

# Inspiring tourists' imagination: How and when human presence in photographs enhances travel mental simulation and destination attractiveness

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## ABSTRACT

Due to the intangible nature of tourism products, successful destination marketing depends on whether visual materials can evoke tourists' vivid fantasies of their future travel experiences. Our research sheds light on an effective visual cue (i.e. human presence) that can be easily manipulated in destination photographs to facilitate such mental simulation processes. Across three experimental studies with cross-cultural subjects, we found that the presence of a person in photos significantly prompted tourists to imagine their future travel experiences in the depicted travel scenes, thereby enhancing the perceived destination attractiveness. However, this favorable effect is mitigated when the photo features an urban (vs. natural) landscape and when the person's face is clearly shown. These findings provide new insights into the theoretical understanding of tourist mental simulation activation and human presence perception, with critical implications for effective destination photo marketing.

## 1. Introduction

Given the intangible nature of tourism products, tourists heavily rely on imagining their future travel scenarios that could occur at destinations when evaluating and making travel decisions (Salazar, 2012). For example, when seeing a tourism landscape photograph, tourists might envision the processes of sightseeing and their feelings before the trip actually begins. This future-thinking process is called *Mental Simulation*, referring to "the cognitive construction of hypothetical scenarios" (Taylor & Schneider, 1989). Prior work has underscored the positive outcomes of activating tourists' mental simulation, as it fosters positive affective forecasting, increases trust and reduces perceived risk (Karl et al., 2021, 2022), and enhances behavioral intention towards destinations or accommodations (Xie et al., 2022). In light of the diverse beneficial marketing impacts stemming from the activation of mental simulation, it is imperative to implement effective advertising strategies that evoke fantasies and dreams related to the destination experience.

Notably, verbal instructions (e.g., "Imagine/Picture yourself ...") and visual materials (e.g., photographs) are common practices in advertising to inspire tourists' imagination (Karl et al., 2021; Walters et al., 2007). However, a realistic challenge arises as tourists are typically unfamiliar with the destination environment, and this lack of prior

knowledge may hinder them from picturing themselves in the depicted scene, even when exposed to such marketing stimuli (Le et al., 2021). Therefore, recent research has called for further investigations into effective imagination-inducing cues that can guide and facilitate tourists' imaginative processes (Hung & Wyrer Jr, 2011; Karl et al., 2022). While recent studies documented the positive role of sensory cues (Lee et al., 2010; Lv et al., 2020), temporal landmark (Yan et al., 2023), and storytelling strategy (Wong et al., 2016; Zheng & Zhang, 2022), most investigations have still relied on textual information, with scant attention directed towards visual cues. In fact, compared with visual cues, textual content has drawbacks as it requires more conscious and effortful processing. This may consume additional time and cognitive resources, potentially leading to consumer impatience in today's attention-scarce environment. To extend this line of research, the present study focuses on the role of a crucial visual cue, namely human presence, in automatically inducing tourists' mental simulation processes and its impact on downstream destination evaluations.

Human presence is an omnipresent visual component in tourism materials. For instance, destinations (e.g., Australia, Thailand) and hotel websites (e.g., Hilton, Four Seasons) often display promo photos with human presence to attract tourists. Empirical evidence also shows that approximately 40% of destination images incorporate human figures

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(Deng & Liu, 2021; Nikjoo & Bakhshi, 2019). Despite the common presence of human figures in destination photographs, how human presence influences consumer responses has not reached an academic consensus. Some findings indicate that human presence in tourism photographs can increase social media engagement, consumer evaluations, and booking intentions by eliciting positive social emotions and affective responses (Nadeem et al., 2020; Park et al., 2021; Ye et al., 2020). However, divergent results emerge from other studies. For example, Kim et al. (2023) and Li and Xie (2020) posit that the inclusion of human figures in hotel and airline photographs does not significantly impact viewers' attitudes and intentions. Furthermore, Li et al. (2023) discovered that human presence significantly diminishes tourists' perceived usefulness of restaurant review photos. These conflicting findings not only impede the theoretical advancement in tourism photograph research but also might cause chaos and confusion for destination marketing practices. Therefore, there is a pressing need for further investigation into the psychological processes triggered by human presence in visual scenes, as well as the boundary conditions and confounding factors that may moderate the human presence effect.

Drawing on the mental simulation theory, this research aims to offer a new and more comprehensive explanation of the human presence effect. We propose that human presence in destination photos can serve as visual body cues, helping viewers retrieve and activate relevant episodic memories of human-environment interaction. These cues, in turn, facilitate the mental simulation processes of their future travel experiences in the destination, which then enhances their perceived destination attractiveness. Moreover, we propose two critical boundary conditions that may significantly diminish the proposed effect: when the photographs show the visible face of a person or feature an urban (vs. natural) landscape. After ruling out critical confounding factors (e.g., physical attractiveness, facial expressions) that previous studies have often ignored, the positive human presence effect was robustly confirmed in four experimental studies.

The present study makes significant contributions in both theoretical and practical domains. Firstly, our findings enrich the emerging literature on activating tourist mental simulation by identifying an effective visual-based antecedent (i.e., human presence) that goes beyond the traditional textual approach, thus responding to the call for more research into the antecedents of mental simulation activation (Karl et al., 2022). This finding also offers destination marketers a manipulatable and effective strategy to inspire potential tourists' imagination and engage them in vivid travel fantasies. Secondly, this work offers a fresh theoretical perspective to understand the human presence effect by revealing mental simulation as a novel cognitive mechanism. It demonstrates how human presence can shape viewers' mental representation of their future interaction with the destination environment, in contrast to the predominant focus on social emotion mechanisms in previous studies (e.g., Nadeem et al., 2020; Park et al., 2021; Ye et al., 2020). Finally, based on the proposed theoretical mechanism, we further identify two critical boundary conditions (i.e., face visibility and destination landscape types) that could nullify the human presence effect and control for important confounding factors that previous research had not yet resolved. These not only help reconcile the mixed findings from prior studies, but also provide new and comprehensive implications into how and when displaying human presence cues in promo photographs can achieve the optimal marketing effect.

## 2. Literature review

### 2.1. Mental simulation activation in tourism marketing

*Mental simulation* is a process of cognitive construction of episodic scenarios or hypothetical events (Escalas, 2004, p. 37), derived from autobiographical memory such as prior knowledge, events, and experiences (Taylor & Schneider, 1989). It is an important cognitive tool that enables consumers to mentally pre-experience and evaluate intangible

experiential products. According to grounded cognition theory (Barsalou, 2008), human brains consciously and unconsciously encode perceptions of objects and store related sensory experiences in memory for later use. When consumers encounter information about new or similar products, they automatically initiate the memory retrieval process, leveraging prior perceptions and experiences of similar objects to construct simulated consumption scenarios and experiences. More importantly, vivid mental simulation can have positive effects on destination marketing and tourist experience. For example, by eliciting vivid mental simulations of prospective trips, marketers can evoke tourists' positive affective forecasting, mitigating their perceived risks and fostering trust and intentions in accommodations or destinations (Karl et al., 2021, 2022). Furthermore, engaging in mental simulations of travel experiences enhances tourists' engagement and emotional responses during the on-site experience (Xie et al., 2021).

Previous research in tourism literature has mainly focused on examining various information formats and their capacity to induce mental simulation for travel experiences. For example, compared with textual information, visual stimuli (e.g., video and pictures) are more effective in evoking mental simulation (Le et al., 2021). Moreover, dynamic visual formats (e.g., video or VR) are more powerful than static formats (e.g., print pictures) in eliciting vivid mental imagery (Skard et al., 2021). Under certain circumstances, presenting tourism marketing information through artistic visual illustrations (Wu et al., 2021) and narrative formats (Wong et al., 2016) can yield a better effect. However, less attention has been directed towards strategies for enhancing the imagination-inducing effectiveness of specific materials. A realistic challenge is that not all marketing materials (e.g., pictures) can effectively induce mental simulation processes (Adaval et al., 2019). This limitation arises because most tourists are typically unfamiliar with the destination environment, and their limited prior knowledge may impede their ability to envision themselves in the depicted scene, even when exposed to marketing stimuli (Le et al., 2021). Therefore, recent research has underscored the necessity for further investigations into effective imagination-inducing cues that can be incorporated into advertising to better facilitate tourists' imaginative processes (Hung & Wyer Jr, 2011; Karl et al., 2022).

