Effect of social-media message congruence and generational cohort on visual attention and information-processing in culinary tourism: An eye-tracking study

Abstract

Social networks are a source of competitive advantage for destination management organizations (DMOs) in promoting user-generated content. In the online environment, the generational cohort to which the user belongs significantly determines their motivations, preferences, and behaviors. Against this backdrop, and in context of culinary tourism, the present work aims to: (1) examine the degree of congruence between the messages that tourist receives from DMOs and other tourists through social network comments affects their attention and affective responses; (2) analyze the effect of generational cohort on user responses; (3) investigate the differences in gastronomy-related messages between generational cohorts according to different levels of congruence. An eye-tracking experiment is conducted to manipulate message congruence (high vs. low) and user's generational cohort (Millennials vs. Generation Z). Findings show faster attention-capture and higher cognitive processing in low-congruence gastronomy-related comments in both cohorts, while Generation Z users reported greater attention to culinary visuals.

Keywords: Message congruence, Millennials, Generation Z, eye-tracking, culinary tourism, CIMC.

1. Introduction

The major impact of the tourism sector on the world economy is undeniable. In 2021, it contributed $1 trillion to GDP and accounted for 289 million jobs (WTTC, 2022), gastronomy being an increasingly relevant motivation factor in tourist decision-making (López-Guzmán et al., 2017)- with more than a third of tourists' budget spent on eating out (UNWTO, 2019)- and a strategic source of differentiation for DMOs, as it contributes to building destination image and brand (UNWTO, 2017). As a result of recent international events (economic and social, COVID-19, etc.), the tourism industry is facing a complex situation and requires action to improve its competitive position. To this end, effective marketing communication strategies, especially in the online setting, are paramount for retaining (and attracting) tourists (Huete-Alcocer & Valero-Tévar, 2021), as well as for identifying generational differences with respect to this effectiveness.

Nowadays, it is just as important for DMOs to properly plan and effectively execute communication efforts in business-to-consumer (B2C) as it is for them to "manage" the consumer-to-consumer (C2C) communication that evolves via electronic word-of-mouth (eWOM), social networks being the most popular means for eWOM among tourists. In this regard, many questions are still unanswered about their role in terms of attracting tourists, generating loyalty and how they should be integrated into destinations' communication strategies (Luo & Zhong, 2015). Some of the studies have pointed to its great potential for influencing tourist behavior (Dijkmans et al., 2015), while also noting the inefficient use that tourism managers make of social networks (Uşakli et al., 2017; Chan & Guillet, 2011) and how they often fail to interact with, and listen to, users (Guillet et al., 2016; Phelan et al., 2013).

Currently, tourists have to process and assimilate large volumes of information received from diverse sources on social media, the online content being controlled by DMOs or deriving from eWOM, leading to a crucial question: to what extent will the degree of congruence between these messages affect the tourist's visual attention and affective response? In light of this, the present study seeks to respond to this question adopting a theoretical framework based on the Customer-Integrated Marketing Communication (CIMC), proposed by Finne & Grönroos (2017), to provide a customer-oriented vision of IMC, emphasizing what it really communicates to the user (communication-in-use). This study pioneers the application of the CIMC model in the tourism research field.

In pursuing this goal, it is of interest to investigate to the role of different generational cohorts in the way users process, integrate, and respond to tourism information in social networks (Espigares-Jurado et al., 2020), as several studies have revealed important differences in online behavior between generational cohorts of users (Monaco, 2018). Hence, this study aims to fill this research gap in the tourism literature examining how Millennials and Generation Z users (Pew Research Center, 2021) process the information they receive via social networks from both DMOs and other tourists (eWOM), and how they respond to messages characterized by different levels of congruence in terms of their behavior and attention, taking a neuroscientific approach, using an eye-tracking system to study this issue.

Such a methodology is highly valuable in research dealing with the impact of marketing stimuli on consumer behavior (Muñoz-Leiva et al., 2022). The comprehensive literature review reveals a dearth of research on the consumer (Wedel & Pieters, 2017) and the effect of online communication tools in tourism on the user (Hernández-Méndez & Muñoz-Leiva, 2015). More specifically, a recent

review of the eye-tracking in tourism shows that there are very few studies that deal with social networks, and even fewer analysing different generational cohorts (Savin et al., 2021).

With these premises, the research presented here seeks to respond to the following research questions:

- *RQ1.* Are there differences between Generation Z and Millennial users in terms of visual attention (fixation count -FC-, dwell time -DT-, and time to first fixation -TFF-) according to different levels of congruence between messages conveyed via DMOs and eWOM?
- *RQ2.* Are there differences between Generation Z and Millennial users in terms of response time according to different levels of congruence between messages conveyed via DMOs and eWOM?
- *RQ3.* Are there differences between Generation Z and Millennial users in terms of affective responses according to different levels of congruence between messages conveyed via DMOs and eWOM?

Responding to these questions, this study can assist managers and companies in the tourism sector in achieving a better understanding of the active role of users in online communications their situational factors, and the value they place on the relevance of that communication-in-use about tourism destinations. Implementing actions directed towards the formation of value in communication, intervening in the processes of both communication-in-use, the real communication in the user, and the value of that communication (impression and decision of the user) can offer tourism managers more effective and efficient communications oriented to users of different generational cohorts.

2. Literature review

2.1 Gastronomy as a tourist motivation to visit destinations

Gastronomy is a fundamental element of cultures and their intangible heritage that connects people to the territories they visit (Clemente-Ricolfe et al., 2008) and represents a fundamental pillar on which the entire tourism sector is based (Kivela & Crotts, 2006). Research on gastronomic experiences related to tourism is growing rapidly (Björk & Kaupinnen-Räisanen, 2016).

Culinary tourism represents a different market segment from the ordinary visitor market. Scholarly research in this field has shown that travelers recognize local cuisine to be an important factor in choosing the destination, valuing the travel experience, and deciding whether to revisit the destination (Silkes et al., 2013). Tourists' gastronomic experiences have a major impact on their evaluation of destinations: if the experience is positively memorable, their inclination to speak positively of the destination, too, will increase and will lead to recommendations on social networks (Frost et al., 2016).

Gastronomy, then, has become an essential resource for DMOs in digital media, in the quest to capture the attention of tourists (Chen & Huang, 2016), and predisposing them to visit and promoting user comments and opinions (Björk & Kauppinen-Räisänen, 2016). For several decades, authors have observed that gastronomy is crucial in the formation of destination image, in generating favorable attitudes toward the destination (Galí & Donaire, 2005), and in tourist decision-making (MacKay & Couldwell, 2004), particularly when promoting the destination via social networks (Galí & Donaire, 2005). Recently, Marder et al. (2021) found that, if relatively unappealing photographs posted online trigger negative comments, this

increases negative perceptions of the destination; but, if those same photographs are followed by positive comments, the negative perception of the destination is mitigated. These findings corroborate the importance of considering gastronomy as a core element in differentiation strategies over competition on social media (UNWTO, 2017), representing experiential tourism (Stone et al., 2022) and being very different from other tourism types because of its physical attributes, which quickly attract the attention (Piqueras-Fiszman et al., 2013) of tourists.

2.2 Integrated Marketing Communications and the Customer-Integrated Marketing Communication (CIMC) model

The tourism industry is facing the challenge of improving its competitiveness by developing effective communication strategies. The phenomenon of fragmentation among media and audiences, coupled with the increase in the number of communication channels available (offline and online), has presented managers with fresh challenges deriving from the need to integrate and coordinate all the many messages that pass back and forth via those channels (Porcu et al., 2012). Here, the implementation of an integrated marketing communications (IMC) strategy helps ensure that the messages are coordinated and coherent with the desired positioning of the brand.

Nevertheless, the scientific community has emphasized the research performed to demonstrate or focus on the effect of communication on the user or taking the user's perspective (Suay-Pérez et al., 2022; Šerić et al., 2020). In this regard, the Customer-Integrated Marketing Communication (CIMC) model by Finne & Grönroos (2017) is a novel approach to customer ecosystem analysis.

Based on the most recent research in marketing communications (Bruhn & Schnebelen, 2017), the relational communication perspective emphasizes the outside-in process. This CIMC framework examines how users process and register messages in each context. It provides a more comprehensive view of the company and from sources of information. As a result of the complexity of the environment, CIMC is considered adequate to study the value of individual communication online (Bednarz, 2022; Xu et al., 2022), and combining big data with neuroscience can result in new insights into integrated communication among users (Finne & Grönroos, 2017).

According to the CIMC model, in the customer ecosystem the user is exposed to multiple messages from different sources (origins). Each of these messages has been processed in the user's mind. Here, both situational and temporal factors (past, present, and future) have a very significant influence on those integrations in the individual's mind, which determines the value of that communication. In this sense, the level of communication processing called the "individual core" in this adaptation integrates and provides context for the numerous messages from many sources. Several internal (i.e., age, attitude, needs, experiences, etc.) and external (i.e., economy, culture, family, trends, etc.) moderating factors determine the impact of this integration and the resulting "communication-in-use" is defined based on the customer's mental schemas (Norman & Bobrow, 1975). Therefore, communication value is determined by factors related to the individual core, affecting customers' perception of a product, service, or company, and their behavior (see Figure 3).

