

# **From faces to feels: The impact of human images on online review usefulness**

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**Abstract:** This research draws upon visual rhetoric theory to investigate the influence of user-generated photos containing human images on the perceived usefulness of online reviews, the mediating role of perceived support, and the moderating effect of rebate disclosure. We conducted six empirical studies, including a social media analytics study and five experimental studies. The results indicate that online reviews containing human images, especially those with facial features, are perceived as more useful than those without, regardless of the reviews' valence. Perceived support mediates this effect, while rebate disclosure weakens it. This study offers a fresh theoretical perspective and insights into the role of user-generated photos with human images in online reviews. Findings suggest that managers should prioritize visual rhetoric by incorporating human images in their communication with target customers, while also encouraging tourists to include these images in their posts, signifying support for the audience and improving content effectiveness.

**Keywords:** User-generated photo; Visual rhetoric; Human image presentation; Social support; Rebate marketing.

## 1. Introduction

Online travel reviews have emerged as a significant information source for tourists when making travel decisions (Filieri, 2016; Xia, 2023; Tsai et al., 2020; Huang et al., 2020). Of particular interest and impact are the user-generated photos in online reviews (Li & Xie, 2020; Park et al., 2021; Wang, Zhong, et al., 2022). Digital marketers recognize user-generated photos as highly effective visual strategies for marketing communications (Nanne et al., 2020). Content featuring human images is especially common and offers advantages such as creating personal experiences, facilitating emotional resonance, and increasing the appeal of the content (Hassanein & Head, 2007; Wang et al., 2007; Cui et al., 2013). To attract a larger customer base, businesses often offer incentives to consumers in exchange for writing reviews. However, this rebate practice needs to be disclosed to ensure transparency and maintain the integrity of the reviews (Li & Li, 2016).

Prior empirical studies have shown that reviews' usefulness is linked to various factors, such as photo aesthetics (Marder et al., 2021), photo background (Zhang et al., 2022), food photo types (Liu et al., 2022), and text placement in online review photos (Pieters et al., 2010; Zhao et al., 2022). Photos, according to visual rhetoric theory (Kjeldsen, 2018), go beyond reflecting reality and convey symbolic messages as indexical signs of objects. User-generated photos capture explicit and implicit content, with explicit content conveyed through denotative signs and implicit content requiring interpretation (Riffe et al., 2005). These photos represent users and their surroundings (Belk, 2013), influencing viewers' perceptions of product or service experiences, akin to user-generated written content (Kozinets et al., 2010). Moreover, human-centric photos featuring consumers using a product or service foster

a sense of social presence and support (Hassanein & Head, 2007), enhancing message effectiveness (Cyr et al., 2009).

Studies in visual rhetoric suggest that incorporating human images in advertising can enhance product attractiveness, prolong individual gaze duration and interest, aid consumers in envisioning product usage scenarios, and alleviate psychological uncertainty (Cyr et al., 2009; Ert et al., 2016; Hassanein & Head, 2007; Merle et al., 2012; Wang et al., 2007; Xiao & Ding, 2014). Visual rhetoric theory is commonly employed in advertising research to analyze the symbolic meaning of commercial images and understand how viewers interpret them (Scott, 1994; Mohanty & Ratneshwar, 2015; Peterson, 2019). However, the impact of human images in user-generated photos on consumers' evaluations of the reviews remains inadequately understood, despite the prevalence of such photos in online reviews and their significance in the consumer decision-making process.

To address this research gap, we propose and test a conceptual model that examines the relationship between human images in user-generated photos and the usefulness of reviews. Drawing from visual rhetoric and prior studies (Cyr et al., 2009; Wang et al., 2007), we argue that human images in reviews provide nonverbal cues, foster social interaction, and offer a means for psychological connection, thereby influencing the perceived usefulness of reviews. Specifically, we posit that online reviews featuring human images have a more positive impact on perceived review usefulness compared to those without, with this effect mediated by perceived support from fellow potential tourists, which further enhances the perceived usefulness of the information (Yahia et al., 2018). Moreover, considering the increasing prevalence of rebate marketing (Li & Li, 2016) and the importance of disclosure in

maintaining review authenticity (Yang & Dong, 2018), we further investigate the influence of rebate marketing disclosure on the impact of human image presentation on review usefulness.

We used a social media analytics study and five experimental studies to investigate the relationship between human image presentation and review usefulness. The first study involved collecting online reviews from a prominent travel review platform from 2017 to 2022 to determine whether a relationship existed between human image presentation and review usefulness. Subsequently, we conducted five experimental studies that focused on different aspects of the relationship, including the link between human image presentation and review usefulness (Study 2a), the impact of review valence on this relationship (Study 2b), the mediating role of perceived support (Study 3), the most impactful type of human image presentation (Study 4), and the moderating role of the rebate disclosure (Study 5).

## **2. Theoretical background and hypotheses**

### *2.1. The theory of visual rhetoric*

Visual rhetoric refers to visual communication that uses symbols to convey meaning within a specific cultural context (Olson et al., 2008). This includes various tangible creative works such as photographs, paintings, sculptures, and advertisements (Foss, 2015). Visual rhetoric theory considers visual images to be communicative artifacts, similar to written or spoken language, which is used for communication purposes (Phillips & McQuarrie, 2004). This theory is based on traditional rhetorical theory, which focuses on the use of language to persuade people, such as through online reviews (Scott, 1994). Visual images can be used to convey arguments and serve as a means of persuasion, with audiences participating in their

own persuasion by interpreting the meaning of the images (Kjeldsen, 2018).

The purpose of visual rhetoric is to influence the audience visually (Olson et al, 2008), and it is effective because it helps us to better understand our world and create a framework for our thoughts and actions (Olson et al, 2008). Print advertisements, in particular, are a commonly studied form of visual rhetoric, and research has shown that they are effective in persuading viewers to prefer certain brands and engage in related behaviors when they find the visual elements appealing (Obermiller & Sawyer, 2011). The “picture superiority effect,” as described by Paivio (1991), highlights that visuals are often more memorable and persuasive than text alone.

The rise of social media platforms has made visual images more important in online communication. In the diverse and often noisy landscape of social media, visual rhetoric assumes a pivotal role in shaping and influencing audiences’ perceptions and attitudes. User-generated photos in online consumer reviews constitute a novel form of visual rhetoric. In an online environment characterized by an abundance of text-based content, photos featuring human images have the unique ability to swiftly capture the attention of readers, making reviews visually stand out (Li & Xie, 2020). Such images signal the reviewer's additional effort in crafting content and provide readers with valuable insights into personal experiences (Li & Xie, 2020).

Human images, a unique element of visual rhetoric, can be highly persuasive in online communication. Firstly, having human images in online reviews creates a sense of social presence, making it feel as though the audience is directly engaging with the depicted

individual. This helps bridge the psychological gap between the content creator and the audience (Jiang et al., 2019). In addition, when readers see a real person associated with a review, it instills a sense of authenticity and trustworthiness. This is because real faces and individuals are commonly seen as more genuine and credible sources of information (Olson et al., 2008). Facial expressions, subtle eye movements, and body language within these human images become channels for conveying a wide range of emotions. It humanizes the content and allows readers to connect on an emotional level, making the content more relatable and engaging (Wang et al., 2007; Cyr et al., 2009). Furthermore, the presence of human images transcends communication barriers. These images act as cultural and identity signifiers, enabling readers to interpret aspects like ethnicity, attire, and gestures (Olson et al., 2008). Overall, human images can be used effectively in visual rhetoric to convey a wide range of messages and emotions. These images can help content creators connect with their audience, enhance perceived content quality, and influence decision-making.

## *2.2. Human image presentation and review usefulness*

Visual rhetoric can be a versatile communication strategy that goes beyond advertising. By incorporating visual elements such as typography and color, a message can be made more persuasive, engaging, and memorable (Scott, 1994; Yu & Egger, 2021). In today's social media world, user-generated photos have become a new form of visual rhetoric in online consumer reviews. They possess a personal and subjective perspective, inviting attentional involvement, personal message involvement, and likeability, and have emerged as a relatively new phenomenon due to the widespread use of smartphones and social media (Holiday et al., 2019). The subjective perspective has been found to be particularly effective in this regard, as

research on advertising has shown that subjective shots have a significant impact on audience interest in the scenes being portrayed (Messaris, 1997).

The inclusion of images portraying consumers using products in online reviews enhances the availability of sensory information for prospective customers (Steuer, 1992).

User-generated content that features human images provides customers with personal and subjective information, resulting in a heightened sense of immersion in the depicted situation and aiding in the formation of inferences about the consumption experience (Messaris, 1997).

Furthermore, human images play a pivotal role in establishing interactive scenes, allowing potential tourists to engage in a sense of authentic communication reminiscent of real-world encounters (Hassanein & Head, 2007). This fosters a stronger psychological connection between potential visitors and reviewers, thereby evoking emotional resonance and enhancing the persuasive power of the messages conveyed (Cui et al., 2013; Wang et al., 2007). Prior research in the field of marketing has also demonstrated that the inclusion of human images in reviews contributes to increased diversity and overall appeal, rendering them more visually captivating and engaging (Li & Xie, 2020; Xiao & Ding, 2014), consequently resulting in a more active browsing and searching experience. Therefore, we posit that

**H1:** Compared with online reviews without human images, online reviews with human images are more useful for potential tourists.

### *2.3. The mediation effect of perceived support*

Perceived support in this research refers to how potential tourists perceive the reviewer's

concern for their interests and information needs, drawing from the concept of organizational support (Eisenberger et al., 1986). Social support, as explained by Shumaker and Brownell (1984), involves exchanging resources to improve well-being. It is vital for individuals to cope with difficulties and solve problems (Thoits, 2011). Previous studies demonstrate that greater support leads to increased engagement in problem analysis, enhanced problem-solving skills (Han et al., 2021), and higher trust and evaluation of supporters (Zuo et al., 2021). In e-commerce, the visual design's importance, particularly users' perception of human images, is emphasized (Cyr et al., 2009; Park et al., 2021). Cyr et al. (2009) found that including human images on a website elicits perceptions of warmth, sociability, and attractiveness.