Recently, a nascent body of research has begun to explore the effective mental simulation cues. For example, sensory descriptions (e.g., haptic cues) in tourism marketing materials have been found to effectively arouse previous similar sensory experiences, leading to vivid mental imagery processing (Lee et al., 2010; Lv et al., 2020). Adding a salient temporal landmark (e.g., "a holiday is coming") can improve behavioral intentions by triggering positive fantasies of future travel experiences (Yan et al., 2023). Despite these advancements, it is crucial to note that most previous research has predominantly focused on textual cues, with relatively less attention given to the role of visual cues in spontaneous mental simulation activation. Given that tourism marketing heavily relies on visual materials, such as photographs, understanding which visual cues can effectively induce vivid mental simulation will significantly enhance visual materials' communication effectiveness. To address this gap, our study focuses on the activation of mental simulation through a critical visual element: human presence.

### 2.2. Consumer response to human presence

In social psychology, the mere presence of a human being has long been regarded as a powerful social influence on consumer behavior. Social Impact Theory (SIT; Latané, 1981) states that mere exposure to the real, implied, or imagined presence of others can amplify individual feelings, emotions, and influence their behavior. Three key factors determine this impact: the number, immediacy, and source strength of others (Latané, 1981). The human presence effect is observed when others are present in large numbers, in close proximity to the target, and hold important or powerful status. Extensive research has documented such mere human presence effect in the offline social environment. For

example, consumers reported intensified emotional reactions to self-service use when others were present in the store (Kinard et al., 2009). Söderlund (2016) showed that the mere presence of employees (vs. absent) in a retail shop positively influences shoppers' emotions and product evaluations.

With the advance of the internet and visual technology, consumers now frequently encounter the visual presence of others in the online environment. For example, empirical evidence shows that approximately 40% of destination images include human figures (Deng & Liu, 2021; Nikjoo & Bakhshi, 2019). However, there are inconsistent results (see Table 1) regarding whether human presence in the online context can still exert a potent impact similar to that in the offline context. Some studies suggest that visual human presence can lead to favorable consumer responses. For example, destination photographs with human presence receive more engagement on social media (Bakhshi et al., 2014; Deng & Liu, 2021) and the presence of humans in hotel photographs can enhance booking intentions by conveying perceptions of social presence and sociability (Joe et al., 2021; Park et al., 2021). Similarly, Zhang et al. (2023) found that human presence in photographs depicting various destination types can influence viewers' perceptions and intentions; however, they did not reveal the underlying psychological mechanism.

Conversely, Kim et al. (2023) revealed that the presence (vs. absence) of human figures in hotel photographs does not significantly affect viewers' attitudes and booking intentions. Li and Xie (2020) also reported a null effect of human presence in airline photos on viewers' social media engagement. Moreover, Li et al. (2023) even found that human presence in restaurant photos significantly diminishes tourists' perceived usefulness of the online review. Recently, Lu et al. (2023) further revealed a negative effect of human presence in identity-relevant consumption contexts (e.g., selecting a wedding or romantic dining venue). This is because human presence signals others' ownership of the venue and thus undermines the self-defining nature of identity-relevant experiences. However, in the context of destination travel, the primary motivations for travel typically revolve around curiosity, exploration, and escapism rather than identity definition, particularly during the pre-trip stage. Therefore, their findings may not be well-suited to explaining the effect of human presence in destination marketing and potential tourists' reactions.

The mixed findings suggest that our understanding of the human presence effect remains incomplete. Most studies to date have regarded human images as social signals that influence viewers' responses by

eliciting various interpersonal perceptions, such as social presence, a sense of sociability with others, and trust. However, the current social influence perspective fails to fully elucidate the inconsistent findings observed in previous studies, particularly regarding why the human presence effect can be effective in some cases but not in others. For instance, according to previous theoretical explanations (Latané, 1981; Park et al., 2021), seeing similar human presence should yield comparable levels of social perceptions (e.g., feelings of social presence, trust, and perceived similarity), thereby resulting in consistent effects on viewers' responses regardless of the context setting.

Nevertheless, Zhang et al. (2023) discovered significant discrepancies in tourists' responses to human presence across natural and urban landscape settings, challenging the uniformity predicted by previous theories. Moreover, even within the same contexts (e.g., hotels), previous studies have identified divergent effects of human presence (e.g., null effect in Kim et al. (2023); positive effect in Park et al. (2021)), which also cannot be adequately explained by previous mechanisms. Therefore, a deeper investigation into the underlying psychological mechanisms is warranted to elucidate the complex human presence effect. Notably, recent cognitive psychology shows that human presence can also act as a cognitive trigger, profoundly shaping the way viewers make sense of a visual scene, such as inducing a relational thinking mindset (Kalkstein et al., 2020) and spatial perspective-taking (Tversky & Hard, 2009). Yet, consumer and tourism literature has paid little attention to how human images can influence tourists' mental representation of visual scenes and the subsequent impact on destination evaluations.

Moreover, previous inconsistent findings may arise from critical boundary conditions that could moderate the focal effect. For instance, a back view of a person in a tourism photograph can evoke a "romantic gaze" and effectively engage viewers in the landscape (Urry, 2002), while a frontal view with a clear face might make the depicted scene seem more like others' experience and inhibit viewers' own imagination of future experiences (Hartmann et al., 2021). This indicates that face visibility of the human cues might moderate the focal effect. However, previous studies haven't considered this critical moderator. Some studies displayed humans with clear faces (Kim et al., 2023), others with a mere back view (Zhang et al., 2023), and even in a mix (Joe et al., 2021), which might lead to inconsistent findings.

Lastly, important confounding factors related to human features might also contaminate the human presence effect. Research has indicated that facial expression valence (Schoner-Schatz et al., 2021),

**Table 1**  
Summary of related literature on consumers' responses to human presence in photographs.

Article	Context	Data source/ Analysis	Consequences of human presence	Psychological mechanisms	Effect	Rule out human-related confounds?
Ye et al. (2020)	P2P/Hotel photos	Survey	Booking intention	Sense of sociability, trust, enjoyment	Positive	NO
Park et al. (2021)	Hotel photos	Survey	Booking intention	Sense of sociability, social presence	Positive	NO
Joe et al. (2021)	Hotel photos	Experiment	Booking intention	Perceived similarity with others	Positive	NO
Zhang et al. (2023)	Destination photos	Secondary data & Experiment	Tourists' perceptions and intentions	N/A	Positive	NO
Bakhshi et al. (2014); Deng and Liu (2021)	Social media photos of tourism	Secondary data	Social media engagement	N/A	Positive	NO
Kim et al. (2023)	Hotel photos	Experiment	Booking intention	N/A	Null effect	NO
Lu et al. (2023)	Photos of identity-relevant experiences (e.g., wedding venue)	Experiment	Liking or preference for the venue	Perceived others' ownership	Negative	Physical attractiveness/pose
Li et al. (2023)	Restaurant photos	Secondary data	Perceived usefulness	N/A	Negative	NO
Li and Xie (2020)	Social media photos of airline	Secondary data	Social media engagement	N/A	Null effect	NO
<b>The current research</b>	<b>Destination photos</b>	Experiment	<b>Destination attractiveness</b>	<b>Mental simulation of future travel experiences</b>	<b>Positive</b>	<b>Yes (physical attractiveness/facial expression/gender/ethnicity)</b>

physical attractiveness (Fang et al., 2020), gender, and ethnicity (Trivedi & Teichert, 2019) of a model can convey different latent meanings that impact viewers' perception and evaluations to the focal products. However, previous studies have not adequately controlled these human-characteristics factors in their experimental stimuli design. Different studies have displayed humans with divergent human features (e.g., facial expressions, gender) in tourism photographs, potentially contributing to confusing results (e.g., Joe et al., 2021; Kim et al., 2023). Thus, it is necessary to further rule out related confounds of the human presence cues.

To address these gaps, we aim to employ a robust experimental design to elucidate the impact of human presence on viewers' responses. Moreover, we seek to unveil a novel cognitive mechanism that underlies the effect of human presence: the activation of mental simulation, as well as the related boundary conditions.

### 2.3. Human presence and mental simulation

According to mental simulation theory (Escalas, 2004; Taylor & Schneider, 1989), the construction of episodic future thoughts relies on retrieving and reconstructing information stored in previous episodic memory, including details about objects, people, actions, and locations (D'Argembeau & Mathy, 2011). Consequently, when product information effectively matches and activates consumers' previously-stored perceptual memories, they find it easier to envision hypothetical scenarios of future product experiences (Yim et al., 2021).

