

## **DIGITAL SYNERGIES IN DESTINATION BRANDING: DRIVING EMOTIONAL ENGAGEMENT AND LOYALTY THROUGH IMMERSIVE TECHNOLOGIES IN ZHEJIANG PROVINCE**

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### **Abstract**

The rapid integration of digital technologies in the tourism sector has transformed visitor experiences, yet the mechanism by which these technologies influence emotional engagement remains under-explored. This study investigates the impact of digital technology application on the emotional elements of the tourism experience in Zhejiang Province, China. Grounded in the Stimulus-Organism-Response (S-O-R) framework and the Technology Acceptance Model (TAM), this research employs an explanatory sequential mixed-methods design. Quantitative data were collected from 450 tourists at major destinations in Zhejiang and analyzed using Structural Equation Modeling (SEM). Qualitative insights were derived from in-depth interviews with 15 tourists and 10 industry professionals. The findings reveal that digital technologies—specifically Virtual Reality (VR), Augmented Reality (AR), and AI-driven personalization—significantly enhance emotional engagement, which in turn drives tourist satisfaction, loyalty, and word-of-mouth communication. Notably, individual characteristics such as digital literacy and age moderate these relationships. This study provides a theoretical framework for emotional engineering in smart tourism and offers strategic recommendations for destination managers to foster sustainable competitiveness.

**Keywords:** Digital Tourism, Emotional Engagement, Tourist Loyalty, Smart Tourism, Zhejiang Province, Mixed-Methods Research

### **Introduction**

The global tourism industry has witnessed unprecedented growth and transformation in the 21st century, driven by economic globalization and technological advancement. As of 2019, international tourist arrivals reached 1.4 billion, generating over 1.7 trillion USD in revenue (UNWTO, 2019). However, the industry faces dual pressures: the need for sustainable development and the demand for personalized, high-quality experiences. In this context, digital technology has emerged as a pivotal force reshaping the tourism landscape. From mobile applications and social media to immersive Virtual Reality (VR) and Augmented Reality (AR) experiences, technology is no longer merely a utility but a core component of the tourism product itself (Gretzel, et al., 2015).

Zhejiang Province, a hub of economic and cultural development in China, stands at the forefront of this digital transformation. The provincial government's "digital economy" initiative has accelerated the adoption of smart tourism systems, including intelligent guide services, big data management, and IoT-enabled scenic spots (Huang & Wang, 2020). Despite these advancements, a critical gap remains in understanding how these ostensibly "cold" technologies influence the "warm" emotional elements of the tourism experience. While efficiency and convenience are well-documented benefits, the capacity of digital tools to evoke emotional resonance—a key driver of loyalty—requires deeper empirical investigation.



Fesenmaier, 2015). When digital tools facilitate a "flow" state or evoke nostalgia through historical reconstruction, they create memorable experiences that significantly elevate satisfaction levels.

Emotional connection serves as a deep emotional bond between tourists and tourism brands or destinations. This connection is usually formed through positive travel experiences, personalized services, and emotional resonance, making tourists emotionally dependent on a brand or destination. Studies have shown that emotional connection plays a vital role in the formation of tourism brand loyalty and can significantly increase tourists' willingness to repurchase and recommend (Hwang & Kandampully, 2012). For example, cultural heritage sites such as the Forbidden City and the Great Wall have established a deep sense of cultural identity with tourists through emotional connections facilitated by digital storytelling.

### **Personalized Services and Real-Time Information**

Personalized services refer to providing tourists with tailored tourism products and services by analyzing their historical behaviors, preferences, and needs. With the development of big data and AI, tourism companies can more accurately identify tourists' personalized needs and push relevant travel suggestions (Buhalis & Sinarta, 2019). In the hotel industry, for example, some high-end establishments use AI technology to automatically adjust room settings based on guests' historical preferences. Personalized services promote the differentiation and innovation of tourism products, allowing companies to stand out in a fierce market.

The acquisition and application of real-time information are also crucial for the modern tourism experience. With the development of GPS and mobile Internet technology, tourists can obtain road conditions, public transportation timetables, and real-time positioning information at any time, allowing them to effectively plan travel routes and avoid congestion (Gretzel, et al., 2020). Real-time monitoring of weather and environmental information also plays a key role in itinerary arrangements and safety. For instance, the West Lake Scenic Area uses big data technology to monitor tourist flow in real time and dynamically adjusts management measures to alleviate congestion during peak periods (Liu, 2019).

