from Pai et al. (2025) with 3 items, and Enjoyment was adapted from Jafar and Ahmad (2023) with 4 items. Additionally, Destination

knowledge was measured with 3 items from Jo and Shin (2025), and Place attachment was adapted from Pai et al. (2025) with 3 items. Finally, Actual Visit Intention was assessed using 3 items adapted from Jo and Shin (2025) and Kala (2021). To ensure alignment with the research focus on new visitation, items specifically measuring revisit intention were excluded, focusing the construct on the tourists' explicit intention to visit and engage with the game place.

All the measurement items are listed in Appendix A. To ensure content validity, a pre-test questionnaire will be conducted on 20 Z-generation tourists who are familiar with AR or games. Based on the feedback, the project will be optimized. The questionnaire will be translated and back-translated by bilingual experts to ensure accuracy. Procedural measures (such as randomizing the order of items and ensuring anonymity) will be taken to mitigate the common method bias (Chang et al., 2010). Along the lines of the LIS research paradigms and constructs, these have been operationalized to capture users' interaction with and sense-making and cognitive engagement in digitally mediated environments.

Results

Data analysis was conducted using SmartPLS

4.0 to test the proposed research model. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed due to its robustness in handling complex models with both first-order and higher-order constructs, as well as its suitability for non-normal data distributions (Ahmad et al., 2022; Hair et al., 2019). The assessment of measurement model is a structural relationship between the latent constructs and their indicators which is the vivacious phase before the hypothesis testing through SEM (Salleh et al., 2018).

Measurement Model Assessment

The assessment of the measurement model focused on internal consistency reliability, convergent validity, and discriminant validity.

Reliability and Convergent Validity

First, as presented in Table 2, the individual item reliability was examined. The factor loadings

for all measurement items ranged from 0.812 to 0.900, significantly exceeding the recommended threshold of 0.708 (Hair et al., 2019), which indicates that the items exhibit strong correlation with their respective constructs. Second, internal consistency was evaluated using Cronbach’s Alpha (CA), Rho_a, and Composite Reliability (CR). The CA values ranged from 0.792 to 0.873, Rho_a values were between 0.792 and 0.877, and CR values spanned from 0.878 to 0.908. All indicators surpassed the critical value of 0.70, demonstrating satisfactory reliability for all constructs.

Third, convergent validity was assessed using the Average Variance Extracted (AVE). The AVE values for all latent variables ranged from 0.664 to 0.758, well above the 0.50 threshold, thereby confirming adequate convergent validity (Chin, 1998). Specifically, the modified dependent variable, Actual Visit Intention (AVI), demonstrated high reliability (CR = 0.891) and validity (AVE = 0.731) after the exclusion of revisit-related items.

Table 2: Construct Reliability and Validity.

