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ADVERTISING EFFECTIVENESS ON FACEBOOK. AN EYE-TRACKING STUDY APPLIED TO WINE TOURISM

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KEYWORDS

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Eye-tracking
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Engagement

ABSTRACT

This study employs eye-tracking techniques to analyse the impact of various wine tourism advertisements on consumers. We utilized the social network Facebook, given the resemblance between its users and those engaging in wine tourism. We scrutinized posts commonly employed by companies to endorse wine tourism, contrasting images of landscapes, individuals, and wineries. Participants' interaction with the platform was factored in to scrutinize the attention and recall elicited by each advertisement. Findings unveil that images featuring individuals are more attention-grabbing for promoting wine tourism. Furthermore, the correlation between engagement and users' attention and recall was established.

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1. Introduction

In the past, scientists interested in the study of communication faced a significant challenge in their inability to analyse the processing generated by emotional advertising (Micu & Plummer, 2010). In the present era, the capacity to comprehend the efficacy of a given message represents a significant area of interest for organisations. It is of paramount importance to gauge the efficacy of any promotional campaign by examining the consumer's cognitive, physiological, and behavioural responses subsequent to the processing of the communication. Prior research indicates that a message is most likely to be effective if it elicits both a cognitive response and an emotional reaction, resulting from the processing of the stimulus (Gómez-Carmona et al., 2022; Matthes & Beyer, 2017). Several studies have proposed that attention, emotion and recall should be considered as potential indicators of advertising message effectiveness (Gómez-Carmona, 2020; Pieters et al., 1999; Shaw & Bagozzi, 2018; Venkatraman et al., 2015). This paper employs a triangulation of stimulus measures with self-report and psychophysiological measures, which will facilitate an accurate assessment of the effectiveness of wine tourism-related advertisements on Facebook. The rationale for analysing effectiveness within this social network is due to its parallelism with the target audience that tends to engage in wine tourism activities (Gómez-Carmona et al., 2023).

Wine tourism in Spain is becoming an increasingly popular activity. This activity encompasses visits to wineries and vineyards, as well as the tasting and sampling of typical products (Wen & Leung, 2021). It is becoming an increasingly significant means of fostering rural, sustainable, and technological advancement in select wine regions (Portela & Domínguez, 2020). In the context of wine tourism, research has been approached from a variety of perspectives, including geopolitical, landscape, developmental and managerial considerations (Serrabassa & Costa, 2020). Some studies have employed tourism behaviour modelling to elucidate the primary motivation for visitation (López-Guzmán et al., 2012). Other studies have sought to enhance understanding of wine tourism activities and the impact these have on tourists or wine consumers (Robertson et al., 2018). Furthermore, since the onset of the pandemic, research has been conducted into online wine tourism activities (e.g. virtual tastings) and the virtual wine tourism experience (Wen & Leung, 2021). Nevertheless, no research has yet been identified that has investigated the efficacy of promotional initiatives designed to encourage wine tourism. This study aims to address the aforementioned gap in the literature and enhance the current understanding of advertising effectiveness in the tourism sector. To this end, the advertising effectiveness of various wine tourism advertisements on the social network Facebook will be analysed. The study will specifically examine the emotional response elicited by each advertisement, the level of attention devoted to each advertisement, the degree of recall triggered by the advertisements, and the impact of engagement with the social network on the attention and recall of the participants.

The findings of this study may prove beneficial to winery owners seeking to promote their tourist visits, travel agencies aiming to enhance their social media communication campaigns, and designations of origin striving to optimise the marketing of the tourism products of their member companies.

2. Literature review

2.1. Stimuli-Generated Emotion (Nature, Cellar, People)

The emotional response evoked by a visual stimulus, such as an image of a picturesque vineyard landscape on Facebook, can be examined through the lenses of affective valence and emotional excitement. As demonstrated by the study conducted by Ulrich et al. (1991), exposure to natural environments, such as vineyards, has been shown to elicit more positive emotional responses (positive affective valence). Moreover, Kaplan et al. (1989) cognitive restoration theory posit that such landscapes can elicit a moderate level of emotional arousal (emotional arousal), as they are often associated with tranquillity and relaxation. In the context of social networks, as demonstrated in the research of Ellison et al. (2007), social interaction on platforms such as Facebook can amplify these emotions, thereby enriching the emotional experience through interactions and connections with friends and followers. Therefore, the image of a vineyard landscape on Facebook can be considered an emotionally engaging and rewarding stimulus for users, as evidenced by the literature on the influence of nature on emotions and social network dynamics.