The consumer psychology literature has highlighted that incorporating human (body) elements in visual product descriptions can effectively activate prior episodic memories of product interaction. Consumers typically engage their bodies in the process of interacting with products, which creates a strong and well-established episodic link between the body and product usage processes in their minds. Therefore, seeing an image of a human body can serve as a cognitive trigger, helping consumers retrieve and activate stored memories of product interactions, thus facilitating the construction of vivid behavioral simulations of product usage and consumption (D'Argembeau & Mathy, 2011). For instance, Boardman and McCormick (2019) and Bagatini et al. (2022) found that a real human model wearing clothes is more effective than a mannequin in enabling consumers to vividly imagine themselves wearing the clothes. Yim et al. (2021) demonstrated that inserting a hand into a food image induces viewers to generate more vivid mental imagery of their eating experiences. Similarly, Luangrath et al. (2022) found that seeing a hand touching a T-shirt generates a vicarious feeling of touching.

Based on the rationale that displaying a human model elicits consumers' mental simulation of wearing the clothing, it is posited that the inclusion of a protagonist in destination photos could engender a similar effect. Given the experiential and embodied nature of travel activities, tourists must physically arrive at the destination and use their bodies, along with sensory channels, to sense and interact with the tourism environment (Chronis, 2012). When viewers see a visual scene involving a human body, their prior memories and experiences of interacting with the environment will be activated and highly accessible. This activation then prompts observers to envision scenarios of admiring the landscape or consider how they would experience and interact with the tourism scene. By constructing these episodic future thoughts, viewers can develop a vivid mental simulation of their potential future travel experiences (Karl et al., 2021). Conversely, if the photo only depicts the mere physical environment (i.e., landscape), tourists would focus more on evaluating the aesthetics of the scenery. The absence of human agency in the visual scene could make it difficult for them to simulate their own possible future experiences in that place. Therefore, human presence in travel photos can serve as a cognitive cue to trigger consumers' imagination of their own traveling scenarios at the destination.

Existing literature indicates that mental simulation processes trigger positive attitudes and evaluations toward products (Schlager et al.,

2020; Zhao et al., 2011). This is because the vivid and detailed imagery of the product experience and consumption process amplifies the product's attractiveness and hedonic value. For example, engaging consumers in vivid mental simulation can increase their perceived attractiveness of food (Wu et al., 2021). Similarly, we predict that mental simulation processes in tourism photos would also amplify the attractiveness of the tourism destination and increase the perceived destination attractiveness. Therefore.

**H1.** Travel photos featuring human presence increase perceived destination attractiveness compared to photos featuring mere physical environments.

**H2.** The positive effect of human presence (vs. absence) on perceived destination attractiveness is mediated by an increased mental simulation of one's future travel experiences.

It is important to note that the ease of inducing mental simulation through visual cues also depends on the information display format and the features of the simulation target (Adaval et al., 2019; Ceylan et al., 2024). Specifically, when the information stimuli are presented in a more self-relevant manner, it becomes easier for viewers to retrieve and activate their personal memories and experiences, thereby facilitating vivid simulation outcomes. Moreover, if consumers already possess a high baseline mental simulation ability toward the simulation target (e.g., imagining eating domestic versus foreign food), then the effect of mental simulation cues will be attenuated. Based on this framework, we propose two key moderators of the human presence effect: face visibility (i.e., how the visual cue is displayed) and destination type (i.e., features of the simulation target).

### 2.4. The moderating role of human feature: face visibility

Mental simulation is a process of self-referencing (Escalas, 2007; Krishnamurthy & Sujana, 1999). When consumers mentally imagine their future product consumption experiences, they first relate the provided product information to their previous similar memories, and bring the personal experience and knowledge to the mind. These elements are then reconstructed to generate vicarious feelings and evaluations (Yim et al., 2021). Therefore, presenting marketing stimuli in a more self-relevant format makes it easier for consumers to retrieve and activate previous personal memories, thereby facilitating the construction of vivid mental simulations (Yim et al., 2021). For example, displaying a dish with a spoon placed on its right (vs. left) side is more effective in inducing right-handed consumers to imagine their dining processes, as the right-side spoon is more relevant to their personal behavior habits and previous dining experiences (Elder & Krishna, 2012).

Based on this theory, it is argued that the display of human cues with visible faces or not can moderate viewers' mental simulation processes. Face visibility is a crucial aspect of human presence in tourism photographs, as research indicates that nearly 50% of travel pictures contain people with visible faces (Deng & Liu, 2021). Specifically, we propose that travel photos containing a person with a clearly visible face will inhibit observers' mental simulation of their own travel experiences. This is because the presence of unfamiliar faces in the photo would make consumers realize that it is someone else's travel experience but not theirs, potentially hindering their ability to retrieve self-referencing memories and knowledge to simulate future scenarios. For example, previous research has demonstrated that the presence of a visible face in consumer selfies generates more thoughts related to others, inhibiting self-referent thinking and thereby impeding the mental simulation of their own consumption experiences (Hartmann et al., 2021). In contrast, when a person with an invisible face (e.g., a back view) is shown in the photo, observers can easily retrieve self-related memories and picture themselves in the visual scene, which then increases perceived destination attractiveness. Formally, we propose.

**H3.** When the travel photo contains a person with a visible (vs.

invisible) face, the positive effect of human presence will be inhibited.

2.5. The moderating role of destination type

Existing literature on mental simulation also suggests that the effectiveness of imagination-inducing cues depends on the features of simulation target (Ceylan et al., 2024). This is because simulation targets determine consumers’ baseline mental simulation level (Le et al., 2021; Yim et al., 2021), which will influence the effectiveness of imagination-inducing cues. For instance, a human hand present in a food picture can significantly increase American consumers’ mental simulation of eating sushi, while there was no difference for burgers (Yim et al., 2021). This is because Americans are more familiar with domestic food and can generate a high enough mental simulation even without additional cues to activate related memory resources for constructing anticipated experiences. This thus reduces the imagination-inducing effect of hand cues.

Similarly, we propose that the type of destination (i.e., natural vs. urban landscapes) depicted in the photo, which serves as tourists’ simulation target, will moderate the positive effect of human presence cues by influencing viewers’ baseline mental simulation ability. Research on tourism attractions and photographs typically categorizes destination landscapes into natural and urban (or built) categories (Mihalic, 2013; Wang & Sparks, 2016), and finds divergent effects on viewers’ psychological reactions (Wang & Sparks, 2016). Specifically, urban landscapes represent typical man-made built environments that are intentionally designed to accommodate human activities and behaviors, resulting in a higher affordance for human use (Gibson, 1977; Heft, 2010; Peri, 2015). For example, buildings, streets, and public spaces are structured to afford easy walking, social interaction, and engagement in daily activities (Peri, 2015). This human-centered design offers abundant hints for individuals to anticipate and simulate their potential behavior and activities in the scenes.

Recent psychology research supports this proposition, indicating that environments with high affordance can effectively activate observers’ mental simulation of their behavior (Pezzulo et al., 2010). Therefore, viewers can readily generate sufficient mental simulation for urban scenes, thereby diminishing the positive effect of human presence cues. In contrast, natural landscapes typically feature unexploited environments and wild scenery, characterized by lower affordance for human daily activity (Araújo et al., 2019; Heft, 2010). Consequently, individuals have fewer expectations about what they can do in the non-humanized scene, making it difficult to envision their interactions with the environment. In such cases, human presence, as a visual cue, would effectively help viewers construct potential behavioral scenarios, resulting in increased mental simulation and destination evaluations. This prediction aligns with previous evidence showing that destination marketing organizations (DMOs) prefer to include people in wilderness landscapes to create a sense of connection between viewers and the landscape (Schmallegger et al., 2010). Formally,

H4. The positive effect of human presence will be attenuated for

photos featuring urban landscapes. However, it will hold for photos featuring natural landscapes.

3. Methodology

3.1. Overview of studies

We conducted four experimental studies to test our research hypotheses, as presented in the conceptual model shown in Fig. 1. Specifically, Study 1 aimed to demonstrate the hypothesized main effect (H1) and psychological mechanism (H2) in a social media marketing context. In studies 2a and 2b, we explored the moderating effect of human face visibility in a destination advertising context (H3). In Study 3, we investigated whether the effect of human presence varied in different destination types (urban vs. natural landscape, H4).

To increase the ecological value of the research, we tested our theorizing across different cultural contexts (i.e., both Western and Asian participants) and different landscape types in the photos (e.g., snow mountain and lake, hills with green vegetation, seascape and island view, and urban street landscape), and different marketing contexts (i.e., social media recommendation and destination advertising). Through the comparative analysis across four studies (see Table 2.), we substantiated the generalizability of our proposed framework across diverse settings, thereby contributing to the ecological validity and broad applicability of our research outcomes.

Table 2 Overview of studies.