| | Items | Loadings | VIF | CA | Rho_a | CR | AVE |
|-------------------------------|-------|----------|-------|-------|-------|-------|-------|
| Actual Visit Intention | AVI1 | 0.877 | 2.326 | 0.817 | 0.824 | 0.891 | 0.731 |
| | AVI2 | 0.841 | 1.730 | | | | |
| | AVI3 | 0.846 | 1.792 | | | | |
| Competence | CP1 | 0.873 | 2.148 | 0.828 | 0.833 | 0.897 | 0.743 |
| | CP2 | 0.869 | 2.082 | | | | |
| | CP3 | 0.844 | 1.870 | | | | |
| Destination Knowledge | DK1 | 0.894 | 2.541 | 0.836 | 0.840 | 0.901 | 0.753 |
| | DK2 | 0.851 | 1.934 | | | | |
| | DK3 | 0.857 | 1.847 | | | | |
| Enjoyment | EY1 | 0.880 | 2.656 | 0.858 | 0.858 | 0.904 | 0.701 |
| | EY2 | 0.840 | 2.008 | | | | |
| | EY3 | 0.812 | 1.856 | | | | |
| | EY4 | 0.816 | 1.872 | | | | |
| Flow | FL1 | 0.888 | 2.538 | 0.827 | 0.854 | 0.895 | 0.740 |
| | FL2 | 0.868 | 1.743 | | | | |
| | FL3 | 0.824 | 1.954 | | | | |
| Fun | Fun1 | 0.884 | 2.390 | 0.800 | 0.800 | 0.882 | 0.714 |
| | Fun2 | 0.813 | 1.623 | | | | |
| | Fun3 | 0.837 | 1.956 | | | | |
| Mastery | MT1 | 0.878 | 2.152 | 0.792 | 0.792 | 0.878 | 0.707 |
| | MT2 | 0.821 | 1.616 | | | | |
| | MT3 | 0.822 | 1.919 | | | | |
| Narratives | NA1 | 0.890 | 2.469 | 0.828 | 0.829 | 0.897 | 0.744 |
| | NA2 | 0.855 | 1.849 | | | | |
| | NA3 | 0.842 | 1.797 | | | | |
| Place Attachment | PA1 | 0.892 | 2.394 | 0.841 | 0.848 | 0.904 | 0.758 |
| | PA2 | 0.873 | 1.881 | | | | |
| | PA3 | 0.847 | 1.941 | | | | |
| Relatedness | RT1 | 0.900 | 2.394 | 0.834 | 0.835 | 0.901 | 0.752 |
| | RT2 | 0.838 | 1.753 | | | | |
| | RT3 | 0.862 | 2.123 | | | | |

Validation of the Higher-Order Construct

Given that Gamification was conceptualized as a reflective-formative higher-order construct (HOC), its validity was established by examining the outer weights and multicollinearity of its sub-dimensions (Relatedness, Mastery, Competence, Fun, and Narratives). As shown in Table 3, all five

sub-dimensions carried significant weights ($p < 0.001$). Mastery ($w = 0.406$, $t = 11.075$) and Relatedness ($w = 0.327$, $t = 8.562$) emerged as the most substantial contributors to the Gamification construct. Furthermore, the Variance Inflation Factor (VIF) values for these dimensions ranged from 1.173 to 1.240, which are far below the threshold of 3.3 (or even the conservative 3.0), indicating that multicollinearity is not a concern.

Table 3: Assessment of the Higher-Order Construct.

| | Outer Weight | T statistics (O/STDEV) | VIF |
|-------------|--------------|--------------------------|-------|
| Relatedness | 0.327 | 8.562 | 1.199 |
| Mastery | 0.406 | 11.075 | 1.240 |
| Competence | 0.280 | 6.971 | 1.173 |
| Fun | 0.258 | 6.421 | 1.184 |
| Narratives | 0.271 | 6.701 | 1.184 |

Discriminant Validity

Discriminant validity was examined using the Heterotrait-Monotrait ratio of correlations (HTMT), which is considered superior to the traditional Fornell-Larcker criterion (Henseler et al., 2015). Discriminant

validity reveals how dissimilar conceptions are from one another (Aman-Ullah et al., 2023). As detailed in Table 4, all HTMT values between distinct constructs were below the conservative threshold of 0.85 (and the liberal threshold of 0.90), confirming that the constructs in the model are empirically distinct.

Table 4: Discriminant Validity Assessment (HTMT).