The affective valence of an emotion, which denotes whether it is positive or negative, can be significantly affected by an individual's perception of the emotional and mood-related content in advertisements. To illustrate, a study conducted by Ambler and Burne (1999) demonstrated that advertisements which elicit positive emotions in viewers are more likely to be remembered in a favourable light. Furthermore, the level of emotional arousal, defined as the degree of activation or excitement elicited by an emotion, can also fluctuate contingent on the emotional content of the advertisements in which individuals are depicted. To illustrate, an advertisement that portrays emotional or dramatic scenarios involving individuals may result in heightened emotional arousal. MacInnis and Park (1991) investigated the impact of music in advertisements on the emotional arousal of viewers. The emotional response to viewing advertisements featuring people may be closely related to affective valence and emotional arousal, which may vary significantly depending on the emotional content of the advertisements, including facial expressions, situations and emotions depicted. Indeed, previous literature indicates that the inclusion of individuals in Facebook advertisements is an effective strategy for fostering an emotional connection with the audience (Muñoz-Leiva et al., 2019). The field of social psychology posits that individuals are inclined to emulate the actions of others. When individuals observe others deriving benefit or enjoyment from a product or service in an advertisement, they are more likely to consider engaging in similar actions themselves (Chartrand & Bargh, 1999). These practices are founded upon consumer psychology and effective marketing strategies that seek to optimise the impact of advertising on social networks. The presence of individuals in advertisements has the potential to foster empathy and an emotional connection with the audience. A meta-analysis of the literature revealed that images of people elicit more emotional responses than images of objects or landscapes (Aaker et al., 1988).

Wineries are frequently regarded as "cathedrals" (Rodríguez et al., 2013). These monuments frequently elicit sentiments of awe, wonder, and respect due to their profound cultural, aesthetic, and historical significance. Research in psychology has demonstrated that exposure to cultural environments, such as wineries, can enhance individuals' sense of well-being and happiness (Kaplan et al., 1989). The presentation of advertisements featuring wineries has the potential to stimulate the appetitive motivational system, prompting the viewer to direct their attention towards the advertisement. Alternatively, the defensive motivational system may be activated, resulting in a bias towards attention withdrawal. The response will be contingent upon the degree of pleasantness or unpleasantness of the stimulus in question (Gómez-Carmona, 2020). To illustrate, an advertisement that presents monuments in an exhilarating context, such as a travel adventure or a distinctive experience, may heighten viewers' emotional arousal and capture their attention when they view the Facebook social network (Muñoz-Leiva et al., 2019).

2.2. Capturing Attention

The assessment of advertising efficacy has concentrated on a range of elements pertaining to human visual perception, including attention and information processing. The two-stage theory of visual perception is employed in a number of studies in psychophysiology. The initial stage, designated the "pre-attentive mode," transpires during the initial fixations, concomitant with the formation of the visualised scenario in our minds. The eye-mind hypothesis proposed by Just and Carpenter (1978) suggests that there is no appreciable lag between what is fixated and what is processed. This implies that although peripheral vision allows information about shapes, brightness, contrasts and colours to be captured, it is not accurate in capturing details or semantic information (Wedel & Pieters, 2008). The second stage of visual perception, designated the "attentional mode," necessitates a more cognitive processing of the information received through the pupils. This entails focusing attention on specific areas of the visual field (Koch & Ullman, 1987). This more detailed processing enables the analysis of complex shapes, the accurate capture of details of stimuli, the recognition of objects and the processing of texts, including the semantic interpretation of words (Gómez-Carmona et al., 2021). Information from advertisements is acquired through focal vision when consumers pay direct attention, while in the absence of direct attention, it is obtained through peripheral vision (Pieters & Wedel, 2012). This is based on perceptual processes (Muñoz-Leiva et al., 2019; Simola et al., 2013). This approach posits that the number of fixations or the time spent viewing a stimulus is contingent upon the stimulus' characteristics, thereby determining the extent of attention devoted to processing the stimulus. The

user's attention will be captured by the elements that are considered more relevant, resulting in a greater number of fixations and time spent on them (Rayner & Castelhano, 2007). The effectiveness of an advertising campaign is gauged by the extent to which the desired outcomes are achieved (Beerli & Santana, 1999).