In the realm of online social media, social support is predominantly manifested as informational and emotional support, wherein individuals share knowledge and provide emotional care to address problems and foster a sense of belonging (Jiang et al., 2019). Human images play a crucial role in facilitating both forms of support for potential tourists. Firstly, the presence of social presence through human images offers potential tourists a plethora of nonverbal information and visual cues. This firsthand information and personal experiences serve as valuable informational support for potential tourists in making informed decisions (Jiang et al., 2019).

Secondly, human images amplify the sense of human interaction and connection during communication (Wang et al., 2007). The presence of real individuals imparts the impression of engaging in a conversation with the reviewer (Cyr et al., 2009). In comparison to reviews lacking human images, the inclusion of human presence can bridge the psychological gap and

social distance between potential tourists and reviewers, instilling a sense of being valued and cared for by the potential tourists. Based on the above discussion, we posit that:

**H2:** The presence (vs. absence) of a human image increases perceived support, which in turn increases the perceived usefulness of the reviews.

#### *2.4. The moderation effect of human image presentation*

In e-commerce websites, the use of human images with facial features can provide consumers with more visual, cognitive, and emotional information, leading to a higher evaluation of website attractiveness, affinity, and social sense (Cyr et al., 2009). Facial features, such as the face, are the important parts of the photos conveying people's inner emotions and can help others detect their emotional states and understand their thoughts through facial expressions and eyes (Li et al., 2022; Marsh et al., 2005). Moreover, pictures with facial features on mobile social media can improve viewers' information processing and browsing experience and lead to a more active willingness to engage in a social media platform (Li & Xie, 2020). Conversely, the absence of a facial image may raise suspicion about the authenticity and reliability of the review, according to the findings reported by Cry et al. (2009).

Building on the research of Cyr et al. (2009), this study categorizes human presentation types into three forms: high-human images (with facial features), low-human images (no facial features), and no-human images, and proposes that facial features will affect the human presence effect. Since most emotional information is conveyed through facial expressions, human images without facial features can easily distract individual attention and cause doubts

(Cyr et al., 2009). Thus:

**H3:** Reviews that include high-human image photos have a more significant impact on the usefulness of the review, and the difference in effects between low-human image and no-human image on the review's usefulness is insignificant.

### *2.5. The moderation effect of rebate disclosure*

Rebate marketing incentivizes consumers to write reviews, but its implications require critical examination (Kim et al., 2019). Transparency is crucial for maintaining review authenticity, allowing consumers to assess biases and make informed decisions (Kim et al., 2019). However, rebate labels can raise suspicion, reducing trust and purchase intention (Kim et al., 2019). Consumers may perceive reviews as biased or self-serving, undermining authenticity (Kim et al., 2019). Rebate disclosure also diminishes perceived support and usefulness, particularly in reviews with human images (Zhou et al., 2021). Potential negative impact of rebate disclosure may be more pronounced in reviews with human images compared to those without (Zhou et al., 2021).

As discussed earlier, reviews containing human images are generally considered more attractive and helpful, drawing more attention from potential travelers (Berger & Milkman, 2012; Zhou et al., 2021). However, when rebates are disclosed, potential visitors may become suspicious of the reviewers' intentions and perceive the reviews as a means for personal gain rather than genuine assistance to others (Zhou et al., 2021). This can lead to a reduction in perceived support. Consequently, potential tourists may view positive, detailed, and emotionally expressive information in the reviews as improper verbal expressions, decreasing

their trust in the reviews' credibility and the actual quality of the product.

Conversely, reviews without human images are generally considered less attractive, informative, and emotionally supportive for potential tourists (Cyr et al., 2009). Rebate labels may not draw significant attention or suspicion from potential tourists, resulting in a relatively small negative impact of rebates on perceived support and review usefulness (Hsieh & Chen, 2011). In other words, the negative effect of rebate labels is expected to be more pronounced in reviews with human images compared to reviews without human images.

Thus:

**H4:** The disclosure of rebates moderates the influence of human image presentation on review usefulness: In the absence of rebates, reviews with human images have a more positive impact on review usefulness than those without. In the presence of rebates, the positive impact of reviews with human images on review usefulness is attenuated.

[Insert Figure 1 here]

### 3. Overview of studies

We conducted six studies to test the proposed conceptual framework. Study 1 used online review data to provide initial evidence that the presence (vs. absence) of human images has a positive effect on review usefulness (H1). Study 2 replicated the observed effect (H1) using an experimental design, to examine the causal relationship between human image presentation and review usefulness in a positive (Study 2a) and negative (Study 2b) review valance. Study 3 examined the mechanism that underlies the relationship between human image presentation and review usefulness, and demonstrated that the presence (vs. absence)

of human images increases perceived support from reviewers, which indirectly increases review usefulness (H2). Study 4 identified the moderating role of facial features (presence vs. absence) in the relationship between human image presentation and review usefulness (H3). Study 5 tested and demonstrated the moderating role of rebate disclosure (H4). Table 1 provides an overview of the studies.

[Insert Table 1 here]

#### **4. Study 1**

Study 1 attempted to identify the link between human images and review usefulness in the real world, using user-generated content data. We collected online reviews to provide initial evidence that the presence (vs. absence) of human images in a review is positively related to review usefulness as perceived by the potential tourists (H1).

##### *4.1. Data collection*

The dataset was collected from Tongcheng Travel ([www.ly.com](http://www.ly.com)), a leading travel website in China. Tongcheng is a reliable data source to access travel destination information and tourists' reviews of the destination (Hou et al., 2019; Ji et al., 2023). We extracted all the available text and numeric data of online reviews for group tours that contained photos. The dataset included (1) data on travel products, such as tourist destination itineraries; and (2) data on reviews, including review date, text, valence, photos, and usefulness votes. During data collection, we excluded samples containing any missing values. After cleaning the raw data, the final data includes 4,125 reviews that contain photos and 21,532 photos, dated from January 2017 to September 2022.

We uploaded the reviewers' photos to the Google API to determine whether they contained human images. We labeled photos with human images as 1 and those without as 0. In total, 76.9% (16,565) of the photos did not contain human images, while 23.1% (4,965) did. Next, we recruited three graduate students to code the presence of human images for each photo. The result shows that 75.5% (16,257) of the photos did not contain human images, while 24.5% (5,273) of the photos did. This indicates a high rate of 96.3% consistency between Google API and human judgment. Overall, the results meet the research requirement. However, to focus on images of tourists, we excluded reviews with very small or incomplete images. This resulted in a final sample size of 4,096 reviews.

#### *4.2. Variables*

Six variables were obtained from the reviews, namely the usefulness of the review, its length, valence, the date it was posted, the tourism route, and the count of photos included. The usefulness of a review is measured by the number of “useful” (along with a thumb-up icon) that were given to the review. We encoded the review according to the result of the evaluation, and the value of the review is coded as 1 if the review contains at least one photo with human images and 0 otherwise.

To exclude the influence of confounding variables, we controlled for variables such as text length, the number of photos within the reviews, the sentiment expressed in the reviews, the tourism route mentioned in the reviews, and the time elapsed since the reviews were posted. (Lee et al., 2020; Li et al., 2022; Li et al., 2023; Zhang et al., 2022). Table 2 displays detailed statistics for the specific variables.

[Insert Table 2 here]

#### *4.3. Results*

We examined whether the inclusion of human images in photos had a significant positive effect on the usefulness of reviews by running two multiple regression-based models. Model 1 solely consisted of control variables. Model 2 incorporated our independent variable of human image presence. The results are presented in Table 3. The results revealed that compared with reviews without human images, reviews with human images had a higher level of usefulness ( $\beta = 8.67, p < 0.001$ ). Thus, H1 was supported.

[Insert Table 3 here]

#### *4.4. Discussion*

Study 1 provided initial evidence to support H1 that the presence (vs. absence) of human images has a positive effect on the usefulness of reviews. The findings of this study contrast with those of Li et al. (2023), who argue that the presence of human faces can decrease review usefulness, specifically in the context of food. To further identify a causal relationship between human image presentation and the usefulness of reviews in the tourism context, we conducted two experimental studies in Study 2.

### **5. Study 2a**

Study 2a examined the causal relationship between the presence (vs. absence) of human images in review photos on review usefulness in an experimental design, using a fictitious travel destination named Xiqiao Ancient Town. We predicted that potential tourists would perceive reviews with photos that have human images to be more useful than reviews with

photos that do not have human images (H1).

### *5.1. Participants and design*

The study recruited one hundred and sixty participants (64.4% female;  $M_{\text{age}} = 29.07$ ,  $SD = 7.22$ ) through Credamo, an online crowd-sourcing platform. The participants received nominal monetary rewards in exchange for their participation. Participants were randomly assigned into a single-factor (human image in photos: yes vs. no) between-subject design.

### *5.2. Procedure and measures*

The participants were instructed to envision a situation where they were searching for details about their upcoming travel destination. Then participants in the human images condition saw a set of photos posted by a reviewer. The photos were taken in different sceneries, with the reviewer's images in the center of all photos. Participants in the no-human images condition saw the same set of photos, but the photos did not contain any human images (See Appendix A for the stimuli). To check the manipulation of review photos, participants were requested to report whether they observed any pictures containing human figures (binary scale, 0 = "no", 1 = "yes") and the extent to which they can envision the given scenario (seven-point scale, 1 = "very difficult to envision", 7 = "very easy to envision").

After seeing the review photos, the participants were requested to complete a perceived review usefulness scale ( $\alpha = 0.83$ ) adapted from Wang, Zhong et al. (2022), which contains four items: (1) "This review is very informative"; (2) "This review is very helpful"; (3) "This review is very valuable"; and (4) "This review is very persuasive". The measurement of all items was conducted using a seven-point scale (1 = "strongly disagree", 7 = "strongly agree").

Finally, participants' interests in visiting ancient towns and their demographic information were measured and controlled.

### 5.3. Results

*Manipulation checks.* A one-way ANOVA analysis revealed that there was an insignificant difference between participants in the human images condition and no-human images condition in their situational imagination ( $M_{\text{human}} = 6.038$ ,  $M_{\text{no-human}} = 5.875$ ,  $F(1,158) = 1.995$ ,  $p > 0.1$ ) or their interests in the destination ( $M_{\text{human}} = 5.788$ ,  $M_{\text{no-human}} = 5.600$ ,  $F(1,158) = 2.400$ ,  $p > 0.1$ ). In line with the method of Zhang et al. (2023), to ensure the successfulness of human image manipulation, only participants answered correctly in the manipulation check question (i.e., participants answered “yes” in the human images condition and participants answered “no” in the no-human images condition when being asked whether they saw any human images in the given photos) were retained for further analysis.

