# The tone of voice of tourism brands on social media: Does it matter?

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## 1. Introduction

In the tourism industry, social media have made a huge impact on the way people search for and share information, and even make decisions about their destination. Since tourism-related products and services are relatively expensive and involving, travelers generally collect and review copious information for their decision-making processes (Leung, Law, Van Hoof, & Buhalis, 2013; Varkaris & Neuhofer, 2017). Over the past decades, Internet travel websites and social media platforms have complemented and even replaced traditional tourism information sources such as travel guides, books, newspapers, and magazines. These new communication channels provide users with travel information and allow them to share their experiences in an interactive manner (Chung & Koo, 2015). Consumers now view social media as a much more trustworthy source of information regarding products and services than corporate-sponsored marketing communication channels, which have traditionally served as the means of promoting goods and services (Chu & Kim, 2011, 2018). Therefore, social media is changing the decision-making processes of tourism consumers (Hudson & Thal, 2013; Varkaris & Neuhofer, 2017). In this context, the field provides a great opportunity for theory building as we are able to explore new phenomena that are less clear in other contexts.

However, while the use of social media has become an important marketing tool for the tourism sector, many questions remain concerning the best ways for tourism brands to present themselves or address their customers in this highly interactive, both personal and public, conversational environment. Given that social media enables more direct contact with customers, should a brand present itself in a more personal and human way in these contexts? Alternatively, should a brand keep its distance and adopt a less intimate approach? There is no consensus among tourism companies as to the most appropriate tone of voice to employ. For example, the Park Central Hotel, a traditional mid-priced hotel in New York City (@ParkCentralNY), more often adopts a traditional corporate style of communication on Facebook, addressing customers using formal language: "*Hello Ms. [customer]. Please let us know when you are planning to visit so we may further assist you. Thank you. Best regards, Social Media Team at the [hotel name].*" On the other hand, The Wyndham New Yorker Hotel (@newyorkerhotel), another traditional mid-priced hotel, adopts a much more informal and

casual language, expressing emotions and even using emoticons: "*Hello beautiful people! Happy Monday!! Welcome back from the weekend. Hope it was a great one for you all. We wish you yet another wonderful week. ☺*".

While these differences in communication style are associated with each hotel's positioning, they essentially represent the concept of a conversational human voice (Kelleher, 2009). Conversational human voice was originally developed in the context of public relations. However, it has since been adapted for the context of social presence in online communications (Park & Cameron, 2014), in which the term refers to a tone of voice which makes the company or brand feel closer, more real and human. In the tourism sector, and even in service research in general, the concept of a conversational human voice is still a relatively unexplored concept though it has deserved growing attention due to evidence suggesting that it increases customer engagement and brand evaluations (Barcelos, Dantas, & Sénécal, 2018; Schamari & Schaefers, 2015; Van Noort & Willemsen, 2012). Moreover, since social media constitutes a public environment in which communication between a brand and its customers is usually visible to all others, any consumer reading these conversations may also form an opinion about the brand. Hence, the tone of voice used by the brand can influence not only customers directly involved in the communication on social media but also all other consumers exposed to these conversations.

Exploring conversational human voice in a touristic setting contributes to previous efforts to better understand the role of social media in the tourism realm. Williams, Stewart, and Larsen (2012), for example, indicate that scholars should place the topic of social media as a top priority since it is critical to travel and tourism decision makers. Indeed, this call for studies has been followed by a number of researchers such as Munar and Jacobsen (2014) that explored the motivations for sharing tourism experiences through social media, Cheng and Edwards (2015) that applied a visual analytic approach to identify insights into the impact of travel news on Chinese consumers, and Huertas & Marine-Roig, 2015, 2016 that explored the types of contents that generate the most reactions among users and if the communication of brands and their emotional values also generate reactions (2015) and the contents of the posts conveyed by Spanish tourist destinations through their various social media platforms (2016). However, a number of issues remains unexplored.

Consequently, the present research aims to contribute to the

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literature on tourism management by demonstrating how the tone of voice adopted by a tourism brand in its social media communications can influence not only customers' attitudes towards a tourism brand – a hotel, in the context of this research – but also customers' information search patterns. Based on previous studies on hedonic value and dual-process models of attitude-behavior, we designed two experiments using Facebook pages designed to test the efficacy of a hotel's style of communication (corporate vs. Human). In order to tell a more thorough story, the pilot study tested the tone of voice's effect on customers' attitudes mediated through hedonic value, while the main study investigated the tone of voice's effect of information processing. Beyond the theoretical contributions, our results also have managerial implications as they inform managers on how to better communicate with consumers on social media in order to trigger more positive consumer responses.

## 2. Literature review

### 2.1. Human voice in online brand communication

Even though brands are not human participants per se, consumers can relate and react to them as if they were (Fournier, 1998). On social media, the brand is personified to a certain degree because it is an actor interacting with consumers on the same level as any other user, and using a discernible pattern of communication when talking to them. The stylistic choices in this pattern of communication – the tone of voice – include attributes such as humanness and closeness that underlie the concept of a conversational human voice (Kelleher, 2009). Conversational human voice was originally defined as "an engaging and natural style of organizational communication as perceived by an organization's public based on interaction between individuals in the organization and individuals in publics" (Kelleher, 2009, p. 177). For the objective of this research, we follow a conceptualization of "human voice" similar to Park and Cameron's (2014) and define it as a more natural, close, and human style of online communication, opposed to "corporate voice", which is the more distant and formal style traditionally used by companies.

In practice, companies can use a tone of voice with any degree of "humanness", and not only a voice that is either completely corporate or human. Moreover, even though the concept of conversational human voice is more often associated with the choice of words, the term is not restricted to precise operational guidelines (Gretry, Horváth, Belei, & van Riel, 2017), referring more broadly to a style of organizational communication (Kelleher, 2009). Accordingly, tone of voice "is more than just the words we choose. It's the way in which we communicate our personality" (Meyer, 2016). Thus, what exactly constitutes human or corporate voice is largely contextual. Beside the choice of words, it can also include other elements of communication style, such as musicality in spoken language, or graphic elements in websites, such as emoticons (e.g., Gretry et al., 2017) or the speakers' avatars (e.g., Park & Lee, 2013).

The importance of communication style and tone of voice for tourism brands on social media is that they might be able to influence consumer responses towards them, although how and when this happens is not so clear yet. In the services literature, Schamari and Schaefers (2015) studied conversational human voice as a mediator between webcare and brand-consumer engagement, while Van Noort and Willemsen (2012) show that negative brand evaluations engendered by negative word-of-mouth can be attenuated by means of conversational human voice in webcare interventions. Other studies have investigated the effects of communicating in a more human style

using different concepts associated with human voice such as communication style (Steinmann, Mau, & Schramm-Klein, 2015), friendliness (Verhagen, van Nes, Feldberg, & van Dolen, 2014), or parasocial interaction (Labrecque, 2014). In tourism research, studies on the effects of humanness are scarcer. Among them, Letheren, Martin, and Jin (2017) studied personification strategies in destination marketing and Pabel and Pearce (2015) show positive effects of the use of humour in tourism experiences. Very few of these studies, however, have explored concepts related to human voice, or humanized communication, on social media.

To address this gap in knowledge, we investigate in this paper the effects of the tone of voice (human or corporate) adopted by a tourism brand in its social media communications. We draw upon previous studies on hedonic value and on dual-process models of attitude-behavior to elaborate hypotheses on how the tone of voice can influence both information processing and customer attitudes on social media.

### 2.2. Hedonic value and consumer attitudes online

Hedonic value is one of two types of value obtainable in any consumption activity – the other one being utilitarian value – deriving from the emotional benefits and experience of the consumption itself (Babin, Darden, & Griffin, 1994). Research on online commerce has historically been more interested in utilitarian value, i.e., the rational and instrumental attributes of websites and new media that facilitate online purchases and browsing (for example, Childers, Carr, Peck, & Carson, 2001; Zhang & Mao, 2008). However, more recent studies have shown that online experience with brands is also shaped by the hedonic value the consumers obtain, for example, from the website's interactivity (Merle, Sénécal, & St-Onge, 2012), socialness (Wang, Baker, Wagner, & Wakefield, 2007), aesthetics (Cai & Xu, 2011) and perception of flow (Sénécal, Gharbi, & Nantel, 2002).

On social media in particular, we may expect hedonic value to be related to feelings of enjoyment and sociability provided by connection with the brand or other consumers. Previous work has shown the role of social presence in the transmission of emotions within a medium (McKenna, Green, & Gleason, 2002) even when the presence of the other party in the communication is merely perceived (Kumar & Benbasat, 2002). As argued, since a conversation using a human tone of voice is also a communication with high social presence (Park & Cameron, 2014; Park & Lee, 2013), a brand using a human voice should be able to transmit more emotions than one using a corporate voice. Moreover, since companies in the tourism sector, such as hotels, are expected to promote a positive image about themselves and the destinations, the use of a human voice should, therefore, increase the transmission of positive emotions. For instance, Barcelos et al. (2018) have provided empirical evidence for this effect.

Furthermore, we may expect the increased hedonic value to create a more favorable disposition of the consumer to marketing stimuli, in a similar fashion to the effect suggested by Van der Heijden (2004) between the perceived enjoyment and the user's intention to use information systems. In fact, previous studies in marketing link the occurrence of pleasant feelings in retail environments (both online and offline) to positive consumer attitude and more favorable behavior towards the brand (Dawson, Bloch & Ridgway, 1990; Pöyry, Paravinen & Malmivaara, 2013). Pöyry, Paravinen and Malmivaara (2013), for example, show a positive association between hedonic motivations in online brand communities and purchase intentions. Similar results also suggest that the use of human voice has a positive influence on consumption attitudes towards the brand, due to of the increased hedonic value of the online experience (Barcelos et al., 2018). Hence, we

propose that:

**Hypothesis 1.** The more human (vs. corporate) the voice used by a tourism brand on social media, the higher (vs. less) is the hedonic value of the online experience for the consumer, and the more (less) positive is the consumer attitude towards the brand.