	Valid Sample	Context	Landscape type	Objective	Rule out alternative explanations/ confounds
Study 1	188 Americans	Social media posts	Snow mountain and lake view	Test main effect and mediation effect	Social presence, sociability, sense of pleasure, trust
Study 2a	234 Americans	Travel ads	Seascape and island view	Test moderation of face visibility	Facial expressions/ physical attractiveness
Study 2b	223 Americans and British	Travel ads	Seascape and island view	Test moderation of face visibility	Ethnicity/ gender/ physical attractiveness
Study 3	250 Asians	Social media posts	Green hills vs. urban street	Test moderation of destination type	physical attractiveness

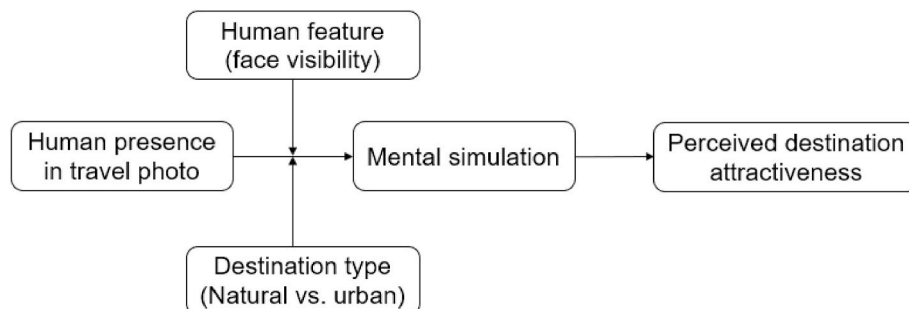


Fig. 1. Theoretical framework.

### 3.2. Study 1

The objective of study 1 was to investigate how the presence of human in destination photos affects viewers' perceptions and responses, and to explore the underlying psychological mechanism of mental simulation. More importantly, study 1 aimed to rule out key alternative explanations such as perceived social presence, sociability, trust, and sense of pleasure.

#### 3.2.1. Method

We recruited 200 American participants ( $M_{age} = 41.21$ ; 48.40% male) from the Prolific Academia platform. All participants were instructed to imagine planning a trip for an upcoming holiday, and were then shown a travel recommendation post from a social media platform. The post featured a famous mountain in New Zealand, with a landscape photo and a brief text introduction (See Fig. 2). Next, participants were randomly assigned to one of two conditions: human presence (yes vs. no). In the human absence condition, the photo displayed only the mountain landscape. In the human presence condition, a female experimenter was added to the scene, admiring the mountain landscape. All other content in the photo and post remained constant across both conditions.

Afterward, we measured the participants' perceived destination attractiveness ( $\alpha = 0.93$ ) using a three-item scale adapted from Yin et al. (2020) and Marder et al. (2021). We then measured participants' mental simulation of their travel experience in this place using a three-item scale ( $\alpha = 0.90$ ) adapted from Elder and Krishna (2012) and Wu et al. (2021). Additionally, participants indicated their perceived social presence ( $\alpha = 0.81$ ), sense of sociability ( $\alpha = 0.73$ ), sense of pleasure ( $\alpha = 0.83$ ), and enjoyment ( $\alpha = 0.90$ ; see Appendix A for the details of measurement.) To check whether the manipulation of human presence was successful, participants in both conditions indicated whether they saw a person standing in the photo. Note that twelve participants who answered the manipulation check question incorrectly were excluded from further analysis. To ensure that there was no perceived artificiality issue in our photographs, participants were also asked to rate their perceived authenticity of the photograph ("To what extent do you think the scene in the photo is realistic?"; 1 = not at all, 7 = very much). Results showed that the participants perceived the photo as realistic across conditions ( $M_{absence} = 5.07, SD = 1.30; M_{presence} = 5.46, SD = 1.44$ ). Finally, all participants answered demographic questions.



Fig. 2. Experimental stimuli in Study 1.

### 3.2.2. Results

**Perceived destination attractiveness.** A one-way ANOVA was adopted to test the effect of human presence on participants' perceived destination attractiveness. The results showed that participants rated the destination as more attractive when they viewed a landscape photo with human presence ( $M_{presence} = 6.31, SD = 0.94$ ), compared to the human absence condition ( $M_{absence} = 5.78, SD = 1.07; F(1, 186) = 12.81, p = 0.000$ ; see Fig. 3). Thus, H1 was supported.

**Mediation effect of Mental simulation.** The effect of human presence on participants' mental simulation of future travel experiences was tested by ANOVA analysis. The results showed that participants generated a higher level of mental simulation in the human presence condition ( $M_{presence} = 4.99, SD = 1.29$ ) than in the human absence condition ( $M_{absence} = 4.59, SD = 1.38; F(1, 186) = 4.22, p = 0.041$ ). Furthermore, the mediation effect was tested using PROCESS macro (Model 4; 10,000 bootstraps). The confidence interval of the indirect effect of mental simulation did not include zero in predicting perceived destination attractiveness ( $b = 0.14, SE = 0.08, CI = [0.0110, 0.3078]$ ). Thus, this provided support for the mediating effect of mental simulation in the relationship between human presence and perceived destination attractiveness (H2).

**Alternative explanations.** We also test whether potential factors of alternative explanations can mediate our effect. The results showed that the indirect effects of perceived social presence ( $b = 0.03, SE = 0.07, CI = [-0.1000, 0.1633]$ ), sense of sociability ( $b = 0.01, SE = 0.06, CI = [-0.1112, 0.1435]$ ), trust ( $b = 0.05, SE = 0.06, CI = [-0.0731, 0.1703]$ ), and sense of pleasure ( $b = 0.15, SE = 0.11, CI = [-0.0681, 0.3743]$ ), on perceived destination attractiveness were not significant. Therefore, the alternative explanations were successfully ruled out.

### 3.2.3. Discussion

Study 1 supported our hypothesized main effect and mediation effect by ruling out key potential alternative explanations. Specifically, participants experienced difficulty imagining their future experiences in a destination environment when presented with photos with mere landscapes. In contrast, the inclusion of an experimenter (human) in the photo activated their mental simulation, resulting in an increase in perceived destination attractiveness.

### 3.3. Study 2

Study 2 aimed to investigate a boundary condition of the effect of human presence: face visibility (H3). We hypothesized that the human presence effect would diminish when the model's face was visible

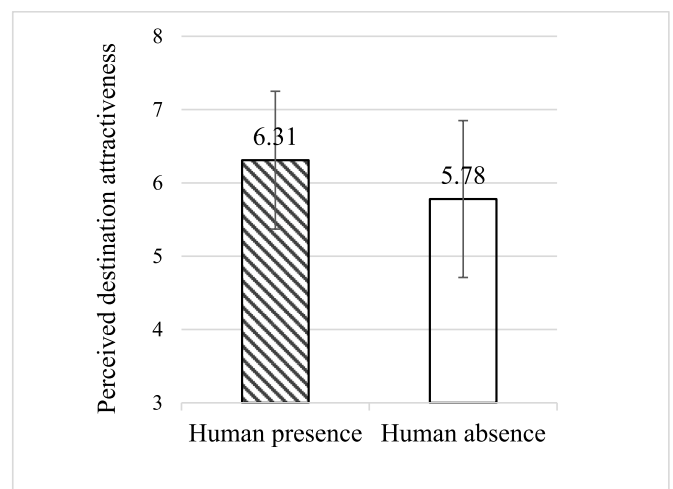


Fig. 3. Effect of human presence on perceived destination attractiveness (Study 1). Error bars present  $\pm 1$  standard deviation of the variable.

because the visibility of an unknown face could impede the self-referencing process of mental simulation. To enhance the generalizability of our findings and implications, we altered the experimental setting from social media recommendations to destination online marketing advertisements.

Note that the ethnicity similarity between viewers and the human model might also affect consumers' mental simulation ability and perception. For example, it is possible that seeing a face with a different ethnicity, as opposed to a similar one, may pose challenges for viewers in envisioning themselves in the destination scenes, potentially reducing their destination perceptions. If that were the case, then the moderating effect of face visibility might not exist when displaying a model with the same ethnicity as viewers. To address this potential confounding factor, we conducted two sub-studies (Study 2a and 2b) with similar procedures but varied the ethnicity of the model in the photos to increase the generalizability of the moderating effect.

### 3.3.1. Study 2a: human presence with the different ethnicity

**3.3.1.1. Method.** Two hundred and forty American participants ( $M_{\text{age}} = 40.44$ ; 49.36% male) were recruited from the Prolific Academia platform in exchange for a bonus. Participants were instructed to imagine planning a holiday trip and searching online for destination information. They then encountered a destination poster advertisement on a website about a fictional tourist island, namely Eplis Island. The advertisement featured seascape and shoreline views of the island and provided booking information at the bottom. Then they were randomly assigned to a 3 (human presence: no vs. human with invisible face vs. human with visible face) between-subjects experimental design (see Fig. 4). In the human absence condition, the advertisement only showed the landscape of the island. In the human presence conditions, we manipulated face visibility by showing a frontal or back view of an Asian female (who shared a different ethnicity from the participants) standing

in the landscape scene, with other content remaining constant across conditions.