*Review usefulness.* A one-way ANCOVA revealed that the ratings of review usefulness were significantly higher in the human image condition than in the no-human image condition ( $M_{\text{human}} = 5.691$ ,  $SD_{\text{human}} = 0.756$ ,  $M_{\text{no-human}} = 5.325$ ,  $SD_{\text{no-human}} = 1.017$ ,  $F(1, 158) = 6.231$ ,  $p < .05$ ,  $\eta_p^2 = 0.04$ ), suggesting that presence (vs. absence) of human images has a positive effect on review usefulness (see Figure 2). Thus, H1 was further supported.

[Insert Figure 2 here]

### 5.4. Discussion

Study 2a identified a causal relationship between human images and review usefulness. Replicating the results of Study 1, Study 2a showed that compared with reviews without

human images, reviews with human images are more useful for potential tourists. To control for the influence of textual information, Study 2a did not include any textual content in the review. In Study 2b, the textual content will be included to the effect of human images in positive reviews and negative reviews respectively. It is predicted that reviews that contain photos with human images will be more useful than reviews that contain photos without human images, regardless of the valence (positive vs. negative) of the review.

## **6. Study 2b**

Study 2b extended the results of Study 2a by investigating the effect of human image presentation on the review usefulness of both positive reviews and negative reviews. There were three additional differences between Study 2a and the current study: (1) it extended to a new travel destination: Iceland; (2) it displayed participants with review photos themed as a trip with a romantic partner, while Study 2a displayed participants with review photos themed as traveling alone, which also aimed to increase the generalizability of our findings; and (3) it changed the travel agency platform where participants were searching information to Tongcheng ([www.ly.com](http://www.ly.com)). It is predicted that review photos with human images will be perceived as more useful than review photos without human images, irrespective of the valence of the reviews.

### *6.1. Participants and design*

Three hundred and twenty participants (63.2% female;  $M_{\text{age}} = 29.27$ ,  $SD = 6.99$ ) were recruited from Credamo in exchange for nominal monetary rewards. Participants were randomly assigned into a between-subject design of 2 (human image in photos: yes vs. no) x

2 (review valence: positive vs. negative).

### 6.2. Procedure and measurements

Following the procedure of Study 2a, participants were requested to envision they were seeking information for an upcoming trip to Iceland. Participants were told that they searched for information on the Tongcheng website. Next, participants in the positive review conditions saw a set of review photos that included or did not include human images, and they read a positive review. Participants in the negative review conditions saw the same set of review photos, but they read a negative review. See Appendix B for the stimuli. After that, participants completed a review usefulness scale ( $\alpha = 0.88$ ), the same as Study 2a. To assess the manipulation of review valence, participants were requested to indicate the extent to which they thought the review was positive (1 = “very negative”, 7 = “very positive”). To examine the manipulation of photo type, participants reported whether they saw any human images in the review photos and the extent to which they could envision a given scenario. Finally, participants indicated their familiarity with Iceland and answered some demographic questions.

### 6.3. Results

*Manipulation and control checks.* The one-way ANOVA analysis revealed that the difference in situational imagination ( $M_{\text{human \& positive}}=6.100$ ,  $M_{\text{no-human \& positive}}=5.825$ ,  $M_{\text{human \& negative}}=5.888$ ,  $M_{\text{no-human \& negative}}=5.975$ ,  $F(1, 263)=1.307$ ,  $p>.1$ ), interest in the destination ( $M_{\text{human \& positive}}=6.125$ ,  $M_{\text{no-human \& positive}}=6.063$ ,  $M_{\text{human \& negative}}=5.988$ ,  $M_{\text{no-human \& negative}}=6.044$ ,  $F(1, 263)=0.486$ ,  $p>.1$ ) among the four conditions were all insignificant. For

the manipulation of review valence, results showed that reviews shown to participants in the positive valence condition were rated more positively compared to those shown to participants in the negative valence condition ( $M_{\text{positive}}=6.186$ ,  $M_{\text{negative}}$ ,  $F(1, 263)=722.256$ ,  $p<.001$ ). Therefore, the manipulation of valence is successful. Respondents with incorrect answers to the manipulation check of human presentation were removed from further analysis.

*Test of hypothesis.* A two-way ANCOVA showed that the main effect of photo type was significant ( $F(1, 319)=6.946$ ,  $p<.05$ ,  $\eta_p^2=0.031$ ), participants in the human images conditions reported significantly higher ratings on the review usefulness than participants in the no-human images conditions ( $M_{\text{human}}=5.781$ ,  $M_{\text{no-human}}=5.365$ ;  $SD_{\text{human}}=0.594$ ,  $SD_{\text{no-human}}=1.074$ ), while the interactive effects between photo type and review valence on review usefulness was insignificant ( $F(1, 319)=0.044$ ,  $p>.1$ ,  $\eta_p^2=0.003$ ). These results suggest that review photos with human images are more useful than review photos without human images, regardless of the valence of reviews. See Figure 3. for details. Therefore, H1 is supported. The effect of review valence was significant ( $F(1, 319)=11.252$ ,  $p<.01$ ,  $\eta_p^2=0.023$ ). This finding is consistent with previous research indicating that negative reviews are often perceived as more useful than positive reviews.

[Insert Figure 3 here]

#### 6.4. Discussion

The consistent findings of Studies 2a and 2b further supported H1 that the presence (vs. absence) of human images in review photos has a positive effect on review usefulness.

Unlike previous studies that only focused on the human element in positive situations (Li & Xie, 2020). These results increased the generalizability of our research by revealing that reviews with human images are more useful than reviews without human images, regardless of the review valence (positive vs. negative). In Study 3, the mechanism that potentially explains the positive effect of human images will be examined.

## **7. Study 3**

The aim of Study 3 had two aspects. First, it aimed to replicate the results of Study 2 in a real, coastal destination — Anaya Beach. Second and most importantly, it aimed to test whether perceived support mediated the relationship between human images and review usefulness.

### *7.1. Participants and design*

We recruited one hundred and sixty participants (63.7% female;  $M_{\text{age}} = 29.37$ ,  $SD = 8.20$ ) from Credamo in exchange for nominal monetary rewards. Participants were randomly assigned into a single-factor (human images in photos: yes vs. no) between-subject design.

### *7.2. Procedure and measurements*

Replicating the procedure of Study 2, participants were first instructed to visualize that they were looking for destination information for their next trip. Participants in the human image condition saw a set of review photos that contained both the reviewer's images and other tourists' images, whereas participants in the no-human image condition saw an identical set of photos but did not contain any human images. Next, participants were requested to complete an eight-item perceived support scale ( $\alpha = 0.88$ ; e.g., "The reviewer cares about

whether the content of the review is helpful to me”, “The reviewer tries to make the review as informative as possible”, see Appendix C for details) adapted from Eisenberger et al. (1986) and Akgunduz et al. (2018), and a four-item review usefulness scale ( $\alpha = 0.73$ ) same as Study 2. Participants’ familiarity with Anaya Beach was measured and controlled.

### 7.3. Results

*Manipulation and control checks.* According to one-way ANOVA analysis, there was an insignificant difference between participants in the human image condition and no-human image condition in their situational imagination ( $M_{\text{human}}=5.975$ ,  $M_{\text{no-human}}=5.813$ ,  $F(1,158)=1.543$ ,  $p>.1$ ), destinations visit ( $M_{\text{human}}=1.462$ ,  $M_{\text{no-human}}=1.500$ ,  $F(1,158)=0.223$ ,  $p>.1$ ), or familiarity with the destination ( $M_{\text{human}}=3.938$ ,  $M_{\text{no-human}}=3.588$ ,  $F(1,158)=1.751$ ,  $p>.1$ ). Respondents who provided incorrect answers to the manipulation check question (i.e., whether they saw any human images in the photos) were excluded from further analysis.

*Review usefulness.* Replicating the results of Study 2, a one-way ANCOVA revealed that participants exposed to human images in reviews reported significantly higher scores on the perceived usefulness scale compared to those who were not exposed to human images ( $M_{\text{human}}=5.737$ ,  $SD_{\text{human}}=0.693$ ,  $M_{\text{no-human}}=5.340$ ,  $SD_{\text{no-human}}=0.758$ ,  $F(1, 158)=10.177$ ,  $p<.01$ ,  $\eta_p^2=0.07$ ) (see Figure 4), suggesting that participants perceive review photos with human images as more useful than review photos without human images. Therefore, H1 was further supported.

[Insert Figure 4 here]

*Mediation by perceived support.* We used PROCESS Model 4 with 5,000 bootstrapping

samples (Preacher & Hayes, 2008) for mediation analysis, with review photo type as the independent variable (0 = human image condition; 1 = non-human image condition), perceived support as the mediator, and review usefulness as the dependent variable. As we predicted, the mediating role of perceived support between human character presentation and review usefulness was significant ( $\beta = -0.4065$ , 95% CI = [-0.5857, -0.2477]). Specifically, review photos without human images are perceived to be less supportive than review photos with human images ( $\beta = -0.741$ ,  $t(160) = -5.654$ ;  $p < .001$ ), and the perceived support has a positive effect on review usefulness ( $\beta = 0.548$ ,  $t(160) = 10.055$ ;  $p < .001$ ). After controlling the mediation of perceived support, the direct effect of human character presentation on review usefulness was insignificant (95% CI = [0.9226, -0.1851],  $\beta = 0.0096$ ,  $t(160) = 0.097$ ;  $p > .1$ ), which suggests that perceived support fully mediated the effect of human images on review usefulness (see Figure 5). Thus, H2 was supported.

[Insert Figure 5 here]

#### *7.4. Discussion*

Study 3 tested and demonstrated the mediating role of perceived support (H2). Extending the travel destination to a coastline resort, the study found that potential tourists perceive review photos with human images to be more useful than review photos without human images, and this positive effect is mediated by the heightened perceived support from the reviewers when their review photos are with (vs. without) human images.