The mediation of hedonic value is not the only mechanism by which the use of a human voice would influence consumer attitudes. As explained in the following section, the tone of voice can be considered a peripheral cue in dual-process models of attitude-behavior, and, as such, should also influence attitude through changes in consumers' patterns of information search and attention on social media.

*2.3. Dual-process models and information processing online*

The main cognitive dual-process models used to explain consumers' attitudes and online decisions are Petty and Cacioppo's (1984) Elaboration Likelihood Model (ELM) and Chaiken's (1980) Heuristic-Systematic Model (HSM) (Teng, Khong, & Goh, 2015). ELM illustrates how the key factors of consumers' personal traits and external stimuli influence information elaboration which determines perception and behavior in e-commerce (e.g., Bhattacherjee & Sanford, 2006; Sicilia & Ruiz, 2010; Tam & Ho, 2005). The model suggests a central route and a peripheral route to illustrate individual attitude change. Within the central route, individuals make cognitive efforts, then evaluate the relative arguments and judge the persuasive messages. Within the peripheral route, individuals tend to use positive or negative cues to simply infer the advocated messages in the context of persuasion (Cacioppo, Petty, & Stoltenberg, 1985; Petty & Cacioppo, 1984). In a similar vein, HSM (Chaiken, 1980) describes cognitive processing as either systematic or heuristic. While systematic processing entails a comprehensive and analytic examination of judgment-relevant information, heuristic information processing needs minimal cognitive effort to reach conclusions based on the least effort principle of the model (HSM), relying on heuristics or non-content cues (Chen & Chaiken, 1999).

HSM and ELM shared fundamental similarities. For instance, both models assume that, when people have high motivation and resources to process detailed information, they follow the central (systematic) route, which involves a thorough reading of the message, considering and elaborating on all the available information and carefully evaluating all the available attributes. On the other hand, people follow the peripheral (heuristic) route of processing when they are not motivated to process a message. Here, they look for simple cues signaling the value of the object and base their judgements on simple decision rules. Moreover, in both models, the two modes of processing can occur together. Evans and Stanovich (2013) suggest that, while central and peripheral strategies can process analytical and heuristic information respectively, individual modes of information processing can exist on a continuum. However, Petty (1994) argued that heuristic cues are only one part of overall peripheral cues that exert impacts on attitudes.

The importance of dual-process models for online consumer behavior derives from evidence that both content (systematic/central) and non-content cues (heuristic/peripheral) significantly influence information processing by users in various online contexts (Wirth, Böcking, Karnowski, & Von Pape, 2007). For instance, Zhang, Zhao, Cheung, and Lee (2014) found that both systematic and heuristic cues in online communities are important determinants of customers' behavioral intention in online review sites. Kim, Lee, Shin, and Yang (2017) found that relevance and completeness of tourism information (content cues) as well as web page design (a non-content cue) are positively related with users' destination image formation on social media.

In the perspective of dual-process models, we consider the tone of voice as a peripheral cue. Peripheral cues in online messages refer to stimuli that can affect attitudes without the need to process the message arguments, such as source expertise, source credibility, and positive/negative effects. Those peripheral cues trigger relatively simple affective states or invoke guiding rules or inferences (Eagly & Chaiken, 1993; Petty & Cacioppo, 1984). Accordingly, the tone of voice refers less to the content of the message than to the way it is framed or its perceived humanness (non-content attributes). Moreover, since, as argued, a brand using a human voice is expected to transmit more emotions than one using a corporate voice, the peripheral cues associated with the tone of voice should have a stronger influence on a consumer's information processing when the brand is using a human voice. In addition, evidence shows that the use of a human voice increases the transmission of positive emotions (Barcelos et al., 2018). As such, based upon previous research on the influence of positive peripheral/heuristic cues on consumer behavior (Kim et al., 2017; Wirth et al., 2007; Zhang et al., 2014), this reasoning also suggests a positive effect of human voice on consumers' attitudes, as proposed in the previous section.

More importantly here, though, is the possibility that the tone of voice used by the brand also influences information search patterns on social media. According to some studies about affect-cognition models and attribute framing, people exposed to positively framed messages that evoke positive emotional states or moods would engage in a more heuristic processing to maintain or enhance this state and to avoid activities that would negate it (Eagly & Chaiken, 1993; Gonzalez, Dana, Koshino, & Just, 2005; Kuvaas & Selart, 2004). On the other hand, people exposed to negatively framed messages would pay more attention to details and engage in systematic processing to avoid a loss or to induce the perceptions of discrepant conditions. Hence, if we consider the peripheral cues associated with the use of human voice in a message as similar to positive framing (because of the humanness and positive emotions evoked) then it should influence consumers' information processing in the same way. Therefore, consumers should engage in more heuristic patterns of processing and information search when exposed to messages using human voice than when exposed to messages using corporate voice.

*2.4. Eye movement and information processing*

Although eye movement analysis has been used in some research disciplines for a long time (e.g., psychology, neuroscience, marketing), it is relatively recent in tourism research (See Scott and al. 2017 for a review). In tourism research, it has been mainly used to investigate advertising, website usability, and tourism pictures (Scott, Zhang, Le, & Moyle, 2017). For instance, Hernández-Méndez and Muñoz-Leiva (2015) show that static online advertisements (ads) attract attention more rapidly than dynamic ads, but the total time spent on each type is the same.

Just and Carpenter (1980) suggest that eye movements can be informative of cognitive processing. The eye-mind hypothesis suggests that what is being fixated is what is being processed by the brain (Just & Carpenter, 1980). Thus, by observing eye fixations, it possible to infer the actual level of information processing. For instance, Yang (2015) show that consumers' cognitive elaboration mode (central or peripheral) can be identified using eye fixation duration. In their review of eye movement research, Orquin and Mueller Loose (2013) suggest that both consumers' goal (top-down process) and stimulus properties (bottom-up process) influence eye movements. Further, Wedel and Pieters (2007)

suggest that information extracted during fixations can enable consumers' attitudes, choices and memorization to be inferred.

Eye movement research is based on two basic elements: eye fixations (i.e., eye is fixed on a stationary stimulus) and saccades (i.e., eye movements between fixations). Fixations are informative about information processing on each stimulus, while saccades provide information about the path taken to process stimuli. Fixations in a specific area under study can be grouped to form an area of interest (AOI) for which fixations can be analyzed together. In addition, eye tracking can also provide information about pupil size at fixation. Pupil dilation has the main function of dynamically adapting the eye to changes in ambient illumination (Beatty & Lucero-Wagoner, 2000), however research has showed that variations in pupil diameter also respond significantly to cognitive and emotional stimuli (Bradley, Miccoli, Escrig, & Lang, 2008; Just & Carpenter, 1980; Laeng, Sirois, & Gredebäck, 2012). Thus, the size of the pupil can be used to estimate the intensity of mental activity (Laeng et al., 2012).

Huang and Kuo (2011) suggest that eye movement can be used to assess information processing via four indices: 1) effort (resources devoted to the task, e.g., total time on task), 2) breadth (completeness of information gathering, e.g., % of AOIs visited), 3) selectivity (e.g., distribution of time between AOIs), and 4) depth (e.g., average time per AOI). They suggest that the first three indices represent attention distribution, while the last represents local attention on a single information element (Huang & Kuo, 2011). They also suggest that individuals using more systematic information processing show more effort, breath, depth, but less selectivity than those performing more heuristic information processing (Huang & Kuo, 2011).

On the one hand, the above research results suggest that heuristic (vs. systematic) information processing can be inferred using eye movements. On the other hand, we suggest that a more human tone of voice should lead to more heuristic information processing and that a more corporate tone of voice should lead to more systematic information processing. Thus, we suggest that consumers exposed to human voice should display different eye movement patterns compared to those exposed to corporate voice.

In line with Orquin and Mueller Loose (2013), we suggest that stimulus properties (i.e., tone of voice) influence consumers' visual attention and information processing. Specifically, we suggest that human voice, being a salient peripheral cue, leads to more attention on non-content cues (e.g., pictures) than corporate voice. Thus, consumers, when exposed to human voice, should look at non-content cues for longer periods of time and overall spend more time on these cues. The opposite is also expected for consumers exposed to corporate voice, i.e., overall, they should spend more time on content cues (e.g., text) and look at these cues for longer periods of time. Similarly, we suggest that consumers exposed to human voice will exhibit greater cognitive load while processing these non-content cues. For consumers exposed to corporate voice, we expect that they will exhibit greater cognitive load when processing content cues than when processing non-content cues. Since heuristic information processing and systematic information processing entail different patterns of information acquisition, we also suggest that the information elements winning the attention of consumers exposed to human voice will differ from those of consumers exposed to corporate voice. For instance, the presence of human voice cues (e.g., employee picture) should attract consumers' attention more rapidly than when a corporate cue is present (e.g., corporate logo). Finally, based on Huang and Kuo's (2011) selectivity results, we suggest that consumers using heuristic information processing will perform more saccades, jumping from one piece of information (AOI) to another more than consumers using a more systematic information processing

approach (e.g., going through each information element one by one).

We thus proposed the second hypothesis:

**Hypothesis 2.** The more human (vs. corporate) the voice used by a tourism brand on social media, the more heuristic (vs. systematic) are consumers' patterns of information search. Specifically, human (corporate) voice is associated with heuristic (systematic) eye movement patterns such as a) more attention on information elements containing non-content (content) cues, b) more eye movements between information elements, c) different information elements first focused on, and d) greater cognitive load on non-content (content) cues.

