The role of visual cues in eWOM on consumers' behavioral intention and decisions

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Abstract

Consumers increasingly use eWOM to make decisions about various products and services. However, few studies have investigated how different visual and verbal eWOM cues affect the intention and decision to visit tourist destinations and their attractions. The current study fills this gap by drawing on Dual Coding Theory and investigating the influence of verbal and visual eWOM cues on consumers' intention and behavior. The findings of a field study and an experimental study revealed that eWOM mainly affects tourists' intentions and decisions through visual cues. Specifically, popularity heuristics, performance visual heuristics, and user-generated pictures affect tourists' intention and decision to visit a destination and its attractions. Interestingly, information quality did not affect tourists' decisions. The study offers important theoretical and managerial implications.

Keywords: eWOM; online consumer review; dual coding theory; user-generated picture; performance heuristics; popularity heuristics.

1. Introduction

The rapid development of the Internet and the growth of social media have revolutionized the travel & tourism industry (Buhalis, 2000; Xiang & Gretzel, 2010; Neirotti, Raguseo, & Paolucci, 2016; Giglio et al., 2019). Tourists increasingly adopt user-generated content available on online platforms to find information about the tourism destinations they want to visit (Xiang & Gretzel, 2010; Abubakar & Ilkan, 2016). On these platforms, online reviews and ratings about travel and tourism products empower tourists and help them to plan their holiday, including the booking of flights, hotels, or other types of accommodation (Sparks & Browning, 2011; Filieri & McLeay, 2014; Viglia, Minazzi, & Buhalis, 2016; Raguseo & Vitari, 2017; Filieri et al., 2020).

For example, with over 884 million travel reviews of over 8 million businesses, Tripadvisor.com is recognized as the world's largest travel community (TripAdvisor, 2021). The platform provides reviews, ratings, photos, forums about all the services associated with planning a trip, from tour guides to car rental and tourist attractions. Tripadavisor.com has fostered travel-based electronic word of mouth (eWOM), namely the non-commercial asynchronous exchange of information about tourism products, brands, and services among tourists (Gretzel & Yoo, 2008; Xiang & Gretzel, 2010). Given the relevance and widespread use of TripAdvisor and eWOM (Filieri et al., 2020), understanding what eWOM factors motivate tourists to visit a destination and its attractions is particularly important for destination managers in that they can develop better marketing strategies for the destination as a whole. Furthermore, although studies on the influence of eWOM on consumer's intention are present (i.e., Park, Lee & Han, 2007; Filieri et al., 2018), less research has investigated the impact of eWOM on consumer behavior.

Research on travel & tourism services has placed close attention to the impact of eWOM on consumer brand attitudes and information processing, such as accommodation's brand awareness, preference, booking intention, post-consumption responses (e.g., Sparks & Browning, 2011; Filieri & McLeay, 2014; Casaló et al., 2015; Filieri et al., 2018; Hernández-Ortega, 2019; Qahri-Saremi & Montazemi, 2019), review helpfulness (e.g., Filieri, 2015; Park & Nicolau, 2015; Fang, Kucukusta, & Law, 2016; Yang et al., 2017; Filieri, Hofacker, & Alguezaui, 2018; Sun, Han, & Feng, 2019), and perceived review trustworthiness (Filieri, 2016). Furthermore, research has provided evidence of the impact of online consumer reviews on hotel's room occupancy rates, performance, and sales (Ye et al., 2009, Xie, Zhang, & Zhang, 2014; Viglia et al., 2016; Xie, Chen, & Wu, 2016; Raguseo & Vitari, 2017; Phillips et al., 2017).

With regards to destination marketing research, scholars reveal that digital technologies, such as destination websites (Kaplanidou & Vogt, 2006; Molinillo et al., 2018) and eWOM (Jalilvand et al., 2012), can influence tourists' perception and intention to visit a destination. Jalilvand et al. (2012) reveal that eWOM positively influences the destination image, tourist attitude, which affect intention to travel, while Abubakar and Ilkan's (2016) findings show that eWOM positively influences destination trust and intention to travel for medical reasons. However, these studies focused on eWOM in general (i.e., Jalilvand et al., 2012; Abubakar & Ilkan, 2016); hence, there is a lack of research on the impact of eWOM features on tourists' intention to visit a destination (Bigne, Ruiz, & Curras-Perez, 2019) and its attractions. Specifically, in the general eWOM literature, there is a dearth of studies analyzing the influence of visual and verbal cues (Dwivedi et al., 2020; Filieri, Yen, & Yu, 2021) on consumers' learning about destination attributes and their decision to visit them.

To fill this gap, we examine the influence of both verbal and non-verbal cues on consumers' intentions and actual behaviors. We draw upon Dual Coding Theory (Paivio, 1986; 1991) to develop and empirically test a theoretical framework about the effects of verbal (i.e., information quality, popularity cues) and visual eWOM constructs (i.e., performance cues, user-generated pictures) on tourists' intention to visit a destination, and the decision to visit a tourist attraction at the destination. The study has used a survey-based field study to obtain evidence for the effects of the aforementioned cues on tourists' actual behavior (Study 1) and an experimental study to isolate the effects of such variables and assess their impact on tourists' visit intentions (Study 2).

By doing so, this study makes five main contributions to the eWOM literature. First, we respond to calls for research about the influence of different eWOM formats (e.g., textual and visual) (Filieri, Raguseo, & Vitari, 2018; Bigne, Ruiz, & Curras-Perez, 2019; Dwivedi et al., 2020). Second, this is one of the first studies that adopt Dual Coding Theory in examining the influence of visual and verbal cues (in eWOM) on consumers' decisions and, specifically, tourists' decision to visit a tourist attraction. Third, we developed new scales to measure some of the constructs of this study, which demonstrated to be stronger predictors of consumers' intention and behavior (i.e., user-generated pictures, performance heuristics, popularity heuristics, and actual visit). Fourth, contrarily to previous findings that indicated that verbal cues (i.e., information quality) affect consumers' intention (Park et al., 2007; Cheung, Lee, & Rabjohn, 2008; Park & Lee, 2008; Cheung & Thadani, 2012; Filieri & McLeay, 2014), the findings of this study highlight the stronger predicting power of nonverbal, visual cues in determining consumers' intention and behavior. Fifth, our study adds to this eWOM stream of research by revealing that user-generated pictures, popularity heuristics, and performance heuristics exert significant influence on consumer behavior by providing support to Latané's (1981) theory of social impact.

2. Literature review and theoretical framework

2.1. Tourists' decision to visit a tourism destination

A tourism destination can be seen as a complex mix of several products such as natural resources, infrastructures, superstructures, services, distinctive local features, cultural attributes, among others (Das et al., 2007). Buhalis (2000) conceptualizes a destination in a 6As framework, which consists of (*i*) Attractions (natural, human-made, artificial, purpose-built, heritage, special events); (*ii*) Accessibility (entire transportation system comprising of routes, terminals, and vehicles); (*iii*) Amenities (accommodation and catering facilities, retailing, other tourist services), (*iv*) Available packages (pre-arranged packages by intermediaries and principals); (*v*) Activities (all activities available at the destination and what tourists will do during their visit) and (*vi*) Ancillary services (services used by tourists such as banks, telecommunications, post, newsagents, hospitals, etc.). Based on this framework, we can see that the factors influencing tourists' decision to visit a tourism destination are highly complex (Das et al., 2007). Most of the research discussed the role of perceived image as a factor fostering intention to visit a destination (Hosany, Ekinci, & Uysal, 2006); this field of research germinated in the mid-70s, with the seminal works of Hunt (1975) and Crompton (1979).