In real life, however, some reviewers avoid presenting their face portraits because they are concerned about privacy issues. Therefore, Study 4 will explore whether human images

with or without facial features will affect review usefulness.

## **8. Study 4**

Study 4 investigated a boundary condition for the relationship between human images and review usefulness: whether the effect of human images diminishes when the human images do not show any facial features. We predicted that only photos with human images that contain facial features will be more useful than photos without human images, while photos with human images that do not contain facial features will not have such an effect (H3). To preclude the influence of participants' preference for using different platforms to search for travel information, this study changed the travel website where participants were searching for information to Tuniu ([www.tuniu.com](http://www.tuniu.com)), while participants were told that they looked for information in Ctrip ([www.ctrip.com](http://www.ctrip.com)) in Studies 2 and 3.

### *8.1. Participants and design*

We recruited two hundred and forty participants (64.1% female;  $M_{\text{age}}=28.60$ ,  $SD=7.58$ ) from Credamo in exchange for nominal monetary rewards. Participants were randomly assigned into a single-factor (review photo types: high-human image vs. low-human image vs. no-human image) between-subject design.

### *8.2. Procedure and measurements*

The procedure is the same as in Study 3. Participants were instructed to envision a situation where they were making arrangements for an upcoming journey and searching for relevant information online. Next, participants in the high-human image (i.e., human images with facial features) condition saw a set of photos that contained the reviewer's image in the

center, and participants saw the reviewer's face clearly in the photos. Participants in the low-human image (i.e., human images without facial features) conditions saw the same set of photos, but they only saw the reviewer's back in the center of the photos. Participants in the no-human image condition saw an identical set of photos without any human images (see Appendix D). Then, they indicated the usefulness of the review based on the given set of photos, by completing the review usefulness scale ( $\alpha = .81$ ) same as Study 3. As the manipulation check of the photo types, participants indicated the type of photos they saw in the review (0 = "photos with people's face"; 1 = "photos with people's back but not face"; 2 = "photos without any people").

### 8.3. Results

*Manipulation checks.* A one-way ANOVA analysis revealed an insignificant difference in their situational imagination among participants in the high-human image condition, low-human image condition, and non-human image condition ( $M_{\text{high-human images}}=5.838$ ,  $M_{\text{low-human images}}=5.837$ ,  $M_{\text{no-human images}}=5.575$ ,  $F(2, 237)=2.402$ ,  $p>.1$ ) or their interest in the destination ( $M_{\text{high-human images}}=5.738$ ,  $M_{\text{low-human images}}=5.538$ ,  $M_{\text{no-human images}}=5.563$ ,  $F(2, 237)=1.120$ ,  $p>.1$ ). Six participants provided incorrect answers to the manipulation check question of photo type and therefore were removed from further analysis.

*Review usefulness.* A one-way ANCOVA analysis revealed that the main effect of photo type on review usefulness was significant ( $F(2, 237)=5.957$ ,  $p<.001$ ,  $\eta_p^2 = 0.054$ ). Most importantly, post hoc multiple comparative analyses showed that participants in the high-human image condition ( $M=5.70$ ,  $SD=0.058$ ) reported significantly higher scores in

review usefulness than participants in the low-human image condition ( $M=5.45$ ,  $SD=0.64$ ,  $p<.05$ ) and participants in the no-human image condition ( $M=5.33$ ,  $SD=0.75$ ,  $p<.001$ ), but participants in the low-human image condition reported insignificantly different scores from participants in the no-human images condition ( $p>.1$ ) (see Figure 6). H3 was supported.

[Insert Figure 6 here]

#### *8.4. Discussion*

Study 4 demonstrated that potential tourists will only perceive review photos that contain human facial (vs. no-facial) features in a review to be more useful than review photos without human images (H3). These results are in line with previous studies that emphasize the importance of facial features in human images (Cyr et al., 2009).

### **9. Study 5**

Study 5 tested another boundary condition of the human presentation effect: whether the reviewers' photo post is rebated by the platform. We predicted that the positive effect of human images on review usefulness will diminish when potential tourists find the review is posted with (vs. without) a rebate (H4). In addition, to increase the generalizability, we changed the travel destination to Qingdao Wheat Island Park and displayed participants with review photos that were themed as a family trip.

#### *9.1. Participants and design*

Three hundred and twenty participants (65% female;  $M_{age}=30.325$ ,  $SD=8.287$ ) were recruited from Credamo in exchange for nominal monetary rewards. Participants were randomly assigned into a 2 (human images: yes vs. no) x 2 (rebate: yes vs. no)

between-subject design.

### 9.2. Procedure and measures

The procedure is the same as in Study 4. Participants were first instructed to visualize that they were looking for information for their upcoming trip to Qingdao Wheat Island Park. To minimize the impact of participants' preference for using different travel agency platforms, participants were told that they were looking for information in Qunar (<https://www.qunar.com/>), a website different from that in Studies 2 - 4. Next, participants in the no-rebate conditions saw a set of review photos that either included or did not include human images. Participants in the rebate conditions saw the same set of photos, while a rebate label was shown on the top of the photos. See Appendix E for the stimuli.

To measure review usefulness, participants completed the review usefulness scale ( $\alpha=.92$ ). To examine the manipulation of rebate disclosure, the participants were requested to indicate whether the review contained rebate information. To examine the manipulation of photo types, the participants reported whether they saw any human images in the review photos and the extent to which they could envision the given scenario. Participants also indicated their familiarity with Qingdao Wheat Island Park.

### 9.3. Results

*Manipulation and control checks.* A one-way ANOVA analysis of the difference in situational imagination ( $M_{\text{human \& rebate}}=5.900$ ,  $M_{\text{no-human \& rebate}}=5.713$ ,  $M_{\text{human \& no-rebate}}=5.800$ ,  $M_{\text{no-human \& no-rebate}}=5.950$ ,  $F(1, 316)=1.333$ ,  $p>.1$ ), destinations visit ( $M_{\text{human \& rebate}}=1.288$ ,  $M_{\text{no-human \& no-rebate}}=1.263$ ,  $M_{\text{human \& no-rebate}}=1.213$ ,  $M_{\text{no-human \& no-rebate}}=1.313$ ,  $F(1, 316)=0.738$ ,

$p > .1$ ), familiarity with the destination ( $M_{\text{human \& rebate}} = 4.338$ ,  $M_{\text{no-human \& rebate}} = 4.213$ ,  $M_{\text{human \& no-rebate}} = 4.263$ ,  $M_{\text{no-human \& no-rebate}} = 4.413$ ,  $F(1, 316) = 0.213$ ,  $p > .1$ ) among the four conditions was insignificant. Respondents who provided incorrect answers to the manipulation check of human image presentation or rebate were removed.

*Test of hypothesis.* A two-way ANCOVA showed that the main effects of rebate and photo type on review usefulness ( $F_{\text{human presentation}}(1, 319) = 10.120$ ,  $p < .001$ ,  $\eta_p^2 = 0.032$ ;  $F_{\text{rebate}}(1, 319) = 29.813$ ,  $p < .001$ ,  $\eta_p^2 = 0.089$ ) were significant. The interactive effect of photo type x rebate on review usefulness was marginally significant ( $F(1, 319) = 4.055$ ,  $p < .1$ ,  $\eta_p^2 = 0.01$ ). Most importantly, pairwise comparison analysis revealed that when there was no rebate label, the results replicated those in Studies 1 - 4: review usefulness scores were significantly higher in the human image condition than in the no-human image condition ( $M_{\text{human}} = 5.79$ ,  $SD_{\text{human}} = 0.66$ ;  $M_{\text{no-human}} = 5.20$ ,  $SD_{\text{no-human}} = 1.02$ ;  $p < .001$ ). However, when there was a rebate label, the difference in review usefulness scores between the two conditions was insignificant ( $M_{\text{human}} = 4.93$ ,  $SD_{\text{human}} = 1.18$ ;  $M_{\text{no-human}} = 4.76$ ,  $SD_{\text{no-human}} = 1.24$ ;  $p = 0.42$ ) (see Figure 7). Therefore, H4 was supported.

[Insert Figure 7 here]

#### 9.4. Discussion

Study 5 showed that the relationship between human images and review usefulness is moderated by the rebate disclosure from the online review platform. Specifically, in the case of no rebate label, the review with (vs. without) human images has a more positive effect on review usefulness. However, in the case of a rebate label, the presence of human images no

longer affects review usefulness. The findings of the study provide support for a previous study by Kim et al., 2019, which verified the negative impact of rebate logos on individual trust.

## **10. General discussion and conclusion**

This research examines the role of human images in user-generated photos within online reviews. Through six studies using different designs and destinations, we demonstrate that human images affect potential tourists' perceptions and improve review usefulness by providing information and emotional support. The human presence effect remains consistent regardless of review valence, but it is weakened by the absence of facial information and the presence of a rebate logo. These findings offer insights for review moderators and enhance our understanding of the impact of human images on potential tourists' perceptions in online reviews.

### *10.1. Theoretical implications*

The present research contributes significantly to tourism research in several ways. First, it addresses a gap in the literature by examining the impact of user-generated photos that contain human images in tourism online reviews, a factor often overlooked in the literature, despite its growing number and influence on tourist decision-making. Previous research on human images has predominantly focused on marketing aspects such as website design and advertising communication (Wang et al., 2020) and interprets the role of human images from the perspectives of perceived trust and visual appeal (Ert et al., 2016; Marder et al., 2021; Wang et al., 2007). Grounded in the visual rhetoric theory, this study delves into their role

within the context of online reviews and reveals the social support mechanism that explains the relationship between human images and review usefulness. The findings enrich our understanding of the “quasi-social interaction” facilitated by human images and offer a fresh theoretical perspective on character elements.

Second, this research goes beyond the existing literature that primarily examines the relationship between human images and consumer behavior (Li & Xie, 2020; Xiao & Ding, 2014). It provides a comprehensive and detailed explanation of the conditions that influence the human presence effect by investigating the impact of various factors including human presentation types, review valence, and rebate marketing phenomenon. The results indicate that the rebate disclosure weakens the effect of human image presentation, which is in line with previous studies showing that rebate disclosure may raise potential tourists' suspicion and thus produce a negative response (Kim et al., 2019; Wang, Xu et al., 2022). Furthermore, the study demonstrates that the impact of rebate disclosure on review usefulness is contingent on the characteristics of the review content. This not only contributes to the research on rebate disclosure but also offers a theoretical basis for re-examining this variable in the future.