## 3. Method

In order to test our hypothesis, we carried out two experimental studies. The first one (Pilot study), an online experiment, was a replication of the Barcelos et al. (2018) study. Since no other research provided empirical evidence for the phenomena these authors demonstrate, and since it constitutes one of the main conceptual foundations of the hypothesis we test in the present research, we decided to replicate it in order to verify if we could obtain similar results. As discussed, very few studies so far have explored concepts related to human voice, or humanized communication, on social media. The purpose of the pilot study was to show the influence of the hotel's tone of voice on the hedonic value of the online experience and on customers' attitudes (Hypothesis 1), using psychometrical measures. In a replication effort, we investigate the mediation role of hedonic value in the relationship between tone of voice and consumers responses, however we focus on consumer's brand attitude, not purchase intention, as investigated by Barcelos et al. (2018).

The second study (Main study), tested our second hypothesis and was carried out in a laboratory equipped with an eye-tracking device. This study used the same brand pages of the pilot study and had the purpose of showing that the tone of voice can also influence the browsing behavior of customers on the brand page, using measures of eye fixation and cognitive load. As explained in the previous section, we expected the increased emotions elicited using a human tone of voice to make consumers' patterns of information search more heuristic (or less systematic) than the use of a corporate tone of voice.

### 3.1. Pilot study

#### 3.1.1. Stimuli and procedure

The first experimental study in this research tested the influence of human voice on the hedonic value of the online experience, and how this hedonic value while interacting with the hotel brand page, mediates consumers' attitudes. For the context of the study we chose a hotel since it is a typical service in the tourism sector about which customers search online for other people's opinions before making a reservation. We chose Facebook as the social medium for the studies due to its widespread adoption and relevance to business today (Snyder, 2015). We carried out an online experimental study (between-subject design) in order to reproduce more closely the social media environment of the research.

Similar to Barcelos et al. (2018), we showed participants two versions of a fictitious hotel Facebook brand page. The use of a fictitious brand had the objective of testing participants' reactions to human voice without biases from previous attitudes towards brands. Participants were asked to imagine themselves going on a trip to New York City and looking up Facebook for opinions about a hotel named "The

Whitaker Hotel New York". Then, they were randomly assigned with one of the two experimental conditions. Each participant was shown one of two versions of the hotel brand page on Facebook (i.e., using a human or corporate voice). After looking at the page for as long as they wished, participants responded to a survey incorporating the measures of interest in the study.

The two versions of the hotel brand page were identical, except for the specific manipulations on human or corporate voice. Both pages had the same number of likes and the same review evaluation (in stars). The differences between the versions using human or corporate voice were inspired by previous work relating language choices and feelings of closeness/humanness (Fournier, 1998; Park & Cameron, 2014; Park & Lee, 2013; Sela, Wheeler & Sarial-Abi, 2012; Steinmann et al., 2015) and consisted basically of choices of language and pictures that should increase (vs. decrease) the perception of the brand as being more human and close (see excerpts and general description of posts in Appendix A). For example, brand posts on the page using human voice showed the profile picture of an employee, used informal language and were occasionally signed by that employee, while brand posts on the page using corporate voice showed the brand logo, used formal language and were signed just by the brand name. Each page had 29 posts, 11 being initiated by the brand and 18 by consumers; 10 posts contained pictures and 9 were text-only; 13 posts were primarily positive (compliments by customers or self-promotion by the hotel), 6 were primarily negative (complaints by customers) and 10 were neutral (mostly questions and answers). To improve realism, all posts and replies were based on the content from the brand pages of real NYC hotels, however with names, pictures, and personal details changed.

To improve the quality of the answers in our sample, we implemented some control measures. First, we inserted JavaScript code in the online questionnaire allowing access only to notebooks and desktops, thus avoiding the problem of having participants look at reduced versions of brand pages on small screens of mobile devices. Second, to avoid using rushed answers that did not actually reflected participants' opinions about the hotel, we inserted a hidden timer that measured how long the participants looked at the brand pages. We discarded from the final sample the answers of those who had not looked at the pages for at least 15 s (16 participants).

### 3.1.2. Participants

We recruited participants using Amazon Mechanical Turk (MTurk). Although it was not a requirement of the study, the use of MTurk also had the benefit of allowing us to obtain a more representative sample of the general population than a traditional sample of university students (Minton et al., 2013). Participants received a link to the online questionnaire. The final sample (n = 88) comprised 35 women and 53 men, aged 35.5 years on average (std dev = 11.4 years). In terms of education, 36.5% of participants completed high school, 17.3% had an associate degree, 42.3% had a bachelor's degree, and 3.8% had a graduate

degree. 85.5% of them had booked a hotel room at least once over the last year, and 58.7% had booked between 2 and 5 times.

### 3.1.3. Measures

We measured consumers' attitude towards the hotel, hedonic value, and their perception of human or corporate voice by the brand (manipulation check) using scales adapted from the literature (see items and descriptive statistics in Appendix B). For control variables, besides the usual demographic variables (gender, age, and education), we measured participants' enduring involvement with hotels, expertise in hotels, and Facebook usage intensity (see scales in Appendix B). We also included an attention question in the questionnaire and removed from the sample the answers from two participants who did not comply (2 in the pilot study, but none in the eye-tracking study). Finally, we included a hypothesis-guessing question at the end of the survey to assess what participants thought was the purpose of the research. Responses indicated that participants were not cognizant of the hypotheses in both studies.

### 3.1.4. Results of the pilot study

Since the analysis included variables consisting of several items, we used composite variables based on the mean scores of the items. The manipulation of tone of voice ($\alpha = 0.89$) was successful ($M_{corp} = 4.49$; $M_{human} = 5.08$; $F_{(1, 87)} = 4.95$, $p < .05$). Perceptions of realism ($M = 5.83$) and role-playing ($M = 5.94$) were satisfactory. Results from ANCOVA analysis show a significant effect of tone of voice on hedonic value ($\alpha = 0.95$; $M_{corp} = 4.23$; $M_{human} = 4.72$; $F_{(1, 83)} = 5.62$, $p < .05$; see Fig. 1) and a marginally significant effect of tone of voice on attitude ($\alpha = 0.96$; $M_{corp} = 5.27$; $M_{human} = 5.57$; $F_{(1, 83)} = 3.90$, $p = .05$; see Fig. 1), confirming that participants looking at the brand page using a human tone of voice had a more favorable attitude towards the brand, which also supports previous results (Barcelos et al., 2018). We did not observe any significant differences in the means of the dependent variables in terms of gender, age, or education. However, consumers' involvement with hotels ($\alpha = 0.97$; $M = 4.74$) was a significant covariable for hedonic value ($b = 0.41$; $F_{(1, 83)} = 22.07$, $p < .001$). Facebook usage intensity ($\alpha = 0.30$; $M = 3.38$) was also a significant covariable for hedonic value ($b = 0.28$; $F_{(1, 83)} = 5.41$, $p < .05$). The valence of the parameter estimates suggests that customers with higher involvement with hotels and heavy users of Facebook experience more hedonic value on the brand page.

To test whether the hedonic value of the consumer's online experience mediated the relationship between tone of voice and consumers' attitude, we ran a mediational analysis using the PROCESS SPSS macro (Hayes 2013; model 4 with 5000 bootstrapping samples). A confidence interval (CI) that excludes zero for the indirect effect revealed that the hedonic value of the online experience indeed mediated the relationship between human voice and consumers' attitude (95% CI [0.07, 0.23]). The direct effect on consumers' attitude was not
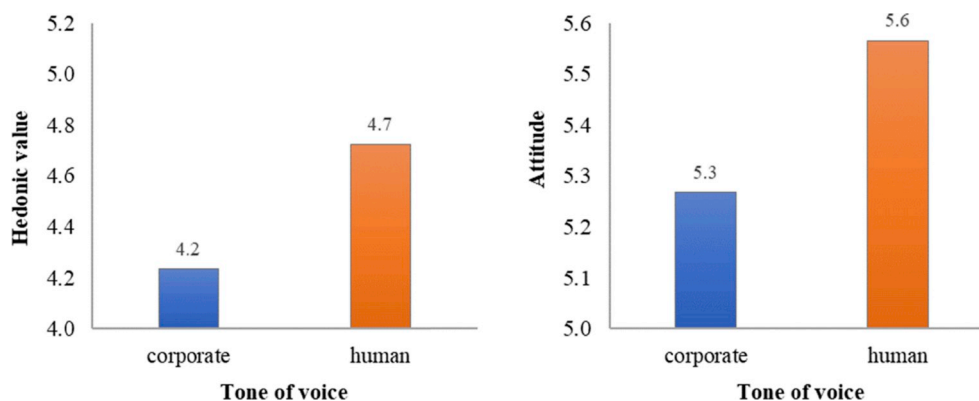


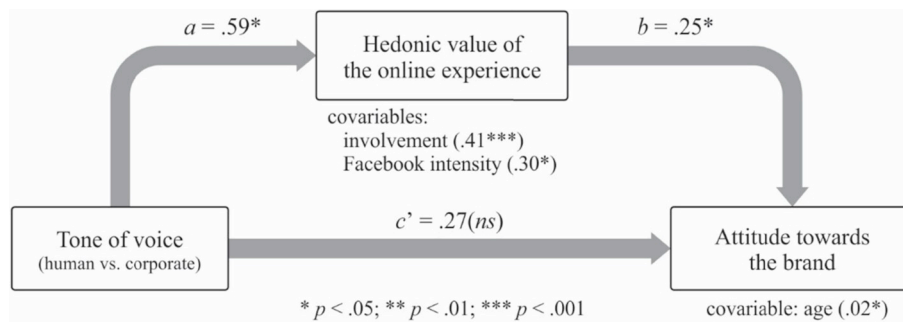**Fig. 1.** Means plot for hedonic value and attitude towards the hotel.