To eliminate the potential confounding effects of physical attractiveness and facial expressions on participants' evaluations of the destination, we selected a model with neutral physical attractiveness and a plain facial expression as our stimulus through pretests. We measured participants' perceptions of the model's attractiveness ("To what extent do you think the person standing in the travel photo is attractive?" adapted from Wan and Wyer (2015)) and the valence of facial expression in pretests ("Please evaluate the facial emotion display of the person standing in the photo"; 1 = "Extremely Negative", 4 = "Neutral level", 7 = "Extremely Positive", adapted from Schonher-Schatz et al. (2021)). One-sample t-tests showed that our model had neutral-level physical attractiveness ( $M_{\text{back}} = 3.94$ ,  $SD = 1.05$ , versus 4,  $t(93) = -0.416$ ,  $p = 0.679$ ;  $M_{\text{frontal}} = 3.77$ ,  $SD = 1.05$ , versus 4,  $t(93) = -1.532$ ,  $p = 0.132$ ) and neutral valence of facial expression ( $M = 3.92$ ,  $SD = 1.28$ , versus 4,  $t(93) = -0.455$ ,  $p = 0.651$ ). In addition, there was no significant difference in perceived physical attractiveness between the back view and frontal view of the person ( $F(1, 92) = 0.619$ ,  $p = 0.43$ ). Thus, our stimuli successfully ruled out the potential confounding factors.

After reading the advertisement, we measured the participants' perceived attractiveness of the island destination ( $\alpha = 0.91$ ) and their ability to generate mental simulations of their future travel experiences ( $\alpha = 0.91$ ) on the island, as in study 2. We also asked them to answer the manipulation check questions. In the human presence (with or without a visible face) conditions, participants indicated whether they saw a person standing in the photo. In human presence with a visible face condition, participants were additionally asked whether they could see the person's face in the picture. Note that six participants who did not provide correct answers to these questions were excluded to ensure the effectiveness of the experimental manipulation. Moreover, to ensure that there was no artificiality issue in our photographs, participants were

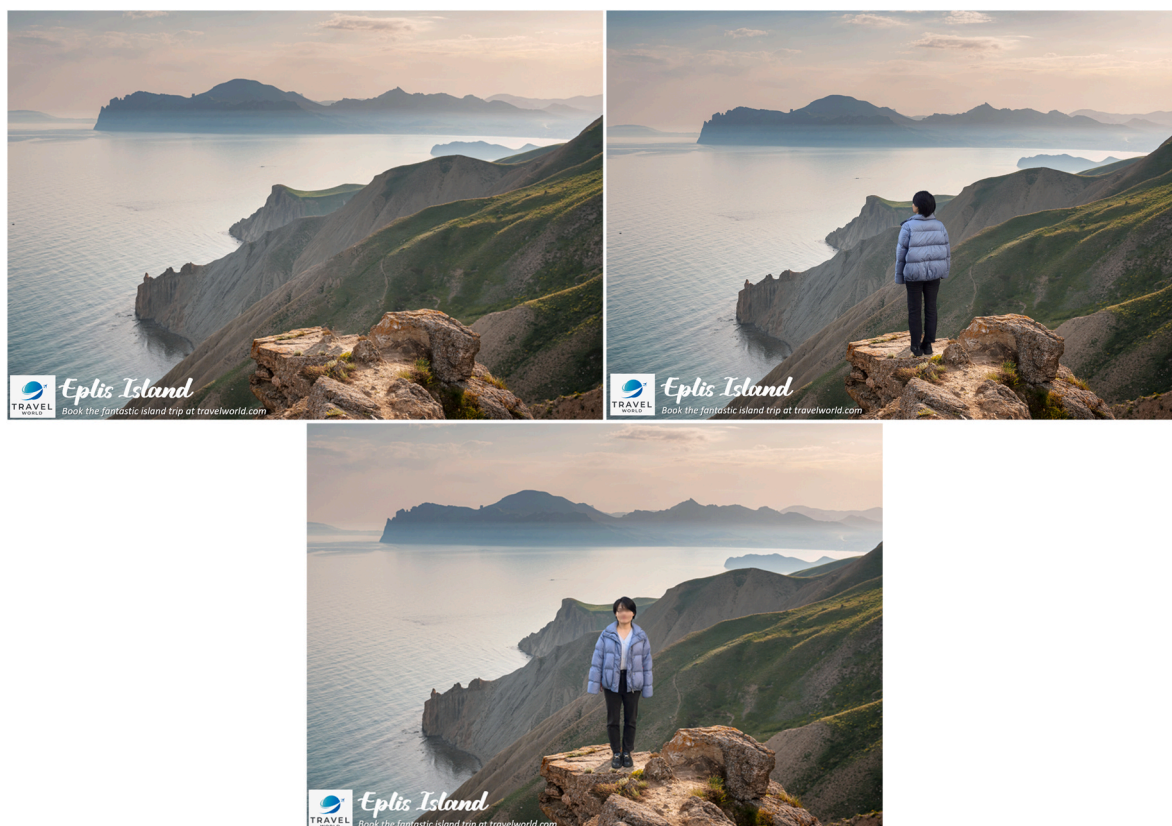


Fig. 4. Experimental stimuli in Study 2a.

also asked to rate their perceived realism of the photograph. Results showed that the majority of participants perceived the photo as realistic across three conditions ( $M_{\text{absence}} = 5.30, SD = 1.30$   $M_{\text{presence and invisible}} = 4.97, SD = 1.52$   $M_{\text{presence and visible}} = 5.08, SD = 1.29$ ).

**3.3.1.2. Results. Perceived destination attractiveness.** The results of the ANOVA showed a significant main effect of the experimental conditions on perceived destination attractiveness ( $F(2, 231) = 3.644, p = 0.029$ ). As shown in Fig. 5, post-hoc tests revealed that the human presence effect was replicated, as in previous studies, with perceived destination attractiveness significantly higher in the human presence with an invisible face condition, compared to the no human presence condition ( $M_{\text{presence and invisible}} = 6.05, SD = 0.95$  vs.  $M_{\text{absence}} = 5.67, SD = 1.11; t(231) = -2.384, p = 0.018$ ). Additionally, in line with our prediction in H3, the visibility of the person's face reduced the mental simulation process, resulting in significantly lower perceived destination attractiveness than in the invisible face condition ( $M_{\text{presence and visible}} = 5.69, SD = 0.96$  vs.  $M_{\text{presence and invisible}} = 6.05, SD = 0.95; t(231) = 2.248, p = 0.026$ ). Lastly, there was no significant difference in perceived attractiveness between the visible face condition and the human absence condition ( $M_{\text{presence and visible}} = 5.69, SD = 0.96$  vs.  $M_{\text{absence}} = 5.67, SD = 1.11; t(231) = -0.130, p = 0.897$ ).

**Mediation effect of mental simulation.** An ANOVA analysis showed a significant effect of human presence on mental simulation ( $F(2, 231) = 3.352, p = 0.037$ ). Specifically, participants had a significantly higher mental simulation level in the human presence with an invisible face condition ( $M = 4.87, SD = 1.35$ ) compared to the human absence condition ( $M = 4.31, SD = 1.39; t(231) = -2.453, p = 0.015$ ), and this difference was marginally greater than the visible human face condition ( $M = 4.42, SD = 1.54; t(231) = 1.945, p = 0.053$ ). No significant difference was found between the human absence and visible human face condition ( $t(231) = -0.504, p = 0.615$ ).

Next, we tested the mediation effect using the PROCESS macro (Model 4; 10,000 bootstraps). The results showed that the indirect effect of mental simulation on perceived destination attractiveness was only significant among human absence and invisible face condition ( $b = 0.22, SE = 0.09, CI = [0.0496, 0.4076]$ ), but not among human absence and visible face condition ( $b = 0.045, SE = 0.09, CI = [-0.1293, 0.2304]$ ). Thus, this supported the moderating effect of face visibility in the relationship between human presence and perceived destination attractiveness (H3).