### *10.2. Practical implications*

Our study has important implications for businesses and digital platforms in the travel industry. It can help them reshape their content creation strategies for online reviews and user-generated content. Our study highlights the crucial role of visual rhetoric in communication. Tourism managers should prioritize visual appeal and seamlessly integrate

high-quality human images with other visually engaging elements. This comprehensive approach can capture audience attention, elevate engagement, and boost conversion rates among potential tourists.

Specifically, our findings show that user-generated photos featuring human images significantly enhance the perceived support and usefulness of online reviews to potential tourists. Managers should proactively encourage reviewers to include human images, leveraging their persuasive power. They may use technologies like the Google Visual API to identify and prominently feature user-generated photos with facial features. This can make reviews even more engaging and pique the interest of potential travelers.

However, it is important to note that rebate disclosures in reviews may be perceived as self-interested signals, regardless of the presence of human images, which can diminish the usefulness of reviews. Businesses must judiciously balance the integration of human images and rebate strategies to optimize the persuasive impact of online reviews, aligning with ethical and impactful practices.

The findings have important implications for tourists who prefer posting online reviews. By using human images strategically, they can craft more compelling, authentic, and effective content that resonates with their audience and drives engagement. Incorporating human images into online content can be a potent strategy, as it has been shown to greatly improve the perceived support and overall usefulness of the content for potential readers or consumers. They are encouraged to experiment with different types of human images to engage their audience effectively. Finally, it is important to consider rebate disclosures, as they may

influence the persuasive impact of human images in online content.

### *10.3. Limitations and future research*

While this research offers significant contributions, it also has several limitations. First, while it focuses on the impact of human facial information (with vs. without), many other factors can influence the effect of human images in online reviews. These include image quality, the socioeconomic characteristics of the people depicted, the use of color, line, shape, and form, and the presence of other visual elements such as body language, clothing, and the overall setting. Future research should explore these additional variables to gain a more comprehensive understanding of the visual rhetoric of human images in online reviews. Second, the current research focuses exclusively on photos of tourist destinations and attractions, and as such, it is important to exercise caution when generalizing the findings to other contexts, such as hotel and restaurant services. Third, the first study only draws on data from a single online travel review platform in one country. To improve the external validity of the research conclusions, future studies should expand the scope of data collection to include global travel platforms like TripAdvisor. Finally, this research only tests the moderating effect of rebate disclosure and therefore future research should consider additional factors such as potential tourists' personality difference and their relationship with the reviewers (strangers vs. friends) to better understand the boundary conditions for the impact of human image presentation.

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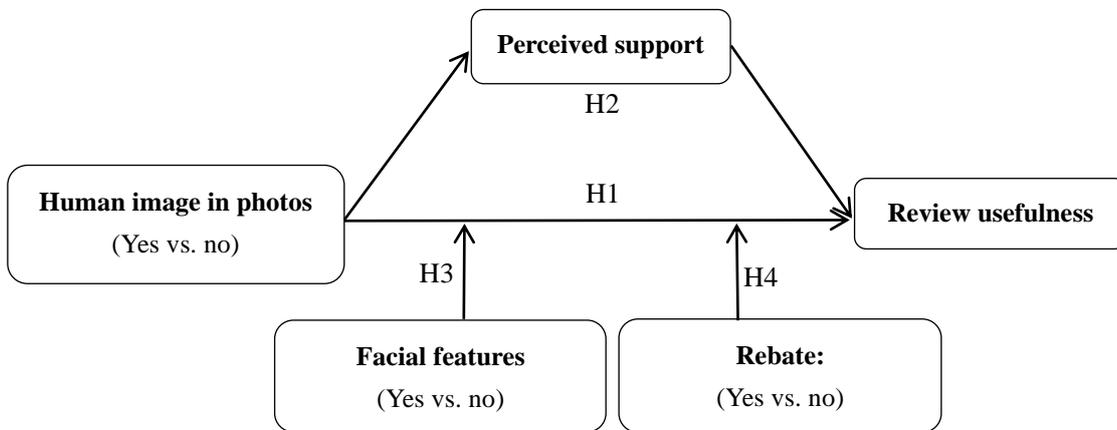
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**Figure 1.** Research model

**Table 1** Research design.

Studies	Research Designs	Destinations	Hypothesis
1	Online review data	NA	H1
2a	Single factor (human images: yes vs. no) between-subject design	Ancient town	H1
2b	2 (human images: yes vs. no) x 2 (review valence: positive vs. negative) between-subject design	Iceland	H1
3	Single factor (human images: yes vs. no) between-subject design	Seaside	H2
4	Single factor (human images: with facial features vs. without facial features vs. no-human images) between-subject design	Holiday resort	H3
5	2 (human images: yes vs. no) x 2 (rebate: yes vs. no) between-subject design	Island Park	H4

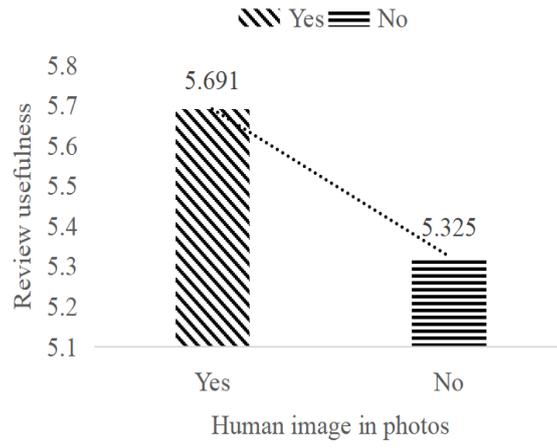
**Table 2.** Descriptive statistics.

Variables	Description	Mean	SD	Min	Max
Human images	Human in the photos	0.240	0.429	0	1
Review length	Word count of the review.	190.022	2.589	10	1154
Review valence	The positive degree of reviews.	4.976	0.257	1	5
Number of photos	Photo count in the review.	6.042	0.021	1	10
Number of days	The time elapsed since the review was posted (in days).	44819	160.259	9	44819
Tourism route	The tourism route of the reviews.	37.98	25.714	2	562
Usefulness	The usefulness of a review.	0.741	4.375	0	165

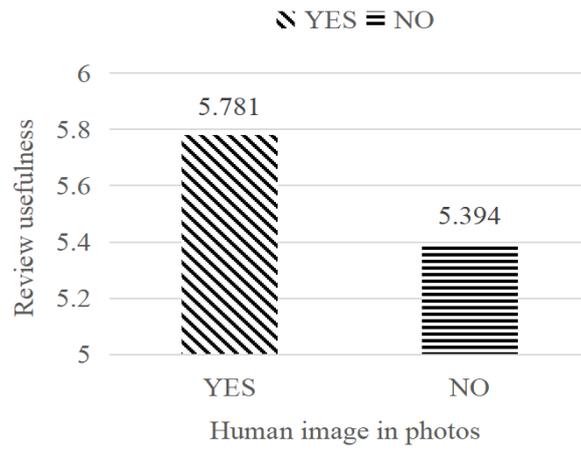
**Table 3.** The effect of human images on review usefulness.

Variables	Review Usefulness	
	Model1	Model2
Review length	13.649***	12.468***
Review valence	1.272*	0.881*
Number of photos	0.953	0.394
Number of days	3.327***	2.929**
Tourism route	0.999	1.010
Human images		8.717***
Pseudo R <sup>2</sup>	0.050	0.067

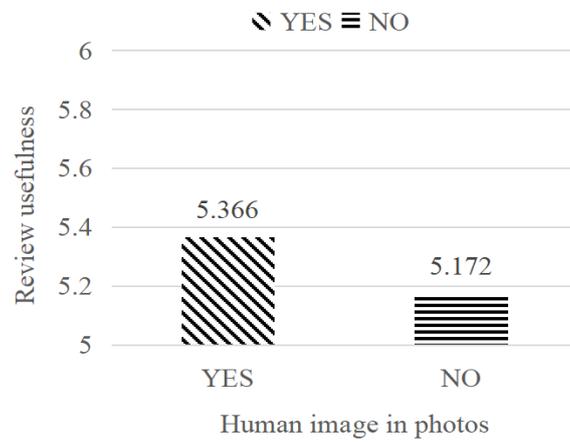
**Notes:** \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$



**Figure 2** Results of study 2a

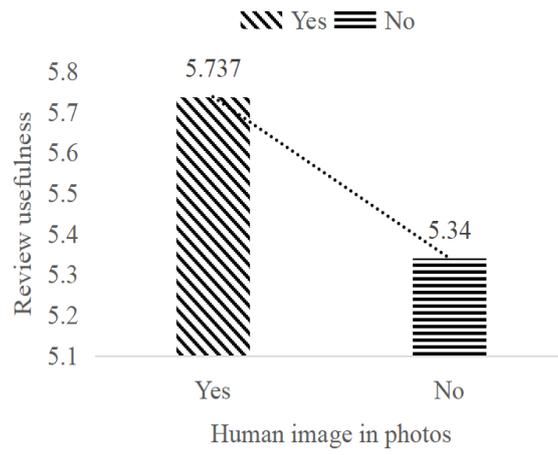


(a) The effect of human images on review usefulness (positive review condition)

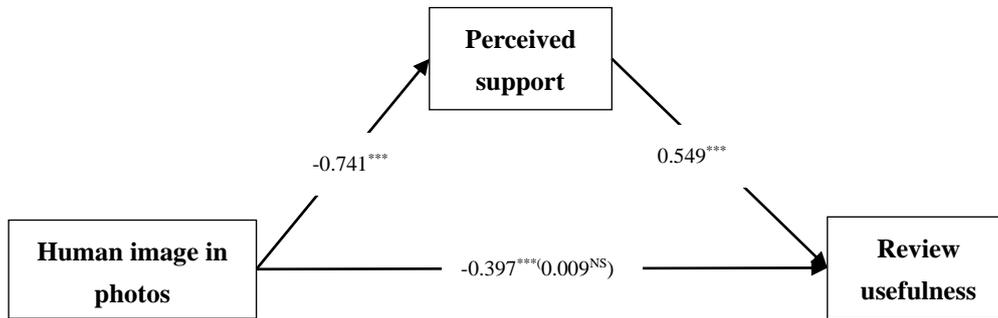


(b) The effect of human images on review usefulness (negative review condition)

