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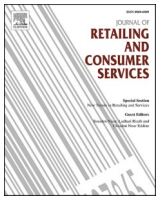

The factors influencing STD through SOR theory

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A R T I C L E I N F O

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A B S T R A C T

Smart Tourist Destinations (STDs) are revolutionising the tourism landscape by leveraging technology to enhance tourism experiences. Nonetheless, this study shows that little attention has been paid to how tourists' perceptions impact the use of tourism applications within STDs. To address this gap, the study introduces a unique conceptual framework based on the Stimulus–Organism–Response (SOR) model. This approach considers various aspects, such as social, cultural, physical and environmental stimuli, while also considering satisfaction and perceived value as internal responses and loyalty as the ultimate response. A quantitative study of 554 tourists visiting the STD of Cáceres was conducted to validate this framework. The findings provide insights into the relationships among stimuli, mobile apps and loyalty, offering transformative potential for shaping tourists' attitudes and behaviours. Overall, this study sheds light on the transformative potential of technological solutions in STDs and presents practical implications for destination management and the development of effective strategies to improve tourism experiences.

1. Introduction

Smart tourism destinations (STDs) are emerging with tremendous force in the European tourism landscape. An STD is a destination that obtains information from physical and digital sources that, combined with advanced technology, makes it possible to offer experiences and value propositions focused on efficiency, sustainability, and enhancement of the tourist experience (Gretzel et al., 2015).

Most of the research, however, has focused on the study of innovation and competitiveness strategies at the destination as well as the development of intelligent applications that enrich tourist experiences for users through new data processing techniques (Gretzel et al., 2015; Kontogianni and Alepis, 2020). Few studies have focused on analysing tourists' perceptions regarding the tourism applications used at an STD and how these applications condition their attitudes and behaviours (Tavitiyaman et al., 2021). Some authors in different contexts have already pointed out the importance of studying factors such as physical, environmental, social, and cultural stimuli, the perceived value of tourism applications, the satisfactions experienced by tourists, and the tourists' loyalty towards the STD (Cheah et al., 2020; Choi et al., 2020a, b; Cui and Meng, 2021; Hu et al., 2016; Kumar et al., 2021a; Pizam and Tasci, 2019; Yuan et al., 2020).

In this sense, STDs have been evaluated through the lens of different theories, such as arousal theory (Wang et al., 2020), the technology acceptance model (Kaplanidou and Vogt, 2006), and social cognitive theory (SCT) (Afolabi et al., 2021; Rana and Dwivedi, 2015). The stimulus–organism–response (SOR) theory has been used in the field of the STD to evaluate the relationship between destination reputation, place attachment, tourist satisfaction, and search for alternative destinations (Su et al., 2018). Additionally, it has been used to examine the impact of destination brand communities based on social media, tourist emotions, and their effects on tourists' intention to co-create value and visit the destination (Cheung et al., 2020). To date, there are, however, no studies of STDs that take into account the effects of different stimuli on tourists' satisfaction and perceived value in relation to the mobile applications they use at their destination and how this, in turn, can influence behavioural intentions.

Mobile applications within STDs have been recognized as crucial components in fostering dynamic connections between the destination and tourists. These technological solutions enable tourists to actively participate in networked collaborations, effortlessly exchanging resources and information with others. As a result, these mobile applications have the potential to significantly impact and reshape tourists' attitudes, behaviors, and overall experiences at the destination, offering them a transformative and enriched journey (Jovicic, 2017). In recent years, there has been a proliferation of studies that evaluate the use of

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technological applications at tourist destinations (Coves-Martínez et al., 2022; Jiang and Mohamed, 2022; Kim et al., 2021; Zhang et al., 2021). The SOR model has been previously applied in conjunction with technology and consumer behaviour. For instance, it has been used to evaluate food delivery apps (Kumar et al., 2021b) or to study the atmospheric experience of online stores (Aboubaker Ettis, 2017). Even studies combining technology and tourism have been assessed through the SOR theory. For example, Kim et al. (2020) highlight how the use of virtual reality, prior to visiting a destination, is preceded by stimuli, and Gao et al. (2023) examine the effects of travel apps on tourists' intentions, providing information on the impact of different stimuli on mobile apps. The main objective of this research is to apply SOR theory to fill an existing gap in the tourism literature on the explanatory power of physical, environmental, cultural, and social stimuli and how they affect variables of perceived value and satisfaction with the applications used at an STD, thereby developing positive intentions of behaviour – such as loyalty towards the destination. Additionally, it analyses the direct and indirect effects of stimulus variables on the response variable of loyalty – all in the context of an STD. By understanding how different stimuli impact tourists' perceptions and behaviour, an STD can design mobile applications that leverage these stimuli and are more effective in meeting the needs of tourists, enhancing their satisfaction, and increasing user engagement and their loyalty. Social media sharing and recommendations from friends offer culturally relevant information and experiences, among others, and can influence tourist behaviour. Overall, analysing the effect of perception of stimuli on mobile app usage in STDs is important for designing effective mobile apps that provide value and enhance the tourist experience.

In the current tourism context, this study offers a significant contribution by addressing a gap in the tourism literature. The focus of this research lies in analysing the explanatory power that various perceived stimuli in an STD, be they social, environmental, physical or cultural, have on the value and satisfaction obtained through the use of mobile applications and therefore on loyalty towards the destination in question. Thus, this study presents a novel perspective in the tourism literature that can offer valuable practical implications for destination management and the creation of effective strategies to increase tourist satisfaction and loyalty to an STD.

The study was conducted through a sample of tourists who visited a popular urban tourist destination in Spain – Cáceres – which has the peculiarity of being an STD and was also declared a world heritage site by UNESCO in 1986. Furthermore, the use of SOR theory on an STD is noteworthy because, for the first time, it is being applied in a context in which there is a combination of tourism and technological applications.

2. Theoretical framework

Smart tourism destinations (STDs) have gained prominence as destinations that leverage advanced technology and information from physical and digital sources to enhance the tourist experience, promote efficiency, and prioritize sustainability (Gretzel et al., 2015). The overarching goal of STDs is to utilize technological infrastructure to optimize resource management, improve competitiveness, and ensure long-term satisfaction for tourists (Buhalis and Amaranggana, 2013). Examples of initiatives in smart tourism destinations include the use of beacons to provide location-based information on mobile devices, online data analytics to enhance destination branding, and the design of specialized tourist routes near health-care facilities for individuals with specific health needs (Almobaideen et al., 2016; Marine-Roig and Anton Clave, 2015).

In particular, this study has selected the STD of Cáceres (Spain). Cáceres embarked on its journey to become a Smart City through its involvement in the second smart cities initiative called 'Cáceres, Smart Heritage.' The objectives of this undertaking are multifaceted: to preserve, enrich and promote heritage awareness; to gather insights into the behaviour of visitors and residents concerning their interactions with the city; to implement measures to foster visitor loyalty; to diversify the utilization of available services; and to establish an effective management system and model that bolster the local business sector.

The framework for the SOR theory originates from the field of environmental psychology. It posits that the environment comprises stimuli (S) that can influence and modify individuals' internal or organismic states (O). These internal states, in turn, trigger either approach or avoidance responses (R) from individuals (Mehrabian and Russell, 1974). The model's utility in evaluating tourist responses is evident, as it facilitates a comprehensive understanding of tourist perceptions and attitudes towards external stimuli, as well as their subsequent behaviors (Björk, 2010; Kani et al., 2017; Manthiou et al., 2017). Therefore, this study takes the traditional SOR model as a starting point to try to explain the physical and emotional reactions that occur at an STD due to exposure to different stimuli, as well as these reactions' consequences in tourists' attitudes and behaviours.

So far, SOR theory has been used by various researchers to analyse the effects of technological attributes such as online shopping (Parboteeah et al., 2009), virtual worlds (Animesh et al., 2011), social worlds (Cao and Sun, 2018), and surveillance (Jung et al., 2021). The SOR model has also been widely used in the tourism field (Hew et al., 2018; Jani and Han, 2014; Kim et al., 2020; Rajaguru, 2014; Rodríguez-Torrico et al., 2020; Su and Swanson, 2017; Wu et al., 2021; Yin et al., 2020).

The utilization of the SOR paradigm as the theoretical foundation for the present study on the management of STDs offers two notable advantages. Firstly, the SOR model has already been employed in the realm of online consumer behavior, investigating how the interplay between humans and technology influences purchase intentions. Thus, its application is fitting for examining the behavioral intentions of tourists within an STD context. Secondly, stimuli within the model represent the factors that determine the performance of tourist applications (organism), while the organism reflects the affective and cognitive states of consumers (stimulus). This dynamic interaction acts as an intermediary platform that gives rise to specific behavioral outcomes (response) (Manganari et al., 2009; Mummalaneni, 2005; Zhu et al., 2019). However, this framework has not yet been applied to the context of STDs. Thus, our research is based on the SOR theoretical framework, which covers physical, environmental, social, and cultural stimuli, perceived value of the applications used at the destination, satisfaction achieved through the applications, and tourist loyalty towards the STD.

Stimuli are environmental signals that condition individuals' psychological states (Jung et al., 2021), influencing their perceptions and serving as a starting point for the decision-making process (Koo and Ju, 2010). These attributes are the starting point for tourists' behaviour; they are the elements that enter their cognition and, consciously or unconsciously, incite them to action (Koo and Ju, 2010).

In the context of tourism, the attributes that can be introduced into the tourist's mind include social stimuli, such as the presence of employees, other tourists, and other people (Kucukergin and Meydan Uygur, 2019; Kumar et al., 2021c; Packer and Ballantyne, 2016); physical stimuli, such as appearance or location (Bitner, 1992; Zhang and Xu, 2019; Zhang et al., 2022a,b); environmental stimuli, such as temperature, environmental conditions or noise (Wang et al., 2020); and cultural stimuli, such as symbols or culture in general (Pizam and Tasci, 2019; Radic et al., 2021; Zhang and Xu, 2019).

Stimuli are considered to be antecedents of organismic response (Mehrabian and Russell, 1974), which can be defined as the cognitive and affective processes of individuals in response to environmental stimuli and their attitudinal or behavioural reactions (Mehrabian and Russell, 1974).