Furthermore, the tourist decision-making is complex (Lam & Hsu, 2005) and is a high involvement one due to considering many essential factors, from the choice of the destination to the attractions to visit at the destination (Swarbrooke & Hormer, 1999; Wong & Yeh,

2009; Smallman & Moore, 2010). Furthermore, tourism is an intangible product with different types of risk, including financial, security, social, and psychological risks (Swarbrooke & Hormer, 1999; Decrop, 2006). Therefore, making a tourism decision is not an easy task (Lam & Hsu, 2005), either the choice of the destination or the selection of attractions to visit at the destination (Swarbrooke & Hormer, 1999; Wong & Yeh, 2009; Smallman & Moore, 2010). Accordingly, when planning a trip, tourists have to consider if they own the proper travel documents; they have to make decisions regarding where to stay and eat, how to move, and what to see. Moreover, selecting the tourist attraction to visit in a destination is also a high-involvement decision because it may require a large amount of money and time. Furthermore, some attractions (especially those in high-risk countries) could be seen as intangible products with high levels of risk (i.e., financial, security, social, and psychological risks) and great social implications (Swarbrooke & Hormer, 1999; Decrop, 2006).

Social media, and especially eWOM, help tourists reduce the complexity, uncertainty, or risks associated with tourism decisions (Weisberg, Te'eni, & Arman, 2011; Papathanassis & Knolle, 2011). Scholars argue that social media have become a crucial component in tourism (Zeng and Gerritsen, 2014; Filieri & McLeay, 2014): they observe that consumers and other stakeholders, by sharing consumption experiences, contribute to co-create the meaning of a brand (Vallaster & Von Wallpach, 2013) such as the image of a destination, which is increasingly the product of stakeholders' conversations on social media platforms (Filieri et al., 2021).

Scholars have highlighted the role of eWOM in destination marketing (e.g., Jalilvand et al., 2012). Available studies on the effects of eWOM on tourists' perception, attitude, and behavior concerning tourism destinations are summarized in Table 1. Table 1 shows that

these studies all focus on eWOM in general, with the exception of Bigne et al. (2019), who use schema theory and persuasion theory to investigate the eWOM determinants of the destination image. Although these studies are valuable because they analyze eWOM influence on destination image, attitude towards the destination, and travel intention (e.g., Jalilvand et al., 2012; Sun, Ryan, & Pan, 2015; González-Rodríguez, Martínez-Torres, & Toral, 2016; Bigne et al., 2019), there is a dearth of research on the influence of specific eWOM's visual and verbal factors on tourists' intention and behavior. Specifically, no study has investigated whether eWOM verbal and visual cues influence tourists' decision-making process (e.g., intention to visit a destination and the choice of tourist attractions at a destination).

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2.2. Dual Coding Theory

Dual Coding Theory proposes that individuals' cognition relies on two separate but interconnected systems: a verbal system based on (spoken and written) language and a nonverbal system that deals with visual images (Paivio 1986; 1991). The theory postulates that the text in a message is encoded through the verbal system, while visual cues are encoded through the non-verbal system. Since the two systems are interconnected, each system can stimulate one another (Paivio, 2013). As a result, consumers can attain a more comprehensive understanding of an object or topic when both verbal and visual information is offered, rather than when only visual or only verbal information is offered.

Online travel communities as well as e-commerce platforms where consumers can review and rate products and services, increasingly display product information in a combination of visual and verbal formats to enhance consumers' cognitive elaboration of products (Jiang & Benbasat, 2007). For instance, TripAdvisor provides specific verbal and

non-verbal cues about various aspects of the tourism experience, including destination attractions. As shown in Figure 1, cues that belong to the verbal system include *a)* the textual format of information contained in online consumer reviews posted by previous visitors of the destination and its attractions, and *b)* the number of reviews posted for each attraction, which provides information about the popularity of the destination's amenities. Instead, visual cues include *c)* tourist-generated pictures of the visited attractions and *d)* performance visual heuristics generated by ranking and star rating scores.

Drawing on Dual Coding Theory (Paivio 1986; 1991), we postulate that consumers place equal attention to verbal and visual cues when they want to learn about the attractions of the tourism destination they are visiting. Furthermore, we argue that both verbal and non-verbal cues influence tourists' intention to visit a destination and actual visit of the destination's tourist attractions. Below, we conceptualize the constructs, and we formulate the hypotheses of this study.

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3. Hypotheses development

3.1 Verbal cues

3.1.1 Information quality

Information quality is defined as the quality of the verbal content of a consumer review depending on the characteristics of the information contained in it (Park et al., 2007). Information from online reviews is perceived to be of high-quality information if it is relevant, up to date, accurate, complete, and valuable (Filieri, 2015). Empirical studies in the eWOM literature have shown that information quality affects perceived information usefulness (Cheung et al., 2008), perceived information diagnosticity (Filieri, 2015),

information adoption (Filieri & McLeay, 2014), review credibility (Cheung et al., 2009), and purchase intention (Park et al., 2007; Filieri et al., 2018). Various dimensions of information quality (i.e., review length/depth, readability, timeliness, relevancy, accuracy) were found to positively affect review helpfulness and enjoyment (Mudambi & Schuff, 2010; Pan & Zhang, 2011; Baek, Ahn, & Choi, 2012; Filieri, 2015; Park & Nicolau, 2015; Yang et al., 2017; Filieri, Hofacker, & Alguezaui, 2018). Information quality was also found to be the strongest antecedent of tourists' trust towards travel e-commerce websites (Bonsón Ponte, Carvajal-Trujillo, & Escobar-Rodríguez, 2015; Filieri, Alguezaui, & McLeay, 2015). Overall, eWOM research provides evidence that information quality affects consumers' purchase intention (Park et al., 2007; Lee & Shin, 2014). Drawing upon this literature, we argue that information quality is important for tourists to learn about tourism destinations, which will stimulate the intention to visit them. Hence:

H1a. Information quality has a positive and significant effect on tourists' visit intentions.

3.1.1 Popularity heuristics

Popularity heuristics can be defined as any information about the number of consumers who are purchasing, reviewing, liking, using a product or service online (e.g., number of followers of a celebrity, number of reviews per accommodation, and the like) (Filieri et al., 2018). Members of online travel communities perceive the volume of consumer reviews as an indicator of the popularity of a service (Zhang et al., 2010). Volume is often associated with the number of consumers who have purchased a product (Park & Lee, 2008).

Empirical research has indicated that product popularity positively influences sales (Liu, 2006), hotel preference (Viglia, Furlan, & Ladrón-de-Guevara, 2014), perceived information helpfulness (Filieri et al., 2018), and purchase intention (Park et al., 2007; Filieri et al., 2018). Moreover, popularity heuristics also indicate trendiness and can signal quality as

proven in the context of software products available online (Hanson & Putler, 1996). Similarly, they can stimulate interest and intention to visit a destination and its attractions. Accordingly, popularity heuristics provide information about how popular a specific destination is, namely how many people have already visited, rated, and reviewed it (Filieri et al., 2020). By providing this information, review and rating platforms may facilitate consumers in shortlisting the most popular destinations and attractions. The volume of reviews is considered as objective and precise information about the degree of interest generated by a destination or a tourist attraction in a destination. In this study, we argue that the popularity heuristics will increase the interest in visiting a tourism destination. Hence, we hypothesize the following:

H2a. Popularity heuristics have a positive and significant effect on users' visit intentions.