| | AVI | CP | DK | EY | FL | Fun | GF | MY | NA | PA | RT |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| AVI | | | | | | | | | | | |
| CP | 0.298 | | | | | | | | | | |
| DK | 0.378 | 0.280 | | | | | | | | | |
| EY | 0.352 | 0.287 | 0.306 | | | | | | | | |
| FL | 0.293 | 0.228 | 0.267 | 0.334 | | | | | | | |
| Fun | 0.382 | 0.364 | 0.403 | 0.290 | 0.191 | | | | | | |
| GF | 0.557 | 0.752 | 0.547 | 0.520 | 0.363 | 0.773 | | | | | |
| MY | 0.360 | 0.327 | 0.314 | 0.441 | 0.336 | 0.317 | 0.817 | | | | |
| NA | 0.339 | 0.260 | 0.355 | 0.299 | 0.195 | 0.285 | 0.764 | 0.368 | | | |
| PA | 0.422 | 0.269 | 0.361 | 0.306 | 0.302 | 0.266 | 0.450 | 0.354 | 0.241 | | |
| RT | 0.422 | 0.258 | 0.414 | 0.366 | 0.227 | 0.302 | 0.775 | 0.391 | 0.334 | 0.325 | |

Note1: RT=relatedness; MT=mastery; CP=competence; NA=narratives; AVI=actual visit intention; DK=destination knowledge; EY= enjoyment; FL=flow; GF=gamification; PA=place attachment.

Structural Model Assessment

Following the validation of the measurement model, the structural model was evaluated to test the hypothesized relationships. A bootstrapping procedure with 5,000 subsamples was performed to determine the significance of path coefficients.

Explanatory Power and Predictive Relevance

The model’s predictive power was assessed using the coefficient of determination (R^2) and the predictive relevance ($Q^2_{predict}$). As shown in Table 6, the model explains 20.5% of the variance in

Enjoyment ($R^2 = 0.205$), 15.3% in Place Attachment ($R^2 = 0.153$), 10.4% in Flow ($R^2 = 0.104$), and 17.8% in Actual Visit Intention ($R^2 = 0.178$). While the R^2 for actual visit intention is moderate, it is statistically substantial within the context of behavioral intention research. Furthermore, the Q^2 values for all endogenous constructs were greater than zero (ranging from 0.067 to 0.194), substantiating the model’s predictive relevance.

Hypothesis Testing

The hypotheses were tested using the bootstrapping procedure (5,000 subsamples) to

examine the significance of path coefficients (β) and t-statistics. The results, summarized in Table 5, confirm that all nine proposed hypotheses are supported by the data ($p < 0.05$). First, regarding the effects of Gamification, the analysis demonstrates that gamified experiences significantly drive positive psychological states. Gamification exerted a strong positive impact on Enjoyment (H2: $\beta = 0.453$, $t = 11.811$, $p < 0.001$) and Flow (H1: $\beta = 0.322$, $t = 7.404$, $p < 0.001$). A comparison of the path coefficients reveals that the influence of gamification on enjoyment is substantially stronger than on flow. This suggests that for Generation Z, the primary value of AR gamification lies in its ability to generate immediate hedonic pleasure, which acts as a more dominant response than the state of cognitive immersion.

Second, regarding the antecedents of Destination Knowledge and Place Attachment, both flow and enjoyment served as effective drivers. Flow experience showed positive effects on both Destination Knowledge (H3: $\beta = 0.164$, $p = 0.002$) and Place Attachment (H4: $\beta = 0.161$, $p = 0.002$). Similarly, Enjoyment was found to be a significant predictor of Destination Knowledge (H5: $\beta = 0.216$,

$p < 0.001$) and Place Attachment (H6: $\beta = 0.152$, $p = 0.006$). Notably, enjoyment had a stronger impact on knowledge acquisition ($\beta = 0.216$) compared to flow ($\beta = 0.164$), indicating that a fun and pleasurable atmosphere may facilitate information absorption more effectively than high-intensity focus in this context.