**Figure 3.** Results of Study 2b

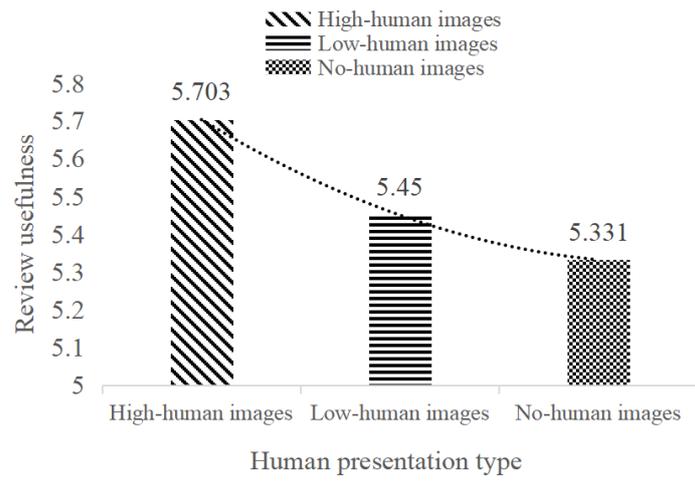


**Figure 4.** Results of Study 3

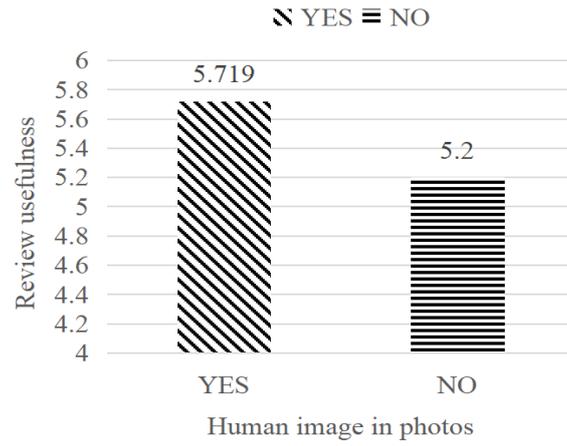


**Figure 5.** Path coefficients

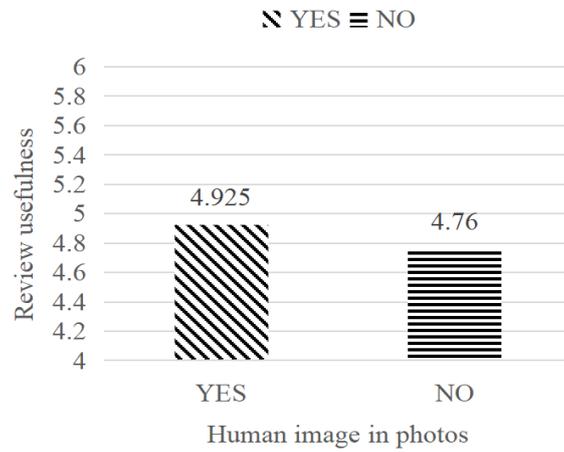
Note:\*\*\*p < .001



**Figure 6.** Results of Study 4



(a) The effect of human presentation on review usefulness in the case of no rebate label



(b) The effect of human presentation on review usefulness in the case of rebate label

**Figure 7.** Results of Study 5

## Appendix A. Supplemental information of Study 2a

(Translated from Chinese to English)

### Instructions for scenario imagination

*“Please imagine that you are planning a trip to Xiqiao Ancient Town. To learn more about the destination, you open Ctrip and search for relevant information through online reviews. You find the following review about Xiqiao Ancient Town.”*

### Stimuli of online reviews

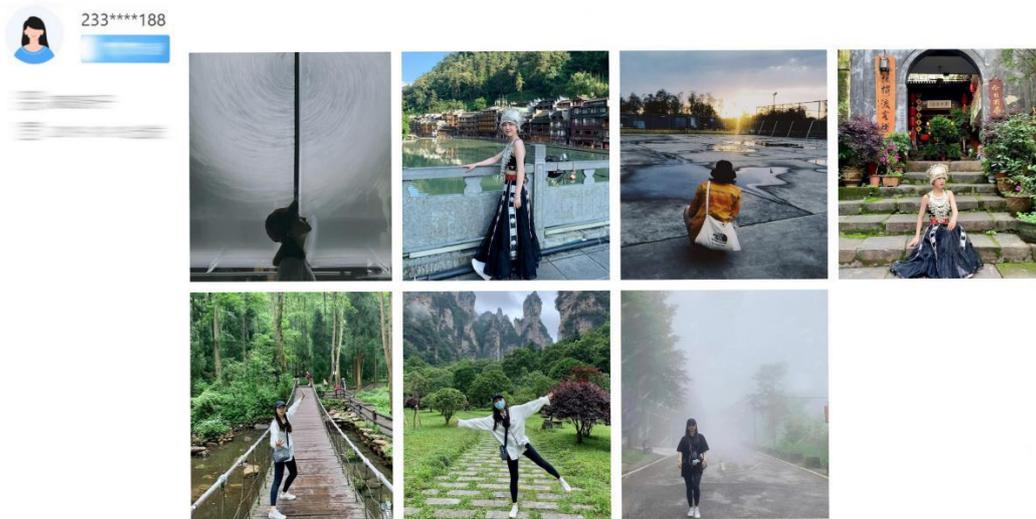


Figure 2. Review with human images condition (Study 2a)

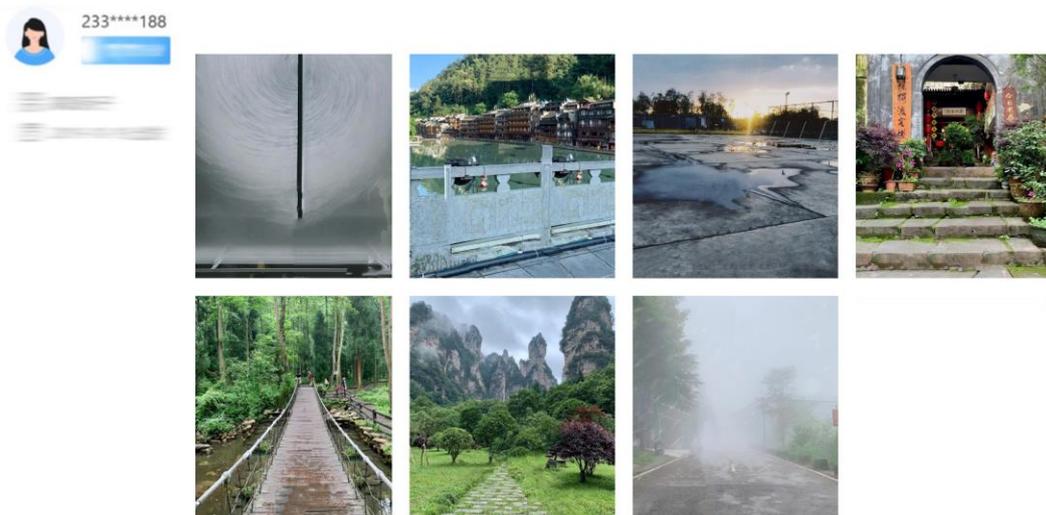


Figure 3. Review without human images condition (Study 2a)

### Measurement items of review usefulness

Please indicate the extent to which you agree with the following statements.

(1 = strongly disagree, 7 =strongly agree)

- This review is very informative.
- This review is very helpful.
- This review is very valuable.
- This review is very persuasive.

## Appendix B. Supplemental information of Study 2b

(Translated from Chinese to English)

### Instructions for scenario imagination

*“Please imagine that you are planning a trip to Iceland. To learn more about the destination, you open Tongcheng and search for relevant information through online reviews. You find the following review about Iceland.”*

### Stimuli of online reviews

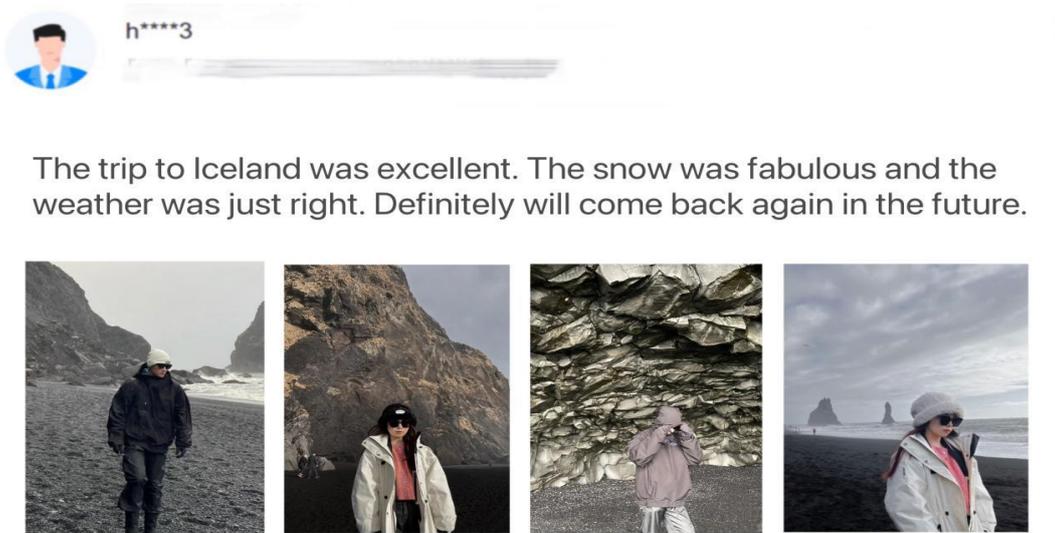


Figure 4. Positive reviews with human images condition (Study 2b)