The SOR paradigm encompasses various essential aspects such as attitudes, emotions, perceptions/feelings, judgments, beliefs, motivations, and thinking. In order to enhance the quality of services provided and elevate the tourist experience at the destination, this study focuses on organismic variables, namely the perceived value of tourist

applications and overall satisfaction derived from utilizing these applications. Consequently, user feedback becomes invaluable as it enables adjustments to be made to the applications, ensuring they are more adaptive to the specific needs of tourists visiting the STD.

We can understand perceived value as 'a consumer's overall assessment of the utility of a product based on the perceptions of what is received and what is given' (Zeithaml, 1988, p. 14). Tourists' perceived value tends to be subjective and personal (Parasuraman et al., 1985), but tourists who perceive higher value will recommend their use (Ryu et al., 2012). Physical, social, environmental and cultural stimuli contribute to increased perceived value, and tourism service providers can leverage these stimuli to enhance customer perception (Choi et al., 2020a,b; Hewei and Youngsook, 2022; Ryu and Han, 2011; Zhang and Xu, 2019).

In the context of tourism, social stimuli refer to interactions between individuals and the society around them, such as employees, other tourists and other people. These interactions influence how we behave and perceive ourselves and others (Kucukergin and Meydan Uygur, 2019; Kumar et al., 2021a; Packer and Ballantyne, 2016). The perception of social stimuli can increase the perceived value of a tourism destination by fostering a sense of trust, connection and community (Ronaghi and Ronaghi, 2022). Social stimuli can provide social proof, and if tourists receive positive social stimuli related to a particular destination, they perceive it as valuable and trustworthy (Gharaibeh et al., 2018). Additionally, social stimuli can enhance the overall tourist experience and create a sense of shared experience and emotional connection (Ronaghi and Ronaghi, 2022).

Environmental stimuli encompass purely environmental characteristics found in the destination's surroundings, such as temperature, environmental conditions or noise (Wang et al., 2020). Therefore, environmental stimuli (such as temperature, humidity, noise and air quality) can particularly impact tourist behaviour in challenging or negative environments. These applications can bridge cultural differences and facilitate understanding of the host culture and thus positively impact the tourist experience.

On the other hand, physical stimuli refer to specific characteristics of the appearance or location of the tourist destination, such as architecture, ornamentation, geographic location or visual elements of the natural environment (Bitner, 1992; Zhang and Xu, 2019; Zhang et al., 2022a,b). These stimuli, such as the infrastructures, architectural structure and decor of a tourist destination or the natural beauty of its landscape can enhance the perceived value of a destination. Physical stimuli can therefore significantly impact customer perceived value in the tourism industry. Tourism service providers can improve customer perception of their destinations and services by leveraging physical stimuli (Zhang et al., 2022a,b).

Finally, cultural stimuli include patterns of behaviour, values, beliefs and customs shared in a society, such as symbols or culture in general (Pizam and Tasci, 2019; Radic et al., 2021; Zhang and Xu, 2019). These stimuli can greatly influence the perceived attractiveness of a travel destination. Tourists are drawn to locations that offer unique cultural experiences, like visiting historical sites, participating in cultural festivals or trying local cuisines. Cultural stimuli can be a potent driver of tourism as visitors seek to learn about and engage with cultures different from their own (Zhang and Xu, 2019). By understanding and leveraging unique cultural stimuli, tourism service providers can tailor their offerings to appeal to a specific target audience and enhance the value perceived by the customer.

Consequently, the design and implementation of environmental, physical, cultural and social stimuli within a tourist destination play a crucial role in enhancing the perceived value of tourist applications. Creating a stimulating and enriching environment through these stimuli can promote the development of the destination as a tourist hotspot. By leveraging these stimuli, service providers can generate a more enriching and satisfactory experience for users, leading to greater perceived value of tourist applications and, ultimately, contributing to the development of the destination as a whole. Therefore, it is established that:

H1. Physical (a), environmental (b), social (c), and cultural (d) stimuli have a positive impact on the perceived value of tourist applications.

In tourism, we can understand that 'satisfaction is considered the cognitive–affective state of a tourist derived from their experience in the destination' (del Bosque and Martín, 2008). In the technological context, we understand satisfaction as 'the total consumption perception of consumers when using mobile applications' (Chang, 2015, p. 3), in which components such as utility, social and cultural factors play a role (Coves-Martínez et al., 2022). Different studies have shown that environmental stimuli (Zibarzani et al., 2022), physical stimuli (Choi et al., 2020a,b), and social and cultural stimuli (Pizam and Tasci, 2019) have a positive impact on satisfaction Satisfaction in the SOR model has been used in fields that combine aspects related to tourism and technology (Liu and Huang, 2023; Yang and Lee, 2023; Yu et al., 2023) and consumers and technology (Bhardwaj et al., 2023; Yan et al., 2023). Some studies have explored the relationships between stimuli and satisfaction. For example, Kim et al. (2020) investigate the relationship between stimuli in virtual tourism and consumer behaviour and how they impact satisfaction, while Nguyen et al. (2023) examine the role of stimuli on satisfaction to enhance the destination's brand value using social media communication, suggesting its applicability within the context of an STD. Based on the above, we understand that the environmental, physical, cultural, and social stimuli of an STD will increase the satisfaction produced by the destination's tourist applications because these factors contribute to creating a more enriching, authentic, and complete experience. Therefore, it is established that:

H2. Physical (a), environmental (b), social (c), and cultural (d) stimuli have a positive impact on the satisfaction of tourist applications.

Additionally, it has been shown that perceived value has a positive effect on satisfaction in different contexts (Choi et al., 2020a,b; Hu et al., 2009; Kuo et al., 2009; Song and Qu, 2017). Thus, perceived value has been established as a well-known determinant of tourist satisfaction (Tarn, 1999). Ryu et al. (2008) already demonstrated the positive and significant impact of perceived value on satisfaction in the restaurant sector. For instance, a study highlights the influence of young tourists' perceived value on their satisfaction with a nature-based tourism experience in Olympos, Antalya-Turkey (Caber et al., 2020). Although the relationship between perceived value and satisfaction has been extensively studied in various contexts, its exploration within the domain of STDs is still relatively uncharted. Consequently, it is our understanding that when tourists perceive a higher value in tourism applications, their satisfaction levels in utilizing these applications will correspondingly increase. This heightened satisfaction stems from the perception that they are deriving additional benefits or experiencing improvements in their overall tourism experienceThus, we establish that:

H3. Perceived value of tourism applications at an STD has a positive impact on tourist satisfaction.

While cognitive reactions refer to the cognitive processes of individuals in interaction with stimuli (Eroglu et al., 2001), affective reactions are the emotional reactions of individuals to environmental signals (Sun and Zhang, 2015). In previous studies, purchase intention (Hewei and Youngsook, 2022; Rodríguez-Torrico et al., 2020; Wu et al., 2014), behavioural intentions (Flavián et al., 2019; Luqman et al., 2017; Sultan et al., 2021), revisit intentions (Errajaa et al., 2022; Jani and Han, 2014; Kumar et al., 2021b), intention of word-of-mouth (Errajaa et al., 2022; Kumar et al., 2021c; Tran and Strutton, 2020), and loyalty (Tran and Strutton, 2020; Vilnai-Yavetz et al., 2021; Yuan et al., 2020) have been employed as response factors.

Thus, the variable we have taken in this study is loyalty, which can be understood as '*a deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same brand or same brand-set purchasing, despite situational influences and*

marketing efforts having the potential to cause switching behaviour' (Oliver, 1999, p. 34). Loyalty has been used as a response variable in studies related to the environment and commerce in shopping centres (Vilnai-Yavetz et al., 2021), social commerce websites (Molinillo et al., 2021), virtual reality in tourism (Schiopu et al., 2022) and tourist routes (Carrà et al., 2016) Studying loyalty can help understand how tourists perceive and value not only the destination but also its tourism offerings. Thus, by understanding the factors that drive tourist loyalty, such as perceived stimuli, perceived value, or satisfaction levels, tourism managers can develop strategies that contribute to improving service offerings, tourist satisfaction, and ensuring long-term success. A While loyalty has commonly been utilized as a response variable, its application to assess the impact of stimuli (environmental, social, physical, and cultural) on the perceived value of tourism applications, as well as its relation to satisfaction, and how these factors subsequently influence loyalty towards the destination within the framework of an SOR model, remains unexplored.

Perceived value has long been considered an important antecedent of adoption intentions and loyalty (Li et al., 2018). The use of mobile applications can provide real-time information and more personalised services based on tourists' current locations, which adds more value and therefore greater willingness to be loyal (Wang, 2014). For example, in the context of consumer services, the effect of user satisfaction on their loyalty toward mobile payment platforms using applications such as Alipay and WeChat Pay in China has been evaluated (Zhong and Chen, 2023). Consequently, we understand that tourists who perceive greater usefulness of tourism applications feel that they have been better served and afforded higher consideration and are therefore more satisfied with their overall tourism experience. Thus, they are more likely to be willing to return to the same tourist destination in the future.

H4. Perceived value of tourism applications has a positive impact on the loyalty of tourists visiting an STD.

Regarding satisfaction, it has been found to be a key factor in fostering customer loyalty and building and retaining a long-term consumer base (Nascimento et al., 2018). User satisfaction is a key element in investigating technology-related aspects (Delone and McLean, 2003). Thus, the success of tourism applications is measured through satisfaction (Coves-Martínez et al., 2022; Montesdioca and Maçada, 2015; Shah and Kubota, 2022; Zhu and Alamsyah, 2022). In turn, numerous studies indicate that satisfaction is a fundamental determinant of behavioural intention (Adam, 2021; Choi et al., 2020a,b; Kim, 2022; Ryu et al., 2012; Tarn, 1999). Satisfied users are likely to use a service more extensively and develop greater loyalty than unsatisfied ones. For example, a study conducted by Jiang and Yan (2022) analyses the role of satisfaction with soundscape in forming tourism loyalty. Service providers of tourism applications can capture loyal users by satisfying their needs, so that they do not switch to alternatives. Based on this, the following hypothesis is proposed:

H5. Satisfaction with tourism applications has a positive impact on the loyalty of tourists visiting an STD.