Despite its novelty, a number of recent studies have included this model to build their theoretical framework within the marketing communications field (Suay-Pérez et al.,

2022; Butkouskaya et al., 2021; Xu et al., 2022). Even in the tourism research area, some recent studies (i.e., Šerić & Mikulić, 2020) point out that IMC has not been adequately studied in terms of user perception, which is an essential component when it comes to effective social media communication, market segmentation (Suay-Pérez et al., 2022, Xu et al., 2021), brand positioning (Xu et al., 2021), and loyalty and relationship building (Butkouskaya et al., 2021, Šerić & Mikulić, 2020). While nowadays there are several definitions of IMC, most authors have emphasized its multidimensional nature. However, especially when it comes to adopting a customer-focused approach, the dominant dimension of IMC that emerges from the literature (Porcu et al., 2017; Suay et al., 2022) is message congruence, which will be examined from the tourist's perspective in the next sub-section.

2.3 The value of message congruence from the tourist's perspective

As mentioned earlier, message congruence is the most significant dimension of IMC, due to its influence on consumer behavior (Šerić et al., 2014, 2020) and, in particular, when it comes to services that have hardly any physical components, such as tourism. In that context, congruence is used as an element of differentiation (Elliott & Boshoff, 2008).

The analysis of the effects of multiple message integration on the consumer is highlighted by the CIMC model (Finne & Grönroos, 2017). Ewing (2009) highlights the significance of more empirical and practical assessments of message integration to understand the influence exerted by message relevance on perceptions. As noted by Schultz (1996) consumers will always integrate the various messages they receive in their minds, regardless of the source. Hence it is of interest to determine what effects the perception of messages (more vs. less congruent) has on tourists,

from among the myriad communications they receive via DMOs and eWOM in social networks.

On the other hand, the tourism literature has highlighted the benefits of consumer perceptions of congruence in the messages they receive, in terms of satisfaction, destination image, tourist perceived quality, and tourist loyalty (Šerić et al., 2014, 2020), and brand equity (Rodríguez-Molina et al., 2019). However, studies examining how a lack of congruence may affect tourists' information-processing in cognitive terms (visual attention, evaluation, and decision-making) are scarce. The current reality, in which tourists receive multiple and sometimes conflicting messages on social networks (both those controlled by DMOs and those conveyed by other users in the form of eWOM) renders this issue a topic of interest from both academic and practical viewpoints.

The research on message congruence in advertising is based on the idea that the advertisement should be in consonance with the context (that is, achieve thematic congruence) (Huang & Rundle-Thiele, 2014). Different approaches in the scientific literature have led to various theories and disparate results when comparing the effects of congruence on memory, attention, and attitude (Lee & Faber, 2007). Schema theory (Norman & Bobrow, 1975) plays an important role in explaining how individuals process new (unfamiliar) stimuli and integrate the new information they receive (congruence with their previous mental schemas). A schema is defined as an organized pattern of thought and preconceived ideas. When the mind processes new information that corresponds to an existing schema, it processes automatically (bottom-up), but if that information is absent or different from the existing schema it will require more complex processes (top-down) (ibid). This theory seems to offer a solid theoretical framework for understanding perceived message congruence or

incongruence, since the individual's previous schemas (when judging a message to be congruent or incongruent) can affect their memory and, therefore, their recognition of some messages vs. others.

This relationship between congruence and preexisting schemas has been analyzed in the advertising context. Here, it has been found that incongruent information is that which contradicts prior expectations regarding a schema. Thus, the subject may respond in one of two ways to information they perceive to be incongruent vis-à-vis their previous schemas (Schmidt & Hitchon, 1999): to ignore it or to assimilate it into an existing schema. Regarding its effects on memory, it has been found that congruent information needs little elaboration while incongruence needs more—and, consequently, more attention (Mandler, 1981). This can have a significant effect on how individuals process the messages they receive because incongruence is more readily remembered and, hence, it attracts attention, generating more effort and elaboration in the consumer's mind (Heckler & Childers, 1992).

However, the more specialized literature dealing with the impact of congruence on message effectiveness provides somewhat contradictory results (Bigné et al., 2021). Some studies have shown that congruence between advertising messages and context facilitates information-processing (MacInnis & Park, 1991), while incongruent messages produce greater effort (Dahlén et al., 2008), create novelty, and attract more attention (Underwood et al., 2007). In contrast, other studies have observed that incongruence increases the individual's effort in terms of visual attention while congruence increases message recall (Simola et al., 2013).

In light of the above literature review, our working assumption is that low congruence will require greater cognitive elaboration and greater mental effort on the part of the

user will be less pleasurable compared to high congruence. On this basis, the following research hypotheses are proposed:

H1. *The visual attention the user pays to the online posts will be greater and will be captured earlier in the case of low message congruence—measured in terms of higher fixation count (FC - H1a) and dwell time (DT - H1b) values and lower time to first fixation (TFF - H1c) values—compared to high message congruence*.

H2. *The user will rate posts with low congruence more negatively than those that are highly congruent*.

2.4 Differential information-processing between generational cohorts

By generational cohort, we mean a large collective of people born in a similar period who, having experienced broadly the same significant socioeconomic changes and formative events in their childhood and adolescence, will, over time, come to exhibit a shared set of traits, values, beliefs, and interests (Pendergast, 2010). These factors are critical in the formation of preferences, attention, and consumer behavior (Djamasbi et al., 2010). In the online environment, there are two such cohorts that cover the majority of the market (Pew Research Center, 2021) and who have experienced technology, the Internet, and smartphones from an early age: (1) Generation Y (also known as Millennials) and (2) Generation Z. Members of the Millennials cohort were born between 1981 and 1996, while those belonging to Generation Z were born between 1997 and 2005 (Pew Research Center, 2019).

The academic literature indicates that, although both cohorts were born and grew up with technology, they present different online behaviors. While Generation Z is more individualistic and knowledgeable about technology, more connected, communicative (Moore, 2012), and proactive (Monaco, 2018), Millennials are more

experiential, more tolerant, and less proactive (Monaco, 2018). These differences have also been found in terms of preferences and processing of elements that are part of the online environment. On the one hand, Millennials react positively to short textual messages with simple language and prefer large, appealing, and sophisticated images (Djamasbi et al., 2010). On the other, those belonging to Generation Z process many types of information simultaneously, devoting less time and attention to it (Dimitriou & AbouElgheit, 2019; Williams et al., 2010) and preferring simpler, more visual, and more authentic (less “professional”) content. Moreover, any activity performed by this generation is related to speed, that is their impulsive and impatient personality type causes them process information less attentively. Thus, the process triggered is less elaborated, resulting in a rapid execution of behavioral responses. To put in another way, a quick reaction in an online assessment (Alvarez-Ramos et al., 2019).

Likewise, previous eye-tracking studies have shown different visual patterns between generational cohorts. Krajina (2021) found that Millennial users generated higher fixations and durations than those from Generation Z. Similarly, Espigares-Jurado et al. (2020) found fewer fixations and a later first fixation among Generation Y subjects, compared to Generation X, when processing information hosted on a hotel website.

Such results seem to indicate that, due to its greater experience with technology and the online environment, the younger cohort (Z) processes information more quickly and with less effort than Millennials (Y).

Based on these premises, the following hypotheses are proposed:

H3. *The visual attention the Generation Z user pays to online posts will be lower—measured in terms of lower fixation count (FC - H3a), dwell time (DT - H3b), and time to first fixation (TFF - H3c) values—than in the case of the Millennial user.*

H4. *Users of Generation Z will evaluate online posts faster than Millennials.*

Many of the reports and studies that have looked at how these generational cohorts use social networks have focused mainly on reasons for use, time spent, preferences, type of activities, and such like (Pew Research Center, 2021). However, to the best of our knowledge, no previous study has explored how these cohorts process the information they receive or how they integrate the messages received from different information sources (DMO vs. eWOM) in tourism.

2.5 Additional value of eye-tracking tools in the study of tourist cognitive processing

There is abundant literature examining how messages function in the consumer's mind, be they delivered via traditional media or online (for instance, the seminal study by Cho & Khang, 2006). However, the academic research to date has focused on evaluating consumer behavior—the subject's response to the marketing stimuli they receive (expressed in terms of brand awareness, attitudes, and behavior). Despite this extensive research experience, there remain unanswered questions in this field, and, here, neuroscience may hold the key, according to certain authors (e.g., Plassmann et al., 2015). Under a neuroscientific approach, attentional techniques such as eye-tracking enable individuals' visual attention and perception to be analyzed; and, as such, these techniques have enjoyed significant development in the marketing communications field in recent years. From an academic point of view, this methodology is a prime source of knowledge about the cognitive processes related to information-processing (Maurage et al., 2020).