In the extant literature, there are studies that assess advertising effectiveness based on attentional metrics (Gómez-Carmona et al., 2021; Muñoz-Leiva et al., 2018). It is of the utmost importance for those engaged in advertising management to be able to identify the results of an advertisement before launching a promotional campaign. It is of paramount importance to gain an understanding of the behavioural patterns of users, how they process information, and what elements of the message can influence their attitudes and subsequent purchasing behaviour (Naidoo & Hollebeek, 2016). In this regard, the triangulation of information employed in this study, utilising stimulus information, eye-tracking data and self-report surveys, represents an appropriate methodology for measuring advertising effectiveness (Li et al., 2016; Manchanda et al., 2006; Muñoz-Leiva et al., 2019).

2.3. Engagement on Social Networks

The term "social media engagement" is used to describe the interaction and connection between a brand or entity and its audience on social media platforms. Such engagement can manifest itself in a variety of ways, including the expression of approval through the use of the "like" button, the addition of comments, and the sharing of content. The concept of social media engagement has been the subject of extensive research, particularly in the context of brand-user interactions on social media platforms. This field of study encompasses a range of disciplines, including marketing (Trunfio & Rossi, 2021). In particular, social media has contributed to the academic and professional discourse on social media engagement, seeking to gain a deeper understanding of its theoretical foundations and methods of measurement (Hollebeek & Rather, 2019; Kumar & Nanda, 2019). Hollebeek et al. (2011) approached the concept of social media engagement as a three-dimensional construct, comprising affective, cognitive and behavioural dimensions. Dessart (2017) identified several relevant aspects, including involvement with the sponsored product, attitude towards the community and propensity for online interaction.

The capacity to process information and the level of attention paid to the content in question are contingent upon the extent of one's involvement with the content itself (Gómez-Carmona et al., 2022). In other words, if the viewer finds the message appealing, they should devote more attention to it, which suggests a correlation between engagement levels and the amount of attention paid (Cents-Boonstra et al., 2021). The findings of Huang and Narayanan (2020) indicate that higher levels of engagement may be associated with greater attention and potentially enhanced information processing performance. The present work considers engagement with the social network as an important distinguishing feature among individuals, which drives user motivation and draws attention to key wine tourism topics (Gómez-Carmona et al., 2023). Similarly, consumers who are lacking in motivation or demonstrate low engagement with the social network will devote less attention to wine tourism communications.

2.4. Recall Generated

The interaction between the level of attention paid to an advertisement and subsequent advertising recall represents a fundamental dynamic in the field of advertising and marketing, as has been highlighted in various academic research studies (Bakalash & Reimer, 2013; Gómez-Carmona et al., 2021; Muñoz-Leiva et al., 2019). The "Hierarchy of Effects" model provides a theoretical framework for understanding the sequence of cognitive, affective and behavioural processes triggered by exposure to advertising. The model posits that consumer response is articulated in three stages: (1) cognitive, characterised by attention and information gathering; (2) affective, where sympathy for the advertisement and product preferences are established; and (3) behavioural, where propensity or actual purchase is manifested (Otamendi & Sutil Martín, 2020). This theoretical framework posits that initial attention serves as a crucial precursor, enabling cognitive processes and recall, which in turn influence emotional and behavioural reactions to advertising and advertised products.

In their 2020 study, Zhang employed the hierarchy of effects model and discovered that reduced attention can be accompanied by a heightened recall effect. This suggests that viewers may "remember visual objects without noticing them." This finding challenges the conventional notion that greater direct

attention equates to greater recall and opens further avenues of enquiry into the underlying mechanisms that facilitate advertising recall. In contrast, studies by Myers et al. (2020) employed a mixed methodology of eye-tracking and self-report data to analyse the effects of attention on recall, focusing on the impact of striking visual images touching on taboo topics. The research demonstrated that a greater number of fixations on advertisements displaying the product resulted in enhanced brand recall. Similarly, research by Muñoz-Leiva et al. (2019) indicates that the higher the number of fixations on the advertised Facebook banner, the higher both spontaneous and suggested recall, despite participants demonstrating low recall of the ad content or brand.

The work by Gómez-Carmona et al. (2021) analysed the recall paid by subjects with greater or lesser involvement. Through eye-tracking, it was demonstrated that subjects with greater environmental commitment paid more attention to advertisements and recalled them to a greater extent than subjects who showed less concern for the environment.

In light of the aforementioned evidence, we have sufficient grounds to propose the following research questions:

RQ1: What stimulus is most effective in generating enthusiasm for the promotion of wine tourism?
RQ2: Which stimulus elicits the earliest and longest-lasting attention?
RQ3: What is the effect of engagement with the social network on care?
RQ4: What is the relationship between attention and memory?