Referring to Fig. 1, we propose a model using social, physical, environmental, and cultural stimuli as stimuli (S), perceived value and satisfaction with tourism applications as the organism (O), and loyalty towards the destination as the response variable (R).

3. Methodology

This research utilized a questionnaire designed to gather quantitative data and evaluate the study's hypotheses. Prior to administering the survey, a pilot study was conducted with a sample of 30 participants to ensure the questionnaire's validity and user-friendliness. The pilot study involved a series of meetings and consultations with experts and focus groups, which facilitated the incorporation of minor adjustments based on their valuable input. Additionally, once the data from the pilot study were collected, it was verified that all Cronbach's alpha values were above 0.7, confirming the internal consistency of the proposed scales for the focus groups.

Upon completion of the pilot study, a purposive sampling technique was employed to gather data from visitors to Caceres. Data collection took place between October and December 2022. A total of 570 face-to-face interviews were conducted with domestic and international tourists who were present in the old town of Cáceres, using surveys administered by trained personnel who utilized electronic devices to collect the responses. Five trained individuals were recruited to conduct the survey. All respondents were informed of the survey's objective, the responsible entity, and the guarantee of anonymity and confidentiality of their data. Potential respondents were politely invited to participate, and questionnaires were distributed only to those willing to take part to minimize participation refusals. Additionally, respondents were informed about the meaning and main features of an STD like the city of Cáceres and were asked beforehand whether they used the tourism apps of the destination during their visits. Only those who responded affirmatively to this question participated in the survey, as all the questions revolved around the use of this technology and users' perceptions of it. On average, respondents took approximately 5 min to complete the questionnaire. A total of 554 valid questionnaires were collected, with a margin of error of 4.20% (95% CI). The sample included 40.4% men and 59.6% women, with an average age of 33 years. Education-wise, 23.5% were vocational training graduates, 20.2% had secondary education, while high school and university graduates accounted for 20% and 17.5% respectively, indicating an adequate level of education for understanding the questionnaire's content. In terms of travel companions, the majority were couples (48.0%), followed by those with family members (28.7%) and friends (11.9%), while solo travelers were the least common (11.4%). In relation to income, the majority of respondents reported a monthly income of less than €1000 (54.7%), followed by those with incomes between €1000 and €3000 (43.5%), and a small percentage with incomes exceeding €3000 (1.8%).

The questionnaire is structured into three thematic sections and an introduction. The introduction contains a brief explanation of the survey to be conducted and describes what an STD is, specifically, in the case of study, the city of Cáceres.[1] Finally, it indicates that data is collected in accordance with current data protection legislation. Part 1 contains questions related to stimuli (physical, environmental, social, and cultural). Part 2 focuses on perceived value and satisfaction with tourist applications as well as loyalty. Lastly, Part 3 contains questions related to socio-demographic profile (age, gender, income, education level, and type of travel companions). All questions, except those related to the socio-demographic profile, are measured by a 7-point Likert scale (1 = totally disagree, 7 = totally agree). The scales and the items used in this study, as well as the reference bibliography used in its development,

[1] To facilitate the degree of knowledge of the respondents about what the designation of Cáceres as an STD implies for the city, the questionnaire explains that "the 'Smart Heritage Cáceres' project is aimed at conserving, valuing, and promoting heritage, acquiring a greater understanding of the behaviour of visitors and citizens in their relationship with the city, activating strategies to retain visitors, diversifying the consumption of service offerings, and structuring a management system and model that enhances the local business sector. One of the initiatives has been the development of a mobile tourism app and Cáceres Card. Additionally, innovative complementary tourist offerings have been implemented, such as the Innovative Tourist Routes, with the aim of continuing to discover other attractions of the city beyond the jewel in the crown that is the old town of the city. Finally, the questionnaire adds that all these measures have led to the revaluation of the destination through innovation and technology, which entails an increase in competitiveness, an improvement in efficiency, as well as a boost to sustainable development of the destination, not only in the environmental aspect but also in the economic and socio-cultural ones". (Adapted from the information published by the City of Cáceres on its website: https://www.ayto-caceres.es).

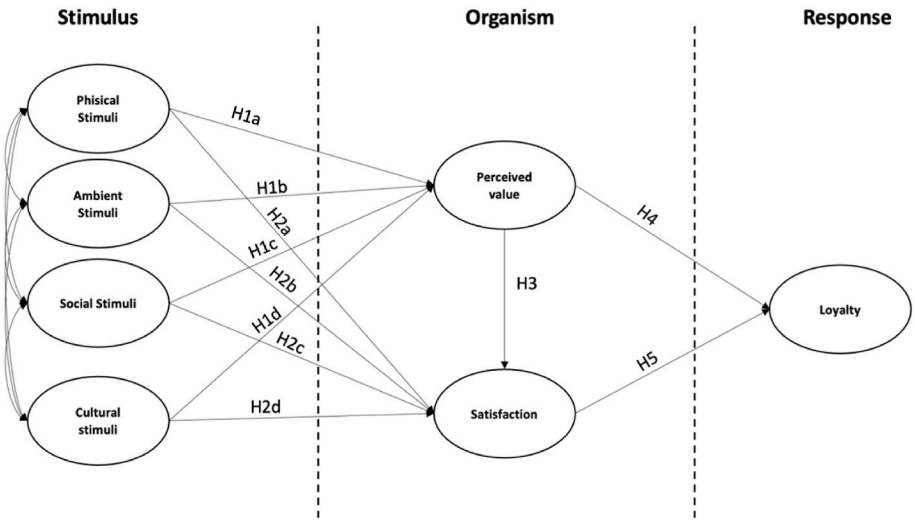

Fig. 1. Theoretical model and hypothesis.

have been collected and adapted from the existing literature; they are listed in Table 1.

The current study used SPSS 28 and AMOS 26.0 to analyse the data with the maximum likelihood algorithm. Following Anderson and Gerbing (1988) two-step approach, a measurement model was estimated using confirmatory factor analysis (CFA), and structural equation modelling (SEM) was used to test causal relationships. The following fit indices were calculated to determine how the model fitted the data: chi-square (χ^2), the comparative fit index (CFI), the goodness fit index (GFI), and the normed fit index (NFI) should be close to 0.9 or 1.0 and the robustness of mean squared error approximation (RMSEA) should ideally lie between 0.05 and 0.08.

4. Results

4.1. Measurement model

All latent variables (physical stimuli, ambient stimuli, social stimuli, cultural stimuli, perceived value, satisfaction, and loyalty) were assessed for unidimensionality, reliability, and construct validity. As seen in Table 1, the CFA results indicated that the model fits the data well (χ^2 = 936,191, df = 254, χ2/df = 3,68, GFI = 0.88, CFI = 0.92, NFI = 0.90, IFI = 0.92; RMSEA = 0.07). All items loaded above 0.60 on their assigned factors and were significantly associated with their specified constructs ($p < .01$). These results provided evidence for the unidimensionality of each scale. In addition, the Harman single-factor test, which uses the EFA to determine whether study results are affected more by methodological issues than by actual substantive effects, has been used to test for common method bias (Fuller et al., 2016). To conduct the single-factor test, an EFA must be conducted with all indicators, and the main criterion for recognising common method bias includes the occurrence of a single-factor solution and/or that the first factor explains 50% or more of the variance of the indicators (Podsakoff et al., 2012). The results showed a variance of 41.898%, demonstrating the absence of common method bias. Reliability (Cronbach, 1951) and composite reliability of study constructs, indicating the internal consistency of multiple indicators for each construct, ranged from 0.71 to 0.92, exceeding the recommended threshold (0.70) suggested by Bagozzi and Yi (1988).

Additionally, AVE ranged from 0.50 to 0.86, exceeding the recommended value of 0.50 (Fornell and Larcker, 1981), with the exception of the physical stimulus construct, which exhibited an acceptable level, ranging between 0.36 and 0.50 (Fornell and Larcker, 1981). Other studies have reported lower values than 0.50 for physical stimuli (Wang et al., 2020). This confirmed convergent validity. In addition, Table 2 shows that AVE value for each construct was greater than the corresponding inter-construct square correlation estimates, indicating that discriminant validity was achieved (Fornell and Larcker, 1981). The correlation matrix also showed that all the constructs are highly correlated ($p < .01$). Thus, all the tests carried out show the reliability and validity of the proposed measurement model.

4.2. Hypothesis testing

The structural model has an acceptable model fit (χ^2 = 1044,07, df = 282; RMSEA = 0.07, GFI = 0.88, CFI = 0.92, NFI = 0.90; IFI = 0.92) as can be seen in Fig. 2. The majority of the structural coefficients were significant at different levels. Physical stimuli appeared to have an effect on satisfaction ($\beta = 0.118$ t = 1.726, $p < .01$), but not on perceived value ($\beta = 0.055$, t = 0.594, $p > .10$), rejecting H1a and confirming H2a. Additionally, the effects of ambient stimuli on perceived value ($\beta = 0.290$, t = 3.587, $p < .01$) and satisfaction ($\beta = 0.177$, t = 2.899, $p < .01$) were confirmed, supporting H1b and H2b, respectively. However, the relationship between social stimuli on perceived value ($\beta = 0.088$, t = 0.872, $p > .10$) has not been tested and the relationship between social stimuli and satisfaction ($\beta = 0.189$, t = 2.524, $p < .05$) revealed a contrast, rejecting H1c and confirming H2c. Additionally, the effect of cultural stimuli on perceived value ($\beta = 0.777$, t = 8.555, $p < .01$) and satisfaction ($\beta = 0.182$, t = 2.448, $p < .05$) was confirmed, which leads us to accept H1d and H2d. On the other hand, H3, which holds that perceived value determines satisfaction ($\beta = 0.605$, t = 10.125, $p < .01$), H4, which holds that perceived value determines loyalty ($\beta = 0.161$, t = 2.480, $p < .05$), and H5, which holds that satisfaction determines loyalty ($\beta = 0.599$, t = 6.965 $p < .01$), were all confirmed.