### **Theoretical Framework**

This study integrates three core theories to construct a robust conceptual framework. The Stimulus-Organism-Response (S-O-R) Framework suggests that digital technology serves as the environmental *Stimulus* that influences the *Organism* (the tourist's internal emotional state), leading to a behavioral *Response* (satisfaction, loyalty). The Technology Acceptance Model (TAM) explains how perceived ease of use and usefulness influence the adoption of digital tools, which is moderated by individual characteristics like digital literacy. Finally, Emotional Contagion Theory posits that emotions can be transferred through digital interactions, such as immersive VR narratives or social media sharing, thereby amplifying the tourism experience.

Based on this framework, the study proposes that the application of digital technology has a significant positive effect on the emotional elements of the tourism experience (H<sub>1</sub>). These emotional elements are hypothesized to have a significant positive impact on tourist satisfaction (H<sub>2</sub>). Furthermore, individual characteristics such as age and digital literacy are expected to moderate the relationship between digital technology and emotional elements (H<sub>3</sub>). Tourist satisfaction is posited to have a significant positive effect on tourist loyalty and word-of-mouth communication (H<sub>4</sub>). Finally, the emotional elements of the tourism experience are hypothesized to have a direct positive impact on tourist loyalty and word-of-mouth

communication (H<sub>5</sub>).

## Methodology

### Research Design

This study employs a pragmatic, explanatory sequential mixed-methods design. The research begins with a quantitative phase to identify statistical patterns and causal relationships, followed by a qualitative phase to provide contextual depth and explain *how* these relationships manifest in real-world scenarios. This multi-methodological approach ensures a comprehensive evaluation of the impact of digital technology on tourists' emotional experiences.

### Quantitative Phase

The quantitative phase involved a large-scale questionnaire survey aimed at collecting a wide range of tourists' opinions and feelings from various tourist attractions in Zhejiang Province. A stratified random sampling method was used to select tourists visiting major smart tourism destinations, such as West Lake and Wuzhen. A total of 450 valid questionnaires were collected. The questionnaire measured key constructs including Digital Technology Application, Emotional Elements, Tourist Satisfaction, Loyalty, and Word-of-Mouth. Items were measured on a 5-point Likert scale. The design of the questionnaire fully considered the logic and comprehensibility of the questions to ensure the collection of high-quality data.

Data analysis for the quantitative phase utilized Structural Equation Modeling (SEM) using AMOS and SPSS software. This method was chosen to test the proposed hypotheses and validate the conceptual framework. Descriptive statistical analysis was first performed to provide a basic overview of the survey data, including the background information of the respondents and the distribution of the main variables. Subsequently, confirmatory factor analysis (CFA) was conducted to assess the reliability and validity of the measurement model. Finally, the structural model was tested to determine the significance and strength of the path coefficients between variables.

### Qualitative Phase

The qualitative phase consisted of field observations and in-depth interviews. Field observations were conducted at selected tourist attractions, focusing on visitors' interactions with digital technologies such as AR, VR, and mobile apps, and their visible emotional responses. Researchers recorded detailed scene descriptions, visitor behavior, technology usage, and any significant emotional expressions. This provided direct evidence of visitor behavior in real-world scenarios.

In addition to observations, in-depth interviews were conducted with 15 tourists and 10 tourism industry professionals (managers, tech experts). These interviews probed the specific types of digital interactions that evoked strong emotions and the challenges faced in implementation. Participants were selected using purposive sampling to ensure diversity in demographics and technology usage experience. Content analysis was then conducted on the interview transcripts and relevant social media data to identify key themes regarding emotional engagement and technology acceptance. This qualitative data served to triangulate the quantitative findings and provide a richer understanding of the research context.

## Results

### Quantitative Findings

The SEM analysis demonstrated a robust fit for the proposed model, with all fit indices meeting acceptable thresholds ( $\chi^2/df=2.34$ ,  $RMSEA=0.065$ ,  $CFI=0.94$ ,  $TLI=0.93$ ,  $SRMR=0.048$ ). The demographic analysis of the 450 respondents revealed a diverse sample in terms of age, gender, and travel frequency, providing a representative basis for the study. The results provided strong support for Hypothesis 1, indicating that the application of digital technology has a significant positive effect on the emotional elements of the tourism experience ( $\beta = 0.58$ ,  $p < 0.001$ ). This confirms that digital tools are not merely functional but are effective mediums for emotional delivery. VR and AR were identified as particularly potent in creating immersive "pre-experiences" that build anticipation and emotional connection. Furthermore, Hypothesis 2 was supported, showing that emotional elements are strong predictors of tourist satisfaction ( $\beta = 0.67$ ,  $p < 0.001$ ).