Additionally, Destination Knowledge was found to significantly enhance Place Attachment (H7: $\beta = 0.232$, $t = 4.330$, $p < 0.001$), implying that cognitive familiarity with a destination is a foundational step in developing an emotional bond. Finally, regarding the drivers of Actual Visit Intention, the model identified both emotional and cognitive factors as critical determinants. Place Attachment emerged as the strongest predictor of actual visit intention (H9: $\beta = 0.289$, $t = 5.966$, $p < 0.001$), followed closely by Destination Knowledge (H8: $\beta = 0.231$, $t = 4.772$, $p < 0.001$). While both paths are significant, the higher coefficient for place attachment suggests that the decision to visit a non-popular destination is driven more powerfully by emotional connection than by cognitive information alone. This highlights the pivotal role of emotional engagement in converting virtual experiences into real-world visitation behaviors.

Table 5: Path Coefficients and Confidence Interval.

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T statistics ((O/STDEV)) | P values | Confidence Interval | | Result |
|-----------|---------------------|-----------------|----------------------------|--------------------------|----------|---------------------|-------|-----------|
| | | | | | | 2.5% | 97.5% | |
| DK -> AVI | 0.231 | 0.233 | 0.048 | 4.772 | 0.000 | 0.137 | 0.327 | Supported |
| DK -> PA | 0.232 | 0.233 | 0.054 | 4.330 | 0.000 | 0.125 | 0.336 | Supported |
| EY -> DK | 0.216 | 0.217 | 0.052 | 4.152 | 0.000 | 0.114 | 0.319 | Supported |
| EY -> PA | 0.152 | 0.153 | 0.055 | 2.769 | 0.006 | 0.046 | 0.260 | Supported |
| FL -> DK | 0.164 | 0.167 | 0.054 | 3.033 | 0.002 | 0.062 | 0.272 | Supported |
| FL -> PA | 0.161 | 0.161 | 0.051 | 3.153 | 0.002 | 0.058 | 0.260 | Supported |
| GF -> EY | 0.453 | 0.457 | 0.038 | 11.811 | 0.000 | 0.379 | 0.529 | Supported |
| GF -> FL | 0.322 | 0.328 | 0.044 | 7.404 | 0.000 | 0.244 | 0.412 | Supported |
| PA -> AVI | 0.289 | 0.290 | 0.048 | 5.966 | 0.000 | 0.194 | 0.385 | Supported |

Table 6: Explanatory Power and Predictive Relevance.

| | R-square | R-square Adjusted | Q ² predict |
|------------------------|----------|-------------------|------------------------|
| Actual Visit Intention | 0.178 | 0.174 | 0.067 |
| Destination Knowledge | 0.095 | 0.090 | 0.113 |
| Enjoyment | 0.205 | 0.203 | 0.194 |
| Flow | 0.104 | 0.101 | 0.096 |
| Place attachment | 0.153 | 0.146 | 0.094 |

Discussion and Conclusion

Discussion

The primary objective of this study was to examine the mechanism through which AR gamification, acting as a marketing stimulus, influences

Generation Z tourists' actual visit intention toward non-popular destinations. Employing the Tri-component Attitude Model as the theoretical lens (Adam et al., 2023; Makanyeza et al., 2016), this research constructed a pathway linking the simulated gamification experience (stimulus) to affective and cognitive states, culminating in behavioral intention. The empirical results from the PLS-SEM analysis support all proposed hypotheses, revealing a clear psychological trajectory: Gamification to Affect/Cognition to Actual Visit Intention. Consistent with Jo and Shin (2025), our findings confirm that gamification significantly enhances destination knowledge and emotional connection.

However, a crucial distinction in our study is

the confirmation that for Generation Z, the decision to physically visit a lesser-known attraction is driven more powerfully by the emotional bond formed through the virtual interaction than by cognitive information alone. This underscores the potential of AR gamification not merely as an on-site tool, but as a persuasive “digital teaser” that converts remote engagement into real-world footfall (Lacka, 2020).