As shown in Figs. 1 and 2, both perceived value and satisfaction mediate the effect of independent variables of stimuli (physical, environmental, social, and cultural) on loyalty. Therefore, to complete the analysis, a mediation analysis using the bootstrap technique (with n = 5000 bootstrap resamples and its bias-corrected 95% confidence interval) was conducted to determine the significance of this. The results can indicate several scenarios: when both the direct and indirect effects through the mediating variable are confirmed, we have partial mediation. In the case where the direct effect is not confirmed but the mediation effect is, we have full mediation (Collier, 2020). The results of this analysis are detailed in Table 3.

We can observe that there is partial mediation when confirming the direct effect between physical stimulus and loyalty ($\beta = 0.405$, t = 6.652, $p < .001$) through the mediator of satisfaction ($\beta = 0.082$, $p <$

Table 1
Reliability and confirmatory factor analysis for SOR theory.

Scales[a]	Mean	SD[b]	β	CR	AV
Physical stimuli (α = 0.71)* **				0.71	0.45
[PS01] The tourist destination of Cáceres has a unique appearance.	6.14	0.67	0.74		
[PS02] The location of the tourist destination of Cáceres is suitable.	6.04	0.66	0.61		
[PS03] The environment around the tourist destination of Cáceres is beautiful.	6.19	0.66	0.66		
Enviromental stimuli (α = 0.78)[c]				0.79	0.55
[AS01] The temperature in the tourist destination of Cáceres is pleasant.	6.21	0.71	0.79		
[AS02] The environment in the tourist destination of Cáceres is not too dry/ humid.	6.09	0.74	0.79		
[AS03] The noise in the tourist destination of Cáceres is not too loud.	6.05	0.70	0.62		
Social stimuli (α = 0.87)[c]				0.87	0.58
[SS01] My travel companions/ friends/family members seem happy in Cáceres.	6.41	0.64	0.65		
[SS02] The employees in the tourism sector appear to be happy.	6.30	0.69	0.76		
[SS03] The employees in the tourism sector seem friendly.	6.29	0.69	0.83		
[SS04] The other tourists seem happy.	6.34	0.67	0.80		
[SS05] The other tourists seem friendly.	6.36	0.68	0.75		
Cultural stimuli (α = 0.81)[c]				0.82	0.61
[CI01] The cultural symbols feel familiar to me.	6.22	0.69	0.65		
[CI02] I can easily communicate with the employees.	6.36	0.69	0.84		
[CI03] I can easily interact with the other tourists.	6.30	0.70	0.83		
Perceived value (α = 0.86)[c]				0.86	0.68
[PI01] The services offered through the tourist applications of the Smart Tourist Destination of Cáceres have a good value for money.	6.22	0.73	0.82		
[PI02] The services offered by the tourist applications of the Smart Tourist Destination of Cáceres are a good purchase or hire.	6.27	0.75	0.86		
[PI03] The services offered through the tourist applications of the Smart Tourist Destination of Cáceres appear to be a bargain.	6.21	0.76	0.79		
Satisfaction (α = .91)				0.92	0.67
[ST01] The tourist applications of the Smart Tourist Destination of Cáceres are the best applications I have used.	6.17	0.73	0.66		
[ST02] I am glad that I used the tourist applications of the Smart Tourist Destination of Cáceres.	6.33	0.74	0.85		
[ST03] It was a good idea to use the tourist applications of the Smart Tourist Destination of Cáceres.	6.35	0.70	0.84		
[ST04] I am really enjoying using the tourist applications of the Smart Tourist Destination of Cáceres.	6.32	0.74	0.88		
[ST05] I do not regret using the tourist applications of the Smart Tourist Destination of Cáceres.	6.36	0.72	0.84		
Loyalty (α = .89)[c]				0.90	0.75
[LY01] I enjoy visiting this Smart Tourist Destination.	6.53	0.67	0.83		
[LY02] If I had to choose a destination again, I would choose this Smart Tourist Destination.	6.58	0.62	0.89		
[LY03] I will come back soon to visit this Smart Tourist Destination.	6.62	0.61	0.86		

[a] The items listed in this table have been summarised for easiness of presentation and comprehension.

[b] s.d: Standard deviation; β: standard regression weight; α reliability (Cronbach's α); CR: composite reliability; AV: average variance; ni: not included in the model. The used scales have been adapted from literature. In fact, the following references describe the main concepts in our study and their more meaningful references: physical stimuli (Wang et al., 2020); enviromental stimuli (Alipour et al., 2021); social stimuli Kucukergin and Meydan Uygur, 2019; cultural stimuli (Pizam and Tasci, 2019); perceived value (Cheah et al., 2020); satisfaction (López-Mosquera and Sánchez, 2014), and loyalty (López-Mosquera and Sánchez, 2014; Srinivasan et al., 2002).

Table 2
Correlation matrix of latent constructs[a].

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Social stimuli (1)	**.76**						
Ambient stimuli (2)	.67	**.74**					
Physical stimuli (3)	.67	.71	**.67**				
Cultural stimuli (4)	.68	.59	.52	**.78**			
Perceived value (5)	.54	.60	.49	.72	**.83**		
Satisfaction (6)	.51	.58	.42	.55	.79	**.82**	
Loyalty (7)	.50	.51	.45	.48	.57	.65	**.86**

[a] bold = average variance extracted.

.01), but not through perceived value (β = 0.162, p < .01). Additionally, we confirm partial mediation regarding the relationship between ambient stimuli and loyalty, as the direct effect is confirmed (β = −.132, t = 4.343, p < .01) as is the indirect effect through satisfaction (β = −0.012, p < .05), but not through perceived value (β = −0.022, p > .10).

Regarding the other two remaining stimuli, we can also confirm partial mediation. The direct relationship between social stimuli and loyalty is confirmed (β = .101, p < .01), as is the indirect relationship through satisfaction (β = 0.101, p < .01), but not through perceived value (β = 0.09, t = 1.584 p > .10). Finally, the same occurs with cultural stimulus, as its direct relationship with loyalty is confirmed (β = 0.101, p < .01), and regarding indirect relationships, it is confirmed through satisfaction (β = 0.101, p < .01), but not through perceived value (β = 0.09, t = 1.584 p > .10).

Therefore, we can observe that there is partial mediation between the stimuli and loyalty through satisfaction, but not through perceived value. Other studies have reflected the mediating relationship of perceived value (Elshaer and Huang, 2023; Yen et al., 2022), but there are no previous studies that have evaluated it as a mediator between stimuli and loyalty.

5. *Discussion and managerial implications*

This study fills a gap in the current literature by applying an SOR model to an STD, taking into account aspects of physical, environmental, social, and cultural stimuli, as well as perceived value and satisfaction with tourist applications, and loyalty towards the STD. The findings of this study support the appropriateness of incorporating measures that capture aspects of stimuli, the organism, and its response. The organism (perceived value and satisfaction) emerges as a determining factor that influences the behavioural intention to loyalty an STD. In order to investigate these aspects, this study utilizes an SOR model to analyse the stimuli, perceived value, and satisfaction that impact tourists' decision-making processes when it comes to developing loyalty towards an STD such as Cáceres in Spain. In doing so, it becomes essential for STD managers and tourism industry companies to comprehend the factors associated with physical, environmental, social, and cultural stimuli, as well as perceived value and satisfaction with tourist applications, which ultimately influence individuals in forming loyalty towards the destination. This comprehensive understanding can shed light on visitors' intentions and behavioral patterns in relation to these resources, helping determine whether they encourage, strengthen, or inhibit such behavior. If we focus on the influence that each of the analysed stimuli has on perceived value and satisfaction, the results differ. Thus, we

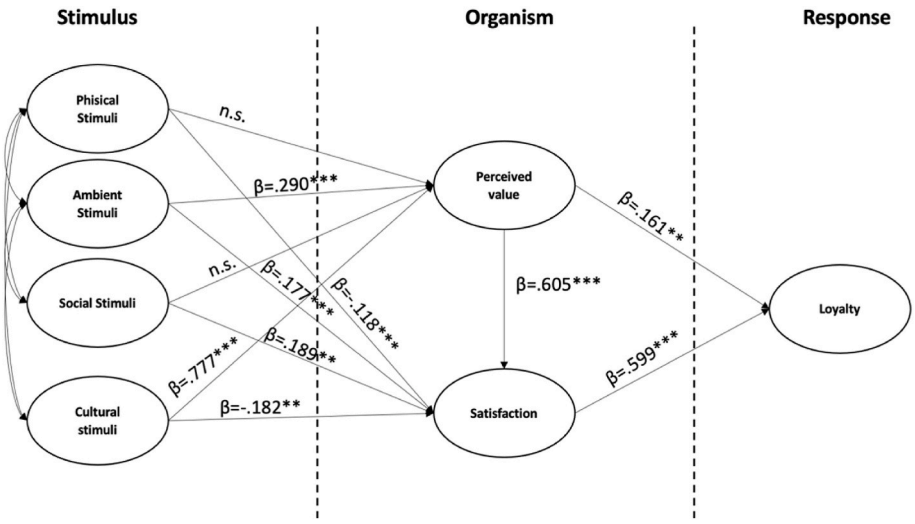

Fig. 2. SEM results.

Table 3
Indirect effects of independent variables on loyalty through trust.

Independent variable	Mediator	Dependent variable	Direct effect	Indirect effect	Mediation confidence interval		Conclusion
					Lower	Upper	
Physical stimuli	Satisfaction	Loyalty	**0.259**[a]	**0.080**	−0.004	0.200	Partial
Physical stimuli	Perceived value	Loyalty	**0.259**	0.013	−0.028	0.065	No
Ambient stimuli	Satisfaction	Loyalty	**0.221**	**0.095**	0.033	0.177	Partial
Ambient stimuli	Perceived value	Loyalty	**0.221**	0.019	−0.022	0.068	No
Social stimuli	Satisfaction	Loyalty	**0.296**	**0.101**	0.017	0.198	Partial
Social stimuli	Perceived value	Loyalty	**0.296**	−0.006	−0.050	0.007	No
Cultural stimuli	Satisfaction	Loyalty	**0.258**	**0.132**	0.031	0.282	Partial
Cultural stimuli	Perceived value	Loyalty	**0.258**	0.025	−0.117	0.208	No

[a] **Bold** = significant association ($p < .05$).

found that physical stimuli are not a determining factor of perceived value (H1a), but are a determining factor of satisfaction (H2a). This highlights that physical stimuli are not directly associated with perceived value in the context of an STD, although other studies have indicated their positive influence in the context of airline workers (Choi et al., 2020a,b). This indicates that people who believe that Cáceres is attractive and a unique place experience greater satisfaction with the application. This relationship has previously been supported by other authors (Choi et al., 2020a,b; Koufaris, 2002; Shah et al., 2020). In this context, and given the current reality, tourists can be offered a new way of visiting the destination through recreations of different stories using different technologies, such as virtual or augmented reality, thus promoting tourists to see greater value in the application being used and, therefore, show greater satisfaction from holding unique resources in the palm of their hand.