The analysis also confirmed Hypothesis 4 and Hypothesis 5. Tourist satisfaction significantly influenced tourist loyalty ( $\beta = 0.71$ ,  $p < 0.001$ ) and word-of-mouth communication ( $\beta = 0.64$ ,  $p < 0.001$ ). Crucially, the study found a direct path from emotional elements to loyalty ( $\beta = 0.29$ ) and word-of-mouth ( $\beta = 0.31$ ), suggesting that highly emotional experiences can drive loyalty behaviors even independently of cognitive satisfaction evaluations. This highlights the power of affective bonding in the tourism context.

Regarding individual differences, the analysis supported Hypothesis 3, confirming that individual characteristics significantly moderate the impact of technology on emotion. Digital literacy and age were key factors; younger, tech-savvy tourists derived higher emotional value from digital interventions, whereas older tourists or those with lower digital literacy required intuitive interfaces to avoid frustration. This aligns with the Technology Acceptance Model (TAM) and suggests the need for segmented digital strategies.

### Qualitative Findings

The qualitative analysis enriched the statistical results with several primary themes. Interviewees emphasized that digital technology transformed passive sightseeing into active cultural participation. For example, AR applications in Wuzhen allowed tourists to "see" lost ancient buildings, bridging the temporal gap and evoking a sense of historical awe. One professional noted that AR doesn't just show the building but tells the story of the people who lived there, touching the tourist's heart.

Another key theme was "personalized emotional care." AI-driven personalization was perceived as a form of emotional care, where tourists reported that receiving tailored itinerary recommendations or real-time assistance via chatbots made them feel valued and understood. This "data-driven empathy" significantly enhanced their emotional attachment to the destination brand. Tourists expressed that these personalized touches made the experience feel unique and curated specifically for them.

However, participants also highlighted challenges, described as the "double-edged sword" of technology. Over-reliance on screens could detach tourists from the physical reality, and data privacy concerns were raised regarding personalized services. Professionals stressed the need for "sensible" digitization that supports rather than overshadows the authentic cultural experience. There was a consensus that technology should be an enabler of experience, not the experience itself, unless the attraction is specifically tech-focused.

## Discussion

### Digital Technology as an Emotional Catalyst

This study challenges the traditional view of digital technology as purely a utility for efficiency. Instead, it positions technology as a catalyst for *emotional contagion*. By facilitating immersion (VR/AR) and personalization (AI), digital tools satisfy higher-order psychological needs for connection and novelty. The findings align with the Experience Economy theory, suggesting that digital tools are essential for staging memorable tourism experiences (Pine & Gilmore, 2019). The significant positive impact of digital technology on emotional elements confirms that virtual environments can evoke genuine emotional responses, which are then transferred to the physical destination.

### The Mediating Role of Emotional Elements

The results underscore that technology alone does not drive loyalty; it is the *emotional response* elicited by the technology that matters. The significant mediation of emotional elements implies that tourism investments should focus on "emotional engineering"—designing digital touchpoints specifically to evoke joy, awe, or nostalgia, rather than just providing information. This finding supports the S-O-R framework, where the digital stimulus must successfully trigger an organismic emotional reaction to elicit the desired behavioral response of loyalty.

### Bridging the Digital Divide

The moderation analysis regarding age and digital literacy suggests a critical need for inclusive design. While Gen Z may prefer complex AR games, older demographics benefit more from simplified, voice-activated smart guides. Destinations must adopt a segmented approach to digital strategy to ensure emotional engagement across all visitor profiles. This is consistent with the Technology Acceptance Model, which posits that perceived ease of use is a prerequisite for adoption. If a technology is too difficult to use, it creates frustration rather than emotional engagement, negating its potential benefits.

### Implications for Brand Loyalty

The study establishes a clear link between emotional connection, memory creation, and brand loyalty. Emotional connection promotes the persistence of memory by enhancing the emotional depth of the travel experience. Positive emotional experiences help to enhance tourists' memory of their travel experience, making them have more positive emotional reactions when recalling the travel process (Kim, 2014). This deep memory not only prolongs the time for tourists to recall the travel experience but also inspires tourists to choose the brand or destination again in the future. Therefore, building emotional connections through digital means is a strategic imperative for fostering long-term loyalty.

## Conclusion and Recommendations

### Conclusion

This study confirms that the strategic application of digital technology in Zhejiang's tourism sector significantly enhances tourists' emotional experiences, which in turn drives satisfaction, loyalty, and positive word-of-mouth. The mixed-methods evidence supports a comprehensive model where digital tools serve as stimuli for emotional engagement, moderated by individual characteristics. The integration of S-O-R and TAM frameworks provides a robust theoretical basis for understanding the "tech-emotion" nexus in modern tourism. The findings demonstrate that when digital technology is used to tell stories,



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