**Fig. 2.** Mediation analysis.

significant (c' = 0.25; t = 2.99, *p* < .01; see Fig. 2) suggesting a full mediation.

### 3.1.5. Discussion of pilot study

In accordance with our expectations and with Barcelos et al. (2018), the brand's use of human voice on social media increased the hedonic value of the online experience for consumers. Moreover, consumers' attitudes were more favorable towards the hotel when it used a human voice. The findings also show that heavy Facebook users and consumers with higher involvement with hotels experience more hedonic value on the brand page. The positive influence of Facebook usage intensity was expected, since this variable represents the importance of this social medium in people's lives. Thus, intense Facebook users should get more hedonic value when reading brand pages, and are likely to give more importance to the posts they read. The positive influence of the level of enduring involvement supports the findings of Wang et al. (2007) on the relationship between hedonic value, involvement, and perceived social character of websites.

### 3.2. Main study

#### 3.2.1. Stimuli and procedure

The second experimental study tested the influence of human voice on customers' information search on social media using eye-tracking measures in a laboratory setting. Eye-tracking is a means to observe user cognitive processes and to find out how specific visual features influence eye movement (Renshaw, Finlay, Tyfa, & Ward, 2003). In this sense, it not only reveals cognitive processing but also helps in detecting potentially more subtle information-salience effects. Accordingly, this study used eye-tracking to examine the influence of tone of voice on information processing and explored the patterns of visualization on the hotel brand page.

As in the pilot study, participants in the laboratory setting were asked to look at a hotel brand page on Facebook for as long as they wished and then decide if they wanted to make a reservation. Each participant was randomly assigned to one of the two versions of the hotel brand page (using human or corporate voice). The two versions of the hotel brand page were the same as in the pilot study, since the manipulations of tone of voice had already been tested and validated.

We developed a script to guide the experiment and to ensure that all participants were treated consistently. All participants were welcomed at the lab by research assistants with a psychology background and reminded of the requirements of the study (normal or corrected-to-normal vision). We also obtained informed consent from each participant. There was no direct contact between the main researchers and the participants of the study for the whole duration of the study.

The experiment took place in three stages. First, the participants

completed an initial questionnaire about their personal characteristics. Then, they were presented the hotel page on Facebook and we collected eye-tracking data of their browsing behavior. The participants' eye fixations, pupil diameter, and saccades were recorded with a Tobii X-60 eye-tracker (Tobii Technology AB). Fixations and saccades are the two main types of eye movement. Variations in pupil size, according to Laeng et al. (2012), respond significantly to cognitive and emotional arousal and are thus used in this research to identify areas of increased cognitive processing. The areas can represent text being read, or other elements being interpreted, for instance. Ambient illumination was controlled and kept constant during the experiment in order to minimize pupil size variations due to light reflex. A nine-point calibration was performed for all participants and was repeated until sufficient accuracy was achieved. Stimuli were presented on a 22' LG LED monitor with a resolution of 1680 × 1050 pixels and a refresh rate of 60 Hz.

Several areas of interest (AOIs) were defined on the hotel brand page to correspond to specific posts, pictures, or information on the page Groups of AOIs were also created to include similar AOIs, such as all replies or all profile pictures associated with a main post, for instance. These AOIs were later used to examine and compare measures of fixation and cognitive load in greater detail.

Following the experiment, the participants completed a second questionnaire collecting some measures of interest, including the manipulation check of the pilot study for comparison. They were then thanked for their participation and given a $20 gift certificate as compensation for completing the experiment. The average duration of the three stages of the experiment itself (first questionnaire, eye-tracking data collection and second questionnaire) was 18 min and 27 s, but due to the time taken for welcoming, eye-tracking calibration, debriefing and compensation, participants stayed in the lab for half an hour or more.

#### 3.2.2. Participants

We recruited 30 participants for this experiment over a period of two weeks. While the pilot study had no special requirements for the participants, the use of eye-tracking equipment obliged them to have normal or corrected-to-normal vision. For this reason, all participants were pre-screened for glasses, laser eye surgery, astigmatism, epilepsy, and neurological and psychiatric diagnoses. Moreover, since the procedures of the experiment required participants to come to the laboratory and stay for an extended period, most of them were either undergraduate or graduate students from a major North American university. On the other hand, this also resulted in a relatively more homogenous sample, which was useful to potentially reduce personal differences in patterns of information processing due to age, education, or cultural characteristics. The sample comprised 16 women and 14

**Table 1**
Measures and definitions in the eye-tracking study.

| Measure | Definition | Hypothesis |
|---|---|---|
| *Total fixation duration* | Time (in milliseconds) spent on a stimulus (page or AOI within the page) | H2a: Longer fixation durations and ratios on AOIs containing content cues (text) in the corporate voice scenario. Longer fixation durations and ratios on AOIs containing non-content cues (pictures) in the human voice scenario. |
| *Fixation ratio* | Time of total fixation duration on a stimulus (page or AOI within the page) divided by the total time at the brand page | |
| *Number of saccades* | Number of eye movements between one fixation and another on the page | H2b: More saccades and saccades per second in the human voice scenario, since the information search is expected to be more heuristic and less systematic. |
| *Saccade ratio* | Total number of saccades divided by the total time (in seconds) spent on a page | |
| *Time to first fixation* | Time (in milliseconds) spent on a page before looking at the stimulus (page or AOI within the page) | H2c: Different times for first fixation at different AOIs on the brand page. |
| *Pupil size* | Pupil diameter (in mm) for each eye fixation on a stimulus (page or AOI within the page). Pupil size is an estimation of cognitive load. | H2d: Increased pupil size on AOIs containing content cues (text) in the corporate voice scenario. Increased pupil size on AOIs containing non-content cues (pictures) in the human voice scenario. |

men, aged 26.8 years on average (std dev = 7.3 years). 16.7% of participants completed high school, 46.7% had a bachelor's degree, and 36.6% had a graduate degree. 90% of them had booked a hotel room at least once over the last year, and 50% had booked between 2 and 5 times. More importantly, means of perception of human or corporate voice by the brand were fairly similar between participants in the main study and the pilot study, which assured the consistency of our manipulations (main study: $M_{corp} = 4.56$; $M_{human} = 5.03$; pilot study: $M_{corp} = 4.49$; $M_{human} = 5.08$).

### 3.2.3. Measures

We used eye fixations, saccades, and pupil size as the basic data for creating gaze heat maps (see Table 1). Fixations were used for two measures: time to first fixation (how long it takes before a participant fixates an AOI or AOI group for the first time) and total fixation duration (the sum of the duration for all fixations within an AOI or AOI group). Longer fixations indicate more time spent processing the AOI information or relating the component in the interface to internalized representations (Wedel & Pieters, 2007). We also calculated the ratio between the total fixation duration on AOIs and the total time on the brand page (fixation ratio), since participants did not look at the brand page for the same length of time, to allow further comparisons.

We also measured the number of saccades on the brand pages. Dividing the number of saccades by the time spent on the brand page provides the ratio of saccades per second (saccade ratio), which represents how often participants were moving their attention from one point to the other on the screen.

Pupil size was used in this research to estimate cognitive load, following the procedures described by Courtemanche et al. (2017). As with other physiological signals, pupil dilation is subject to significant interpersonal variations or instrumental inaccuracies, so absolute values cannot be used to compare data from multiple users. Instead, these signals need to be corrected to account for the user's baseline (Van den Broek, van der Zwaag, Healey, Janssen, & Westerink, 2010). Following the approach of Courtemanche et al. (2017), the results of pupil sizes (provided by the Tobii X-60 eye-tracker) were normalized (z-scores) using the mean and the standard deviation of the inferred values for all of a user's measures of pupil size.[1] This step also helps distinguish the "physiologically significant" areas of an interface from neutral ones. In this approach, physiologically unimportant fixations are not considered in the subsequent accumulation step; only important physiological activity makes a contribution (Courtemanche et al., 2017). The normalized measures of pupil size were used not only for comparison between AOIs and versions of the hotel brand page, but also for creating heat

maps, together with fixation duration.

## 4. Results

### 4.1. Visual analysis

We first examined visually the information search patterns of participants using heat maps. Heat maps illustrate visual attention by manifesting the fixation locations and fixation durations across regions within the stimuli. Fig. 3 shows the heat maps of total fixation duration and cognitive load for the participants in each experimental scenario.[2] The heat maps of fixation duration were generated by Tobii Studio using a Gaussian function. The fixation regions are highlighted by shades in the red-green color spectrum, with red signifying the longest fixation durations and green indicating the shortest fixation durations. The shades represent the same values of fixation duration in both pages to allow comparison. The heat maps of cognitive load were generated using the normalized measures of pupil size (Courtemanche et al., 2017) and then combined with the heat maps of fixation duration (Georges et al., 2016, Fig. 3). The shades in blue represent the regions of increased pupil dilation. The heat maps are aggregations of the visualizations of all participants in each experimental scenario.

A first visual analysis of the heat maps suggests some commonalities among the participants. The header and the first posts concentrate most fixations. More specifically, participants look at the hotel information, the reviews box, and the content of the first four posts for the longest time. The first details about the hotel (name, number of stars, address and phone) are the regions that concentrated the longest fixation durations and pupil dilation on both versions of the pages. These results indicate that participants tend to pay more attention on the first information available on the page when making an evaluation about a brand.

Nevertheless, we can also find some differences in the heat maps. Fig. 3 suggests that participants looking at the hotel brand page using corporate voice (left side, on Fig. 3) had longer fixations on the text of several posts and replies, which can be noticed by the larger shades from the middle to the bottom of the picture (the fourth and fifth posts from the top). Moreover, there is a blue shade of pupil dilation over the fourth post (middle-left of the brand pages) in the corporate voice scenario that is not present in the human voice scenario. This post represents a concerned customer asking the hotel for reassurance and it received much more attention by the participants looking at the hotel brand page using corporate voice. On the other hand, participants looking at the hotel brand page using human voice appear to have slightly longer fixations and pupil dilations at the profile picture and

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[1] Normalization using the z-score with the following equation: $W'_i = (W_i - \mu)/\sigma$ where $\mu$ and $\sigma$ are respectively the mean and the standard deviation of the inferred values for all of a user's measures of pupil size. Values less than zero ($W' < 0$) are considered physiologically unimportant fixations.