**3.3.1.3. Discussion.** In study 2a, the results of previous studies were replicated, and a significant boundary condition of face visibility was identified. More importantly, the three levels between subject design also provided a comparative methodology to eliminate the confounding

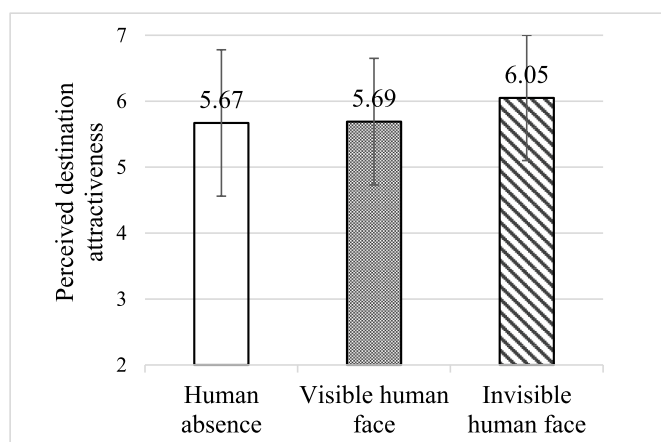


Fig. 5. Effect of human presence on perceived destination attractiveness (study 2a). Error bars present  $\pm 1$  standard deviation of the variable.

factor of the model's physical attractiveness. Specifically, there was no significant difference in the physical attractiveness of the human model between the invisible face and visible face conditions. However, in comparison to the condition without human presence, perceived destination attractiveness was significantly higher only in the invisible face condition, not in the visible face condition. These comparative results provided confirmation that our observed effect is not driven by the physical attractiveness of the model.

### 3.3.2. Study 2b: human presence with the similar ethnicity

Study 2b aimed to replicate the moderating role of face visibility (H3) and to eliminate the potential confounding factor related to ethnicity. In this study, a Caucasian model was employed as the stimulus. If the moderating effect of face visibility is indeed influenced by the disparate ethnicity between viewers and the human model, then displaying a model with the same ethnicity as the viewers would nullify this moderating effect. Moreover, we displayed a male model to rule out the potential confounds of model gender. If the effect of human presence is gender-specific (e.g., only for females), then displaying a male model may attenuate the effect.

**3.3.2.1. Method.** Two hundred and forty American and British participants (Mage = 40.23; 47.09% male) were recruited from the Prolific Academia platform in exchange for a bonus. The study design was similar to study 3. The main difference was that we used a Caucasian male with neutral physical attractiveness and facial expressions as our model in the experiment (see Fig. 6, and Appendix B for the pretest results). After reading the photo advertisement, participants were invited to indicate their perceived attractiveness of the island destination ( $\alpha = 0.94$ ) and the ability to generate mental simulations of their future travel experiences ( $\alpha = 0.94$ ) on the island, as in study 3a. We also asked them to answer the manipulation check questions and rate their perceived realism of the photographs. Note that seventeen participants who did not pass manipulation and attention checks were excluded. The photo was perceived as realistic across three conditions ( $M_{\text{absence}} = 5.28, SD = 1.33; M_{\text{presence and invisible}} = 5.55, SD = 1.58; M_{\text{presence and visible}} = 5.09, SD = 1.44$ ).

**3.3.2.2. Results. Perceived destination attractiveness.** An ANOVA analysis showed a significant main effect ( $F(2, 220) = 4.152, p = 0.017$ ). As shown in Fig. 7, post-hoc tests revealed that perceived destination attractiveness was significantly higher in the human presence with an invisible face condition, compared to the no human presence condition ( $M_{\text{presence and invisible}} = 6.01, SD = 0.95$  vs.  $M_{\text{absence}} = 5.63, SD = 1.35; t(220) = -2.030, p = 0.044$ ). Additionally, in line with our prediction in H3, the visibility of the person's face reduced the mental simulation process, resulting in significantly lower perceived destination attractiveness than in the invisible face condition ( $M_{\text{presence and visible}} = 5.48, SD = 1.11$  vs.  $M_{\text{presence and invisible}} = 6.01, SD = 0.95; t(220) = 2.788, p = 0.006$ ). Lastly, there was no significant difference in perceived attractiveness between the visible face condition and the human absence condition ( $M_{\text{presence and visible}} = 5.48, SD = 1.11$  vs.  $M_{\text{absence}} = 5.63, SD = 1.35; t(220) = 0.768, p = 0.443$ ).

**Mediation effect of mental simulation.** An ANOVA analysis showed a significant effect of human presence on mental simulation ( $F(2, 220) = 3.352, p = 0.037$ ). Specifically, participants had a significantly higher mental simulation level in the human presence with an invisible face condition ( $M = 5.00, SD = 1.26$ ) compared to the human absence condition ( $M = 4.43, SD = 1.60; t(220) = -2.356, p = 0.019$ ), and this difference was significantly greater than the visible human face condition ( $M = 4.52, SD = 1.50; t(220) = 1.986, p = 0.048$ ). No significant difference was found between the human absence and visible human face condition ( $t(220) = -0.363, p = 0.717$ ).

Next, we tested the mediation effect using the PROCESS macro (Model 4; 10,000 bootstraps). The results showed that the indirect effect



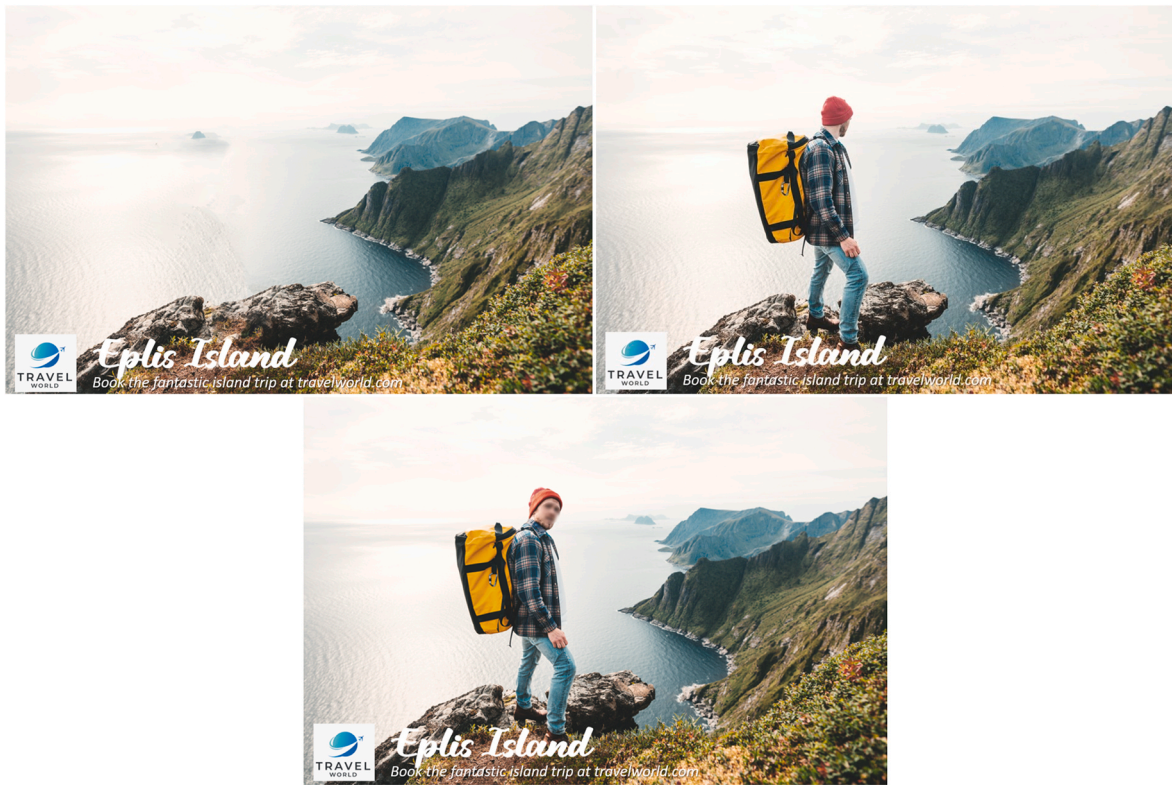


Fig. 6. Experimental stimuli in Study 2b.

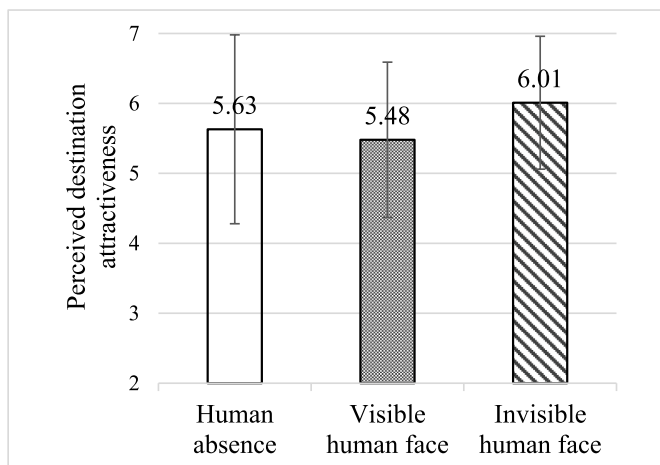


Fig. 7. Effect of human presence on perceived destination attractiveness (study 2b). Error bars present  $\pm 1$  standard deviation of the variable.

of mental simulation on perceived destination attractiveness was only significant among human absence and invisible face condition ( $b = 0.30$ ,  $SE = 0.14$ ,  $CI = [0.0535, 0.5918]$ ), but not among human absence and visible face condition ( $b = 0.02$ ,  $SE = 0.06$ ,  $CI = [-0.0880, 0.1476]$ ). Thus, this supported the moderating effect of face visibility in the relationship between human presence and perceived destination attractiveness (H3).