Popularity heuristics can help consumers make decisions by providing information about what product/service the majority of consumers is buying, which reduces the risks embedded in a purchase (Filieri et al., 2018). Latané's (1981) theory of Social Impact suggests that social impact, intended as any influence on individuals' feelings, thoughts, and behaviors, is determined by the strength, immediacy, and number or actions of other people (real, implied, or imagined) in the social environment. Drawing on Dual Coding theory (Paivio, 1986) and Social Impact theory (Latané, 1981), we argue that in online environments, tourists learn and follow heuristics that provide information about the behavior of the majority of tourists in relation to the destinations' attractions they are visiting. In digital environments, consumers use popularity heuristics to reduce uncertainty (Viglia, Furlan, & Ladrón-de-Guevara, 2014) by imitating the behavior of the crowd (Filieri et al., 2018), following the thinking: 'if many people have chosen this service, it must not be bad.' Hence, we formulate the following hypothesis:

H2b. Popularity heuristics have a positive and significant effect on tourists' visit behavior.

3.2 Visual cues

3.2.1 Performance visual heuristics

TripAdvisor, and many other websites where consumer review and rate products/services (i.e., Google reviews), provide visual heuristics that enable consumers to learn about the overall satisfaction and performance of a product (Xiang et al., 2015), such as the rating and the ranking score (Filieri, 2015) (see Figure 1). We define performance visual heuristics as the visual information regarding the overall performance or level of satisfaction about a product or a service (i.e., destination, tourist attraction) as expressed by all consumers who have visited, reviewed, and rated the service/product on a specific platform. Performance heuristics are visual information shortcuts about the reviewers' evaluation, and they are often presented in the form of a star symbol (e.g., 5-star rating system in TripAdvisor), and ranking score (e.g., 'Top attractions in the destination X') (Filieri, 2015; Filieri et al., 2020).

Scholars have investigated the role of rating and ranking scores on various aspects of consumer behavior and business outcomes. For instance, they have measured the relationship between consensus information and trust towards an online retailer (Benedicktus, 2011), the impact of rating scores on hotel performance (Xie et al., 2014), on tourists' attitudes toward a hotel, and intentions to book a room (Sparks & Browning, 2011; Casaló et al., 2015), and have used rating and ranking scores to understand the determinants of satisfaction towards hotels (Xiang et al., 2015). Other scholars have investigated the influence of rating and ranking scores on review helpfulness/diagnosticity (e.g., Filieri, 2015; Filieri, Hofacker, &

Alguezaui, 2018), on the helpful votes given to a review (Mudambi & Schuff, 2010; Park & Nicolau, 2015), and on customers' satisfaction and continuance intention (Filieri et al., 2020).

However, existing studies have not yet researched the influence of visual performance heuristics on tourists' intention and actual behavior. Drawing on Dual Coding Theory (Paivio, 1986), we argue that visual performance heuristics related to destinations and attractions can be used by tourists to learn about their overall performance. Performance visual heuristics communicate how prominent and interesting a given tourist destination is among the others available to visit, making high-performance destinations and attractions standing out from the crowd and quickly capturing the interest of other tourists. Hence, performance heuristics can create interest in specific tourist destinations, especially those with the highest rating scores. Accordingly, we propose:

H3a. Performance visual heuristics have a positive and significant effect on tourists' visit intentions.

According to the cognitive miser perspective (Fiske & Taylor, 1991), people tend to use shortcut information to reduce mental efforts when making decisions. Performance heuristics can help tourists quickly learn about the most popular tourist attractions available in a destination, reduce information search and cognitive efforts, and facilitate their choice. Hence, performance heuristics are particularly helpful because tourists can rapidly identify the most attractive tourist attractions (i.e., attractions with the highest ranting score) available in a destination. Performance heuristics can be highly influential in driving tourists towards specific locations because they compare and rank the various tourist attractions in a destination based on the evaluation of all visitors. Hence, we argue that visual performance cues will influence tourists' decision to visit a destination's attraction.

H3b. Performance visual heuristics have a positive and significant effect on tourists' visit behavior.

3.2.2 User-generated pictures

In tourism research, photographs are a means of capturing reality, though it is not an objective reality, but rather the subjective projection of tourists' experience (Albers & James, 1988). Photographs are *a medium through which people relate to visual images and make them their own* (Albers & James, 1988, p. 136). According to Urry (1990, p. 140), *photographic images organize our anticipation or daydreaming about the places we might gaze on*. Travel is a domain that is dominated by visual experiences (Garrod, 2009; Lo et al., 2011), which somehow help the transition of intangible experiences (physically lived by someone) into tangible ones (Osborne, 2000). Travel photographs enable tourists to create narration and/or a story about the travel experience, which is enhanced nowadays by online travel communities and mobile applications (Filieri et al., 2021). However, travel photography's tangibility may be seen as a tool to ensure that a given destination is worth visiting; in other words, tourists may seek indirect and virtual experiences to support their travel decisions (Robinson, 2014).

Research suggests that photos posted by other customers facilitate systematic message processing (Lee & Shin, 2014), and they are also perceived as more credible than company-generated photos (Filieri, 2016), which look glossy, expensive, and are perfectly arranged (O'Connor, 2008; Marder et al., 2019). Furthermore, tourists' photographs are judged as more helpful to assess the products/services that are sold online because they provide additional details (Filieri, 2016; Yang et al., 2017).

Images are seen as powerful means to stimulate emotions (Paivio, 2013), memories, and shared experiences with others (Berger, 1972). Scholars have found that photographs in

tourism advertisements evoke mental images that increase tourists' intentions to visit the tourism website (Miller & Stoica, 2003). Pictures of a destination posted on official destination websites impact the destination's image and emotional capital (Filieri et al., 2021) and tourists' communication and attitude (Lee & Gretzel, 2012). A picture is a thousand words (Larkin & Simon, 1987); they make it possible for consumers to gather multiple information and learn the many elements/features of a product within its context. The latent meaning of tourists' photos of a destination can convey information about the crowdedness, cleanliness, level of economic development, personal safety, level of modernity, friendliness within a destination (Kim & Stepchenkova, 2015). Both cognitive and affective latent attributes of the photos posted by tourists influence emotions (Filieri et al., 2021) and consumers' intention to visit a destination (Kim & Stepchenkova, 2015). Drawing on these studies, we suggest that user-generated pictures can generate interest in a destination.

H4a. User-generated pictures have a positive and significant effect on tourists' visit intentions.

Research on electronic retailing shows that vivid presentations of the products sold online reduce the distance between consumers and the products, compensate for the lack of direct experience, and improve consumer's product knowledge and attitudes toward brands (Jiang & Benbasat, 2004; Li, Daugherty, & Biocca, 2002). Furthermore, marketing research reveals that product packaging has a significant effect on perceived product quality, particularly when consumers are not familiar with a product (Stokes, 1985). The visual presentation of products (i.e., through pictures) reduces uncertainty, increases confidence in product evaluations, and facilitates consumers' decisions (Peck & Childers, 2003; Jiang & Benbasat, 2004; Papathanassis & Knolle, 2011). Consumers' photos are considered highly diagnostic information as they reduce information asymmetries between sellers and buyers in

online environments. Since retailers often use retouched product pictures to boost sales, consumers' product pictures are considered more trustworthy than brand-generated photos and help consumers better evaluate the product's attributes (Filieri, 2016). Recent studies have confirmed that e-commerce website's product photos influence the sales of men's clothing (Xia et al., 2020). Hence, we hypothesize:

H4b. User-generated pictures have a positive and significant effect on tourists' visit behavior.