Attention is a cognitive function that, when the individual is faced with a complex scenario, is tasked with detecting only certain stimuli and screening-out others (Ling & Carrasco, 2006). On the one hand, it is thanks to attention that we can observe all the information in the environment and select what is relevant, either through processing guided by stimuli (bottom-up) or by goals (top-down). On the other hand, attention enables us to integrate all this information to interact with the environment and perform a behavior that is aligned with it (Kahneman, 2011). In the last decade, research dealing with the subject of attention has increased, due to the growing interest in understanding how consumers process marketing stimuli and, furthermore, because it is a core mechanism linked to other cognitive processes such as perception, memory, and executive processes (Popa et al., 2015). More specifically, Orquin & Loose (2013) demonstrate that consumer goals (top-down) and stimulus characteristics (bottom-up) can modulate eye movement. According to Wedel & Pieters (2017), fixations are predictors of consumer attitude, choice, and memory. In short, eye-tracking enables an immediate and precise analysis of the consecutive steps performed in cognitive processing, providing insights into the processes involved (Popa et al., 2015). Unlike other behavioral measures that only report the final outcome of processing, this approach provides important data on the temporal trajectory of cognitive processing (Maurage et al., 2020).

In tourism, the perceptual and attentional processing of images has been studied using this approach (Wang & Sparks, 2016), as have online hotel reviews (Espigares-Jurado et al., 2020); usability of web pages (Muñoz-Leiva et al., 2018a); tourism platforms (Bigné et al., 2021; Muñoz-Leiva et al., 2018a; 2018b); and banner effectiveness (Muñoz-Leiva et al., 2018b; Hernández-Méndez & Muñoz-Leiva, 2015). Some of these studies have revealed a similar ocular pattern when tourist

information in online media is processed, such as a greater capacity to attract the user attention.

3. Methodology

3.1 Experimental design

To address the hypotheses and research questions, a mixed experimental design was applied, with one within-subjects factor with two levels—high level of congruence (HC) vs. low level of congruence (LC)—and a between-group factor with two levels—users belonging to Generation Z vs. Millennials.

For this experiment, the simulated scenario was based on the Facebook page of a fictitious tourist destination, Buyuada, which included a post about the local gastronomy (text plus image) published by the destination manager (that is, representing the DMO) and a comment about that post from a user who had had a tourist experience in the destination (that is, representing eWOM) (see Figure 1). The user's comment was used to manipulate the degree of congruence: for HC, the user unequivocally corroborated the DMO's message and added a "happy face" emoticon; and, for LC, the comment introduced a nuance to indicate the user did not entirely agree with the DMO's message (without being negative), adding a "sad face" emoticon.

[insert Figure 1.]

The experimental stimuli were validated in advance in a pretest involving 113 Facebook users, using a 7-point Likert scale with 5 items relating to perceived congruence, adapted from Speed & Thompson (2000). The results showed the experimental conditions to be correctly manipulated, with the value for perceived

consistency being significantly higher in the case of HC than in LC ($\mu_{HC} = 5.84$; $\mu_{LC} = 4.93$; $p < 0.01$).

For the eye-tracking data analysis, we first needed to define the different areas of interest (AOI) to investigate. These were: (1) AOI1, referring to information from the destination manager (DMO); (2) AOI2, referring to the gastronomy images included in the DMO post; and (3) AOI3, referring to the user's comment about the DMO post (eWOM).

3.2 Data-collection procedure and sample characteristics

The fieldwork was conducted in the laboratory of a university research center specializing in neuroscience, between October 2020 and March 2021. Convenience sampling was used, drawing on the university's distribution lists to send out an invitation to participate. To be involved in the study, subjects had to meet a set of criteria: to be aged between 20 and 40 years old; to have good vision (either with or without glasses or contact lenses); to be a Facebook user; and to have undertaken some tourism activity within the preceding year. The participants were randomly assigned to the experimental conditions. Each session lasted approximately 25 minutes and the participants were given 10 euros to cover travel expenses.

Before starting the experimental task, each participant filled out a sociodemographic questionnaire that included a question on the concomitant variable "attitude toward culinary tourism". Next, the participants entered a separate room where the eye-tracking procedure was shown to them, and the process explained. Here, their gaze was calibrated according to a 9-point scale. The validation report about calibration showed the gaze position accuracy. If the accuracy it was poor, the software notifies a readjusting the oculars parameters, and a recheck fixation accuracy by

revalidating. When the ocular registration was stable on the target, the software validated the calibration as acceptable. At this point, the participant started the experimental task.

The eye-tracking system used was EyeLink 1000 Plus, featuring a 16 mm lens and a sampling rate of 500 Hz. With the help of a chin-rest, the same head position was ensured during the experiment. The experimental task was presented on an 820 mm x 860 mm monitor, with a resolution of 1920 x 1080 px. The software used in the presentation, stimulus synchronization, and data-recording was Experiment Builder (SR Research, 2004). For data-collection, Data Viewer (SR Research, 2002) was used.

At the end of the experiment, the subjects were asked to perform the additional task of rating the posts in terms of perceived congruence and “liking”.

The final sample comprised 64 Facebook users who had undertaken tourism in the preceding year, of which 38 belonged to Generation Z (age range: 20 - 25; gender: 25 female and 13 male; education level: 16 primary, 3 secondary and 19 superior; employment situation: 4 with employment and 34 students) and 26 to Generation Y/Millennials (age range: 26 - 35; gender: 15 female and 11 male; education level: 5 primary, 3 secondary and 18 superior; employment situation: 11 with employment, 4 unemployed and 11 students). The number of participants in each experimental group exceeds 20. Accordingly, the sampling followed the recommended minimum size criteria for eye-tracking studies (Holmqvist et al., 2011; Nielsen & Pernice, 2010).

3.3 Measures

To measure visual attention to the experimental stimuli, the most common ocular metrics were selected (Espigares-Jurado et al., 2020; Muñoz-Leiva et al., 2018a: Hernández-Méndez & Muñoz-Leiva, 2015;). First, the fixation count (FC) within a certain AOI was examined and subsequently complemented with other measures related to information-processing (Holmqvist et al., 2011), namely, time to first fixation (TFF) and dwell time (DT). TFF studies the attentional priority relative to the content being displayed: a shorter time indicates a faster capture of the target stimulus (Hochlauser et al., 2021; Holmqvist et al., 2011). Meanwhile, FC and DT provide detailed temporal information about the search process inherent in visual attention. Specifically, FC is described as the sum of fixations falling within the AOI and is an operational measure of attentional peaks related to reading depth, DT is defined as the sum of all durations in a particular AOI and is related to the level of cognitive processing in reading tasks (Holmqvist et al., 2011). Therefore, more time spent with more frequent fixations indicate a less efficient process in which more time is spent analyzing and interpreting the information (Hochlauser et al., 2021; Holmqvist et al., 2011). In summary, the TFF shows which element captures the user's attention, while the FC and DT show what kind of processing is carried out in conditions of high vs. low congruence.

Similarly, the response time was controlled, this being the amount of time the subject devotes to evaluating the post affectively (in milliseconds). In turn, affective responses were measured using a scale featuring Facebook emoticons (see Figure 2).

[insert Figure 2.]

To check *a posteriori* the correct manipulation of the congruence level, the perceived congruence scale developed by Speed & Thompson (2000) was used (see Appendix A.1). A 7-point (1: “I do not like it”; 7: “I like it”), 1-item semantic differential scale for “liking” (see Appendix A.2) adapted from (Rodríguez-Molina et al., 2019) was used to corroborate the possible confusion bias produced if some posts could be perceived as more appealing than others (and thus affect the dependent variables of visual attention, response time, and affective responses). Finally, the preexisting attitude toward culinary tourism was measured using a 7-point, 1-item Likert scale (1: “I do not like it”; 7: “I like it”) adapted from Rodriguez-Molina et al. (2019) and was added to the model as a covariate, given its possible effect on the dependent variables (see Appendix A.3).

4. Data-analysis

4.1 Manipulation and confounding checks

Although the pretest assured us that the experimental stimuli were appropriate, it is always advisable to examine the manipulation in the final sample once again, *a posteriori* (Oppenheimer et al., 2009). The mean differences test confirmed that individuals in the HC group perceived the posts to be significantly more congruent compared to the LC group ($\mu_{HC} = 6.33$; $\mu_{LC} = 4.75$; $p < 0.01$).

In addition to verifying the experimental within-subjects factor (it is not necessary to verify the between-subjects factor as it is determined by the age of the participant), in experimental designs, it is helpful to look for a possible confounding bias. Such biases are produced by other variables that, like the experimental factor, can affect the dependent measures (Perdue & Summers, 1986). In our case, message congruence was manipulated in a Facebook post that contained text and an image

posted by a DMO, together with a comment from a user; hence, the possibility that this post as a whole was perceived as positive or negative could affect the dependent measures. To test for this bias, the "liking" measure was used to corroborate differences in the two experimental conditions. The mean differences test did not detect any significant results between high and low congruence (μ_{HC} = 5.61; μ_{LC} = 5.24; $p > 0.05$), confirming homogeneity in liking across the two treatments.

4.2 Results

Taking into account the proposed factorial design and the preexisting attitude toward culinary tourism as a covariate, a repeated measures covariance analysis (ANCOVA) was performed to test the hypotheses and questions relating to eye-tracking measures and response times. Therefore, the model proposed in relation to H1, H3, and H4 and research questions RQ1 and RQ2 is expressed by the following formula:

$$y_{ij} = \mu + \alpha_i \cdot CONG + \alpha_j \cdot GEN + \beta \cdot ATTGT + \varepsilon_{ij}$$

Where y_{ij1} is the value of the dependent variable (eye-tracking or response-time metrics), μ is the population mean to estimate, α_i is the effect of the level of congruence (HC vs. LC), α_j is the effect of the generational cohort (Generation Z vs. Millennials), and β is the effect of the covariate ATTGT.