Regarding the next component, environmental stimuli have a positive relationship with perceived value (H1b) and satisfaction (H2b), and that is in line with other studies (Chung et al., 2015; Jani and Han, 2014; Libaque-Sáenz et al., 2016; Zibarzani et al., 2022). All of this indicates that people feel that certain elements, such as temperature, air quality, and noise level, determine the perceived value of tourist applications and satisfaction with them. Therefore, it should be possible to recommend certain tourist attractions through the tourist application according to the climatic conditions that exist at each moment. This can be enabled through the monitoring of temperature, air, and humidity, and transmitting this information to a data centre that allows, for example, an artificial intelligence to determine the best times to visit each tourist attraction. For example, it may design the best time to visit a covered tourist enclave based on weather predictions or suggest visiting an outdoor enclave such as walls, towers, etc. Another aspect to consider would be the use of artificial intelligence to take the outside temperature and adjust the interior temperature of tourist enclaves to improve tourist satisfaction.

Additionally, it is possible to generate collaborative networks with other companies or destinations, which have already demonstrated their commitment to environmental sustainability, can contribute to implementing sustainable practices in the STD and offer innovative and quality products and services. Given that sustainability is key to the development of an STD, committing to the promotion of sustainable tourism activities or the implementation of environmentally friendly technologies can not only favour the perception of environmental stimuli in the destination but can also increase satisfaction and the perceived value of the apps by tourists as there is a coherence between the pro-environmental actions of the destination and the commitment to sustainability of the current tourists.

On the other hand, the inclusion of social stimulus has been shown to have an influence on satisfaction but not on perceived value, leading us to accept H2c and reject H1c. This shows that social stimuli are not directly associated with perceived value in the context of an STD, although other studies have indicated their positive influence in the context of e-commerce (Hewei and Youngsook, 2022). This suggests that opinions provided by family and acquaintances about the STD of Cáceres determine a higher likelihood of satisfaction with it. Most studies reported a significantly positive relationship (Pizam and Tasci, 2019; Svendsen et al., 2013); while others have indicated a non-significant effect (Liébana-Cabanillas et al., 2014). It is therefore important that companies and destinations use social media, websites or review portals to increase satisfaction, promote the destination and interact with tourists before, during and after the visit. Online reputation management is essential through encouraging positive feedback, responding to

negative comments and promoting a positive image on different websites. For example, offering incentives and special discounts through interaction on social media or web portals can help build tourist loyalty and keep them coming back in the future.

Regarding the last stimulus, the cultural one, we can indicate that it has a positive relationship with perceived value and satisfaction (H1d and H2d). This relationship is entirely new, as it has not been previously analysed. Thus, the STD of Cáceres, which has diverse and differentiated cultural symbols (museums, galleries, festivals, cultural events, etc.), and actively promotes its cultural heritage, can be perceived as a destination of greater value. Additionally, if the tourist has an enriching and satisfying experience at the destination by interacting with a local culture similar to their own, they can develop a more positive attitude towards the place and be more willing to return in the future. Therefore, the cultural stimulus can be a determining factor in increasing both perceived value and tourist satisfaction, which will have a positive impact on the attraction and retention of tourists in the STD, making it a fundamental factor that destination managers need to consider. Specifically, destination managers can train their employees to provide better service by taking into account the cultural background of visitors to achieve better adaptation to their tastes and preferences and offer a better tourist experience.

Therefore, given the relevance of the perception of different stimuli in an STD, STD managers should carry out market segmentation policies based on identifying potential patterns and segments of consumers who show similar interests and preferences for the physical, social, environmental and cultural stimuli perceived in the destination. This strategy, together with the application of advanced technology (use of mobile applications, social networks, robotics, etc.), can help to personalise the tourism offer and create unique and immersive experiences for consumers. In addition, it helps to facilitate strategic decision-making by tourism managers in the selection of the most appropriate prices, products and services for the target customers of each segment.

Regarding the relationships between perceived value, satisfaction, and tourist loyalty, we find that both perceived value and satisfaction have a positive relationship with loyalty (H4 and H5). Therefore, individuals who appreciate greater value in the information provided through tourism applications and who are more satisfied with these applications are more likely to be loyal to the STD. These relationships have been confirmed by various studies (Jani and Han, 2014; Li et al., 2018; Nascimento et al., 2018; Ramesh and Jaunky, 2021; Ryu and Han, 2011; Sanz-Blas et al., 2019). Therefore, it is recommended to use advanced technology specific to an STD, such as 'beacons' that provide information, as well as using augmented reality, virtual reality, and artificial intelligence, which can provide valuable and quality information to the user, increasing the value of the information offered, which in turn will result in greater satisfaction. For example, when passing near a tourist attraction, the app can display a notification with information about something that occurred at that place and offer recreation through augmented reality, or the app can be asked to provide information through an intelligent chat based on the tourist destination. Based on this, and with the aim of achieving greater effectiveness and efficiency of tourism apps in the STD, it would be advisable to promote the integration of technology in tourism services in a holistic way that promotes the use of a single platform that brings together all the services offered in the STD by both private and public companies, promoting public–private collaboration, in order to offer unique and more attractive experiences to tourists, facilitating bookings and access to tourism products and services.

In parallel, a positive relationship has been revealed between perceived value and satisfaction (H3). This means that people who perceive greater value in the information provided in tourism applications tend to have higher levels of satisfaction. This relationship has already been confirmed by previous studies (Choi et al., 2020a,b; Han et al., 2019; Hui et al., 2007; Kuo et al., 2009; Luk et al., 2013; Song and Qu, 2017). Emotional marketing strategies would help to implement an interactive experience with advanced technology in which the tourist could explore the STD virtually in 3D, with sounds and sensations that amplify the perception of physical, environmental, social and cultural stimuli. This would make them feel as if they were really in the destination, allowing them to get to know in detail all the products and services offered in that particular STD. Therefore, it would generate a unique and unforgettable emotional experience for the tourist that would make them want to return to the STD in the future.

In conclusion, our study of the SOR model shows that its components (physical stimuli, environmental stimuli, social stimuli, cultural stimuli, perceived value, satisfaction) explain 44.2% of loyalty. This demonstrates the suitability and importance of applying SOR theory to the context of STDs, as both stimuli and perceived value and satisfaction regarding tourism applications contribute significantly to explaining variance.

Additionally, this study has taken into account the direct and indirect effects of variables, confirming the existence of mediation between stimuli and loyalty through satisfaction. However, this mediating effect through perceived value has not been demonstrated. It can also be confirmed that the direct relationships between stimuli and the response variable, loyalty, are significant.

6. Conclusions

This study highlights how different physical, environmental, social, and cultural stimuli have an effect on the organism that is composed of the perceived value of tourism applications and satisfaction with them, ultimately resulting in a response represented by loyalty. In turn, the direct effect of stimuli on loyalty has been demonstrated.

In light of the results obtained, application developers and STD managers should take the stimuli perceived by tourists at the destination, especially in the case of cultural stimuli, into account when developing applications in order to offer valuable information to tourists and improve their satisfaction, and thus jointly increase their loyalty to the destination. All of this can be achieved through the adaptation of information in applications and the use of artificial intelligence.

Regarding the limitations of this study – and therefore informing future lines of research – it can be indicated that the results obtained may be difficult to extrapolate to other destinations with different characteristics, although they may be of great utility for inland tourist destinations with tourist attractions that have implemented or want to implement solutions focused on an STD. Future studies should collect data from other STDs with different characteristics to highlight the versatility of the results presented in this work. Secondly, the sample used was composed exclusively of tourists visiting the city. Although the sample is representative, future research could focus on other stakeholders involved in an STD, such as STD management personnel or personnel from different tourism services. Despite the application of this model, there is still unexplained variance, and it is recommended to include other variables such as technology use or the development of other models that take into account other aspects, even those based solely on technological aspects, to test how much explained variance on loyalty they can provide. Finally, the relationships between physical stimuli and perceived value (H1a), as well as the relationship between social stimuli and perceived value, could not be tested. Therefore, it is recommended to test these relationships in other STDs with different characteristics than those studied.

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Declaration of competing interest

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Data availability

Data will be made available on request.

References

Aboubaker Ettis, S., 2017. Examining the relationships between online store atmospheric color, flow experience and consumer behavior. J. Retailing Consum. Serv. 37, 43–55. https://doi.org/10.1016/j.jretconser.2017.03.007.

Adam, I., 2021. Negative tourist-to-tourist interactions, value destruction, satisfaction, and post consumption behavioral intention. J. Destin. Market. Manag. 20, 100557 https://doi.org/10.1016/j.jdmm.2021.100557.

Afolabi, O.O., Ozturen, A., Ilkan, M., 2021. Effects of privacy concern, risk, and information control in a smart tourism destination. Economic Research-Ekonomska Istraživanja 0 (0), 1–20. https://doi.org/10.1080/1331677X.2020.1867215.

Alipour, H., Amelshahbaz, S., Safaeimanesh, F., Peyravi, B., Salavati, A., 2021. The impact of environmental stimuli on hotel service employees' service sabotage—mediation role of emotional intelligence and emotional dissonance. Sustainability 13 (2). https://doi.org/10.3390/su13020876. Article 2.

Almobaideen, W., Allan, M., Saadeh, M., 2016. Smart archaeological tourism: contention, convenience and accessibility in the context of cloud-centric IoT. Mediterranean Archaeology & Archaeometry 16 (1). https://doi.org/10.5281/zenodo.35535. Article 1.

Anderson, J.C., Gerbing, D.W., 1988. Structural equation modeling in practice: a review and recommended two-step approach. Psychol. Bull. 103 (3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411.