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4 Methodology

4.1 Study 1: Survey-based field study: sample and data collection

The data used in the first study were collected in Jakarta, the capital of Indonesia, by one of the researchers with the help of three research assistants working at the national tourism office. Indonesia represents a current and relevant destination for the study. Tourism in Indonesia has grown twice as fast as the global average (WTTC, 2019). Indonesia's competitiveness as a tourist destination improved from 70^{th} in 2013 to 40^{th} in 2019 (WEF, 2019). In 2018, the travel & tourism industry supported 6% of the nation's GDP (USD $62.6 billion); foreign tourist arrivals reached 15.8 million in 2018, 13% more than a year earlier, of those, 2.5 million were Malaysians, and 2.14 million were Chinese (Sipahutar, 2019).

Tourists were asked to fill the survey through an iPad in the proximity of important tourist attractions (e.g., Monas Monument, Fatahillah Museum, Kota Tua (Old town), Bank of Indonesia's Museum, Grand Indonesia shopping mall, Plaza Senayan Shopping Mall). To be eligible, participants should have used TripAdvisor in the last month to search for information about the tourist attractions they visited in the city of Jakarta. The survey lasted for one month, and a total of 562 questionnaires were collected. However, 102 questionnaires

were removed because they were not filled correctly or had incomplete answers, giving 460 usable questionnaires. The socio-demographic characteristics of the respondents are presented in Table 2.

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4.2 Construct measures

Some of the measures and items used in this study have been validated in previous studies (i.e., information quality was measured by four items, Cheung, Lee, & Rabjohn, 2008); however, for some concepts, we could not find a valid scale in the literature. Hence, the scales used to measure the following constructs were developed for this study: user-generated pictures, performance heuristics, popularity heuristics, and actual visit. The scale and items used in the study are shown in Table 3. The process of scale development is described in detail in Appendix 1.

5 Results

5.1 Measurement model

Table 3 presents the constructs' psychometric properties. Construct reliability was examined through Cronbach's Alpha and Composite Reliability (CR). The values of both should be higher than 0.7 (Nunnally, 1994). Our results indicate the criteria were met, as most of the values were higher than 0.8, and the lowest one was 0.779 for the information quality construct. Thus, the internal consistency and reliability of construct measures were very good (Henseler et al., 2009). For convergent validity, the value of Average Variance Extracted (AVE) must exceed 0.5 (Bagozzi & Yi, 1988). Our results displayed in Table 3 show that the lowest AVE was 0.53, while the remaining ranged from 0.68 to 0.87. Thus, convergent validity was established.

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We used three measures to test the constructs' discriminant validity. We first examined the cross-loading of each indicator, followed by comparing the square root of the AVE of each construct with inter-construct correlations (Fornell & Larcker, 1981), finally examining the Heterotrait-monotrait ratio of correlations (HTMT). The results presented in Table 4 indicate that all the items loaded higher on their construct than others, meeting the cross-loading requirement. Table 5 below shows that the square roots of AVEs are higher than inter-construct correlations, meeting the Fornell-Larcker's criterion (Fornell & Larcker, 1981). According to Hair, Hult, Ringle, and Sarstedt (2017), the HTMT value should be smaller than 0.90 for discriminant validity to be established. The results, as shown in Table 6, indicate that the highest HTMT value is 0.811 (between information quality and actual visit).

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The data used in this study were based on a cross-sectional survey which could pose common method bias. Following the procedure recommended by Kock (2015), we ran a full collinearity assessment among the latent constructs. To be considered free from common method bias, all the inter-construct VIFs (variance inflation factor) should be smaller than 3.3. Based on the results presented in Table 7, none of the VIFs reached 3.3, indicating the absence of common method bias.

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5.2 Regression analysis

We used IBM-SPSS 25 to test the relationship between the independent variables in our framework and actual visit (i.e., decision to visit). The R^2 for the actual visit was 0.641. Table 8 presents the results of the regression analysis, with the demographics (age, gender,

education, and income) considered as control variables. Hypothesis 1b assessed the relationships between information quality and actual visit. However, this hypothesis was not supported. Hypothesis 2b stated that there is a positive and significant relationship between popularity heuristics and actual visit, which received statistical support. Specifically, popularity heuristics was positively related to actual visit (β=0.466, $p<0.001$). Hypothesis 3b assumed a positive and significant relationship between performance visual heuristics and actual visit. The results support this hypothesis; specifically, performance visual heuristics was positively related to actual visit (β=0.268, $p<0.001$). Hypothesis 4b assumed a positive and significant relationship between user-generated pictures and actual visit. User-generated pictures had a weak but significant and positive relationship with actual visit (β=0.110, $p<0.05$). Thus, H4b was supported.

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6 Study 2: Experiment

6.1 Stimuli

Study 2 aimed at isolating the effects of the verbal and visual cues that received support in Study 1, using an experimental approach. Specifically, we measured the influence of popularity heuristics, performance heuristics, and user-generated pictures on consumers' intentions. In study 2, we did not consider information quality as Study 1 did not detect a significant influence of this variable on visit behavior. Study 2 compared a control condition with three treatment conditions, respectively corresponding to the three independent variables object of investigation.

We identified a US ski destination and prepared a brief description of some essential features of this place, which served as the control condition of our experimental study (see Figure 3, panel A). Next, we collected some user-generated pictures of the destination from a

popular tourist advisor website and information about the number of reviews of this destination, which served as an indicator of its popularity, and the overall rating of the destination served as an indicator of performance. We used these verbal (i.e., popularity heuristics) and visual cues (i.e., user-generated pictures;; performance heuristics) to create three treatment conditions (see Figure 3 for details).

The first study used a survey administered through an iPad to tourists visiting Indonesia. In order to get a robust validation of our results, we decided to run the second study in a very different geographical context, Canada. Furthermore, in study one, our framework was tested with tourists *in-situ*, i.e., at the destination, where some tourists decide which attractions to visit. However, the second experimental study focuses on the *pre-trip* stage of travel, when tourists' intentions are formed. Overall, we covered the pre-purchase and consumption phases of the tourist decision-making process for travel-related products.

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6.2 Procedure

Two hundred and eight Canadian participants (Average age = 34, SD = 11.06; 55% males), recruited on Prolific Academic, participated in a four-cell between-subjects experiment. Twenty participants were excluded because they did not fill the survey properly. We selected Canadian consumers because ski tourism is popular in Canada (Rutty et al., 2015), and Canadians can choose among almost 250 home ski destinations in their own country (SkiCanada.org, 2021). As a result, Canadians may be relatively more familiar with the national ski destinations than US ski destinations. Participants completed an online questionnaire that randomly assigned them to one of the four experimental conditions mentioned above. Specifically, participants assigned to the control condition were presented with the cue reported in Figure 3, panel A, whereas participants assigned to the three

treatment conditions were exposed to the cues reported in panels B, C, and D, respectively. Then, all participants rated their intention to visit the destination considered in the experiment on a 7-point single item Likert scale ("I would like to visit Breckenridge", 1 = Strongly disagree, 4 = Neither agree/Nor disagree, 7 = Strongly agree). Participants were then asked to provide information about their gender and age and if they have ever heard of the destination before participating in our study, answering a multiple-choice (Yes/No) question.