The model’s ability to explain 17.8% of the variance in Actual Visit Intention ($R^2=0.178$), though low, is of great significant in behavioral intention framework as there numerous constraining external factors to the potential (distance, cost, time, etc.) that affect human decision making (Hair Jr. et al., 2022). Within the R^2 parameters from an LIS standpoint, it confirms that AR gamification is a positive digital information system that converts inactive digital exposure to active knowledge (passive to active) in a positive emotional (sense) making way (H3-H5: $\beta=0.164-0.216$) (H4-H6: $\beta=0.152-0.161$) (Huvila and Gorichanaz, 2025). To a large extent, AR gamification acts as a “digital equalizer” within competitive tourism, especially African cultural destinations, AR gamification gives digitally resource-unknown locations nearly 18% additional marketing value (Jo and Shin, 2025) compared to better-known competitors. The 17.8% R^2 uplift value is especially significant in African libraries/archives where Place Attachment ($\beta=0.289$, strongest predictor) may turn virtual heritage exploration into actual visits. This is particularly important for the digital preservation of the culturally resource-poor, under-affected places.

Theoretical Implications

This study offers several significant contributions to the tourism marketing literature by contrasting its findings with established paradigms and integrating recent studies.

First, it catalyzes a theoretical paradigm shift from the utilitarian-based Technology Acceptance Model (TAM) to the affect-centric Tri-component Attitude Model for Generation Z tourists. Previous studies, such as Zhuang et al. (2021), largely focused on the millennial generation, positing “perceived usefulness” and “ease of use” as the primary determinants of technology adoption. However, our findings suggest that these functional metrics are insufficient for capturing the behavioral drivers of Generation Z. By validating the Tri-component Attitude Model, this study empirically addresses

the theoretical gaps identified by Adam et al. (2023), who noted TAM’s inadequacy in accounting for emotional dimensions. Our results confirm that for digital natives, the dominance of Flow and Enjoyment signals that the “experience” is the value. This necessitates a theoretical pivot: moving away from evaluating technology as a utility to analyzing it as an experiential medium that drives behavior through emotional resonance (Tom Dieck and Han, 2022).

Second, this study refines the application of Gamification Theory by identifying “Hedonic Dominance.” While existing literature in education (Thomas and Baral, 2023) and workplace management (Gerdenitsch et al., 2020) often positions ‘Flow’ (deep immersion) as the supreme outcome, our study reveals a context-specific nuance: in tourism marketing previews, Enjoyment exerts a significantly stronger influence on psychological engagement than Flow. This extends the work of Xu et al. (2017) and Yee (2006), suggesting that unlike learning tasks requiring intense concentration, the marketing appeal for Gen Z is driven by immediate gratification and fun.

Consequently, ‘light-weight’ enjoyment may be a more potent driver than ‘heavy-weight’ immersion in prompting destination visits. Third, the research advances Place Attachment Theory by establishing the mechanism of “Digital Pre-visit Attachment.” Traditional tourism literature typically views place attachment as a post-consumption outcome formed after repeated physical interactions (Lewicka, 2011; Scannell and Gifford, 2010). While Oleksy and Wnuk (2017) explored attachment in location-based games, their focus remained on the player-game relationship. This study extends these boundaries by demonstrating that AR gamified simulations can cultivate Place Attachment towards a destination before the actual visit occurs. Validating the Cognition to Affect to Behavior pathway aligned with Makanyeza et al. (2016), we provide empirical evidence that virtual interactions can substitute physical presence to generate an initial emotional bond.

This bridges the gap between “virtual stickiness” and “physical footfall,” offering a more granular understanding than general attachment models (Hidalgo and Hernández, 2001). Finally, this study expands the scope of AR tourism research from heritage conservation to destination revitalization. The majority of current research (e.g., Buhalis and Karatay, 2022; Cranmer et al., 2023; Han et al., 2021) has confined AR to well-known cultural heritage

sites. This study breaks this mold by applying AR gamification to non-popular and declining scenic spots. By verifying that gamification attributes (specifically Relatedness and Fun) can directly translate into Actual Visit Intention for obscure locations, we extend the theoretical applicability of AR beyond the scope of Jo and Shin (2025), demonstrating its role as a “leveling mechanism” for resource-poor destinations.