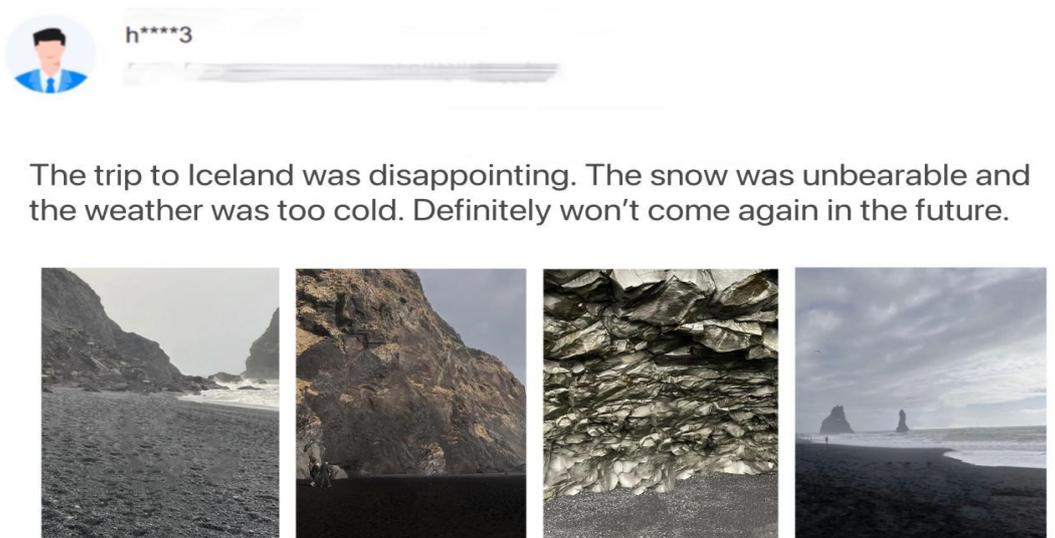


Figure 5. Positive reviews without human images condition (Study 2b)



h\*\*\*\*3

The trip to Iceland was disappointing. The snow was unbearable and the weather was too cold. Definitely won't come again in the future.



Figure 6. Negative reviews with human images condition (Study 2b)



h\*\*\*\*3

The trip to Iceland was excellent. The snow was fabulous and the weather was just right. Definitely will come back again in the future.



Figure 7. Negative reviews without human images condition (Study 2b)

## Appendix C. Supplemental information of Study 3

(Translated from Chinese to English)

### Instructions for scenario imagination

*“Please imagine that you are planning a trip to Anaya Beach. To learn more about the destination, you open Tongcheng and search for relevant information through online reviews. You find the following review about Anaya Beach.”*

### Stimuli of online reviews

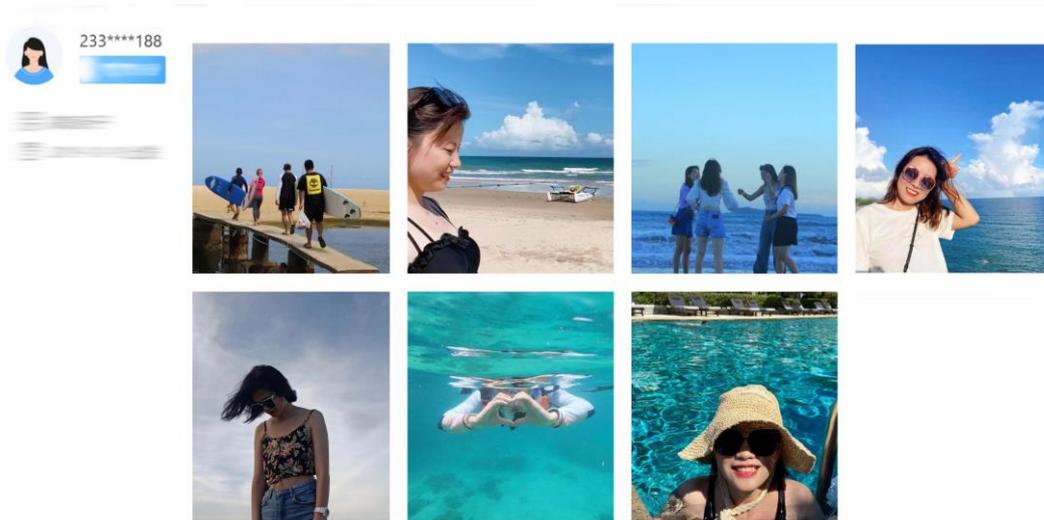


Figure 8. Review with human images condition (Study 3)

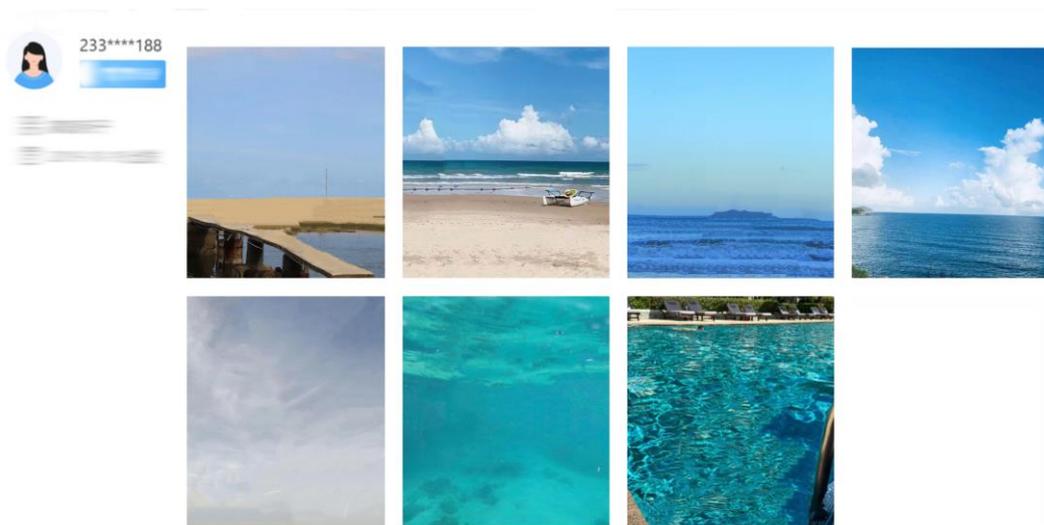


Figure 9. Review without human images condition (Study 3)

### Measurement items of perceived support

Please indicate the extent to which you agree with the following statements.

(1 = strongly disagree, 7 =strongly agree)

- The above reviewer cares about whether the review content is helpful to me.
- The above reviewer cares about the value that her review provides.
- The above reviewer is happy to provide online reviews.
- The above reviewer values the usefulness of her reviews.
- The above reviewer cares about my needs for her reviews.
- The above reviewer cares about my satisfaction with her reviews.
- The above reviewer tries to make her reviews as interesting as possible.
- The above reviewer tries to make her reviews as informative as possible.

## Appendix D. Supplemental information of Study 4

(Translated from Chinese to English)

### Instructions for scenario imagination

*“Please imagine that you are planning a trip to Loy Barn Resort. To learn more about the destination, you open Tuniu and search for relevant information through online reviews. You find the following review about Loy Barn Resort.”*

### Stimuli of online reviews

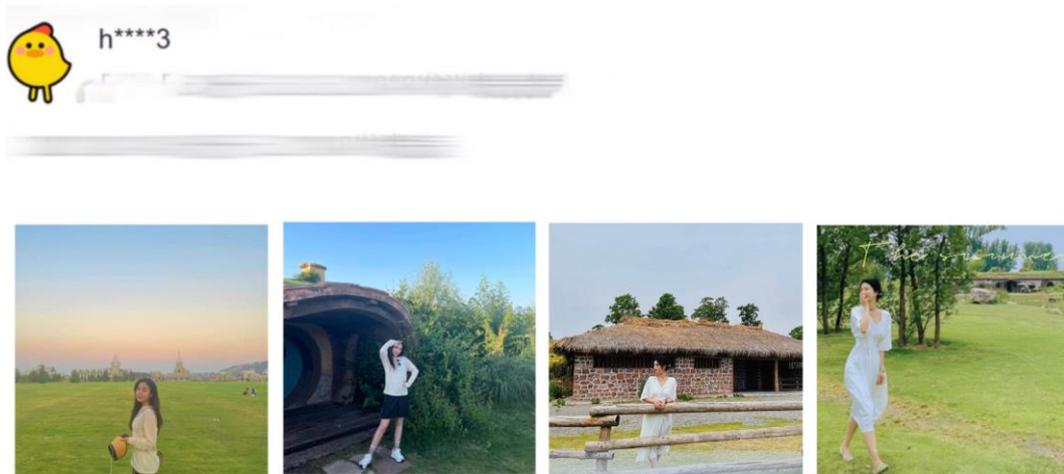


Figure 10. High-human images condition (Study 4)

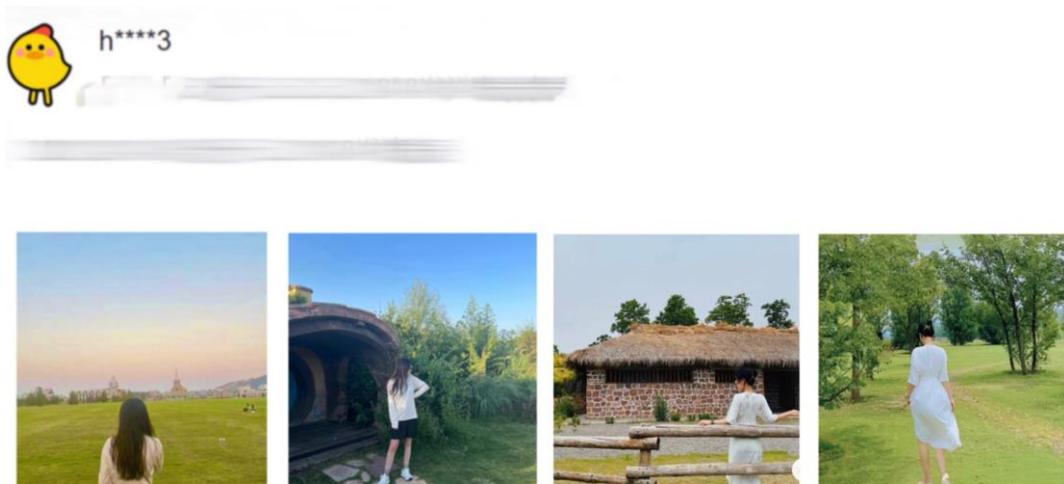


Figure 11. Low-human images condition (Study 4)