6.3 Results

A one-way ANOVA ($F(3, 184) = 8.01$, $p < 0.001$) with pairwise contrasts (Tables 9 and 10) revealed that participants assigned to the popularity heuristics condition expressed a stronger intention to visit the destination ($M = 5.21$, $SD = 0.98$) compared to participants assigned to the control condition ($M = 4.70$, $SD = 1.07$, $t(184) = 2.26$, $p = 0.025$), thus offering evidence for a positive influence of popularity heuristics on visit intention (H2a). Participants assigned to the performance heuristics condition expressed a stronger intention to visit that destination ($M = 5.37$, $SD = 1.11$) than participants assigned to the control condition ($t(184) = 2.97$, $p = 0.003$), thus offering evidence for the positive influence of performance heuristics on participants' visit intentions (H3a). Finally, participants assigned to the user-generated pictures condition expressed a stronger intention to visit the destination ($M = 5.79$, $SD = 1.13$) than participants assigned to the control condition ($t(184) = 4.85$, $p < 0.001$), thus offering evidence of the positive influence of user-generated pictures on participants' intentions (H4a).

It is worth noting the visit intention of participants who were exposed to the user-generated pictures stimuli was significantly higher than the intention of participants assigned to the popularity heuristics condition ($M = 5.21$, $SD = 0.98$, $t(184) = -2.63$, $p = 0.009$) and

marginally significantly higher than the intention of participants assigned to the performance heuristics condition ($t(184) = -1.95$, $p = 0.053$).

Finally, ninety-two percent of participants never heard of the tourist destination that we considered in this study. We repeated the analysis, excluding the respondents who stated that they previously heard about the selected destination; however, there was no substantial change in the results.

----------TABLES 9 - 10 HERE ----------

7 Discussions and conclusions

This study is one of the first that applies Dual Coding Theory (Paivio, 1986; 1991) to measure the influence of verbal and visual features of eWOM on consumers' intention and behavior. This study responds to the recent call for research on this topic (e.g., Dwivedi et al., 2020). Theoretically, we advance Dual Coding Theory (Paivio, 1986; 1991) by applying it to consumers' decision-making in the tourism-related eWOM context. We conceptualized the verbal system comprising the textual review messages and popularity heuristics (i.e., review count, volume) and the nonverbal system, including visual cues such as user-generated pictures and performance visual heuristics. Our two studies support that eWOM, mainly through the visual system, affects consumers' intentions and decisions.

7.1 Theoretical implications

Dual Coding Theory postulates that cognition is positively influenced by presenting text and images together; some studies in the field of psychology support this assumption (e.g., Reed & Beveridge, 1986; Waddill, McDaniel, & Einstein, 1988; Purnell & Solman, 1991; Glenberg & Langston, 1992). The present study reveals that consumers' interest in a

destination and actual visit of its attractions are influenced mainly by visual cues and by the verbal cues indicating their popularity. Hence, popularity heuristics (but not information quality) was found, together with visual performance heuristics and destinations' user-generated pictures, to have a positive and significant influence on consumers' intention and decision to visit a tourism destination and its attractions. We also developed new scales to measure some of the constructs of this study (i.e., user-generated pictures, performance heuristics, popularity heuristics, and actual visit), which demonstrated to be stronger predictors of consumers' intention and behavior. Altogether, our results provide support to Latané's (1981) theory of social impact, which implies an influence on individual feelings, thoughts, or behavior that is exerted by the implied or imagined presence or actions of others. Social impact, in our case, is determined by the cues about the actions (i.e., booking, rating) performed by other people in the digital environment.

Performance visual heuristics (i.e., customer ratings) are found to strongly affect intention to visit and actual visit of a destination and its attractions. Visual heuristics about performance help tourists understand the 'best' or 'must see' attractions within a destination. This result contrasts with studies indicating that consensus information has only a weak effect on individual behavior (Nisbett and Borgida, 1975; Nisbett et al., 1976) and with Chevalier and Mayzlin's (2006), who suggest that consumers read review texts rather than rely solely on summary statistics (i.e., ratings) for books. Previous studies on eWOM found that ratings affect online consumer review diagnosticity (Filieri, 2015), recommendation adoption (Filieri and McLeay, 2014), and review helpfulness (Park & Nicolau, 2015; Filieri, Raguseo, & Vitari, 2018, 2019), while other studies discuss that when predominantly positive, online consumer reviews affect tourists' attitude and intention to book a hotel room (Sparks & Browning, 2011; Casaló et al., 2015). Our findings add to this research stream by underlining

the influence of performance heuristics, beyond its valence, on consumer intention and behavior regarding visiting tourist destinations and attractions.

Popularity heuristics, namely the volume of reviews posted about a product or service, help tourists understand the most visited, popular destinations and attractions. This information was found to positively and significantly influence consumers' intention and decision to visit a destination and its tourist attractions. Popularity heuristic is an information cue that summarizes customers' previous choices regarding visiting (and subsequently reviewing) a destination and tourist attractions. Popularity heuristics increase consumers' interest and curiosity about a destination and influence their decision to visit specific attractions within it. This finding provides further support to studies emphasizing the effect of social influence on consumers' purchase intentions (Filieri et al., 2018) and purchase decisions in digital contexts (Tanford & Montgomery, 2014; Cheung, Xiao, & Liu, 2014; Hu, Chen, & Davison, 2019).

Our study shows that user-generated pictures did have a significant influence on visit intention and behavior. Previous studies found that professional photographs yield a more favorable consumer response than amateur pictures (Marder et al., 2019). Research has shown that consumer-generated pictures are perceived as more trustworthy (Filieri, 2016), facilitate systematic message processing (Lee & Shin, 2014), affect the usefulness of consumer reviews (Cheng & Ho, 2015), increase the helpfulness of reviews with extreme ratings (Filieri, Raguseo, & Vitari, 2018, 2019), and improve consumers' confidence in product evaluations (Peck & Childers, 2003; Papathanassis & Knolle, 2011; Filieri, 2016). Our findings support previous studies on professional picture-sharing platforms (i.e., Flickr), which revealed that tourists' pictures are positively associated with intention to visit a tourism destination (Miller & Stoica, 2003; Kim & Stepchenkova, 2015). This study's

findings suggest that consumers' intentions and actual behaviors are affected by user-generated pictures. Our results reflect that many tourists, especially Generation Z, are increasingly inspired by user-generated pictures shared on social media platforms, such as Instagram. User-generated pictures can trigger the desire and intention to visit a specific destinations and its tourist attractions.

Previous researches in eWOM established that information quality influences consumers' perceived information diagnosticity and usefulness (e.g., Cheung et al., 2008; Filieri, 2015; Erkan and Evans, 2016), information adoption (Filieri & McLeay, 2014), product attitude (Lee, Park, & Han, 2008), perceived review credibility (Cheung et al., 2009), and purchase intention (e.g., Park et al., 2007). Surprisingly, this study found information quality did not affect consumers' behavior (i.e., the decision to visit a tourist attraction). This result is surprising if we consider that the decision to visit a tourist attraction is a high involvement one (e.g., Swarbrooke & Hormer, 1999); thus, a central route of information processing should be adopted (Petty et al., 2003; Filieri et al., 2018). This counterintuitive result can be explained by the information overload deriving from the multiplication of channels where consumers can post about their experiences with products and services. However, this result can also be explained by the fact that consumers increasingly learn about tourist attractions using visual cues and popularity heuristics, synthesizing the behavior of many previous customers. We can infer that consumers are increasingly interested in information heuristics that can tell them quickly how popular or visually attractive a tourism destination and attraction is, and they discard textual information. We can speculate that consumers, for experience products like travel and tourism, are more interested in learning about the prominence and visual appeal of a destination and its attractions (i.e., how it looks like), rather than thoroughly reading textual information contained in the consumer reviews

about them. This finding aligns with advertising research that revealed that visual information outperforms verbal information in stimulating consumer responses (Rossiter, 1982).