3.3.3. Discussion

Study 2b successfully replicated the moderating effect of face visibility by employing a model with the similar ethnicity as the viewers. In summary, in both different ethnicity (Study 2a) and similar ethnicity (Study 2b) situations, the proposed ‘face visibility’ moderating effect

persists. This indicates that the model ethnicity does not influence the observed effect, thereby enhancing the generalizability of our findings. Moreover, this study found that the human presence effect still holds when displaying a male model, thus eliminating the potential confounding factor of model gender.

3.4. Study 3

Study 3 aimed to examine the moderating role of destination type (H4). We predicted that the effect of human presence on tourists’ perceived destination attractiveness through mental simulation would be attenuated when an urban landscape (vs. natural landscape) was featured in the photo. Furthermore, we recruited Asian participants to demonstrate that there is no cultural difference in the proposed effect and to enhance the generalizability of our findings.

3.4.1. Method

This experiment was an offline lab study. Two hundred and fifty-eight Chinese undergraduate students from a university in Hong Kong participated in the study for an exchange of course credit.

Similar to study 1, all participants were invited to imagine planning a holiday trip and searching for destination information online. They were then randomly assigned to a 2 (human presence: yes vs. no) x 2 (destination type: natural vs. urban) between-subjects experimental design. Subsequently, they were shown a travel recommendation post from a social media platform, which introduced the tourism landscape in Sweden. To manipulate the destination type, a photo featuring either a mountain landscape or a view of a European city street was presented in the post. Human presence was manipulated by including a male tourist in the landscape scene or not (see Fig. 8).

In order to rule out the potential confounding effect of the model’s physical attractiveness, a male model with average stature was chosen to avoid any positive effect resulting from physical attractiveness. In a pretest, 80 participants rated the physical attractiveness of the male



Fig. 8. Experimental stimuli in Study 2.

model. A one-sample *t*-test showed that our model had a neutral physical attractiveness ( $M = 3.94, SD = 1.14$ ), which was comparable to the midpoint value of 4 ( $t(79) = -0.49, p = 0.625$ ). As such, the model was considered an appropriate stimulus for the human presence manipulation. In an additional test ( $N = 185$ ), participants were recruited to rate their perceived realism of the photographs as study 1. The results indicated that, across different conditions, the majority of participants perceived the photo as realistic, with mean values significantly surpassing the midpoint of 4 ( $M$  nature without human = 5.72,  $SD = 1.38$ ;  $M$  urban without human = 5.81,  $SD = 0.92$ ;  $M$  nature with human = 4.98,  $SD = 1.32$   $M$  urban with human = 5.07,  $SD = 1.86$ ).

After the participants finished reading the post and viewing the photo, we measured their perceived destination attractiveness ( $\alpha = 0.93$ ) and mental simulation of future travel experiences ( $\alpha = 0.88$ ) using the same items as in Study 1. Participants also indicated whether they saw a person standing in the photo. Eight participants who failed to answer this question were excluded to guarantee the effectiveness of the experimental manipulation.

3.4.2. Results

**Perceived destination attractiveness.** A two-way ANOVA was conducted to examine the effect of human presence and destination type on perceived destination attractiveness. Results (see Fig. 9) indicated a significant interaction effect between human presence and destination type ( $F(1, 246) = 7.78, p = 0.006, \eta^2 = 0.03$ ). Specifically, participants perceived natural landscapes with human presence ( $M = 4.84, SD = 1.09$ ) as more attractive than those without human presence ( $M = 4.26, SD = 1.18; F(1, 246) = 7.99, p = 0.005$ ). However, the effect of human presence on urban landscapes was not significant ( $M_{presence} = 5.11, SD = 1.21; M_{absence} = 5.34, SD = 1.13; F(1, 246) = 1.25, p = 0.264$ ). Therefore, H4 was supported.

**Moderated Mediation Analysis.** We conducted a test of moderated mediation to determine whether the impact of destination type on mental simulation plays a moderating role. Specifically, we utilized PROCESS model 7 (Hayes, 2017) with 10,000 bootstrap samples, taking human presence as the independent variable (0 = human absence, 1 = human presence), destination type as the moderator (0 = nature, 1 = urban), mental simulation as the mediator, and perceived destination attractiveness as the dependent variable. The results revealed a significant moderated-mediation index ( $\beta = -0.32$ ) with a 95% confidence interval of  $-0.6691$  to  $-0.0089$ , which did not include zero. As

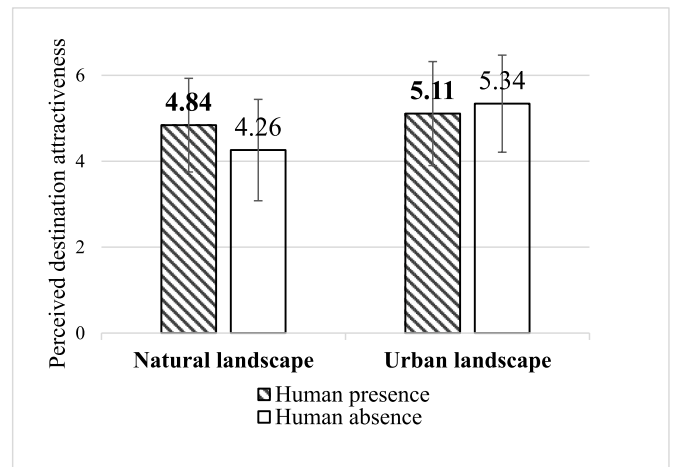


Fig. 9. Effect of human presence on perceived destination attractiveness in Study 3. Error bars present ± 1 standard deviation of the variable.

hypothesized, mental simulation mediated the relationship between human presence in travel photos and perceived attractiveness, but this effect was only prominent among nature-based (vs. urban-based) destination landscapes.

3.4.3. Discussion

The results of study 3 supported H4 by showing that a travel photo with human presence had a greater effect on increasing tourists' perceived attractiveness of a destination when the photo featured a natural landscape compared to an urban landscape. More importantly, the results of this study further generalized the proposed effect to a different cultural context by using an Asian subject sample.

4. Conclusion and discussion

Destination marketing aims to sell enticing tourism experiences to potential tourists by creating vivid images of their future travel experiences. The success of destination marketing communications depends on the ability of marketing offerings to captivate potential tourists and evoke their imagination. This paper investigates an effective approach to

activating tourists' mental simulation of destination experiences through photographs by adding a protagonist, namely a human figure, into the tourism landscape scene. The inclusion of a person in destination photos significantly enhances viewers' mental simulation of their travel experiences, thereby increasing their perception of destination attractiveness. Study 1 conducted on American participants, demonstrated the effect of human presence on photo viewers' perceived destination attractiveness and the underlying psychological mechanism of mental simulation. Importantly, key potential alternative explanations (e.g., social presence, sociability, trust) were also ruled out. Studies 2a and 2b demonstrated that human presence with a visible face inhibited participants' mental simulation process, which reduced the focal effect. Importantly, the moderating effect was not influenced by the confound of model ethnicity. Additionally, the physical attractiveness and gender of the model were controlled and ruled out as potential confounding factors. Study 3 further established the moderating role of destination type, where the human presence effect was more pronounced in photos featuring natural (vs. urban) landscapes, using an Asian participant sample. Therefore, the proposed human presence effect was robust and consistent across multiple experimental designs (i.e., both online and offline lab experiments) and cross-cultural subject samples (i.e., both Western and Asian).

#### 4.1. Theoretical contributions

This study provides significant contributions to the existing literature in several ways. Firstly, our findings add to the emerging literature on tourist mental simulation activation. Prior research has widely documented the positive outcomes of activating tourists' mental simulation (e.g., Xie et al., 2021), but effective cues that induce mental simulation haven't been fully investigated. While many related investigations have focused on the role of textual cues or verbal imaginative instructions in inducing imagination (Karl et al., 2021; Lv et al., 2020; Walters et al., 2007), such approaches may impose a cognitive burden on tourists and there also remains limited understanding of the visual cues that can naturally and automatically activate mental simulation. By identifying human presence as an effective visual element that can autonomously inspire vivid tourist imagination, our work responds to the call for deeper exploration of more subtle and natural marketing cues for mental simulation activation (Hung and Wyer Jr, 2011; Karl et al., 2022).