This study enhances the LIS field by applying specific information behavior theories to immersive AR contexts, showing their applicability outside the confines of a physical library. It specifically, within AR contexts, theorizes flow as cognitive information engagement (sustained attention and deep processing involved in digital sense-making (Fidel et al., 2004; Marchionini, 1995); gamification as interactive information control systems (as affordances of rules directing the flow of information and the attention of users (Bawden and Robinson, 2020); destination knowledge as the information source assessment and digital integration (evaluation of accessibility and relevance of a resource (Case and Given, 2016); and place attachment as communicative sense-making (identity and meaning from objects of symbolic information (Dervin, 2015; Shah, 2018). Mapped these constructs and validated through PLS-SEM (all paths $p < 0.01$), AR-gamified tourism is the first empirical frontier for LIS information interaction theories, particularly applicable to African digital heritage, where limited bandwidth requires high interactivity, low data (Huvila and Gorichanaz, 2025).

Practical Implications

For destination managers, particularly those overseeing non-popular or resource-constrained attractions, the findings validate a cost-effective “Try Before You Travel” marketing strategy. Firstly, adopt a “Scalable Remote Marketing” approach to overcome budget constraints. Critics often argue that AR infrastructure is too costly for declining destinations (Kounavis et al., 2012). However, our findings support a “centralized experience” model. Managers do not need to outfit every on-site visitor with expensive hardware. Instead, they can deploy a limited number of high-fidelity AR glasses in urban “pop-up” experience centers or partner with travel agencies in major cities.

This allows the destination to leverage the “teaser” effect validated in our study—generating Actual Visit Intention remotely—without the burden

of maintaining large-scale on-site equipment (Ronaghi and Ronaghi, 2022). For even lower costs, managers can translate the gamified content verified here (focusing on Narratives and Fun) into Mobile AR (WebAR) applications accessible via tourists’ smartphones, ensuring broad reach with minimal infrastructure investment (Chung et al., 2015; Jo and Shin, 2025). Secondly, focus on “Soft Content” (Storytelling) rather than “Hard Tech.” Our results indicate that Enjoyment and Place Attachment are stronger drivers than pure technical immersion (Flow). This implies that success does not depend on having the most advanced, expensive graphics engine, but on the creativity of the gamified narrative (Tom Dieck and Han, 2022). Managers of non-popular sites should invest in developing emotionally resonant stories (e.g., “adopting” a virtual guardian of the site) that foster a sense of Relatedness.

This “content-first” strategy is a feasible path for financially constrained destinations to compete with famous sites, as creativity costs less than hardware (Skinner et al., 2018; Xu et al., 2017). Thirdly, leverage AR as a “Virtual Sample” to drive physical traffic. For destinations suffering from low visibility, knowledge dissemination alone is insufficient. Managers should utilize AR gamification as a “Digital Sample” of the destination. Just as food brands offer free samples to drive sales, non-popular destinations can release “mini-levels” of their AR games online (Xu et al., 2021). By allowing Gen Z to experience the “fun” and “mastery” of the destination virtually, managers can reduce the perceived risk of visiting an unknown place and effectively convert digital traffic into real-world footfall (Lacka, 2020; Oleksy and Wnuk, 2017).

Applications of LIS and Cultural Heritage

The validated model offers AR gamification implementation strategies for managers of libraries, archives, and museums in Africa.

1. Affordable Information Repositories: AR “teaser experiences” can be employed to convert unchanging cultural collections into experiential offerings. It is recommended to prioritize Relatedness ($\beta=0.327$) and Fun ($\beta=0.258$) to maximize levels of engagement for the available bandwidth (Jo and Shin, 2025).
2. Sense-Making for Heritage Sites: AR narratives may be employed to facilitate communicative sense-making (H7: $\beta=0.232$) in the collection and integration of disparate narratives focused

on African heritage, especially narratives that have yet to be digitally preserved.