Finally, while studies on the determinants of tourists' intention to visit exist (Hosany, Buzova, & Sanz-Blas, 2020), very few studies have measured the determinants of actual visit, especially following the adoption of eWOM. This study shows that both intention to visit and actual visit are influenced mainly by visual and some verbal cues contained in eWOM messages.

7.2 Managerial implications

This study has implications for social media managers of tourist communities where users post reviews and rate destination attributes, such as TripAdvisor, but also for destination marketing managers. First, it is evident that monitoring how tourists rate different tourist attractions is increasingly important for destination brand managers. Performance and user-generated pictures affect tourists' perception of the attributes of a destination, its relevance, and attractiveness vis-a-vis other destinations' attractions. These visual cues enable tourists to easily and quickly compare the performance and attractiveness of different attractions in a destination, reduce risks, and facilitate the decisions regarding which attractions to visit among the shortlisted ones. Therefore, a recommendation for destination marketing managers would be to help tourists co-create the destination image, inviting them to share their travel photos on social media websites. Furthermore, they can use the visual cues to show other users how the majority of consumers are evaluating the destination's attractions based on relevant criteria (i.e., family-friendly, crowding, and the like). This is particularly important for tourist attractions as consumers expect to find reliable evaluations to guide their visit decisions in a destination.

Popularity and performance heuristics can also help destination managers and other tourism operators (e.g., hotels, restaurants, tour guides, and the like) understand which tourist attractions are emerging and becoming popular so that they can better plan tourism flows and provide the required services to satisfy the growing demand of people traveling to the attraction site. However, these cues have potential negative impacts on the sustainable development of the destination. Accordingly, the more attractions become important and rate higher than most of the others, the more tourists would want to visit them. The growing number of visitors that exceed the carrying capacity of a place can increase the risk of damaging its attraction because of the negative impact caused by mass tourism. News often report stories of nature-based tourist attractions severely damaged by (unexpected and uncontrolled) tourism flows visiting them due to its growing 'visual' popularity on Instagram, TripAdvisor, and other social media platforms. For example, one of the few 'natural' swimming pools in the world (i.e. 'Grotta della Poesia' in Roca, Italy), which social media had popularized, has been recently damaged by the uncontrolled affluence of tourists (De Giovanni, 2020).

Furthermore, popularity and performance heuristics make popular attractions even more popular, shadowing important but less popular attractions in a destination (e.g., those far from the top attractions). This situation can create negative impacts due to the high concentration of tourists traveling to the same area (e.g., congestion, traffic, noise, pollution).

Previous studies found that photographs of a tourist destination can influence previous and potential tourists' preconceived attitudes towards a destination and intention to visit (Kim & Stepchenkova, 2015). This study shows that user-generated pictures can directly affect tourists' intention and decision to visit a destination and its tourist attractions. Tourists increasingly use visual heuristics to learn about attractions in a destination; therefore,

destination managers should focus more on user-generated pictures and the various popularity and performance heuristics used in online tourist communities. Destination managers can also assess similar heuristics for comparing with competing destination attractions to evaluate the degree of distinctiveness or similarity between them. Hence, this can lead to new cooperation programs with travel influencers posting destination pictures on social media.

7.3 Limitations and future research

Like all studies, our study is not exempt from limitations. The study used a survey administered through an iPad to tourists visiting Indonesia and an online experiment in a different geographical context (Canada). Since cultural differences may matter in consumers' information processing (Filieri et al., 2018; Mariani & Predvoditeleva, 2019; Dwivedi et al., 2020), future research could investigate how culturally different users process visual and verbal cues (Nisbett, 2003).

Future research could also test the scale developed in this study in other contexts and with other behavioral outcomes. For instance, scholars could measure the influence of the visual and verbal cues investigated in this study on perceived destination attractiveness, destination brand image, and digital engagement.

Finally, future studies could investigate the role of third-party product quality signals on tourists' intention and decision to visit a tourism destination. For instance, TripAdvisor recommends tourists visiting some destinations through popularity signals like 'Popular Destinations', 'Travelers' Choice Awards for New Trending and Emerging Destinations', 'Best Destinations In The World', and the like.

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Figure 1. Visual and verbal cues about destination's attractions in Tripadvisor.com.

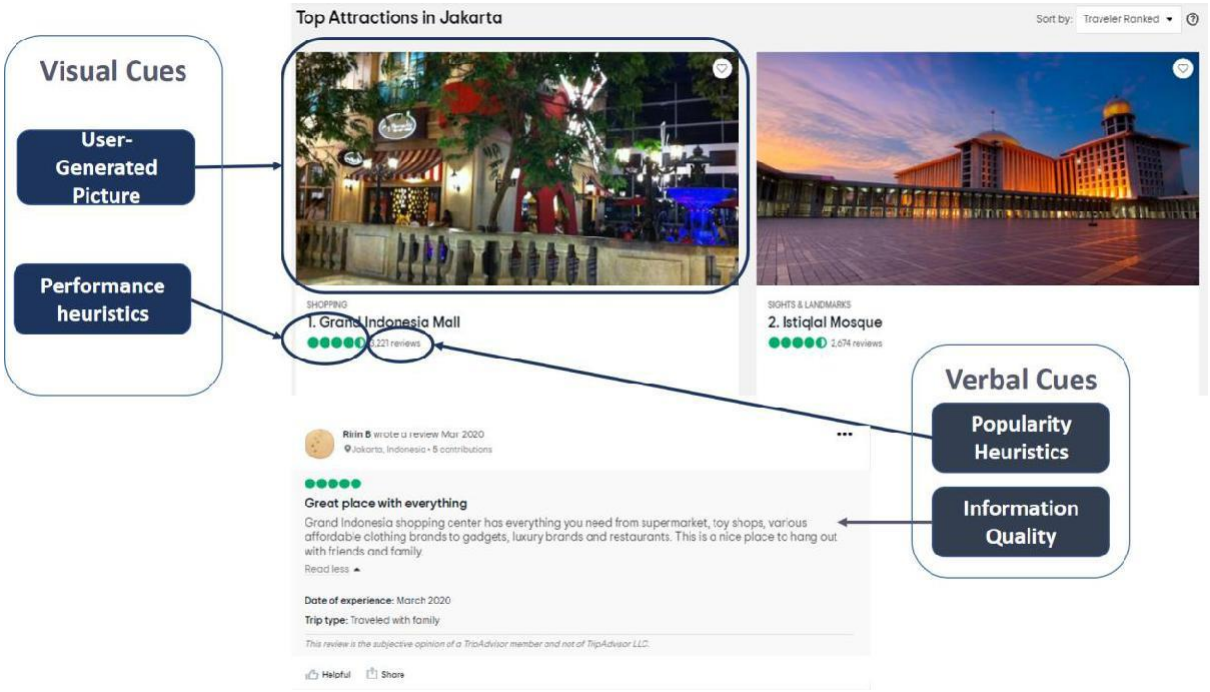

Figure 2. Theoretical frameworks. Study 1 and Study 2.