Finally, Figure 3 illustrates the relationships among the hypotheses (H1, H2, H3, and H4) and the research questions (RQ1, RQ2, and RQ3) considering the theoretical framework used.

[insert Figure 3.]

4.2.1 Effect of message congruence

H1 anticipated that, in the case of LC between DMO and eWOM messages, the user's attention will be greater and captured earlier—in terms of higher FC and DT values and lower TFF values—than in the case of HC. The ANCOVA results showed that, when the congruence between DMO and eWOM messages is low, the user's attention is captured significantly faster ($\mu_{TFF\text{-}AOI3}$ = 7484.03 ms), the time spent on information-processing is significantly ($\mu_{DT\text{-}AOI3}$ = 4230.40 ms), and there is a greater number of fixations ($\mu_{FC\text{-}AOI3}$ = 23.67) than in the case of high congruence ($\mu_{DT\text{-}AOI3}$ = 3082.27 ms; $\mu_{NF\text{-}AOI3}$ = 17.02; $\mu_{TFF\text{-}AOI3}$ = 10718.19 ms), thus confirming H1a, H1b, and H1c (see Table 1).

[insert Table 1.]

Heat maps illustrate visual attention related to location and duration of fixation on experimental stimuli (Rayner, 2009). On the black–grey color spectrum, black represents fixations with longer durations and grey represents shorter ones. In other words, in these heat maps, the different processing can be perceived in each experimental condition. Specifically, in HC, a broad visual search process can be observed, with less attention devoted to all areas of interest; and, in LC, a more localized search can be seen, with users spending more time, particularly in AOI3 (see Figure 4), as indicated in Table 1.

[insert Figure 4.]

H2 posits that users will evaluate LC posts more negatively than HC posts, and this was tested using the aforementioned "affective response" scale (Figure 2). The data analyzed using the Chi-square test showed a significant association between congruence and affective responses to the post (Chi-square: 63.33; df = 3; $p < 0.01$), such that users exposed to HC generated significantly more positive responses

(love) and fewer negative (sad/angry) responses to posts than those exposed to LC (see Figure 5).

[insert Figure 5.]

4.2.2 Effect of the generational cohort

H3 is concerned with the extent to which users belonging to different generational cohorts (Millennials vs. Gen Z) process the tourism information they receive via social networks, in terms of attentional level. The ANCOVA results show significant data in certain areas of interest (see Table 2). Specifically, significant differences were found in AOI2 (image featuring gastronomy content), which captured the attention of users from Generation Z users more quickly ($\mu_{TFF\text{-}AOI2}$ = 6703.36 ms) than from Millennials ($\mu_{TFF\text{-}AOI2}$ = 7851.76 ms). Similarly, Gen Z users presented significantly lower fixations ($\mu_{FC\text{-}AOI1}$ = 23.37) than Millennials ($\mu_{FC\text{-}AOI1}$ = 29.11) on AOI1 (DMO post).

Quasi-significant differences were found in relation to the DMO post (AOI1). The attention of Millennials took longer to capture ($\mu_{TFF\text{-}AOI1}$ = 5807.23 ms) and they required more processing time ($\mu_{DT\text{-}AOI1}$ = 4846.69 ms) than Generation Z ($\mu_{TFF\text{-}AOI1}$ = 5552.50 ms; $\mu_{DT\text{-}AOI1}$ = 4203.88 ms).

[insert Table 2.]

These data show that both generational cohorts process information on culinary tourism in a similar way. However, in the case of the images (AOI2) and the initial (textual) post by the DMO (AOI1), they do so somewhat differently: we observed that users belonging to Generation Z presented a high preference for images and a low preference for the textual format. This partially confirmed H3 (*H3a* and *H3c*).

H4 refers to the reaction capacity of Generation Z users to rate posts faster than Millennials. To test this hypothesis, an ANCOVA was used, the independent variable was the generational cohort, and the dependent variable was the time it took to evaluate the posts. The data obtained did not show significant differences in response times ($F = 0.448$; $df1 = 1$; $df2 = 73$; $p = 0.51$), with similar mean values in Generation Z users ($\mu = 1909.32$ ms) and the Millennials ($\mu = 1988.64$ ms), not being able to confirm H4.

4.2.3 Effect of message congruence according to generational cohort

RQ1 proposes a difference in visual attention between users belonging to Generation Z vs. Millennials under different message-congruence conditions (via the DMO vs. eWOM). A covariance analysis (ANCOVA) was carried out, in which the independent variables were congruence and generational cohort, and the dependent variables were the eye-tracking metrics. The attitude toward culinary tourism was again considered as a covariate.

Table 3 shows the results of the interaction effects between congruence and generational cohort for each of the metrics. Significant data were only detected in TFF for AOI2 (gastronomy image) and AOI3 (user comment/eWOM).

[insert Table 3.]

Millennial users took longer to fixate on the gastronomy image ($\mu_{TFF\text{-}AOI2} = 10077.50$ ms) and their attention was attracted earlier by the eWOM comment in LC ($\mu_{TFF\text{-}AOI3} = 6711.00$ ms) than in the case of Generation Z users ($\mu_{TFF\text{-}AOI2} = 8019.92$ ms; $\mu_{TFF\text{-}AOI3} = 8257.05$ ms). These findings indicate a different ocular pattern between the cohorts in LC. However, in HC, both generational cohorts processed the information in a similar way (see Figure 6).

[insert Figure 6.]

RQ2 explores the presence of differences in behavioral response between users from Generation Z and Millennials under different conditions of congruence between messages posted by the DMO and user comments (eWOM). The ANCOVA did not reveal any significant effects on the interaction ($F = 2,864$; $df1 = 1$; $df2 = 73$; $p = 0.095$), with similar reactions presented in both HC ($\mu_Z = 1839.44$ ms; $\mu_M = 1762.87$ ms) and LC ($\mu_Z = 1976,19$ ms; $\mu_M = 2214,40$ ms). These results indicated similar behaviors between the two generational cohorts in the evaluation of gastronomy-related posts on social networks.

Finally, RQ3 seeks to examine the differences in the affective responses of users from different generational cohorts toward posts with different degrees of congruence. The Chi-square test showed evaluations more positive in relation to HC than LC, and a significant association was observed among Generation Z users (Chi-square = 32.32; df = 3.40; $p < 0.01$) and Millennials (Chi-square: 32.96; df = 3; $p < 0.01$). However, no significant associations were found when comparing the cohorts in relation to HC (Chi-square = 5.00; df = 3; $p = 0.17$) and LC (Chi-square = 0.42; df = 3; $p = 0.94$), showing that belonging to one generational cohort or another does not influence affective responses to social network posts (see Figure 7).

[insert Figure 7.]

5. Conclusions and discussion

Challenging tourism situation derived from recent international events must be faced via more effective online communication strategies. Gastronomy contributes to the tourist experience and the competitiveness (Chaney & Ryan, 2012), while message-coherence provide a strong brand equity (Castañeda-García et al., 2020).

570 Furthermore, the processing of information across generations is an important issue
571 on social media (Dimitriou & AbouElgheit, 2019; Monaco, 2018).

572 The data obtained enable us to conclude that, when exposed to messages from
573 destinations and other users on social networks, users tend to present different
574 visual patterns and evaluations depending on the degree of congruence they
575 perceive between messages. Specifically, the results extracted from the AOI3 show
576 that, in conditions of low congruence, users tend to capture the content quickly and
577 make a greater cognitive effort. These conclusions are in line with the results of other
578 studies (Bigné et al., 2021; Simola et al., 2013). However, the present work reveals
579 the consequences in terms of value of this communication, at an affective level
580 (impression of the destination communication), of users perceiving different levels of
581 congruence between the messages they receive from different sources of
582 information (DMO vs. eWOM) about culinary tourism on social networks.

583 Concerning the different generational cohorts analyzed, no major differences were
584 observed, apart from certain preferences toward different informative stimuli in the
585 posts on culinary tourism. In consonance with other previous works (Dimitriou &
586 AbouElgheit, 2019), we found that Generation Z users devoted more attention to the
587 graphic content of the post, while Millennials captured the content quickly and
588 performed numerous (and lengthy) fixations on the textual part of the DMO’s post.
589 This corroborated the preference for different elements (visual vs. textual) between
590 generational cohorts in social media. In contrast, both cohorts performed similar
591 processing of the user comment (eWOM). In conclusion, these data suggest that
592 online communication about a destination's gastronomy is processed differently by
593 users belonging to different generations, but the value of that communication is
594 similar in terms of when assessing these posts.

Finally, this section will discuss all the research questions posed by the research questions.

The findings revealed a very powerful effect in TFF: Millennials were more agile, attention-wise, in capturing the user's message in LC conditions, even before processing it. One possible explanation for this might be that, thanks to parafoveal processing (Schotter et al., 2012), the user detects its content before it is read. In this sense, the emoticon that accompanies the comment behaves as a contextual key that indicates the type of information to be processed. These data would suggest that Millennials consider this information highly relevant and, hence, the first fixation occurs via a process guided by bottom-up stimuli, showing a different value of Millennial users for gastronomic communication in which the eWOM uses emoticons to give their opinion on a situation in which they do not agree with that communicated by the tourism manager.