Secondly, this work advances the theoretical explanation of human presence effect by shedding light on a new cognitive mechanism. Previous literature mainly regards the visual presence of others as a social signal that influences consumer behavior by eliciting a range of interpersonal perceptions, such as the feeling of social presence, sociability, and enjoyment (Park et al., 2021; Wang et al., 2014). By showcasing that human presence can facilitate one's mental simulation of future experiences in the depicted destination, our research uncovers how seeing human presence can influence viewers' mental representation and sense-making of the visual scene. Consequently, this work offers a new theoretical perspective to understand the role of human presence cues in tourism marketing.

More importantly, our proposed mental simulation mechanism offers comprehensive theoretical explanatory power in understanding the complex human presence effect. Specifically, prior research has provided mixed evidence regarding the human presence effect in tourism photos (e.g., Li et al., 2023; Park et al., 2021). Based on our theoretical framework, our work contributes to further elucidating why the human presence effect may manifest in some cases but not in others by identifying two critical boundary conditions: face visibility and landscape context. Specifically, the human presence effect is only manifested (a) when a person with an invisible rather than a visible face is shown, and (b) when destination photos feature natural landscapes rather than urban landscapes. However, previous social influence perspectives fail to adequately capture and explain these boundary conditions, as similar human cues across different contexts should theoretically convey similar

levels of social perceptions (e.g., perceived social presence, trust), resulting in consistent favorable effects (Latané, 1981; Park et al., 2021). Additionally, by ruling out important confounding factors (e.g., physical attractiveness, facial expressions, model ethnicity) that previous research had not yet resolved, we show a robust effect of pictorial human presence in increasing destination attractiveness. These insights not only help reconcile the mixed findings from previous studies, but also provide a more comprehensive understanding of the role of human presence in destination photographs.

Finally, our findings contribute to the literature on tourists' responses to various destination landscapes. While prior studies have compared tourists' attention and affective responses in natural and urban landscapes (e.g., Pan et al., 2014; Wang & Sparks, 2016), scant research has explored the effectiveness of advertising materials in different landscape types. Our findings extend the existing literature by revealing that the effectiveness of marketing cues (i.e., human presence) is contingent upon natural and urban landscape scenes. This insight encourages future research to consider tailoring marketing strategies based on the distinct characteristics of landscape types to optimize tourist responses. More importantly, by showing the human presence cues exert different effects on tourists' perceptions of natural and urban landscapes, we highlight that particular visual elements can influence how viewers mentally process and make sense of the entire landscape scene. This underscores the importance of conducting in-depth investigations into the impact of specific landscape components on viewers' responses, moving beyond simplistic comparisons of different landscape types.

#### 4.2. Practical implications

Our study provides a range of valuable insights for enhancing destination marketing practices. First, considering the intangible nature of tourism products, effective destination marketing communications should skillfully evoke travel dreams and fantasies. Our findings identify human presence as an impactful and easily manipulatable cue for destination marketers to inspire potential tourists' imagination of their future travel experiences. More importantly, this vivid mental simulation induced by human presence cues is found to significantly improve destination attractiveness. Consequently, we recommend that destination marketers incorporate more photos featuring human presence on destination official websites, social media platforms, and OTA platforms to induce travel fantasies and intentions. Furthermore, given the greater challenges posed by prior knowledge and psychological distance for tourists' imagination ability (Le et al., 2021), it becomes particularly crucial to include human cues in advertisements when promoting attractions or activities lacking sufficient prior knowledge among the targeted tourists or when aiming to attract tourists from different cultural backgrounds or large geographical distances.

Second, although tourism marketers have consciously or unconsciously included human cues in ads, less is known about how to display human presence or what kind of human cues in photographs can achieve optimal marketing effect. Our findings thus provide a comprehensive understanding of the role of human presence. Specifically, while DMOs prefer to show a model image with observable faces to attract tourists (Schoner-Schatz et al., 2021) and a recent popular travel trend called "punching the card" encourages travelers to post photos that include both scenery and their faces in the social media, our findings remind marketers that showing a clear face in travel photos may backfire on viewers' mental simulation processes and reduce destination attractiveness. Therefore, it is recommended that tourism marketers should design promo photos that reduce the intrusiveness of others to achieve a better communication effect, such as using a model with a back view or an unclear face.

Third, our findings reveal that the human presence effect is more effective in photos featuring natural landscapes than in urban landscapes. This is because compared with urban landscapes, natural

landscapes that feature unexploited environments usually have a lower affordance level for human activity, which makes it more difficult for viewers to picture themselves in the scene without the aid of human presence cues. Therefore, it is more important to include human elements in natural landscape photos to aid tourists' imagination processes. Moreover, this insight also reminds nature-based destination marketers that merely showcasing the beauty of nature might not be enough to evoke travel fantasies. It is essential to include more information about the environmental affordance, such as how tourists can do and experience in the scene, to assist tourists in envisioning vivid destination experiences.

#### 4.3. Limitations and future directions

The current research is not without limitations. First, given that the human presence photos in our studies are mainly edited by photo manipulation tools, we admit that the perceived artificiality issue in our stimuli might influence the human presence effect. Therefore, we hope that future studies can adopt more realistic materials (e.g., generated by AI) to test the human presence effect. Furthermore, another methodological concern arises from our predominant use of experiments with self-reported data to test our hypotheses. Despite our efforts to enhance the generalizability of conclusions through diverse context manipulations, cross-cultural sample sourcing, and varied study designs (online and offline lab experiments), the issue of external validity persists. Therefore, future research could advance the exploration of the human presence effect by leveraging secondary big data and conducting tests involving real behaviors, such as destination choice.

Second, although we made efforts to control and eliminate the key factors that could potentially contaminate the human presence effect, such as physical attractiveness and face visibility, other factors may still influence the proposed effect. For instance, the number of people in a visual scene can significantly influence viewers' attention focus and perceptions. Previous studies have demonstrated that travel photos with a single-person composition evoke more arousing, pleasant, and relaxing feelings than those with multiple people. As the number of people in the photo increases (i.e., 2–6 people), viewers' emotional perception decreases (Pan et al., 2014). In this research, we primarily used single-person composition as our experimental stimuli to maximize the effect of mental simulation activation. However, future studies could investigate the boundary condition regarding the number of people in the photo.

Moreover, based on the previous definition, human presence in destination photos can be categorized into several types: tourist only, host only, and tourist and host together (Nikjoo & Bakhshi, 2019). However, our study, like most prior research, has primarily focused on investigating the impact of tourist presence on viewers' perceptions. As different human identities may result in varying psychological responses and perceptions, we suggest conducting further studies to explore other forms of human presence. For instance, displaying images of local people could depict the real local lifestyle, enhancing the perceived authenticity of the destination experience (Wang, 1999). Photos showcasing positive interactions between hosts and guests could also convey a sense of warmth and emotional connection to the destination, leading to positive destination attitudes and evaluations (Tung et al., 2021).

Finally, in recent years, researchers have highlighted the positive impact of using innovative visual techniques, such as video, headset VR (Skard et al., 2021), and AR to evoke mental simulations. Future research can explore the human presence effect in these advanced visual formats, such as video and VR devices, to extend our understanding of the positive impact of human presence on destination attitudes and evaluation.

#### 5. Impact statement

The core objective of tourism marketing is to ignite tourists'

imagination of future destination experiences. Our research revealed that the inclusion of a person in destination promo photos can significantly facilitate viewers' mental simulation of their future travel scenarios, consequently enhancing the perceived destination attractiveness. We thus offer destination marketers an easy and effective visual strategy to immerse tourists in vivid travel fantasies. Importantly, we also offer new insights into how and when displaying human cues can achieve an optimal marketing effect. Specifically, our findings show that showing a clear face in travel photos may backfire on viewers' imagination processes and reduce destination attractiveness. Therefore, it is recommended to employ a model with a back view or an unclear face in the promo photos. Moreover, displaying a person in photos featuring natural landscapes is more effective in enhancing tourists' imagination and destination evaluations than urban landscapes.

#### CRedit authorship contribution statement

**Yuan (William) Li:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Lisa C. Wan:** Writing – review & editing, Validation, Supervision, Resources, Project administration, Methodology, Funding acquisition, Conceptualization.

#### Declaration of competing interest

None.

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#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.tourman.2024.104969>.

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