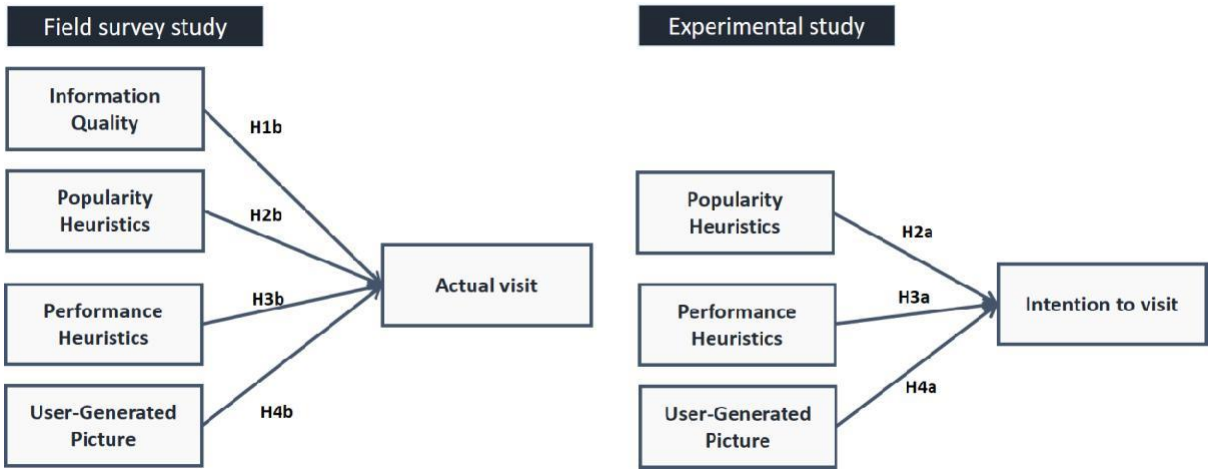

Figure 3. Experimental stimuli used in Study 2

A. Control condition	B. Popularity heuristics
Breckenridge is a mountain town with a total area of about five square miles. It is an all-season outdoor destination.	**Breckenridge is a mountain town with a total area of about five square miles. It is an all-season outdoor destination.** 140,239 Reviews
C. Performance heuristics	**D. User-generated pictures**
Breckenridge is a mountain town with a total area of about five square miles. It is an all-season outdoor destination. Breckenridge mountains ●●●●◐	**Breckenridge is a mountain town with a total area of about five square miles. It is an all-season outdoor destination.** Travelers' pictures 

Table 1. Literature review.

Authors/Year	Method/Theory/Context	Findings
Schmalleger & Carson, 2008	Literature review and analysis of practical cases of destination marketing organizations and other tourism businesses using blogs as part of their promotion strategy.	Tourism organizations use harness blogs and similar Web 2.0 applications for business functions such as communication, promotion, product distribution, management and research.
Jalilvand & Samiei, 2012	Quantitative study based on a survey of 296 tourists travelling to Iran.	eWOM communications have a significant impact on attitudes toward a destination, subjective norms, perceived behavioral control, and intention to travel.
Sun, Ryan, & Pan, 2015	Qualitative study based on content analysis of 409 Chinese travel blog entries.	Chinese perceived destination image of New Zealand
Kladou & Mavragani, 2015	Qualitative study based on content analysis studying visitors' interpretation of the destination image components (i.e. cognitive, affective, conative) through 203 online reviews.	Destination image components of Istanbul
González-Rodríguez, Martínez-Torres, & Toral, 2016	Quantitative study based on the determinants of online consumer review helpfulness. They focus on 200 online consumer reviews of Barcelona, Spain.	Online users are reluctant to provide extreme polar opinions (very negative, very positive) to any travel subcategory (hotel, restaurant, attractions and night-life) of a tourist destination. The results obtained also reveal that eWOM's perceived helpfulness grows with the expertise of the reviewer. However, the helpfulness

		score given to the reviews posted is not influenced by the sentiment orientation of the author's opinion.
Abubakar & Ilkan, 2016	Quantitative study based on 216 hospital patients from Northern Cyprus. They analyze the effect of tourists' online travel reviews on patients' intention to travel to Turkey.	eWOM positively influences destination trust and intention to travel; destination trust positively influences intention to travel; rising income strengthens the relationship between online WOM and intention to travel; rising income weakens the relationship between destination trust and intention to travel.
Bigne, Ruiz, & Curras-Perez, 2019	Quantitative study based on 2 × 2 × 2 factorial experiment with 1055 TripAdvisor users. They draw on schema theory and persuasion theory to investigate the role of valence (positive vs. negative), content style (general vs. specific), and destination familiarity on digital destination image and intention to visit a tourist destination.	Positive (vs. negative) online reviews, specific (vs. general) online reviews, and familiarity with a destination enhance digital destination image and intention to visit a tourism destination.

Table 2. Socio-Demographic characteristics of the sample

Variable	Category	N	Percent
Gender	Male	147	32
	Female	313	68
Age	18-25	299	65
	25-35	110	24
	35-45	32	7
	Over 45	19	4
Salary	Less than 500	179	39
	500-1000	166	36
	1000-2500	87	19
	More than 2500	28	6
	High school	41	9
Education	Bachelor	313	68
Level	Master	87	19
	Other	19	4
Nationality	Indonesia	381	83
	Malaysia	14	3
	China	14	3
	Germany	14	3
	Others	37	8
	Monas Monument	80	17
Attractions	Fatahillah Museum	78	17
	Kota Tua (Old town)	95	21
	Bank of Indonesia Museum	96	21
	Grand Indonesia shopping mall	56	12
	Plaza Senayan shopping mall	55	12

Table 3. Construct reliability and validity

Construct	*Items*	*Cronbach α*	*CR*	*AVE*
Info quality The quality of the content of a consumer review depending on the characteristics of the information contained in it (Park, Lee, & Han, 2007).	1. The information in online reviews was Accurate 2. Detailed 3. Complete 4. Relevant 5. Up to date	0.779	0.849	0.530
Performance Heuristics	1. The ranking/rating of tourist attractions help me to identify the best tourist attraction available	0.926	0.944	0.771

The overall performance of a product or service as expressed by all consumers who have rated the service/product on a specific platform	2. The ranking/rating of tourist attractions guide my decision while planning my daily excursion/visits 3. The ranking/rating of tourist attractions help me to understand which tourist attractions are appreciated by tourists the most 4. The ranking/rating of tourist attractions help me to reduce the number of alternative tourist attractions that I was considering visiting 5. The ranking/rating of tourist attractions help me to identify a handful of tourist attractions that is worth visiting in a destination			
User-Generated Picture Visual cues created by travellers and shared online in the form of pictures.	1. Travelers' pictures show how tourist attractions look like 2. Travelers' pictures help me understand more about tourist attractions 3. Travelers' pictures provide useful information about tourist attractions 4. Travelers' pictures attract my interest towards some tourist attractions	0.853	0.900	0.693
Popularity Heuristics Numerical cues about the number of customers who have reviewed a product or service.	1. Many reviews for a tourist attraction tell you how popular the tourist attraction is 2. The most popular tourist attractions in a destination are the ones that receive a higher number of reviews 3. A tourist attraction that has received a lot of reviews must be an important one 4. The number of reviews indicate the most visited tourist attractions in a destination 5. I often rely on the number of reviews to shortlist the tourist attractions to visit in a destination	0.882	0.915	0.683
Actual visit An individual's actual behaviour (Sheeran, 2002)	1. I decided to visit this tourist attraction after browsing TripAdvisor 0.852 0.931 0.871 2. I have visited this tourist attraction as a result of the recommendation and tips acquired from TripAdvisor			