The results achieved in behavioral response indicated equally rapid decision-making in both cohorts in presence of high and low congruence messages, suggesting that belonging to a generational cohort does not influence the communication-in-use concerning the integration of messages with different levels of congruence so that the result of the value of that communication is similar (see RQ3).

The discovery obtained in affective responses showed a lower number of positive evaluations and a higher number of negative evaluations toward LC messages were found, revealing the same impression (see RQ2) of the messages independently of the cohort to which it belongs. From this finding, it can be deduced that messages that are not congruent with the information provided by the DMO seem to have a negative influence on perception (Marder et al., 2021), choice, and destination visit

intention (Castañeda-García et al., 2020; Šerić et al., 2014), regardless of which generational cohort the individual belongs to.

6. Theoretical and practical implications

A number of important theoretical contributions are provided by this study regarding online communication strategies to destination marketing. First, this study provides a better understanding of how customers form communication-in-use by integrating and making sense of messages from various sources of information through the CIMC (Finne & Grönroos, 2017). It is essential to investigate this process, taking into account the ecosystems (situational and temporal factors) and the day-to-day life of the customers when analyzing the value of the communication in use by the user (impression and decision). On the other hand, tourism managers responsible for online communication must accept that the users have become an active part of the communication process. Therefore, studying their processing and behavior brings benefits to effective and efficient online communication. This approach is not about changing the task of communication. But about how tourism managers should relate to users and their ecosystems.

Second, it expands the extant knowledge-base about the integration of messages with different degree of congruence in users via social networks in both cognitive (visual attention involved in processing a destination's online communication and decision on the value of that communication) and affective (preference or impression of that communication) terms. The study also sheds light on the effect of congruence on the user's mind, thus addressing an issue on which the scientific community, to date, has highlighted inconclusive results (Bigné et al., 2021; Dahlén et al., 2008; Simola et al., 2013; Underwood et al., 2007). Previous findings on the positive effect

643 of a strategy of congruent communication between messages from destinations
644 (Castañeda-García et al., 2020) and tourism companies (Šerić et al., 2014) on brand
645 equity formation are reinforced here, with social networks considered an essential
646 communication vehicle. Furthermore, the neuroscientific approach applied in the
647 present eye-tracking study provides additional value to the classic behavioral
648 research conducted, to date, in tourism. Specifically, the findings provide new
649 insights into certain cognitive processes (perception, attention, evaluation, choice,
650 and decision-making) involved in the processing of online tourist information.

651 Third, this work breaks new ground by advancing on the scant extant knowledge
652 concerning the influence of users' belonging to a given generational cohort (in this
653 case, Generation Z vs. Millennials) when they process and integrate the information
654 about tourist destinations that they obtain via social networks. This aspect of the
655 work takes into account previous findings on differences in visual patterns between
656 generational cohorts (Espigares-Jurado et al., 2020; Krajina, 2021).

657 In addition, several interesting implications can be drawn from this study with respect
658 to online communication strategies for destination managers. Social networks have
659 enabled companies in the sector not only to inform the market about their
660 competitive advantages but also to listen and respond to comments made via these
661 networks by users. In this regard, the findings of this research demonstrate the
662 relevance of user comments to tourists when they process the information they
663 receive, pay attention to it, and generate positive affective responses. Therefore,
664 destination managers face the challenge of implementing online communication
665 strategies that help achieve high congruence between those messages, that they
666 can control and those they cannot (in this case, those deriving from eWOM). This
667 requires continuous monitoring of social networks to identify any messages that are

incongruent with the desired positioning of the destination. To intervene in the conversation and attempt to mitigate the potential negative effects on affective responses. The current digital media reality in which tourists operate is beyond the control of tourism managers. Therefore, it is crucial for the destinations' competitiveness, to implement measures that ensure the congruence of messages between different media, as well as mechanisms that enable active listening, to immediately pick up on consumer opinions or concerns and respond directly to them.

Communication-in-use has changed the way in which we communicate. Its multi-contextual, customer-oriented approach reveals the need to understand the real value of user communication. In this sense, tourism managers should make an effort to facilitate the creation of value for the user by considering the communication in individual use obtained from interaction, neuroscientific studies, and big data analysis. To this end, companies in the sector need to take an interest in the new knowledge gained from these procedures to engage in the value formation of its communication, especially with the processes related to communication-in-use and the value of that communication, which are crucial to understanding the user's processing more efficient and effective online communication strategies (Finne & Grönroos, 2017).

Returning to gastronomy, this is clearly a resource that is widely used by destinations as an element of appeal for tourists (Chen & Huang, 2016) and for generating user comments (Björk & Kauppinen-Räisänen, 2016). As Galí & Donaire (2005) point out, the visual appeal of gastronomic elements is key to the formation of a destination image and a favorable predisposition toward the destination. In this regard, tourism managers and companies in the sector must prioritize the use of gastronomic references and resources within their communication strategies on

social networks as a way of attracting the attention of users as well as improving preferences and visit intention (Cheung et al., 2014). These graphic gastronomic elements are especially recommended for the younger generations since they will quickly capture their attention, translating into greater preferences and the generation of eWOM.

Related to this point, the present results in terms of visual and textual processing (Generation Z vs. Millennials) should give tourism managers food for thought and prompt them to reflect on the suitability of the design of their communication strategies in digital media, according to the segmentation of tourists and generational cohorts. This approach will help improve the effectiveness of their messages at a cognitive level and will enhance the positioning of the destination.

A final reflection derived from this study is concerned with how marketing professionals can take greater advantage of comments generated by users depending on the generational cohort to which they belong. The findings obtained here show that Millennials' attention to user comments presenting a low level of congruence with the DMO information is captured more quickly than that of Generation Z. In this sense, if tourism managers took advantage of this opportunity to draw the attention of these users and, in turn, were able to effectively manage these comments by taking actions aimed at re-focusing the situation, adding additional information, and even by providing solutions or alternatives. This would encourage the creation of conversations and would mitigate the possible negative effects derived from the lack of congruence.

7. Limitations and future research

This study presents certain limitations, starting with the fact that only two Facebook posts were created for each experimental condition. Future studies could include a better number of (and broader variety) gastronomy-related stimuli combining contents provided by managers and users. Likewise, it would be very interesting to analyze the type of the communication such as video, story, reels, etc. All this in order to measure online communication, that the user perceives in social media about the destination, in a more integrated way in each of the generational cohorts.

Second, we used just one comment from a user to generate eWOM, when the reality of communication on social networks is that it often comprises a multitude of comments showing different degrees of congruence with the original post. We encourage other researchers to design experimental conditions that include higher volumes of feedback.

Third, the frame of reference in this research is Facebook. It would be very interesting to examine whether the use of other social networks (such as Instagram or TikTok) combined with different user profiles would generate different results in terms of information-processing, decision-making, and affective responses.

Finally, in light of the findings we obtained, research questions arise that could encourage future studies. For instance, posts that include larger, more sophisticated, and more appealing images that are also more authentic (that is, taken by consumers rather than professionals) have been found by other studies to be preferred by social network users (Dimitriou & AbouElgheit, 2019), as are those coupled with a greater or lesser degree of textual description (Djamasbi et al., 2010). Therefore, in future studies, manipulating the use of such “authentic” images would

help determine the true extent of preferences toward different types of elements (visual and textual) in each generational cohort using social networks. Such studies could provide relevant conclusions on the effectiveness of communication strategies in social networks aimed at different target audiences.

Appendix A. Measurement scales

A.1 Perceived congruence scale

Please indicate the extent to which you agree with the following statement about the information presented in image X	Entirely Disagree						Entirely agree
The message posted by the destination and the user's response convey similar things.	①	②	③	④	⑤	⑥	⑦

A.2 Liking scale

In general, the opinion you have of this post is:							
Dislike	①	②	③	④	⑤	⑥	⑦ Like

A.3 Preexisting attitude toward tourism type scale

Please indicate your opinion of this type of tourism (1: Entirely disagree; 7: Entirely agree)							
I like culinary tourism	①	②	③	④	⑤	⑥	⑦

References

Álvarez-Ramos, E., Heredia-Ponce, H., & Romero-Oliva, MF (2019). La Generación Z y las redes sociales: Una visión desde los adolescentes en España. *Espacios, 40*(20), 9 (in Spanish). http://bdigital2.ula.ve:8080/xmlui/654321/7597

Bednarz, J. (2022). Models of communication and building relations between producer and consumer in the digital era (from monologue to integrated marketing dialogue). *European Consumers in the Digital Era: Implications of Technology, Media and Culture on Consumer Behavior.* https://doi.org/10.4324/9781003263685-4

Bigné, E., Simonetti, A., Ruiz, C., & Kakaria, S. (2021). How online advertising competes with user-generated content in TripAdvisor: A neuroscientific approach. *Journal of Business Research, 123,* 279-288. https://doi.org/10.1016/j.jbusres.2020.10.010

Björk, P. & Kauppinen-Räisänen, H. (2016). Local food: A source for destination attraction. *International Journal of Contemporary Hospitality Management, 28*(1), 177-194. https://doi.org/10.1108/IJCHM-05-2014-0214

Bruhn, M. & Schnebelen, S. (2017). Integrated marketing communication–from an instrumental to a customer-centric perspective. *European Journal of Marketing*, 51(3), 464-489. https://doi.org/10.1108/EJM-08-2015-0591

Butkouskaya, V., & Llonch-Andreu, J. (2021). The impact of customer performance on IMC outcomes: firm size moderation in the inter-country context. *Journal of Economics, Finance and Administrative Science, 26*(52), 358-375. https://doi.org/10.1108/JEFAS-10-2021-0207

Çalişkan, O., & Yilmaz, G. (2016). Gastronomy and tourism. *Global issues and trends in tourism, 32*, 50.