**Figure 12. No-human images condition (Study 4)**

## Appendix E. Supplemental information of Study 5

(Translated from Chinese to English)

### Instructions for scenario imagination

*“Please imagine that you are planning a trip to Qingdao Wheat Island Park. To learn more about the destination, you open Qunar and search for relevant information through online reviews. You find the following review about Qingdao Wheat Island Park.”*

### Stimuli of online reviews

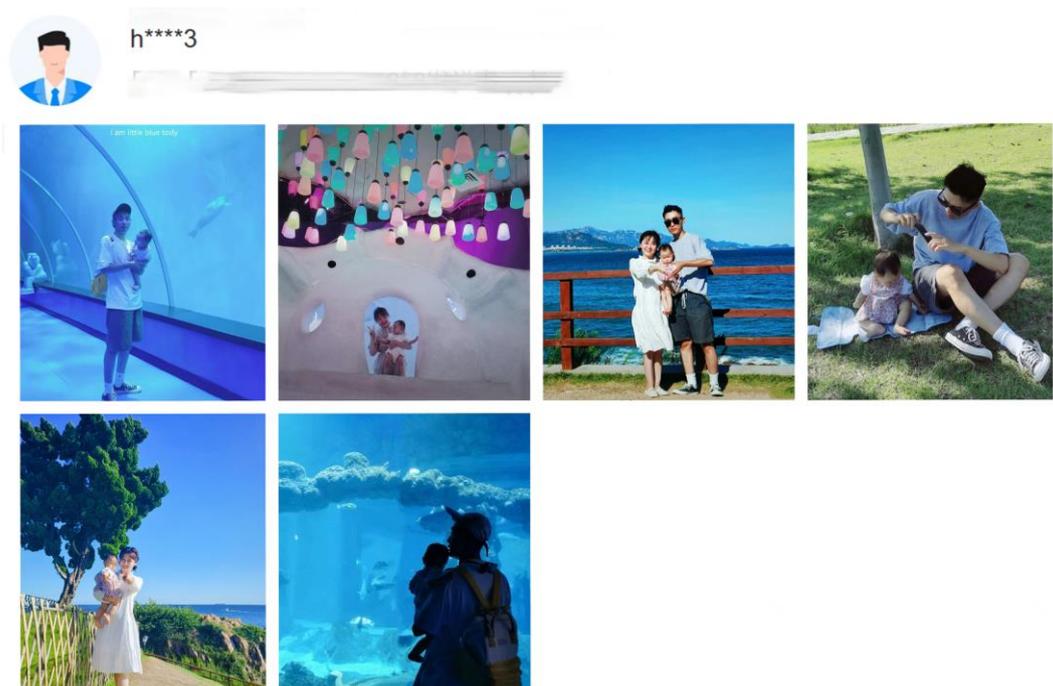


Figure 13. Human images, no-rebate condition (Study 5)

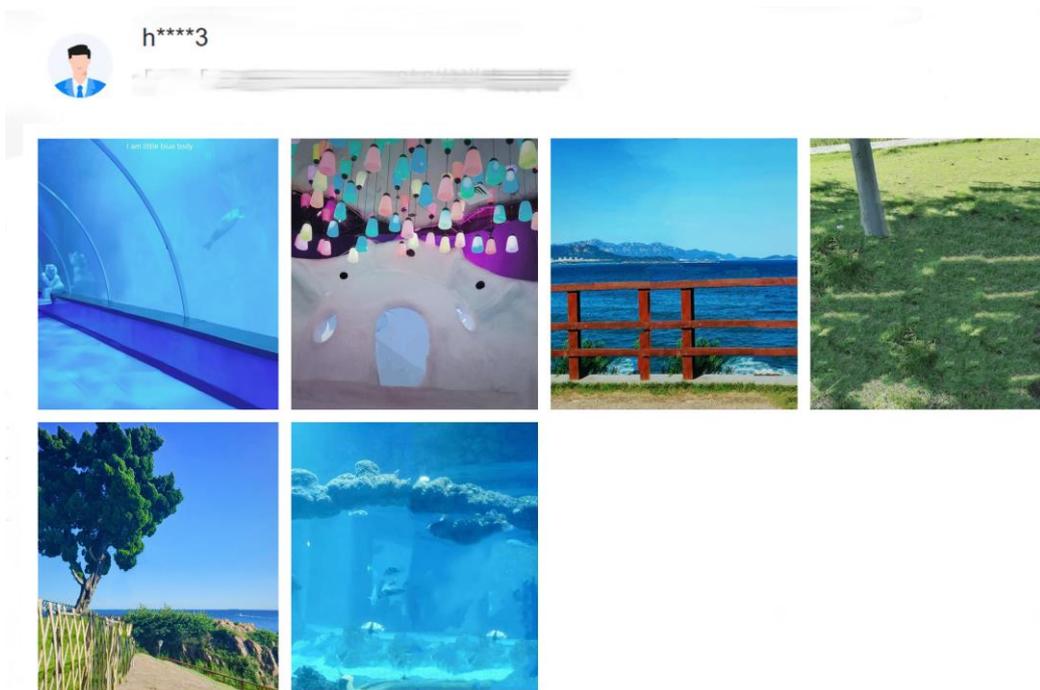


Figure 14. No-human images, no-rebate condition (Study 5)

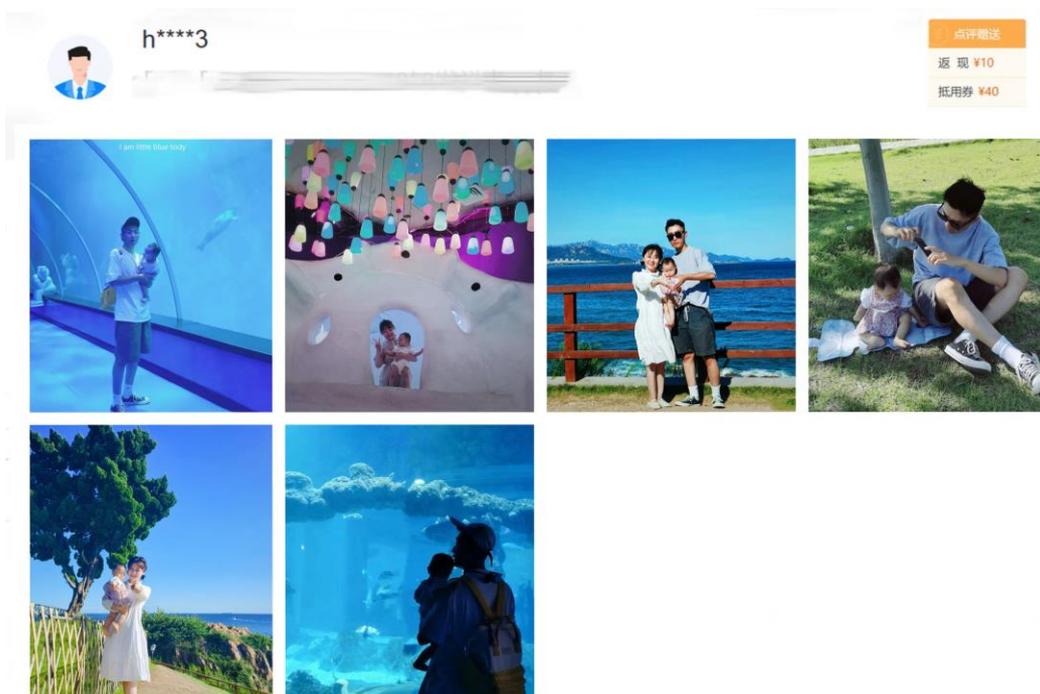


Figure 15. Human images, rebate condition (Study 5)

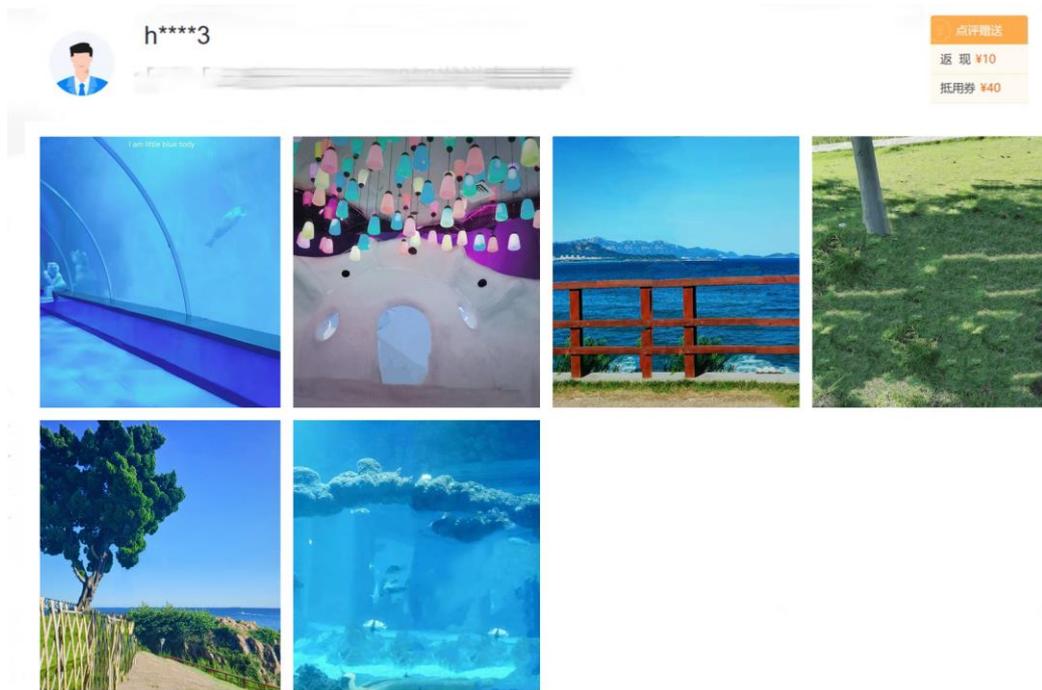


Figure 16. No-human images, rebate condition (Study 5)



**Citation on deposit:**

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