[2] Only the top section of the brand pages is shown in Fig. 3. The whole pages are available directly from the authors.

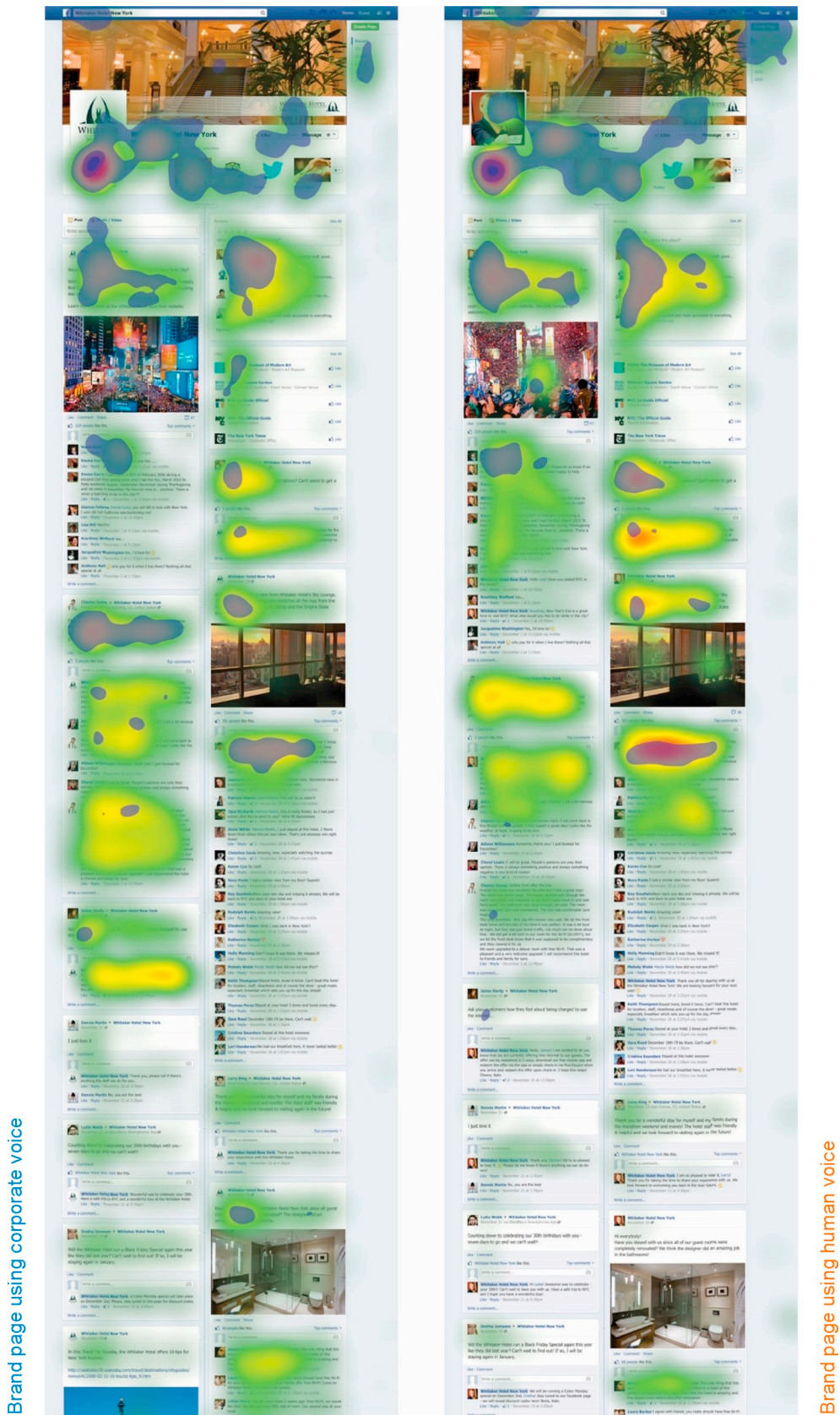Brand page using corporate voice

Brand page using human voice

**Fig. 3.** Heat maps of fixation duration (green to red) and cognitive load (blue) – top section of the pages (first 10 posts). . (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

**Table 2**
T-tests for means of total fixation duration (H2a).

| Area of Interest (AOI) | Means in seconds (std dev) | | Cohen's *d* | F (*df* = 29) | *p* |
| --- | --- | --- | --- | --- | --- |
| | corporate voice | human voice | | | |
| Header: hotel information | 2.943 (1.791) | 1.762 (1.669) | .683 | 3.461 | .073 |
| Post 1: main text from the hotel | 7.311 (4.620) | 4.579 (3.640) | .657 | 3.230 | .083 |
| Post 2: profile pictures of the hotel | 0 (0) | .050 (.110) | .643 | 3.291 | .080 |
| Post 4 (whole post) | 5.836 (9.834) | .826 (2.102) | .705 | 3.483 | .073 |
| Post 4: main text from customer | 2.007 (2.508) | .551 (1.423) | .714 | 3.674 | .066 |
| Post 5 (whole post) | 3.088 (4.378) | .682 (2.020) | .706 | 3.551 | .070 |
| Post 5: replies from the hotel to customers | 1.909 (2.952) | .358 (1.339) | .677 | 3.264 | .082 |
| Post 5: main text from customer | 1.179 (1.632) | .324 (.773) | .669 | 3.200 | .084 |
| Post 23 (whole post) | .060 (.129) | 0 (0) | .651 | 2.973 | .096 |

Only AOIs with means significantly different at p < .10 are shown. n = 30.

the cover photo. The profile picture in the human voice scenario exhibits the picture of an employee, while the brand logo is shown in the corporate voice scenario, and previous research has already shown that users naturally tend to fixate on faces when they are present (Cyr, Head, Larios, & Pan, 2009; Tullis, Siegel, & Sun, 2009, pp. 4207–4212). However, the cover photo is the same in both scenarios, so any differences in visualizations should be due to other factors on the brand pages.

*4.2. Statistical analysis*

The visual analysis points to differences on the brand pages. However, in order to formally test our hypothesis, we performed statistical analysis. Total fixation duration, fixation ratio, and cognitive load (pupil dilation) in each AOI of the two versions of the hotel brand page were calculated and compared across groups. All these measures represent different ways to examine which regions on the hotel brand page received more attention and for how long. Together with the measure of time to first fixation, they help to understand the participants' patterns of visualization in greater detail. AOIs were created to represent every element on the brand page, such as the header, the cover, and each post, reply, and picture. Groups of AOIs were then created to include all replies or all profile pictures associated with a main post, for instance. The posts were numbered sequentially and identified according to their author (the hotel or a customer). The result was more than 100 AOIs and AOI groups that included AOIs of various sizes. Creating many AOIs was particularly important because participants did not have a task that required them to look at the brand pages with increased attention for a long time. Instead, they were told to look at the brand pages for as long as they wished (as they would in a naturalistic setting) until they made up their mind about the hotel. Moreover, as shown in Fig. 3, participants often looked at a few specific parts of the page for the longest time and scanned the remaining contents very quickly, which resulted in a small number of fixations on many AOIs. Hence, this level of detail allowed us to detect significant differences of fixation duration and cognitive load in AOIs more easily.

The total time spent looking at the webpage (in seconds) was very similar between experimental conditions. Even though there was a large variation in the time spent on the webpage at the individual level (SE = 203.40), at the aggregate level, means were fairly similar between conditions (M$_{corp}$ = 369.63; M$_{human}$ = 348.29; F (1, 29) = 0.08, p = .78). However, the saccade ratio is significantly higher in the human voice scenario (M$_{corp}$ = 4.08; M$_{human}$ = 4.75; F (1, 29) = 4.30, p = .04). The fact that participants in the human voice scenario were fixating at some points for less time before moving on to others is consistent with Hypothesis 2 b i.e. that they would search for information in a more heuristic, less systematic manner and present more eye movements between information elements.

Table 2 shows the results of the T-tests for means of total fixation

duration.[3] As previously explained, we created a large number of AOIs, hence, for the sake of space, we decided to show in the table only those with means significantly different at p < .10. AOIs with significant differences in fixation duration or cognitive load between versions of the brand page are also highlighted on Fig. 4.

The results suggest that participants in the corporate voice scenario fixated longer on the hotel information in the header and the content of at least five posts. Since the hotel brand page had several posts, and participants could look at them for as long as they wished, the number of fixations on each AOI could be very different. For this reason, we also compared the fixation ratio, i.e., the ratio between the total fixation duration at a specific AOI and the total time at the brand page (Table 3; as in the previous table, only AOIs with means significantly different at p < .10 are shown). This comparison shows differences between the relative importance given to each post during each participant's visualization time. Consistent with the previous test, results also suggest that participants in the corporate voice scenario fixated longer on the content of at least nine posts (relative to their total visualization time), supporting H2a. However, they also indicate that participants in the human voice scenario fixated a little longer on the profile pictures of two posts (2 and 9), providing support to H2a.