Castañeda-García, J.A., Frías-Jamilena, D.M., Del Barrio-García, S., & Rodríguez-Molina, M.A. (2020). The effect of message consistency and destination-positioning brand strategy type on consumer-based destination brand equity. *Journal of Travel Research, 59*(8), 1447-1463. https://doi.org/10.1177/0047287519881506

779 Chan, N.L. & Guillet, B.D. (2011). Investigation of social media marketing: How does the hotel industry
780 in Hong Kong perform in marketing on social media websites? *Journal of Travel & Tourism*
781 *Marketing, 28*(4), 345-368. https://doi.org/10.1080/10548408.2011.571571

782 Chaney, S. & Ryan, C. (2012). Analyzing the evolution of Singapore's World Gourmet Summit: An
783 example of gastronomic tourism. *International Journal of Hospitality Management, 31*(2), 309-318.
784 https://doi.org/10.1016/j.ijhm.2011.04.002

785 Chen, Q. & Huang, R. (2016). Understanding the importance of food tourism to Chongqing, China.
786 *Journal of Vacation Marketing, 22*(1), 42-54. https://doi.org/10.1177/1356766715589427

787 Cheung, C.M., Xiao, BS, & Liu, I.L. (2014). Do actions speak louder than voices? The signaling role of
788 social information cues in influencing consumer purchase decisions. *Decision Support Systems, 65,*
789 50-58. https://doi.org/10.1016/j.dss.2014.05.002

790 Cho, C.H. & Khang, H.K. (2006). The state of Internet-related research in communications, marketing
791 and advertising: 1994–2003. *Journal of Advertising, 35*(3), 143–163.
792 https://doi.org/10.2753/JOA0091-3367350309

793 Clemente-Ricolfe, J.S., Roig-Merino, B., Valencia-Marzo, S., & Rabadán-Ferrandis, M.T. (2008).
794 Tourist attitude toward the local gastronomy of tourists: Dimensions and market segmentation.
795 *Journal of Tourism and Cultural Heritage, 6*(2), 189-198.
796 https://www.cabdirect.org/cabdirect/abstract/20083253467

797 Curiel, E. (2015). *Gastronomic and Oenological Tourism.* Bookstore-Publisher Dykinson.

798 Dahlén, M., Rosengren, S., Törn, F., & Ohman, N. (2008). Could placing ads wrong be right?:
799 Advertising effects of thematic incongruence. *Journal of Advertising, 37*(3), 57–67.
800 https://doi.org/10.2753/JOA0091-3367370305

801 Dimitriou, C.K. & AlbouElgheit, E. (2019). Understanding Generation Z's social decision-making in
802 travel. *Tourism and Hospitality Management, 25*(2), 311-334. https://doi.org/10.20867/thm.25.2.4

803 Djamasbi, S., Siegel, M., & Tullis, T. (2010). Generation Y, web design, and eye-tracking. *International*
804 *Journal of Human-Computer Studies, 68*(5), 307-323. https://doi.org/10.1016/j.ijhcs.2009.12.006

Dijkmans, C., Kerkhof, P., & Beukeboom, C.J. (2015). A stage to engage: Social media use and corporate reputation. *Tourism Management, 47,* 58-67. https://doi.org/10.1016/j.tourman.2014.09.005

Elliott, R. & Boshoff, C. (2008). The influence of business orientations in small tourism businesses on the success of integrated marketing communication. *Management Dynamics: Journal of the Southern African Institute for Management Scientists, 17*(4), 32-46. https://hdl.handle.net/10520/EJC69741

Espigares-Jurado, F.M., Muñoz-Leiva, F., Correia, M., Sousa, C., Ramos, C., & Faísca, L. (2020). Visual attention to the main image of a hotel website based on its position, type of navigation and belonging to Millennial generation: An eye-tracking study. *Journal of Retailing and Consumer Services, 52*(January), 101906. https://doi.org/10.1016/j.jretconser.2019.101906

Ewing, M.T. (2009). Integrated Marketing Communications measurement and evaluation. *Journal of Marketing Communications, 15*(2-3), 103-117. https://doi.org/10.1080/13527260902757514

Finne, Å., & Grönroos, C. (2017). Communication-in-use: customer-integrated marketing communication. *European Journal of Marketing, 51*(3), 445-463. https://doi.org/10.1108/EJM-08-2015-0553

Frost, W., Frost, J., Best, G., Williams, K., Strickland, P. & Lade, C. (2016). *Gastronomy, Tourism and the Media.* Bristol: Channel View.

Gali, N. & Donaire, J.A. (2005). The social construction of the image of Girona: A methodological approach. *Tourism Management, 26*(5), 777-785. https://doi.org/10.1016/j.tourman.2004.04.004

Guillet, B.D., Kucukusta, D., & Liu, L. (2016). An examination of social media marketing in China: how do the top 133 hotel brands perform on the top four Chinese social media sites?*Journal of Travel & Tourism Marketing, 33*(6), 783-805. https://doi.org/10.1080/10548408.2015.1064337

Heckler, S.E. & Childers, T.L. (1992). The role of expectancy and relevance in memory for verbal and visual information: What is incongruity? *Journal of Consumer Research, 18*(4), 475-492. https://doi.org/10.1086/209275

Hernández-Méndez, J. & Muñoz-Leiva, F. (2015). What type of online advertising is most effective for eTourism 2.0? An eye-tracking study based on the characteristics of tourists. *Computers in Human Behavior, 50,* 618–625. https://doi.org/10.1016/j.chb.2015.03.017

Hochhauser, M., Aran, A., & Grynszpan, O. (2021). Investigating attention in young adults with autism spectrum disorder (ASD) using change blindness and eye-tracking. *Research in Autism Spectrum Disorders, 84,* 101771. https://doi.org/10.1016/j.rasd.2021.101771

Holmqvist, K., Nyström, M., Andersson, R., Dewhurst, R., Jarodzka, H., & Van de Weijer, J. (2011). *Eye-tracking: A comprehensive guide to methods and measures.* OUP Oxford.

Huang, Y.T. & Rundle-Thiele, S. (2014). The moderating effect of cultural congruence on the internal marketing practice and employee satisfaction relationship: An empirical examination of Australian and Taiwanese born tourism employees. *Tourism Management, 42,* 196-206. https://doi.org/10.1016/j.tourman.2013.12.005

Huete-Alcocer N. & Valero-Tévar, M.Á. (2021). Impact of information sources on promoting tourism in a rural region: The case of the Roman villa of Noheda. *Sustainability, 13*(14), 8038. https://doi.org/10.3390/su13148038

Kahneman, D. (2011). *Thinking, Fast and Slow.* Farrar, Straus and Giroux, New York.

Kivela, J. & Crotts, JC (2006). Tourism and gastronomy: Gastronomy's influence on how tourists experience a destination. *Journal of Hospitality and Tourism Research, 30*(3), 354-377. https://doi.org/10.1177/1096348006286797

Krajina, A. (2021). From the attention to the recall: looking behind online consumer response. *Behaviour & Information Technology,* 1-16. https://doi.org/10.1080/0144929X.2021.1988146

Kumar, S. & Deshmukh, R. (2020). *Culinary Tourism Market Report.* 1-250.

Lee, M. & Faber, R.J. (2007). Effects of product placement in online games on brand memory: A perspective of the limited-capacity model of attention. *Journal of Advertising, 36*(4), 75-90. https://doi.org/10.2753/JOA0091-3367360406

Ling, S. & Carrasco, M. (2006). Sustained and transient covert attention enhance the signal via different contrast response functions. *Vision Research, 46*(8), 1210-1220. https://doi.org/10.1016/j.visres.2005.05.008

López-Guzmán, T., Lotero, C.P.U., Gálvez, J.C.P., & Rivera, I.R. (2017). Gastronomic festivals: Attitude, motivation and satisfaction of the tourist. *British Food Journal, 119*(2), 267-283. https://doi.org/10.1108/BFJ-06-2016-0246

Luo, Q. & Zhong, D. (2015). Using social network analysis to explain communication characteristics of travel-related electronic word-of-mouth on social networking sites. *Tourism Management, 46,* 274-282. https://doi.org/10.1016/j.tourman.2014.07.007

MacInnis, D.J. & Park, C.W. (1991). The differential role of characteristics of music on high-and low-involvement consumers' processing of ads. *Journal of Consumer Research, 18*(2), 161-173. https://doi.org/10.1086/209249

MacKay, K.J. & Couldwell, C.M. (2004). Using visitor-employed photography to investigate destination image. *Journal of Travel Research, 42*(4), 390-396. https://doi.org/10.1177/0047287504263035

Maeran, R. & Mignemi, G. (2021). The role of consumer-brand engagement in tourism consumption: From user-generated content to my generated content. *Testing, Psychometrics, Methodology in Applied Psychology, 4*(28), 505-520. https://doi.org/10.4473/TPM28.4.7

Mandler, G. (1981). *The Structure of Value: Accounting for taste* (3-36). Center for Human Information-processing, Department of Psychology, University of California, San Diego.