Animesh, A., Pinsonneault, A., Yang, S.-B., Oh, W., 2011. An odyssey into virtual worlds: exploring the impacts of technological and spatial environments on intention to purchase virtual products. MIS Q. 35 (3), 789–810. https://doi.org/10.2307/23042809.

Bagozzi, R.P., Yi, Y., 1988. On the evaluation of structural equation models. J. Acad. Market. Sci. 16 (1), 74–94. https://doi.org/10.1007/BF02723327.

Bhardwaj, S., Sreen, N., Das, M., Chitnis, A., Kumar, S., 2023. Product specific values and personal values together better explains green purchase. J. Retailing Consum. Serv. 74, 103434 https://doi.org/10.1016/j.jretconser.2023.103434.

Bitner, M.J., 1992. Servicescapes: the impact of physical surroundings on customers and employees. J. Market. 56 (2), 57–71. https://doi.org/10.1177/002224299205600205.

Björk, P., 2010. Atmospherics on tour operators' websites: website features that stimulate emotional response. J. Vacat. Mark. 16 (4), 283–296. https://doi.org/10.1177/1356766710372243.

Buhalis, D., Amaranggana, A., 2013. Smart Tourism Destinations. *Information and Communication Technologies in Tourism 2014*. Springer International Publishing, pp. 553–564. https://doi.org/10.1007/978-3-319-03973-2_40.

Caber, M., Albayrak, T., Crawford, D., 2020. Perceived value and its impact on travel outcomes in youth tourism. Journal of Outdoor Recreation and Tourism 31, 100327. https://doi.org/10.1016/j.jort.2020.100327.

Cao, X., Sun, J., 2018. Exploring the effect of overload on the discontinuous intention of social media users: an S-O-R perspective. Comput. Hum. Behav. 81, 10–18. https://doi.org/10.1016/j.chb.2017.11.035.

Carrà, G., Mariani, M., Radić, I., Peri, I., 2016. Participatory strategy analysis: the case of wine tourism business. Agriculture and Agricultural Science Procedia 8, 706–712. https://doi.org/10.1016/j.aaspro.2016.02.050.

Chang, C.-C., 2015. Exploring mobile application customer loyalty: the moderating effect of use contexts. Telecommun. Pol. 39 (8), 678–690. https://doi.org/10.1016/j.telpol.2015.07.008.

Cheah, J.-H., Waller, D., Thaichon, P., Ting, H., Lim, X.-J., 2020. Price image and the sugrophobia effect on luxury retail purchase intention. J. Retailing Consum. Serv. 57, 102188 https://doi.org/10.1016/j.jretconser.2020.102188.

Cheung, M.L., Ting, H., Cheah, J.-H., Sharipudin, M.-N.S., 2020. Examining the role of social media-based destination brand community in evoking tourists' emotions and intention to co-create and visit. J. Prod. Brand Manag. 30 (1), 28–43. https://doi.org/10.1108/JPBM-09-2019-2554.

Choi, H.C., Huang, S., Choi, H., Chang, H., Sean, 2020a. The effect of flight attendants' physical attractiveness on satisfaction, positive emotion, perceived value, and behavioral intention. J. Hospit. Tourism Manag. 44, 19–29. https://doi.org/10.1016/j.jhtm.2020.05.001.

Choi, J., Lee, S., Jamal, T., 2020b. Smart Korea: governance for smart justice during a global pandemic. J. Sustain. Tourism. https://doi.org/10.1080/09669582.2020.1777143. Scopus.

Chung, K., Ryu, D.S., Green, B.C., Kang, H.M., 2015. The effects of sensory stimuli on motorsports spectators. Int. J. Sports Mark. Spons. 16 (5), 36–55. https://doi.org/10.1108/IJSMS-16-05-2015-B004.

Collier, J.E., 2020. Applied Structural Equation Modeling Using AMOS: Basic to Advanced Techniques. Routledge. https://doi.org/10.4324/9781003018414.

Coves-Martínez, Á.L., Sabiote-Ortiz, C.M., Frías-Jamilena, D.M., 2022. Cultural intelligence as an antecedent of satisfaction with the travel app and with the tourism experience. Comput. Hum. Behav. 127, 107049 https://doi.org/10.1016/j.chb.2021.107049.

Cronbach, L.J., 1951. Coefficient alpha and the internal structure of tests. Psychometrika 16 (3), 297–334. https://doi.org/10.1007/BF02310555.

Cui, M., Meng, B., 2021. Value co-creation and life satisfaction in home-based accommodations (HBOs). J. Hospit. Tourism Manag. 49, 519–527. https://doi.org/10.1016/j.jhtm.2021.11.008.

del Bosque, I.R., Martín, H.S., 2008. Tourist satisfaction a cognitive-affective model. Ann. Tourism Res. 35 (2), 551–573. https://doi.org/10.1016/j.annals.2008.02.006.

Delone, W.H., McLean, E.R., 2003. The DeLone and McLean model of information systems success: a ten-year update. J. Manag. Inf. Syst. 19 (4), 9–30. https://doi.org/10.1080/07421222.2003.11045748.

Elshaer, A., Huang, R., 2023. Perceived value within an international hospitality learning environment: antecedents and outcomes. Journal of Hospitality, Leisure, Sport & Tourism Education 32, 100429. https://doi.org/10.1016/j.jhlste.2023.100429.

Eroglu, S.A., Machleit, K.A., Davis, L.M., 2001. Atmospheric qualities of online retailing: a conceptual model and implications. J. Bus. Res. 54 (2), 177–184. https://doi.org/10.1016/S0148-2963(99)00087-9.

Errajaa, K., Hombourger-Barès, S., Audrain-Pontevia, A.-F., 2022. Effects of the in-store crowd and employee perceptions on intentions to revisit and word-of-mouth via transactional satisfaction: a SOR approach. J. Retailing Consum. Serv. 68, 103087 https://doi.org/10.1016/j.jretconser.2022.103087.

Flavián, C., Ibáñez-Sánchez, S., Orús, C., 2019. Integrating virtual reality devices into the body: effects of technological embodiment on customer engagement and behavioral intentions toward the destination. J. Trav. Tourism Market. 36 (7), 847–863. https://doi.org/10.1080/10548408.2019.1618781.

Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. J. Market. Res. 18 (1), 39–50. https://doi.org/10.1177/002224378101800104.

Fuller, C.M., Simmering, M.J., Atinc, G., Atinc, Y., Babin, B.J., 2016. Common methods variance detection in business research. J. Bus. Res. 69 (8), 3192–3198. https://doi.org/10.1016/j.jbusres.2015.12.008.

Gao, Z., Cheah, J.-H., Lim, X.-J., Ng, S.I., Cham, T.-H., Yee, C.L., 2023. Can travel apps improve tourists' intentions? Investigating the drivers of Chinese gen Y users' experience. J. Vacat. Mark. https://doi.org/10.1177/13567667231152938, 13567667231152938.

Gharaibeh, M.K., Arshad, M.R., Gharaibeh, N.K., 2018. Using the UTAUT2 model to determine factors affecting adoption of mobile banking services: a qualitative approach. International Journal of Interactive Mobile Technologies (IJIM) 12 (4). https://doi.org/10.3991/ijim.v12i4.8525. Article 4.

Gretzel, U., Sigala, M., Xiang, Z., Koo, C., 2015. Smart tourism: foundations and developments. Electron. Mark. 25 (3), 179–188.

Han, H., Shin, S., Chung, N., Koo, C., 2019. Which appeals (ethos, pathos, logos) are the most important for Airbnb users to booking? Int. J. Contemp. Hospit. Manag. 31 (3) https://doi.org/10.1108/IJCHM-12-2017-0784. Article 3. Scopus.

Hew, J.-J., Leong, L.-Y., Tan, G.W.-H., Lee, V.-H., Ooi, K.-B., 2018. Mobile social tourism shopping: a dual-stage analysis of a multi-mediation model. Tourism Manag. 66, 121–139. https://doi.org/10.1016/j.tourman.2017.10.005.

Hewei, T., Youngsook, L., 2022. Factors affecting continuous purchase intention of fashion products on social E-commerce: SOR model and the mediating effect. Entertainment Computing 41, 100474. https://doi.org/10.1016/j.entcom.2021.100474.

Hu, H.-H., (Sunny), Kandampully, J., Juwaheer, T.D., 2009. Relationships and impacts of service quality, perceived value, customer satisfaction, and image: an empirical study. Serv. Ind. J. 29 (2), 111–125. https://doi.org/10.1080/02642060802292932.

Hu, X., Huang, Q., Zhong, X., Davison, R.M., Zhao, D., 2016. The influence of peer characteristics and technical features of a social shopping website on a consumer's purchase intention. Int. J. Inf. Manag. 36 (6), 1218–1230. https://doi.org/10.1016/j.ijinfomgt.2016.08.005. Part B).

Hui, K., Teo, H., Lee, S.-Y., 2007. The value of privacy assurance: an exploratory field experiment. MIS Q. 31, 19–33. https://doi.org/10.2307/25148779.

Jani, D., Han, H., 2014. Testing the moderation effect of hotel ambience on the relationships among social comparison, Affect, Satisfaction, and Behavioral Intentions. J. Trav. Tourism Market. 31 (6), 731–746. https://doi.org/10.1080/10548408.2014.888967.

Jiang, J., Yan, B., 2022. From soundscape participation to tourist loyalty in nature-based tourism: the moderating role of soundscape emotion and the mediating role of soundscape satisfaction. J. Destin. Market. Manag. 26, 100730 https://doi.org/10.1016/j.jdmm.2022.100730.

Jiang, X., Mohamed, A.E., 2022. The insufficiency of the Malaysian contact tracing app from the perspective of Chinese tourists: preparing for international tourism in the post-COVID-19 world. Heliyon 8 (12), e12154. https://doi.org/10.1016/j.heliyon.2022.e12154.

Jovicic, D.Z., 2017. From the traditional understanding of tourism destination to the smart tourism destination. Curr. Issues Tourism 22 (3). https://doi.org/10.1080/13683500.2017.1313203. Article 3.