3. Gen Z Cultural Tourism: Engage digital youth (this study sampled 68.89% females) using designs anchored on Enjoyment (H2: $\beta=0.453$ >>H1: $\beta=0.322$) to facilitate the transition from virtual heritage to museum/library experiences that are tangible (Buhalis and Karatay, 2022).
4. Performance Metrics: Place Attachment (H9: $\beta=0.289$, strongest predictor) should be tracked as a foremost indicator of sustained cultural engagement and, therefore, LIS management.

Limitations and Future Research

Despite its contributions, this study has limitations. First, the study employed a scenario-based survey where participants viewed a simulation of the AR experience. While valid for measuring marketing impact, future research should employ field experiments to verify if this “pre-visit attachment” holds up during the actual trip. Second, the sample was restricted to Generation Z tourists in China. As cultural differences influence technology acceptance (Zhuang et al., 2021), future research should adopt a cross-cultural approach. Third, future research could explore barriers like technical anxiety or privacy concerns (Kounavis et al., 2012), which might moderate the relationship between AR previews and visitation intentions.

Future libraries and information science research in Africa should determine the applicability of the proposed framework. In Africa, AR has the potential to change neglected archives into interactive information ecosystems serving local and global digital visitors.

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Appendix A. Measurement Items

| Variables | Measurement Items | References | |
|-----------------------------|--|---|------------------|
| Gamification | Relatedness | It was comfortable for me to participate in the experiential travel mission game with others. | Jo & Shin (2025) |
| | | I like that the host provided an opportunity for participants to interact and socialize. | |
| | | I like the interaction with other participants in the experiential travel mission game. | |
| | Mastery | I was constantly encouraged by the accumulated experiences throughout my participation to continue and complete the mission game. | |
| | | Through completion of each phase of this activity, I feel there was a gradual improvement of my relevant abilities. | |
| | | I feel I could explore new things through the travel mission game. | |
| | Competence | I feel I could do well regarding the content in the experiential travel mission game. | |
| | | I was capable of participating in the experiential travel mission game. | |
| | | I feel my physical strength was ok for the experiential travel mission game. | |
| | Fun | I feel the process of experiencing and participating in the game could stimulate my own imagination. | |
| | | I feel there was perceivable creative ingenuity in the design of the experiential travel mission game. | |
| | | I feel the experiential travel mission game could stimulate my curiosity. | |
| Narratives | I was interested in the origin of the experiential travel mission game from the beginning. | | |
| | I like relevant stories or reports of the experiential travel mission game. | | |
| | I understand the relevant stories of the experiential travel mission game. | | |
| Flow | I think time seems to go by so fast when I play the travel AR game. | Pai et al. (2025) | |
| | I think when I play the travel AR game, my focus is all on it. | | |
| | I think nothing seems to be more important to me when i play the travel AR game. | | |
| Enjoyment | Interacting with the travel AR game is enjoyable for me | Jafar & Ahmad (2023) | |
| | I have a lot of fun in the travel AR game | | |
| | Using travel AR game was captivating | | |
| Destination Knowledge | Using travel AR game did not bore me | Jo & Shin (2025) | |
| | After the AR game, I became familiar with the game site. | | |
| | After the AR game, I was an expert with the game site. | | |
| Place Attachment | After the AR game, I considered myself knowledgeable about the game site. | Pai et al. (2025) | |
| | I don't think there is any other place that offers the same experience as game site. | | |
| | I think the atmosphere of game site is better than any similar place. | | |
| Actual Visit Intention 2021 | I think I'm obsessed with the game site. | Kala (2021); Jo & Shin (2025) | |
| | I am likely to recommend this game place to those who want travel advice. | | |
| | I will visit the game place in the future | | |
| | I will play the experiential travel mission game in the future. | | |