Marder, B., Erz, A., Angell, R., & Plangger, K. (2021). The role of photograph aesthetics on online review sites: Effects of management-versus traveler-generated photos on tourists' decision making. *Journal of Travel Research, 60*(1), 31-46. https://doi.org/10.1177/0047287519895125

Maurage, P., Masson, N., Bollen, Z., & D'Hondt, F. (2020). Eye-tracking correlates of acute alcohol consumption: A systematic and critical review. *Neuroscience and Biobehavioral Reviews, 108,* 400-422. https://doi.org/10.1016/j.neubiorev.2019.10.001

Monaco, S. (2018). Tourism and the new generations: Emerging trends and social implications in Italy. *Journal of Tourism Futures, 4*(1), 7-15. https://doi.org/10.1108/JTF-12-2017-0053

Moore, M. (2012). Interactive media usage among millennial consumers. *Journal of Consumer Marketing, 29*(6), 436-444. https://doi.org/10.1108/07363761211259241

885 Muñoz-Leiva, F., Hernández-Méndez, J., & Gómez-Carmona, D. (2018a). Measuring advertising
886 effectiveness in Travel 2.0 websites through eye-tracking technology. *Physiology and Behavior,*
887 *200*(1), 83-95. https://doi.org/10.1016/j.physbeh.2018.03.002

888 Muñoz-Leiva, F., Liébana-Cabanillas, F.J., & Hernández-Méndez, J. (2018b). Etourism advertising
889 effectiveness: Banner type and engagement as moderators. *Journal of Services Marketing, 32*(4),
890 462-475. https://doi.org/10.1108/JSM-01-2017-0039

891 Muñoz-Leiva, F., Rodríguez-López, M.E., & García-Martí, B. (2022). Discovering prominent themes of
892 the application of eye-tracking technology in marketing research. *Management Notebooks, 22*(1),
893 97-113. https://doi.org/10.5295/cdg.211516fm

894 Nielsen, J., & Pernice, K. (2010). *Eye tracking web usability.* New Riders.

895 Norman, D.A. & Bobrow, D.G. (1975). On data-limited and resource-limited processes. *Cognitive*
896 *Psychology, 7*(1), 44-64. https://doi.org/10.1016/0010-0285(75)90004-3

897 Oppenheimer, D.M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting
898 satisficing to increase statistical power. *Journal of Experimental Social Psychology, 45*(4), 867-872.
899 https://doi.org/10.1016/j.jesp.2009.03.009

900 Orquin, J.L. & Loose, S.M. (2013). Attention and choice: A review on eye movements in decision
901 making. *Acta Psychologica, 144*(1), 190-206. https://doi.org/10.1016/j.actpsy.2013.06.003

902 Pendergast, D. (2010). Getting to know the Y Generation. In Benckendorff, P., Moscardo, G., &
903 Pendergast, D. (eds), *Tourism and Generation Y*, pp. 1-15. CAB International.

904 Perdue, B.C. & Summers, J.O. (1986). Checking the success of manipulations in marketing
905 experiments. *Journal of Marketing Research, 23*(4), 317-326.
906 https://doi.org/10.1177/002224378602300401

907 Pew Research Center (2019). Defining generations: Where Millennials end and Generation Z begins.
908 https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-
909 begins/ (last accessed June 30, 2022).

910 Pew Research Center (2021). Social Media Fact Sheet https://www.pewresearch.org/internet/fact-
911 sheet/social-media/ (last accessed June 30, 2022).

912 Phelan, K., Chen, H. T., & Haney, M. (2013). Like and check-in: How hotels use Facebook as an
913 effective marketing tool. *Journal of Hospitality and Tourism Technology, 4*(2), 134-154.
914 https://doi.org/10.1108/JHTT-Jul-2012-0020

915 Piqueras-Fiszman, B., Varela, P., & Fiszman, S. (2013). How does the science of physical and sensory
916 properties contribute to gastronomy and culinary art?. *Journal of Culinary Science & Technology,*
917 *11*(1), 96-109. https://doi.org/10.1080/15428052.2012.728983

918 Plassmann, H., Venkatraman, V., Huettel, S., & Yoon, C. (2015). Consumer neuroscience: Applications,
919 challenges, and possible solutions. *Journal of Marketing Research, 52*(4), 427-435.
920 https://doi.org/10.1509/jmr.14.0048

921 Popa, L., Selejan, O., Scott, A., Muresanu, D.F., Balea, M., & Rafila, A. (2015). Reading beyond the
922 glance: Eye-tracking in neurosciences. *Neurological Sciences, 36,* 683-685.
923 https://doi.org/10.1007/s10072-015-2076-6

924 Porcu, L., Del Barrio-Garcia, S., & Kitchen, PJ (2012). How Integrated Marketing Communications (IMC)
925 works? *Communication and Society, 25*(1), 7-34. https://hdl.handle.net/10171/27370

926 Rayner, K. (2009). Eye movements and attention in reading, scene perception, and visual search. *The*
927 *Quarterly Journal of Experimental Psychology, 62*(8), 1457-1506. https://doi.org/10.1016/S0926-
928 907X(05)80003-0

929 Rodríguez-Molina, M.A., Frías-Jamilena, D., Del Barrio-García, S., & Castañeda-García, J.A. (2019).
930 Destination brand equity-formation: Positioning by tourism type and message consistency. *Journal*
931 *of Destination Marketing & Management, 12*(June), 114-124.
932 https://doi.org/10.1016/j.jdmm.2019.03.010

933 Savin, G.D., Flește̦riu, C., & Batrancea, L. (2021). Eye-tracking and tourism research: A systematic
934 literature review. *Journal of Vacation Marketing, 28*(3), 1-18.
935 https://doi.org/10.1177/13567667211053387

936 Schmidt, T.L. & Hitchon, J.C. (1999). When advertising and public relations converge: An application
937 of schema theory to the persuasive impact of alignment ads. *Journalism & Mass Communication*
938 *Quarterly, 76*(3), 433-455. https://doi.org/10.1177/107769909907600303

939 Schotter, E.R., Angele, B., & Rayner, K. (2021). Parafoveal processing in reading. *Attention, Perception*
940 *& Psychophys, 74,* 5-35. https://doi.org/10.3758/s13414-011-0219-2

941 Schultz, D.E. (1996). The inevitability of integrated communications. *Journal of Business Research,*
942 *37*(3), 139-146. https://doi.org/10.1016/S0148-2963(96)00063-X

943 Šerić, M., Gil-Saura, I., & Ruiz-Molina, M.E. (2014). How can integrated marketing communications and
944 advanced technology influence the creation of customer-based brand equity? Evidence from the
945 hospitality industry. *International Journal of Hospitality Management, 39*(May), 144-156.
946 https://doi.org/10.1016/j.ijhm.2014.02.008

947 Šerić, M., & Mikulić, J. (2020). Building brand equity through communication consistency in luxury
948 hotels: an impact-asymmetry analysis. *Journal of Hospitality and Tourism Insights*, 3(4), 451-468.
949 https://doi.org/10.1108/JHTI-11-2019-0119

950 Šerić, M., Ozretić-Došen, Đ., & Škare, V. (2020). How can perceived consistency in marketing
951 communications influence customer–brand relationship outcomes? *European Management*
952 *Journal*, 38(2), 335-343. https://doi.org/10.1016/j.emj.2019.08.011

953 Silkes, C.A., Cai, L.A. & Lehto, X.Y. (2013). Marketing to the culinary tourist. *Journal of Travel Tourism*
954 *Marketing, 30*(4), 335-349. https://doi.org/10.1080/10548408.2013.784151

955 Simola, J., Kivikangas, M., Kuisma, J., & Krause, C.M. (2013). Attention and memory for newspaper
956 advertisements: Effects of ad–editorial congruency and location. *Applied Cognitive Psychology,*
957 *27*(4), 429–442. https://doi.org/10.1002/acp.2918

958 Speed, R., & Thompson, P. (2000). Determinants of sports sponsorship response. *Journal of the*
959 *academy of marketing science, 28*(2), 226-238. https://doi.org/10.1177/0092070300282004

960 Stone, M. J., Migacz, S., & Sthapit, E. (2022). Connections Between Culinary Tourism Experiences and
961 Memory. *Journal of Hospitality & Tourism Research, 46*(4), 797–807.
962 https://doi.org/10.1177/1096348021994171

963 Suay-Pérez, F., Penagos-Londoño, G. I., Porcu, L., & Ruiz-Moreno, F. (2022). Customer perceived
964 integrated marketing communications: A segmentation of the soda market. *Journal of Marketing*
965 *Communications, 28*(4), 448-464. https://doi.org/10.1080/13527266.2021.1915853

966 Underwood, G., Humphreys, L., & Cross, E. (2007). Congruency, saliency and gist in the inspection of
967 objects in natural scenes. In van Gompel, R.P.G., Fischer, M.H., Murray, W.S., & Hill, R.L. (eds),
968 *Eye Movements: A window on mind and brain*, pp. 563-580. Oxford, UK: Elsevier.
969 https://doi.org/10.1016/B978-008044980-7/50028-8

970 Uşaklı, A., Koç, B., & Sönmez, S. (2017). How 'social' are destinations? Examining European DMO
971 social media usage. *Journal of destination marketing & management, 6*(2), 136-149.
972 https://doi.org/10.1016/j.jdmm.2017.02.001

973 UNWTO (2017). Second Global Report on Gastronomy Tourism. https://www.e-
974 unwto.org/doi/book/10.18111/9789284418701 (last accessed June 30, 2022).