We ran T-tests for time to first fixation on AOIs (Table 4; only AOIs with means significantly different at p < .10 are shown). Our hypothesis about different patterns of information search were based on ELM and HSM models and on the assumption that consumers should engage in more heuristic patterns of processing and information search when exposed to messages using human voice than when exposed to messages using corporate voice. Following this assumption, we expect that participants' patterns of information search should evolve as they are progressively exposed to posts using a particular tone of voice. Moreover, if participants in the corporate voice scenario look at the posts in a more systematic manner, i.e., post after post, we should also expect to see differences in the times to first fixation at different zones of the page. As predicted, there were statistically significant differences between the fixation times for at least five posts at the brand page. T-test on these results show that, on average, participants in the corporate voice scenario fixated on posts 2 and 4 sooner than the participants in the human voice scenario. However, they fixated sooner on posts 10, 24 and 29. Results thus support H2c.

Finally, we compared these results with the T-tests for means of cognitive load (Table 5; only AOIs with means significantly different at

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[3] Regarding the assumptions of T-tests, our study uses independent samples of approximate size for each scenario (human or corporate tone of voice) by design. Levene tests for each dependent variable show no significant differences in variance between samples. Kolmogorov-Smirnov tests show significant deviances of normality for several dependent variables, however, given the inherent robustness of T-tests for this assumption and the sample size (Edgell & Noon, 1984; Hogg, Tanis, & Zimmerman, 2015; Lumley, Diehr, Emerson, & Chen, 2002), they should not introduce severe concerns for the validity of results.
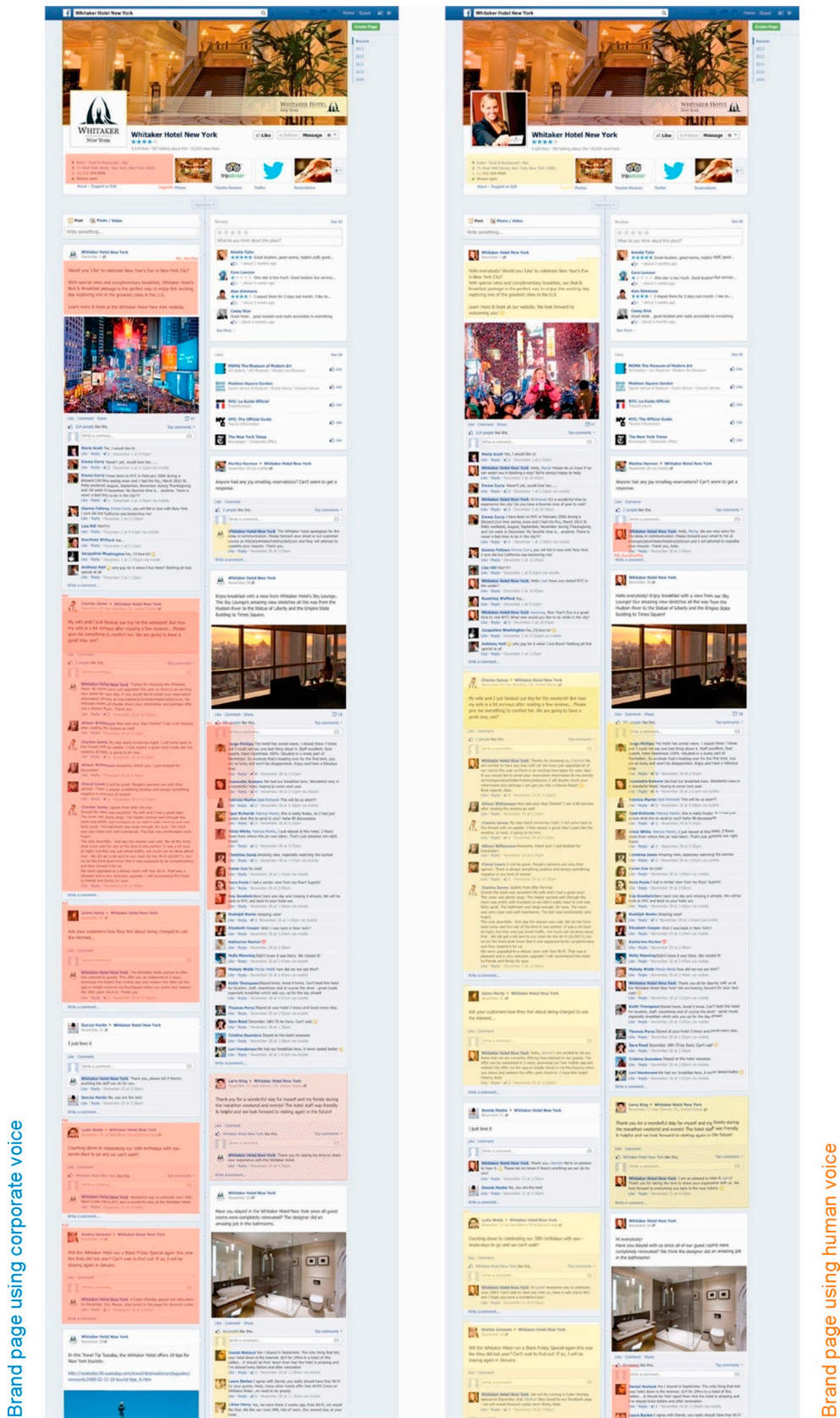
**Fig. 4.** AOIs with significant differences in fixation duration or cognitive load between versions of the brand page – top section of the pages (first 10 posts, red zones have longer fixation durations and higher cognitive loads). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

**Table 3**
T-tests for means of fixation ratio (H2a).

| Area of Interest (AOI) | Means in % (std dev) | | Cohen's d | F (df = 29) | p |
|---|---|---|---|---|---|
| | corporate voice | human voice | | | |
| Post 2: profile pictures of the hotel | 0 (0) | .015 (.032) | .663 | 3.544 | .070 |
| Post 3: profile pictures of customers | .192 (.253) | .038 (.073) | .826 | 4.800 | .037 |
| Post 8 (whole post) | .751 (.652) | .369 (.296) | .755 | 4.063 | .054 |
| Post 8: main text from customer | .569 (.354) | .276 (.244) | .964 | 6.764 | .015 |
| Post 9: profile pictures of customers | .011 (.021) | .047 (.079) | .621 | 3.060 | .091 |
| Post 10 (whole post) | .919 (.765) | .365 (.367) | .927 | 6.139 | .020 |
| Post 10: replies from the hotel to customers | .338 (.557) | .065 (.117) | .679 | 3.233 | .083 |
| Post 10: main text from customer | .581 (.477) | .300 (.348) | .674 | 3.319 | .079 |
| Post 13: main text from customer | .958 (.805) | .497 (.530) | .676 | 3.319 | .079 |
| Post 16: main text from the hotel | .421 (.374) | .201 (.268) | .679 | 3.366 | .077 |
| Post 22 (whole post) | .230 (.235) | .033 (.067) | 1.140 | 9.143 | .005 |
| Post 22: main text from customer | .217 (.215) | .024 (.066) | 1.216 | 10.418 | .003 |
| Post 23: profile pictures of customers | .016 (.032) | 0 (0) | .725 | 3.683 | .065 |
| Post 25: main text from the hotel | .431 (.411) | .200 (.296) | .645 | 3.042 | .092 |
| Post 25: profile pictures of customers | .037 (.077) | 0 (0) | .685 | 3.271 | .081 |
| Post 28: main text from customer | 1.734 (1.975) | .604 (.888) | .738 | 3.878 | .059 |

Only AOIs with means significantly different at p < .10 are shown. n = 30.

**Table 4**
T-tests for time to first fixation on AOIs (H2c).

| Area of Interest (AOI) | Means in seconds (std dev) | | Cohen's d | F (df) | p |
|---|---|---|---|---|---|
| | corporate voice | human voice | | | |
| Post 2: replies from the hotel to customers | 53.599 (25.644) | 110.755 (117.736) | .671 | 2.927 (26) | .100 |
| Post 4: main text from customer | 53.831 (27.796) | 75.446 (24.913) | .819 | 3.957 (23) | .059 |
| Post 10: replies from the hotel to customers | 282.030 (94.283) | 171.462 (55.576) | 1.429 | 5.428 (11) | .042 |
| Post 24: replies from customers to the hotel | 374.504 (208.136) | 235.731 (104.807) | .842 | 3.546 (19) | .076 |
| Post 29: replies from customers to the hotel | 451.862 (236.374) | 194.058 (107.496) | 1.404 | 5.011 (10) | .052 |

Only AOIs with means significantly different at p < .10 are shown. df for each AOI represents the number (n – 1) of participants who fixated at least once at that AOI.

**Table 5**
T-tests for means of cognitive load (H2d).

| Area of Interest (AOI) | Means of sums of standardized pupil sizes (std dev) | | Cohen's d | F (df = 29) | p |
|---|---|---|---|---|---|
| | corporate voice | human voice | | | |
| Cover photo | 95.368 (66.253) | 154.339 (101.760) | .687 | 3.627 | .067 |
| Post 3: profile pictures of customers | 7.244 (10.220) | 0.117 (.300) | .986 | 6.767 | .015 |
| Post 4: main text from customer | 101.274 (83.239) | 44.774 (47.947) | .832 | 4.987 | .034 |
| Post 7 (whole post) | 38.444 (42.052) | 11.445 (13.413) | .865 | 5.280 | .029 |
| Post 7: main text from customer | 31.476 (39.242) | 7.017 (8.280) | .862 | 5.213 | .030 |
| Post 13: main text from customer | 32.729 (34.399) | 13.106 (19.143) | .705 | 3.576 | .069 |
| Post 22 (whole post) | 12.828 (18.198) | 1.186 (2.742) | .895 | 5.595 | .025 |
| Post 22: main text from customer | 12.127 (17.719) | 1.072 (2.769) | .872 | 5.313 | .029 |
| Post 23: profile pictures of customers | 0.466 (.910) | 0 (0) | .724 | 3.650 | .066 |
| Post 25: main text from the hotel | 15.116 (16.837) | 4.988 (9.974) | .732 | 3.867 | .059 |
| Post 25: profile pictures of customers | 1.950 (3.269) | 0 (0) | .843 | 4.958 | .034 |

Only AOIs with means significantly different at p < .10 are shown. n = 30.

p < .10 are shown). The results from this test suggest that participants in the corporate voice scenario had increased pupil dilation while reading parts of at least 7 posts, supporting H2d. Pupil dilation here can mean either that the participants were more interested in the content of these posts, or that they were more demanding cognitively. Participants in the human voice scenario exhibited less cognitive load while reading those posts, however they had increased pupil dilations while fixating on the cover photo, supporting H2d.