Jung, Y., Choi, B., Cho, W., 2021. Group satisfaction with group work under surveillance: the stimulus-organism-response (SOR) perspective. Telematics Inf. 58, 101530 https://doi.org/10.1016/j.tele.2020.101530.

Kani, Y., Aziz, Y.A., Sambasivan, M., Bojei, J., 2017. Antecedents and outcomes of destination image of Malaysia. J. Hospit. Tourism Manag. 32, 89–98. https://doi.org/10.1016/j.jhtm.2017.05.001.

Kaplanidou, K., Vogt, C., 2006. A structural analysis of destination travel intentions as a function of web site features. J. Trav. Res. 45 (2), 204–216. https://doi.org/10.1177/0047287506291599.

Kim, H., Koo, C., Chung, N., 2021. The role of mobility apps in memorable tourism experiences of Korean tourists: stress-coping theory perspective. J. Hospit. Tourism Manag. 49, 548–557. https://doi.org/10.1016/j.jhtm.2021.11.003.

Kim, M., 2022. How can I Be as attractive as a Fitness YouTuber in the era of COVID-19? The impact of digital attributes on flow experience, satisfaction, and behavioral intention. J. Retailing Consum. Serv. 64, 102778 https://doi.org/10.1016/j.jretconser.2021.102778.
Kim, M.J., Lee, C.-K., Jung, T., 2020. Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model. J. Trav. Res. 59 (1), 69–89. https://doi.org/10.1177/0047287518818915.
Kontogianni, A., Alepis, E., 2020. Smart tourism: state of the art and literature review for the last six years. Array 6, 100020. https://doi.org/10.1016/j.array.2020.100020.
Koo, D.-M., Ju, S.-H., 2010. The interactional effects of atmospherics and perceptual curiosity on emotions and online shopping intention. Comput. Hum. Behav. 26 (3), 377–388. https://doi.org/10.1016/j.chb.2009.11.009.
Koufaris, M., 2002. Applying the technology acceptance model and flow theory to online consumer behavior. Inf. Syst. Res. 13 (2), 205–223. https://doi.org/10.1287/isre.13.2.205.83.
Kucukergin, K.G., Meydan Uygur, S., 2019. Are emotions contagious? Developing a destination social servicescape model. J. Destin. Market. Manag. 14, 100386 https://doi.org/10.1016/j.jdmm.2019.100386.
Kumar, S., Dhir, A., Talwar, S., Chakraborty, D., Kaur, P., 2021a. What drives brand love for natural products? The moderating role of household size. J. Retailing Consum. Serv. 58, 102329 https://doi.org/10.1016/j.jretconser.2020.102329.
Kumar, S., Jain, A., Hsieh, J.-K., 2021b. Impact of apps aesthetics on revisit intentions of food delivery apps: the mediating role of pleasure and arousal. J. Retailing Consum. Serv. 63, 102686 https://doi.org/10.1016/j.jretconser.2021.102686.
Kumar, S., Murphy, M., Talwar, S., Kaur, P., Dhir, A., 2021c. What drives brand love and purchase intentions toward the local food distribution system? A study of social media-based REKO (fair consumption) groups. J. Retailing Consum. Serv. 60, 102444 https://doi.org/10.1016/j.jretconser.2021.102444.
Kuo, Y.-F., Wu, C.-M., Deng, W.-J., 2009. The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. Comput. Hum. Behav. 25 (4), 887–896. https://doi.org/10.1016/j.chb.2009.03.003.
Li, Y., Yang, S., Chen, Y., Yao, J., 2018. Effects of perceived online–offline integration and internet censorship on mobile government microblogging service continuance: a gratification perspective. Govern. Inf. Q. 35 (4), 588–598. https://doi.org/10.1016/j.giq.2018.07.004.
Libaque-Sáenz, C.F., Wong, S.F., Chang, Y., Ha, Y.W., Park, M.-C., 2016. Understanding antecedents to perceived information risks: an empirical study of the Korean telecommunications market. Inf. Dev. 32 (1), 91–106. https://doi.org/10.1177/0266666913516884.
Liébana-Cabanillas, F., Sánchez-Fernández, J., Muñoz-Leiva, F., 2014. Antecedents of the adoption of the new mobile payment systems: the moderating effect of age. Comput. Hum. Behav. 35, 464–478. https://doi.org/10.1016/j.chb.2014.03.022.
Liu, C., Huang, X., 2023. Does the selection of virtual reality video matter? A laboratory experimental study of the influences of arousal. J. Hospit. Tourism Manag. 54, 152–165. https://doi.org/10.1016/j.jhtm.2022.12.002.
López-Mosquera, N., Sánchez, M., 2014. Cognitive and affective determinants of satisfaction, willingness to pay, and loyalty in suburban parks. Urban For. Urban Green. 13 (2), 375–384. https://doi.org/10.1016/j.ufug.2013.08.007.
Luk, S., Sharma, P., Chen, I.S.N., 2013. Shopping motivation as a moderator in the retail service evaluation. J. Serv. Market. 27 (1), 40–48. https://doi.org/10.1108/08876041311296365.
Luqman, A., Cao, X., Ali, A., Masood, A., Yu, L., 2017. Empirical investigation of Facebook discontinues usage intentions based on SOR paradigm. Comput. Hum. Behav. 70, 544–555. https://doi.org/10.1016/j.chb.2017.01.020.
Manganari, E.E., Siomkos, G.J., Vrechopoulos, A.P., 2009. Store atmosphere in web retailing. Eur. J. Market. 43 (9/10), 1140–1153. https://doi.org/10.1108/03090560910976401.
Manthiou, A., Ayadi, K., Lee, S., (Ally), Chiang, L., Tang, L., (Rebecca), 2017. Exploring the roles of self-concept and future memory at consumer events: the application of an extended Mehrabian–Russell model. J. Trav. Tourism Market. 34 (4), 531–543. https://doi.org/10.1080/10548408.2016.1208786.
Marine-Roig, E., Anton Clave, S., 2015. Tourism analytics with massive user-generated content: a case study of Barcelona. J. Destin. Market. Manag. 4 (3) https://doi.org/10.1016/j.jdmm.2015.06.004. Article 3.
Mehrabian, A., Russell, J.A., 1974. An Approach to Environmental Psychology. The MIT Press, p. 266 xii,.
Molinillo, S., Aguilar-Illescas, R., Anaya-Sánchez, R., Liébana-Cabanillas, F., 2021. Social commerce website design, perceived value and loyalty behavior intentions: the moderating roles of gender, age and frequency of use. J. Retailing Consum. Serv. 63, 102404 https://doi.org/10.1016/j.jretconser.2020.102404.
Montesdioca, G.P.Z., Maçada, A.C.G., 2015. Measuring user satisfaction with information security practices. Comput. Secur. 48, 267–280. https://doi.org/10.1016/j.cose.2014.10.015.
Mummalaneni, V., 2005. An empirical investigation of Web site characteristics, consumer emotional states and on-line shopping behaviors. J. Bus. Res. 58 (4), 526–532. https://doi.org/10.1016/S0148-2963(03)00143-7.
Nascimento, B., Oliveira, T., Tam, C., 2018. Wearable technology: what explains continuance intention in smartwatches? J. Retailing Consum. Serv. 43, 157–169. https://doi.org/10.1016/j.jretconser.2018.03.017.
Nguyen, H.K.T., Tran, P.T.K., Tran, V.T., 2023. The relationships among social media communication, brand equity and satisfaction in a tourism destination: the case of Danang city, Vietnam. J. Hospit. Tour. Insights. https://doi.org/10.1108/JHTI-11-2022-0567. *ahead-of-print*(ahead-of-print).
Oliver, R.L., 1999. Whence consumer loyalty? J. Market. 63 (4_Suppl. 1), 33–44. https://doi.org/10.1177/00222429990634s105.
Packer, J., Ballantyne, R., 2016. Conceptualizing the visitor experience: a review of literature and development of a multifaceted model. Visitor Studies 19 (2), 128–143. https://doi.org/10.1080/10645578.2016.1144023.
Parasuraman, A., Zeithaml, V.A., Berry, L.L., 1985. A conceptual model of service quality and its implications for future research. J. Market. 49 (4), 41–50. https://doi.org/10.1177/002224298504900403.
Parboteeah, D.V., Valacich, J.S., Wells, J.D., 2009. The influence of website characteristics on a consumer's urge to buy impulsively. Inf. Syst. Res. 20 (1), 60–78. https://doi.org/10.1287/isre.1070.0157.
Pizam, A., Tasci, A.D.A., 2019. Experienscape: expanding the concept of servicescape with a multi-stakeholder and multi-disciplinary approach (invited paper for 'luminaries' special issue of International Journal of Hospitality Management). Int. J. Hospit. Manag. 76, 25–37. https://doi.org/10.1016/j.ijhm.2018.06.010.
Podsakoff, P.M., MacKenzie, S.B., Podsakoff, N.P., 2012. Sources of method bias in social science research and recommendations on how to control it. Annu. Rev. Psychol. 63 (1), 539–569. https://doi.org/10.1146/annurev-psych-120710-100452.
Radic, A., Lück, M., Al-Ansi, A., Chua, B.-L., Seeler, S., Han, H., 2021. Cruise ship dining experiencescape: the perspective of female cruise travelers in the midst of the COVID-19 pandemic. Int. J. Hospit. Manag. 95, 102923 https://doi.org/10.1016/j.ijhm.2021.102923.
Rajaguru, R., 2014. Motion Picture-induced visual, vocal and celebrity effects on tourism motivation: stimulus organism response model. Asia Pac. J. Tourism Res. 19 (4), 375–388. https://doi.org/10.1080/10941665.2013.764337.
Ramesh, V., Jaunky, V.C., 2021. The tourist experience: modelling the relationship between tourist satisfaction and destination loyalty. Mater. Today: Proc. 37, 2284–2289. https://doi.org/10.1016/j.matpr.2020.07.723.
Rana, N.P., Dwivedi, Y.K., 2015. Citizen's adoption of an e-government system: validating extended social cognitive theory (SCT). Govern. Inf. Q. 32 (2), 172–181. https://doi.org/10.1016/j.giq.2015.02.002.
Rodríguez-Torrico, P., Prodanova, J., San-Martín, S., Jimenez, N., 2020. The ideal companion: the role of mobile phone attachment in travel purchase intention. Curr. Issues Tourism 23 (13), 1659–1672. https://doi.org/10.1080/13683500.2019.1637828.
Ronaghi, M.H., Ronaghi, M., 2022. A contextualized study of the usage of the augmented reality technology in the tourism industry. Decision Analytics Journal 5, 100136. https://doi.org/10.1016/j.dajour.2022.100136.
Ryu, K., Han, H., 2011. New or repeat customers: how does physical environment influence their restaurant experience? Int. J. Hospit. Manag. 30 (3), 599–611. https://doi.org/10.1016/j.ijhm.2010.11.004.
Ryu, K., Han, H., Kim, T.-H., 2008. The relationships among overall quick-casual restaurant image, perceived value, customer satisfaction, and behavioral intentions. Int. J. Hospit. Manag. 27 (3), 459–469. https://doi.org/10.1016/j.ijhm.2007.11.001.
Ryu, K., Lee, H., Gon Kim, W., 2012. The influence of the quality of the physical environment, food, and service on restaurant image, customer perceived value, customer satisfaction, and behavioral intentions. Int. J. Contemp. Hospit. Manag. 24 (2), 200–223. https://doi.org/10.1108/09596111211206141.
Sanz-Blas, S., Buzova, D., Carvajal-Trujillo, E., 2019. Familiarity and visit characteristics as determinants of tourists' experience at a cruise destination. Tourism Manag. Perspect. 30, 1–10. https://doi.org/10.1016/j.tmp.2019.01.005.
Schiopu, A.F., Hornoiu, R.I., Padurean, A.M., Nica, A.-M., 2022. Constrained and virtually traveling? Exploring the effect of travel constraints on intention to use virtual reality in tourism. Technol. Soc. 71, 102091 https://doi.org/10.1016/j.techsoc.2022.102091.
Shah, A.M., Yan, X., Shah, S.A.A., Ali, M., 2020. Customers' perceived value and dining choice through mobile apps in Indonesia. Asia Pac. J. Mark. Logist. 33 (1), 1–28. https://doi.org/10.1108/APJML-03-2019-0167.
Shah, S.A.H., Kubota, H., 2022. Passenger's satisfaction with service quality of app-based ride hailing services in developing countries: case of Lahore, Pakistan. Asian Transport Studies 8, 100076. https://doi.org/10.1016/j.eastsj.2022.100076.
Song, J., Qu, H., 2017. The mediating role of consumption emotions. Int. J. Hospit. Manag. 66, 66–76. https://doi.org/10.1016/j.ijhm.2017.06.015.
Srinivasan, S.S., Anderson, R., Ponnavolu, K., 2002. Customer loyalty in e-commerce: an exploration of its antecedents and consequences. J. Retailing 78 (1), 41–50. https://doi.org/10.1016/S0022-4359(01)00065-3.
Su, L., Huang, Y., Hsu, M., 2018. Unraveling the impact of destination reputation on place attachment and behavior outcomes among Chinese urban tourists. J. Hospit. Tour. Insights 1 (4), 290–308. https://doi.org/10.1108/JHTI-11-2017-0026.
Su, L., Swanson, S.R., 2017. The effect of destination social responsibility on tourist environmentally responsible behavior: compared analysis of first-time and repeat tourists. Tourism Manag. 60, 308–321. https://doi.org/10.1016/j.tourman.2016.12.011.
Sultan, P., Wong, H.Y., Azam, M.S., 2021. How perceived communication source and food value stimulate purchase intention of organic food: an examination of the stimulus-organism-response (SOR) model. J. Clean. Prod. 312, 127807 https://doi.org/10.1016/j.jclepro.2021.127807.
Sun, H., Zhang, P., 2015. The role of affect in information systems research. HUMAN–COMPUTER 295.
Svendsen, G.B., Johnsen, J.-A.K., Almås-Sørensen, L., Vittersø, J., 2013. Personality and technology acceptance: the influence of personality factors on the core constructs of the Technology Acceptance Model. Behav. Inf. Technol. 32 (4), 323–334. https://doi.org/10.1080/0144929X.2011.553740.
Tarn, J.L.M., 1999. The effects of service quality, perceived value and customer satisfaction on behavioral intentions. J. Hospit. Leisure Market. 6 (4), 31–43. https://doi.org/10.1300/J150v06n04_04.