975 UNWTO (2019). Guidelines for the Development of Gastronomy Tourism. https://www.e-
976 unwto.org/doi/book/10.18111/9789284420957 (last accessed February 21, 2022).

977 Wang, Y. & Sparks, B.A. (2016). An eye-tracking study of tourism photo stimuli: Image characteristics
978 and ethnicity. *Journal of Travel Research, 55*(5), 588-602.
979 https://doi.org/10.1177/0047287514564598

980 WTTC (2022). Economic Impact 2022. https://wttc.org/Portals/0/Documents/Reports/2022/EIR2022-
981 Global%20Trends.pdf (last accessed January 30, 2023).

982 Wedel, M. & Pieters, R. (2017). A review of eye-tracking research in marketing. *Review of Marketing*
983 *Research, 4,* 123-147.

984 Williams, K.C., Page, R.A., Petrosky, A., & Hernandez, E.H. (2010). Multi-generational marketing:
985 Descriptions, characteristics, lifestyles, and attitudes. *Journal of Applied Business and Economics,*
986 *11*(2), 21-36. https://www.researchgate.net/publication/264877591

987 World Economic Forum. (2019). The Travel & Tourism Competitiveness Report 2019.
988 https://www3.weforum.org/docs/WEF_TTCR_2019.pdf (last accessed June 30, 2022).

989 Xu, Z., Vail, C., Kohli, A. S., & Tajdini, S. (2021). Understanding changes in a brand's core positioning
990 and customer engagement: A sentiment analysis of a brand-owned Facebook site. *Journal of*
991 *Marketing Analytics, 9*(1), 3-16. https://doi.org/10.1057/s41270-020-00099-z

992

Figure 1. Experimental scenarios featuring the areas of interest on the Facebook page (AOI1, AOI2, and AOI3).

Description

High level (A and B) and low level of congruence (C and D) between DMO and eWOM messages. Translation of the posts: (A) - DMO: Do you know the restaurant *Oasis de Buyuada*? It's the most recommended place to try the typical dishes; eWOM: An unforgettable experience. An amazing cuisine, with fresh and high-quality products. (B) - DMO: We suggest you try the most typical dish of the region, "filleted sole with crayfish and cheese". You will love it!; eWOM: Highly recommended, it was a pleasure to taste this dish, which is typical of the local gastronomy. (C) - DMO: If you want to taste the local food with touches of haute cuisine. We recommend you the restaurant "La Gran Marisma"; eWOM: The food was wonderful, we would have liked the portions to be a bit larger. (D) - DMO: The typical Buyuada coastal food is accompanied by a delicious and smooth homemade cashew nut sauce; eWOM: Indeed, that typical sauce was very tasty, but they put it in all the dishes.

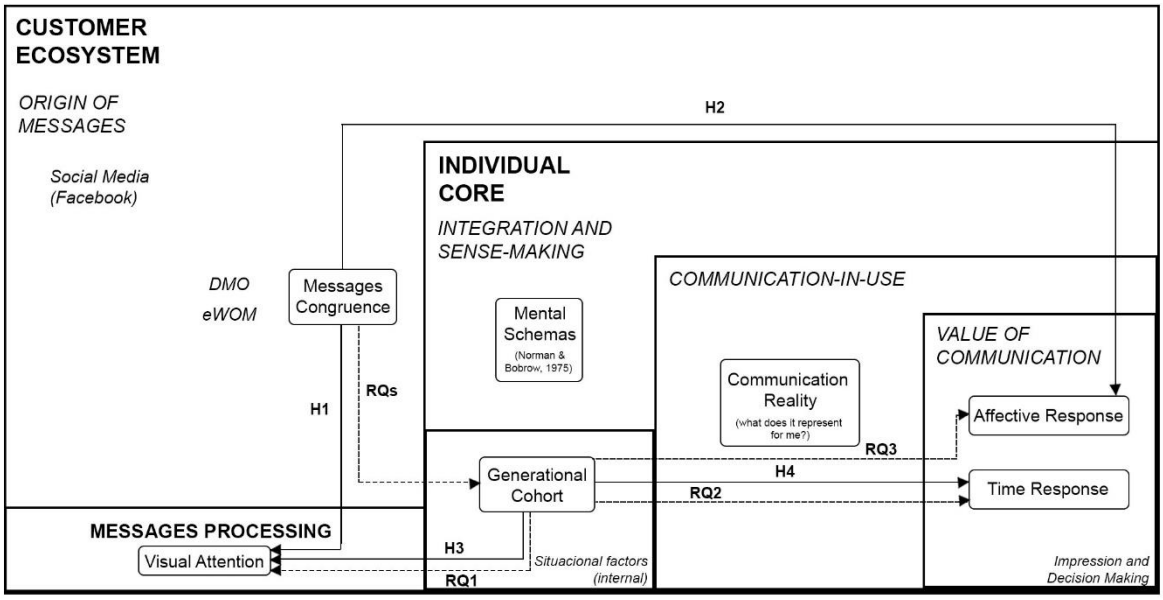
Figure 2. Affective response scale.

(1) (2) (3) (4)

Description

From left to right: (1) very negative response (“angry face”); (2) negative response (“sad face”); (3) positive response (“like”); and (4) very positive response (“love”).

Figure 3. Theoretical framework with the proposed hypotheses and research questions.



Description

Adaptation of the CIMC model of Finne & Grönroos (2017) incorporating of mental schemas (Norman & Bobrow, 1975) in the individual core with its hypotheses and research questions.

Figure 4. Heat maps on congruence levels.

Description

High (left) and low (right) congruence.

Table 1. F-test results by main effect of congruence.

Eye-tracking measure	AOI	F-test (df1=1, df2=61)	p-value	η^2	Hypotheses
FC	1	1.818	0.183	0.029	-
	2	0.141	0.709	0.002	-
	3	5.376	0.024	0.081	1a. Supported
DT	1	0.420	0.519	0.007	-
	2	0.228	0.635	0.004	-
	3	6.277	0.015	0.093	1b. Supported
TFF	1	0.066	0.799	0.001	-
	2	19.840	0.000	0.245	-
	3	9.116	0.004	0.130	1c. Supported
Covariate (ATTGT): 5.00; ST = 1.984					

Description

1: DMO comment; 2: DMO gastronomic photo; 3: eWOM comment.

TTFF: Time to First Fixation; DT: Dwell Time; FC: Fixation Count.

ATTGT: Attitude towards culinary tourism.

Table 2. F-test results by main effect of generational cohort.

Eye-tracking measure	AOI	F-test (df1=1, df2=61)	p-value	η^2	Hypotheses
FC	1	8.052	0.006	0.117	3a. Supported
	2	0.005	0.944	0.000	-
	3	1.283	0.262	0.021	-
DT	1	3.215	0.078	0.050	Trend
	2	1.996	0.163	0.032	-
	3	0.200	0.656	0.003	-
TFF	1	3.029	0.087	0.047	Trend
	2	10.467	0.002	0.146	3c. Supported
	3	2.004	0.162	0.032	-
Covariate (ATTGT): 5.00; ST = 1.984					

Description

1: DMO comment; 2: DMO gastronomic photo; 3: eWOM comment.

TTFF: Time to First Fixation; DT: Dwell Time; FC: Fixation Count.

ATTGT: Attitude towards culinary tourism.

Table 3. F-test results for interaction between message congruence and generational cohort.

Eye-tracking measure	AOI	F-test (df1=1, df2=61)	p-value	η^2	RQ
	1	0.026	0.873	0.000	-
FC	2	0.642	0.426	0.010	-
	3	1.899	0.173	0.003	-
	1	0.125	0.725	0.002	-
DT	2	0.119	0.731	0.002	-
	3	0.396	0.532	0.006	-
	1	0.055	0.816	0.001	-
TFF	2	5.766	0.019	0.086	3
	3	6.108	0.016	0.091	3
Covariate (ATTGT): 5.00; ST = 1.984					

Description

1: DMO comment; 2: DMO gastronomic photo; 3: eWOM comment.

TTFF: Time to First Fixation; DT: Dwell Time; FC: Fixation Count.

ATTGT: Attitude towards culinary tourism.