Taken together, the results of these tests support Hypothesis 2, i.e., the more human (vs. corporate) the voice used by the hotel on social media, the more heuristic (vs. systematic) should be the consumers' patterns of information search. Participants looking at the hotel brand page using corporate voice exhibited an increased attention to the information about the hotel and the contents of the posts (both text and pictures). Participants looking at the hotel brand page using human voice, on the other hand, fixated in more diverse regions of the page, and were more interested than the participants in the condition of corporate voice in a few AOIs such as the cover photo and some profile

pictures. It could be argued that participants in the human voice scenario should have had increased fixations in other regions of the brand page as well, considering that there was no significant difference in total visualization time between the two conditions. However, as mentioned, the saccade ratio was statistically higher in the condition of human voice. Hence, participants in this condition were moving their attention from one point to the other on the screen more often. In other words, they spent more time "scanning" the whole page instead of simply fixating and reading one post after the other. This reasoning is once more consistent with the idea that participants in the condition of corporate voice followed a more systematic pattern of information search along the page, fixating on a post and then another, successfully, while participants in the condition of human voice followed a more heuristic pattern of information search, moving their attention back and forth from the posts to other regions on the brand page to look for peripheral cues (in pictures, for instance).

We can explain the difference in the times to first fixation by assuming, as we proposed, that participants in the corporate voice condition were reading posts in a more systematic manner, paying more attention to the information of a post and only then moving to the next post. On the other hand, as participants in the condition of human voice started looking at other elements of the brand page (instead of following a more systematic order) they took more time, on average, to look at the first posts of the brand page, but then reached the last posts sooner. We can also infer that participants started to engage in different patterns of processing and information search when exposed to the hotel's profile picture and to the contents of Post 1 and then these patterns became increasingly different during visualization of hotel brand page. As shown in Table 5, the gap in the time to first fixation between conditions for the last posts was larger than in the previous ones. It is worth noticing that, on average, participants in the human voice condition looked sooner at the post 29 (the last post on the brand page) than at post 24.

## 5. General discussion

### 5.1. Theoretical and practical contributions

The present study examined how the tone of voice adopted by a tourism brand in its social media communications influences information search and customers' brand attitude on social media. Based on the results of an online pilot study and an eye-tracking study, we show that using a human tone of voice on social media, instead of the more traditional corporate tone of voice, generates a more favorable attitude toward the brand and makes the information search more heuristic. Specifically, participants looking at the hotel brand page using a corporate voice paid more attention to the information about the hotel and the contents of the posts, while participants looking at the hotel brand page using a human voice fixated on more diverse regions of the page and were more interested in the cover photo and in some profile pictures. Participants looking at the hotel brand page using human voice also had a higher saccade ratio, moving their attention from one point to the other on the screen more often.

From a theoretical contribution perspective, this study responds to a gap in the literature. The concept of human voice is still underexplored in the tourism sector and even in service research in general, even though it has deserved growing attention due to evidence suggesting that it increases customer engagement and brand evaluations (Barcelos et al., 2018; Schamari & Schaefers, 2015; Van Noort & Willemsen, 2012). In particular, the concept of tone of voice can address the effects of different brand communication strategies. Moreover, the concept of

human voice is also related to brand humanization in the sense that a brand using human voice is perceived as even more "human". Therefore, our findings are also relevant to studies on brand anthropomorphism (e.g., Puzakova, Kwak, & Rocereto, 2013), specifically responding to the effects of humanized communication.

The finding that the tone of voice adopted by a tourism brand in social media communications can influence information search is particularly new in marketing and tourism literature. According to Petty and Cacioppo's (1984) Elaboration Likelihood Model (ELM) and Chaiken's (1980) Heuristic-Systematic Model (HSM), people's motivation and resources are responsible for information processing primarily either through a central (systematic) route or a peripheral (heuristic) route. By using an eye-tracking method, this study showed that the specific tone of voice used in brand communications elicits different routes of information processing. In this sense, the present study extends the line of research on visual processing in the tourism field and provides new discoveries on consumers' visual processing behaviors. The investigation of which specific areas on brand pages and other visual stimuli in general capture consumers' interest is particularly relevant because that interest and further attention is a pre-requisite to attitude formation and further responses, according to the AIDA model (Lamb, Hair, & McDaniel, 2012). Our online pilot study corroborates this reasoning, since the hotel's choice of tone of voice also influenced consumers' attitudes and hedonic value.

These findings extend previous research in tourism management by shedding light on the aspects related to the contents consumers can find on social media. Interestingly, if we take into account only the most recent years, we realize that the bulk of research on this topic has concentrated on the UGC (user-generated content) side of the question. Some examples are: Dolan, Seo, and Kemper (2019) on complaining practices, Giglio, Bertacchini, Bilotta, and Pantano (2019) on the usage of photos to describe tourism attractiveness, and Xiang, Du, Ma, and Fan (2017) on online reviews. This emphasis on UGC-related questions leaves aside the exploration of the contents that are controlled by tourism brands. A notable exception is the work of Perez-Vega, Taheri, Farrington, and O'Gorman (2018) exploring the effects of anthropomorphic tourism brands.

In this sense, the use of eye-tracking measures to complement traditional questionnaires constitutes a methodological contribution to tourism research in visual processing. Most studies on visual analysis still rely heavily on self-reported evaluations and responses, which tend to be holistic and intangible (Wang & Sparks, 2016), stressing the overall assessment of the pictures and elements of visual stimuli (e.g., Jun & Holland, 2011; Lee & Gretzel, 2012). While such data is valuable, it may still include subjective biases or not provide precise estimates of how participants' attention was attracted by and allocated to specific visual stimuli (Li, Huang, & Christianson, 2016). The present study's approach combines traditional psychometrical measures (from the pilot online study) with eye-tracking measures (from the main study), which can alleviate these concerns. Future research can include other physiological measures, such as electrodermal activity and valence heat maps of facial expressions (Courtemanche et al., 2017) to further enrich this type of analysis.

From a managerial contribution perspective, the results of this study are also relevant since social media has become an important marketing tool for the tourism sector and has been changing the decision-making processes of tourism consumers (Hudson & Thal, 2013). Moreover, social media constitutes a public environment in which communication between a brand and its customers is usually visible to all others, therefore any consumer reading these conversations may also form an opinion about the brand. Hence, the tone of voice used by the brand can

influence not only the customers directly involved in the communication on social media but also all other consumers exposed to these conversations. In this sense, our results show that the choice of tone of voice not only influences customers' attitudes, but also can induce the customers to take a more peripheral (heuristic) or a more central (systematic) route. Therefore, the use of either a human or corporate tone of voice can make customers pay more attention to different parts of the hotel brand page, which has implications for communication strategies. For instance, if a hotel's positioning is based mostly on functional attributes or on the rational-economical advantages of its services, this hotel might want to prime the central route and favoring more systematic information processing. In this situation, the hotel should choose a corporate tone of voice on social media, as the results of our study show that this tone of voice favors this central (systematic) route. On the other hand, if the hotel's positioning favors hedonic benefits such as comfort, it might choose a more human tone of voice on social media and, thus, elicit more peripheral (heuristic) information processing in which customers tend to pay more attention to different elements of the page (such as the cover photo and pictures).

### 5.2. Limitations and future research

As with all research, a number of limitations are associated with the current research. First, even though the main study was able to show that the tone of voice adopted by a tourism brand in its social media communications can influence information search, the sample was not large and most of the available participants were students. This limitation was due mainly to the experiment procedures and likely affected the significance power of T-tests for several AOIs. While we were still able to identify the proposed effects in several AOIs (and all effects were consistent with our hypotheses), a larger sample would probably allow us to identify these effects in a larger number of AOIs. Moreover, there is a limitation related to the characteristics of the participants (all from Canada and the United States). What would be the results of the experiments when applied to participants of other cultures? It is a well-known fact that some cultures are more used to closeness and distance than others (Hofstede, 2001). Even within the same culture, some market segments may be more open to personal communications than others. Therefore, future studies with larger samples and cross-cultural studies should be of value to generalize the applicability of these findings.

Second, the design itself of the main study also limited the number of AOIs in which the proposed effects could be identified. We created many AOIs because participants did not have a task that required them to look at the brand pages with increased attention for a long time. They were told to look at the brand pages for as long as they wished (as they would in a naturalistic setting). Hence, we predicted that participants would look at a few specific parts of the page for the longest time and scan the remaining contents very quickly. In this sense, the creation of

many AOIs and AOI groups allowed us to detect significant differences in fixation duration and cognitive load in some of them more easily.

Third, this study investigated only the customer's first contact with a hotel. While this constituted a contribution to the literature, it also raises the question of the effects of tone of voice after repeated interactions, such as in an extended relationship with a tourism brand. Another question concerns the effects of adopting a human voice on consumers already familiar with the brand. Could a sudden change in tone of voice also change existing perceptions about the hotel, for instance? Further research, therefore, could also investigate consumer interactions with existing tourism brands or even the choice of a tone of voice to deal most effectively with complaints and unsatisfied customers. In this case, we should compare attitudes and behaviors before and after exposure to messages to confirm our hypotheses. Similarly, future studies could extend the present findings by testing the effects of human voice on different social media where the differences in the brand voice might be less evident (such as Instagram or TripAdvisor) or in personal communications (email).