Tavitiyaman, P., Qu, H., Tsang, W.L., Lam, C.R., 2021. The influence of smart tourism applications on perceived destination image and behavioral intention: the moderating role of information search behavior. J. Hospit. Tourism Manag. 46, 476–487. https://doi.org/10.1016/j.jhtm.2021.02.003.

Tran, G.A., Strutton, D., 2020. Comparing email and SNS users: investigating e-servicescape, customer reviews, trust, loyalty and E-WOM. J. Retailing Consum. Serv. 53, 101782 https://doi.org/10.1016/j.jretconser.2019.03.009.

Vilnai-Yavetz, I., Gilboa, S., Mitchell, V., 2021. Experiencing atmospherics: the moderating effect of mall experiences on the impact of individual store atmospherics on spending behavior and mall loyalty. J. Retailing Consum. Serv. 63, 102704 https://doi.org/10.1016/j.jretconser.2021.102704.

Wang, C., 2014. Antecedents and consequences of perceived value in Mobile Government continuance use: an empirical research in China. Comput. Hum. Behav. 34, 140–147. https://doi.org/10.1016/j.chb.2014.01.034.

Wang, J., Xie, C., Huang, Q., Morrison, A.M., 2020. Smart tourism destination experiences: the mediating impact of arousal levels. Tourism Manag. Perspect. 35 https://doi.org/10.1016/j.tmp.2020.100707. Scopus.

Wu, S., Wong, I.A., Lin, Z., (Cj), 2021. Understanding the role of atmospheric cues of travel apps: a synthesis between media richness and stimulus–organism–response theory. J. Hospit. Tourism Manag. 49, 226–234. https://doi.org/10.1016/j.jhtm.2021.09.014.

Wu, W.-Y., Lee, C.-L., Fu, C.-S., Wang, H.-C., 2014. How can online store layout design and atmosphere influence consumer shopping intention on a website? Int. J. Retail Distrib. Manag. 42 (1), 4–24. https://doi.org/10.1108/IJRDM-01-2013-0035.

Yan, Y., Chen, H., Shao, B., Lei, Y., 2023. How IT affordances influence customer engagement in live streaming commerce? A dual-stage analysis of PLS-SEM and fsQCA. J. Retailing Consum. Serv. 74, 103390 https://doi.org/10.1016/j.jretconser.2023.103390.

Yang, H., Lee, H., 2023. Smart city and remote services: the case of South Korea's national pilot smart cities. Telematics Inf. 79, 101957 https://doi.org/10.1016/j.tele.2023.101957.

Yen, C.-H., Tsai, C.-H., Han, T.-C., 2022. Can tourist value cocreation behavior enhance tour leader love? The role of perceived value. J. Hospit. Tourism Manag. 53, 133–142. https://doi.org/10.1016/j.jhtm.2022.10.001.

Yin, J., Cheng, Y., Bi, Y., Ni, Y., 2020. Tourists perceived crowding and destination attractiveness: the moderating effects of perceived risk and experience quality. J. Destin. Market. Manag. 18, 100489 https://doi.org/10.1016/j.jdmm.2020.100489.

Yu, R., Tong, Z., Xiao, H., 2023. Close or distant? The impacts of robot services and spatial distance on service satisfaction. J. Hospit. Tourism Manag. 54, 447–456. https://doi.org/10.1016/j.jhtm.2023.01.011.

Yuan, S., Liu, L., Su, B., Zhang, H., 2020. Determining the antecedents of mobile payment loyalty: cognitive and affective perspectives. Electron. Commer. Res. Appl. 41, 100971 https://doi.org/10.1016/j.elerap.2020.100971.

Zeithaml, V.A., 1988. Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. J. Market. 52 (3), 2–22. https://doi.org/10.1177/002224298805200302.

Zhang, H., Leung, X.Y., Bai, B., Li, Y., 2021. Uncovering crowdsourcing in tourism apps: a grounded theory study. Tourism Manag. 87, 104389 https://doi.org/10.1016/j.tourman.2021.104389.

Zhang, H., Xu, H., 2019. A structural model of liminal experience in tourism. Tourism Manag. 71, 84–98. https://doi.org/10.1016/j.tourman.2018.09.015.

Zhang, J., Luximon, Y., Li, Q., 2022a. Seeking medical advice in mobile applications: how social cue design and privacy concerns influence trust and behavioral intention in impersonal patient–physician interactions. Comput. Hum. Behav. 130, 107178 https://doi.org/10.1016/j.chb.2021.107178.

Zhang, S., Liu, W., Han, W., Xie, J., Sun, M., 2022b. Influence mechanism of tourists' impulsive behavior in E-sports tourism: mediating role of arousal. Tourism Manag. Perspect. 44, 101032 https://doi.org/10.1016/j.tmp.2022.101032.

Zhong, J., Chen, T., 2023. Antecedents of mobile payment loyalty: an extended perspective of perceived value and information system success model. J. Retailing Consum. Serv. 72, 103267 https://doi.org/10.1016/j.jretconser.2023.103267.

Zhu, B., Kowatthanakul, S., Satanasavapak, P., 2019. Generation Y consumer online repurchase intention in Bangkok: based on Stimulus-Organism-Response (SOR) model. Int. J. Retail Distrib. Manag. 48 (1), 53–69. https://doi.org/10.1108/IJRDM-04-2018-0071.

Zhu, Y.-Q., Alamsyah, N., 2022. Citizen empowerment and satisfaction with smart city app: findings from Jakarta. Technol. Forecast. Soc. Change 174, 121304. https://doi.org/10.1016/j.techfore.2021.121304.

Zibarzani, M., Abumalloh, R.A., Nilashi, M., Samad, S., Alghamdi, O.A., Nayer, F.K., Ismail, M.Y., Mohd, S., Mohammed Akib, N.A., 2022. Customer satisfaction with Restaurants Service Quality during COVID-19 outbreak: a two-stage methodology. Technol. Soc. 70, 101977 https://doi.org/10.1016/j.techsoc.2022.101977.