Note: CR stands for Composite Reliability. AVE stand for Average Variance Extracted

Table 4. Cross-loadings

	Actual visit	Performance	Picture	Info quality	Popularity
ActualVisit.1	**0.928**	0.495	0.357	0.185	0.564
ActualVisit.2	**0.938**	0.587	0.415	0.202	0.554
PerformanceHeuristics.1	0.318	**0.813**	0.359	0.270	0.246
PerformanceHeuristics.2	0.541	**0.913**	0.304	0.202	0.437
PerformanceHeuristics.3	0.591	**0.878**	0.408	0.148	0.406
PerformanceHeuristics.4	0.551	**0.870**	0.414	0.202	0.478
PerformanceHeuristics.5	0.512	**0.913**	0.384	0.168	0.286
User-GeneratedPicture.1	0.316	0.301	**0.770**	0.214	0.182
User-GeneratedPicture.2	0.408	0.315	**0.855**	0.229	0.246
User-GeneratedPicture.3	0.376	0.421	**0.865**	0.322	0.256
User-GeneratedPicture.4	0.276	0.366	**0.838**	0.266	0.180
InfoQuality.1	0.271	0.259	0.203	**0.769**	0.175
InfoQuality.2	0.000	-0.011	0.123	**0.725**	0.322
InfoQuality.3	0.098	0.125	0.169	**0.713**	0.134
InfoQuality.4	0.184	0.139	0.318	**0.777**	0.200
InfoQuality.5	0.157	0.263	0.334	**0.648**	0.064
PopularityHeuristics.1	0.532	0.406	0.298	0.147	**0.707**
PopularityHeuristics.2	0.481	0.246	0.227	0.261	**0.850**
PopularityHeuristics.3	0.566	0.417	0.235	0.185	**0.855**
PopularityHeuristics.4	0.442	0.326	0.114	0.159	**0.852**
PopularityHeuristics.5	0.428	0.340	0.169	0.275	**0.858**

Table 5. Discriminant validity test

	Actual visit	Info quality	UG Picture	Popularity Heuristics	Perform. Heuristics
Actual visit	**0.933**				
Info quality	0.208	**0.728**			
UG Picture	0.414	0.315	**0.833**		
Popularity Heuristics	0.599	0.249	0.263	**0.826**	
Performance Heuristics	0.581	0.220	0.426	0.427	**0.878**

Note: Values listed in the diagonal and in bold are the square roots of the AVE.

Table 6. Heterotrait-monotrait ratio of correlations (HTMT)

	Actual visit	Info quality	UG Picture	Popularity Heuristics	Performance Heuristics
Actual visit	--				
Info quality	0.245	--			
UG Picture	0.483	0.380	--		
Popularity Heuristics	0.685	0.296	0.295	--	
Performance Heuristics	0.643	0.278	0.473	0.460	--

Table 7. Common method analysis (full collinearity assessment; values are inner VIFs)

	Actual visit	Info Quality	UG Picture	Popularity Heuristics	Performance Heuristics
Actual visit	--	2.328	2.295	2.235	2.350
Info Quality	1.188	--	1.095	1.129	1.191
UG Picture	1.314	1.311	--	1.392	1.315
Popularity Heuristics	1.615	1.663	1.797	--	1.785
Performance Heuristics	1.867	1.771	1.748	1.924	--

Table 8. Regression analysis results

Independent variables	*Dependent variables*		*Supported versus Non-supported*
	Actual visit (R^2=0.641)		
Info Quality	$0.093^{n.s.}$	H1b	Not supported
Popularity Heuristics	0.466***	H2b	Supported
Performance Heuristics	0.268***	H3b	Supported
UG Picture	0.110*	H4b	Supported
Control Variables			
Age	0.033		
Education	0.038		
Gender	0.123		
Income	-0.009		

Note: *p<0.05; ***p<0.001

Table 9. Study 2: Mean value of visit intention across the four experimental conditions

Variables	N	Mean	SD
Control condition	44	4.70	1.07
Popularity heuristics	47	5.21	0.98
Performance heuristics	49	5.37	1.11
UG picture	48	5.79	1.13

Note: *N* = 188; Dependent variable: Visit intention.

Table 10. Study 2: Pairwise contrasts of visit intention across the four experimental conditions

Contrast	Value of Contrast	t	*Sig.*	Hypotheses
Control condition vs. Popularity heuristics	.51	2.26	.025	H2a supp.
Control condition vs. Performance heuristics	.66	2.97	.003	H3a supp.
Control condition vs. UG picture	1.09	4.85	<.001	H4a supp.
Popularity heuristics vs. Performance heuristics	.15	.71	.482	
Popularity heuristics vs. UG picture	-.58	-2.63	.009	
Performance heuristics vs. UG picture	-.42	-1.95	.053	

Note: *N* = 188; Degrees of freedom for all contrasts = 184; Standard Error for all contrasts = .22; Dependent variable: Visit intention.

Appendix 1

Scale development process

The scales used to measure user-generated picture, performance heuristics, popularity heuristics, and actual visit were developed for this study because we could not find any scale available in the literature to measure these constructs. The approach followed was similar to the one adopted in previous studies (Yi & Gong, 2013; Filieri, 2015).

The interview method is suggested as a valid route to start the scale development process (Churchill, 1979). Therefore, twelve interviews with TripAdvisor users who had recently used the platform for planning their trips/holidays were conducted. Interviewees came from the social network of one of the researchers of this study, had different occupations ranging from academics to entrepreneurs, and with age comprised between 22 and 45 years old, and equal presence of males and females (6). The interview guide included questions related to the travelers' experience in using TripAdvisor, and more specifically, on the adoption of visual and verbal cues (used on TripAdvisor) for planning their travel itinerary in the last destination they visited.

Interviews enabled the creation of the items related to the concepts of performance heuristics (6), popularity heuristics (6), travelers-generated pictures (5), and actual visit (4) for a total of 21 items. Two academics were then asked to analyze the items generated for face validity (Hardesty and Bearden, 2004). Of the 21 items generated, three were excluded (one for popularity heuristics, one for traveler's pictures, one for actual visit) from the analysis considered too generic or not reflecting the concept.

We subsequently developed a survey on Qualtrics to test the scale, and we administered it to a sample of 90 students enrolled in a master's program of a major university in the UK. The pre-condition to participate in the study was that they had recently (last two months) undertaken trips and used Tripadvisor to select the tourist attractions to visit at the destination. The survey was sent to 98 students; 68 participated in the survey, while five questionnaires were discarded.

The final sample of 63 questionnaires was used to assess exploratory factor analysis (EFA) with Varimax rotation adopting the Principal Axis Factoring method to test the new constructs' validity. Most of the items loaded on a distinct construct, and their factor loadings were higher than 0.5. However, some items were below 0.5 and had cross-loadings higher than .40. Following previous scale development studies (Yi & Gong, 2013), an iterative process eliminated items with a factor loading below 0.50, high cross-loadings above 0.40, and low commonalities below 0.30 (Hair, Black, Babin, & Anderson, 2010). Cronbach's alpha values for the four constructs were all above 0.7 (Nunnally, 1994). After this process, 2 Items were excluded.

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Highlights

- This study focuses on visual and verbal cues in eWOM
- We study the effect of visual and verbal cues on consumer intention and behavior
- We draw upon Dual Coding Theory and use a mixed-method approach
- Popularity and performance visual heuristics affect intentions and decision
- User-generated pictures also affect consumers' intentions and decision