Another interesting avenue for exploration relates to the media where the communication takes place. Our objective in the present research was to explore the effects of tone of voice on social media. We have recently seen the impact of the Cambridge Analytica scandal on Facebook (Cohen, 2018). In this context, one wonders what kind of impact this type of trust crisis could have on the communications taking place on these platforms. Would tone of voice play a role in modulating the acceptance of messages sent by brands? In low trust periods, should brands adopt a more corporate tone of voice?

Finally, some factors might interact with the use of a human voice according to the tourism brand. For example, a particular tone of voice may elicit different expectations from the consumer depending on the brand's positioning, typicality, perceived authenticity, and so on. In the same way, the customers' goals and motivations and their own information processing styles might change how they react to a close and personal tone of voice, and hence, influence information search patterns. For instance, if a customer looking for a hotel for a vacation trip has attributes in mind that differ from a customer looking for a hotel for a business trip, would their information search patterns be influenced in the same way by a human tone of voice? Thus, future studies should explore the influence of potential moderators and mediators – such as customer goals, individual processing styles, perceived risk, familiarity with the brand, or perceived authenticity – on the effect of the brand's tone of voice on consumer attitudes and information search on social media.

Despite these limitations, the current findings provide theoretical contributions and practical implications for those seeking to understand the effect of communication strategies for tourism brands on customers' responses, particularly in instances where these strategies include the tone of voice used. It is hoped that the insights provided here will guide others exploring this area of research.

## Appendix A. Stimuli and brand pages

*Instructions to participants*

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In this study, we'd like to you to imagine yourself in the situation where you are choosing a hotel for a vacation trip to New York City.

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*[Priming question – open field]* Please, describe what are the most important attributes of a hotel for a vacation trip, in your opinion.

Now, imagine that you are considering hotel options for this vacation trip and you discover the page of Whitaker Hotel New York on Facebook. In the next section of this survey, we will show you some recent excerpts from this page. Please take your time and look as long as you want at the information, posts and comments featured on the Whitaker Hotel Facebook page. You can look freely at the page until you make up your mind about the hotel. Then respond to the following questions as honestly as possible.

---

*Excerpts from brand pages and manipulations*

### Brand page using corporate voice

Brand logo in the profile
Formal language
Avoids expressing emotions
Address consumers by their last names or pronouns
Refers to itself mostly in the third person ("the hotel")
Signs with the brand name

### Brand page using human voice

Employee picture in the profile
Informal language
Expresses emotions more often
Address consumers by their first names
Refers to itself mostly in the first person ("I/we")
Signs with his/her own name



*Description of posts used in the study*

| Post | Author | Content type | Number of replies | Post | Author | Content type | Number of replies |
|------|--------|--------------|-------------------|------|--------|--------------|-------------------|
| Post 1* | Brand | Promotion | 12 | Post 16* | Brand | Information | 7 |
| Post 2 | User/customer | Complaint | 1 | Post 17 | User/customer | Compliment | 1 |
| Post 3* | Brand | Information | 20 | Post 18* | Brand | Information | 4 |
| Post 4 | User/customer | Question | 6 | Post 19 | User/customer | Question | 1 |
| Post 5 | User/customer | Complaint | 1 | Post 20* | Brand | Promotion | 4 |
| Post 6 | User/customer | Compliment | 1 | Post 21 | Brand | Information | 4 |
| Post 7 | User/customer | Compliment | 2 | Post 22 | User/customer | Compliment | 1 |
| Post 8 | User/customer | Compliment | 1 | Post 23 | User/customer | Complaint | 2 |
| Post 9* | Brand | Information | 11 | Post 24* | Brand | Question | 14 |
| Post 10 | User/customer | Question | 1 | Post 25* | Brand | Question | 12 |
| Post 11* | Brand | Information | 3 | Post 26 | User/customer | Question | 1 |
| Post 12 | User/customer | Complaint | 2 | Post 27 | User/customer | Compliment | 1 |
| Post 13 | User/customer | Complaint | 11 | Post 28 | User/customer | Complaint | 1 |

| Post 14 | User/customer | Compliment | 1 | | Post 29 | User/customer | Question | 1 |
| Post 15* | Brand | Information | 2 | | | | | |

*Note.* All posts included manipulations in tone of voice, as exemplified in the excerpts above.
*Post includes a picture.

## Appendix B. Measures and descriptive statistics

*Measures in the studies, factor loadings and reliability*

| Variable | Measurement items | Factor loadings | Alpha |
|---|---|---|---|
| *Attitude* (adapted from Choi & Winterich, 2013 and White & Dahl, 2007) | Your evaluation about the Whitaker Hotel is | | .96 |
| | … (1–7: bad – good) | .90 | |
| | … (1–7: unfavorable – favorable) | .91 | |
| | … (1–7: negative – positive) | .87 | |
| | … (1–7: I dislike it – I like it) | .89 | |
| *Hedonic value* (based upon Babin et al., 1994 and Pöyry, Parvinen, & Malmivaara, 2013) | Regarding your experience with the hotel page on Facebook | | .95 |
| | … I enjoyed passing the time on the hotel page | | |
| | … Visiting the hotel page was a pleasant experience | .86 | |
| | … Compared to the other things I could have done, being on the hotel page was truly enjoyable | .76 | |
| | … I enjoyed visiting the hotel page for its own sake, not just for the useful information I found (1–7: totally disagree – totally agree) | .88 | |
| | | .86 | |
| *Involvement with hotels* (Zaichkowsky, 1985) | In your personal perceptions, hotels are | | .97 |
| | … (1–7: unimportant – important) | .89 | |
| | … (1–7: mean nothing to me – mean a lot to me) | .87 | |
| | … (1–7: do not matter to me –matter to me) | .91 | |
| | … (1–7: insignificant – significant) | .89 | |
| | … (1–7: of no concern to me – of concern to me) | .90 | |
| | … (1–7: boring – interesting) | .86 | |
| *Hotel expertise* (based upon Cai & Xu, 2011) | Compared to other people, how familiar do you think you are with hotels? (1–7: very little – very much) | .79 | .74 |
| | Do you usually know precisely what attributes of a hotel decide its benefits? (1–7: never – all the time) | .73 | |
| | Do you think you can you make a satisfactory choice of a hotel based on only your own knowledge, without another person's help? (1–7: never – always) | .80 | |
| *Facebook usage intensity* (Ellison, Steinfield, & Lampe, 2-007) | Regarding your Facebook usage | | .92 |
| | … Facebook is part of my everyday activity | .81 | |
| | … I am proud to tell people I'm on Facebook | .78 | |
| | … Facebook has become part of my daily routine | .86 | |
| | … I feel out of touch when I haven't logged onto Facebook for a while | .81 | |
| | … I feel I am part of the Facebook community | | |
| | … I would be sorry if Facebook shut down (1–7: totally disagree – totally agree) | .84 | |
| | | .78 | |

*Note.* Gender, age, and education were also measured as covariables.

*Factor reliability and discriminant validity*

| Variable | CR | AVE | Attitude | Hedonic value | Enduring involvement | Product expertise | Facebook usage intensity |
|---|---|---|---|---|---|---|---|
| Attitude | .94 | .80 | **.89** | | | | |
| Hedonic value | .91 | .71 | .47 | **.84** | | | |
| Involvement | .96 | .79 | .34 | .53 | **.89** | | |
| Hotel expertise | .82 | .60 | .17 | .24 | .34 | **.77** | |
| Facebook usage intensity | .92 | .66 | .37 | .37 | .36 | .36 | **.81** |

*Note.* The numbers on the diagonal represent the square root AVE of each construct. Numbers below the diagonal depict the correlation of each factor with all other factors.

*Manipulation checks*

| Variable | Measurement items | Alpha |
|---|---|---|
| *Humanness in tone of voice* (based upon Kumar & Benbasat, 2002) | Regarding your perceptions about the hotel page on Facebook | .89 |
| | … The [brand] created a sense of closeness with its audience | |
| | … I felt close to [brand] | |
| | … The [brand]created a sense of distance | |
| | … I felt that the [brand] was aloof in its interactions with its audience | |
| | … I found the [brand] to be very detached from its audience | |
| | … The [brand]was very impersonal in its dealings with its audience | |
| | … I found the [brand] to be very detached in its interactions with its audience (1–7: totally disagree – totally agree) | |

| | | |
|---|---|---|
| *Realism* | How realistic do you think was the proposed situation? (1–7: very unrealistic – very realistic) | – |
| *Role-playing* | How easy was it to imagine yourself in the proposed situation? (1–7: very difficult – very easy) | – |

*Descriptive statistics*

| Variable | N | Mean | SD | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Attitude | 88 | 5.42 | 1.09 | -.22 | -.83 |
| Hedonic value | 88 | 4.49 | 1.42 | -.78 | .27 |
| Involvement with hotels | 88 | 4.74 | 1.58 | -.42 | -.50 |
| Hotel expertise | 88 | 4.89 | 1.13 | -.60 | .29 |
| Facebook usage intensity | 88 | 3.38 | 1.05 | -.82 | .03 |
| Humanness in tone of voice | 88 | 4.80 | 1.27 | -.44 | -.64 |
| Time spent on the brand page | 88 | 90.78 | 73.26 | 1.83 | 4.36 |

## Author contribution

Renato Hübner Barcelos. Conceptualization, Data curation, Methodology, Formal analysis, Writing – original draft, Writing – review & editing.
Danilo Correa Dantas. Methodology, Project administration, Resources, Validation, Writing – original draft, Writing – review & editing.
Sylvain Sénécal. Conceptualization, Supervision, Validation, Writing - original draft, Writing – review & editing.

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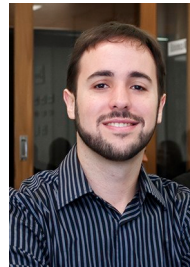
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