3. Methodology

3.1. Data Collection and Fieldwork

The fieldwork was conducted at the University Institute for Sustainable Social Development (Instituto Universitario de Desarrollo Social Sostenible. INDESS) of the University of Cádiz between the 1st and 30th of June. A quota sampling technique was employed to recruit participants, who expressed their interest in the experiment by responding to an advertisement posted on social networks. At this juncture, the participants were furnished with the requisite informed consent documentation and a date was scheduled for the test. Those who participated were offered a gift in return (a solar charger). The sample was counterbalanced according to gender and age, with 30 male and 30 female participants. The sample was further divided according to the average age of the wine tourist, resulting in a split of 30 participants under the age of 43 and 30 aged 44 and over. The experiment employed eye-tracking methodology, which entails the utilisation of computerised devices for the measurement of eye movements and the documentation of fixation patterns across a range of advertisements. The eye movements made on the computer screen were recorded with the Gazepoint GP3 HD eye-tracking device. This tracker collects data on corneal and pupil diameter by directing infrared light to the pupil of the eye and the entire cornea at a frequency of 60 Hz. The system has been reported to have a sampling rate of 16.67 milliseconds ± 1.42 milliseconds and an accuracy rate of between 0.5° and 1° of visual angle (Brand, Diamond, Thomas & Gilbert-Diamond, 2021). The calibration setup was configured with a five-point grid, and the data underwent preliminary processing with Gaze point Analysis software.

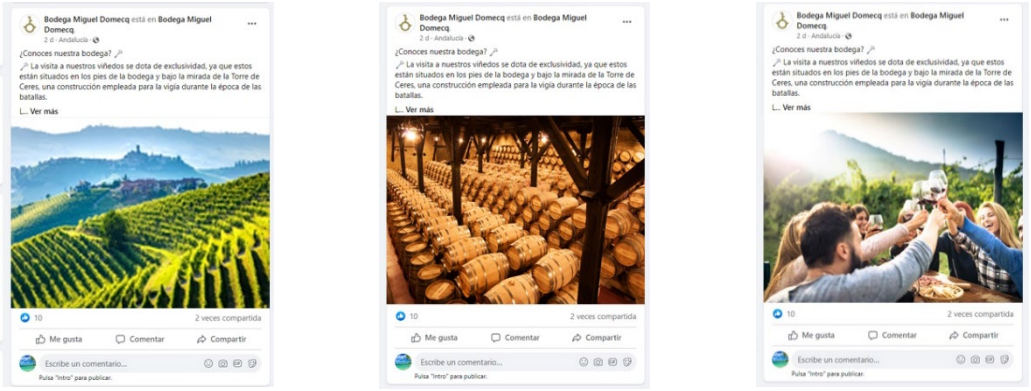
3.2. Stimuli Used

The experimental scenarios employed recreated four posts from the Facebook social network. In the second post, the designed advertisements were inserted, with the advertisement under study situated in the centre of the experimental stimulus (see Appendix 1). The placement of advertisements between content on the Facebook social network has been found to be more effective from an attentional perspective than their positioning in the upper right or lower left (Muñoz-Leiva et al., 2019). To select the images for each advertisement, a search was conducted across different profiles of the social network, with the content of the publications analysed. A total of 20 images were collated and presented to the team members, comprising four experts in communication and two in tourism. The team was tasked with selecting three images that best represented the promotion of wine tourism. The selected images were used to create three posts with different content, namely landscape, winery and people, on the company profile. The image of the natural landscape is representative of the typical topography of

the region, which is characterised by a prevalence of vineyards. The image of the winery depicts the distinctive solera and criadera storage system, characterised by stacked barrels and a clay floor (Schwarz et al., 2011). The image of people depicts a group of middle-aged men and women engaged in a celebratory toast with a glass of wine, reflecting the convivial and socialising character of wine (Cruces-Montes et al., 2020). The author of the post, the description of the post, as well as the content of the posts preceding and following the wine tourism advertisement, remain constant in all scenarios. By maintaining the contextual stimuli consistent across the three experimental scenarios, we can ensure constancy and isolate the potential impact of the independent variable (Gómez-Carmona et al., 2021). In this instance, the areas of interest (AOI) under examination differentiate the content of each advertisement (see Figure 1).

Figure 1. Experimental advertisements

Landscape **Winery** **People**



Source: Own elaboration, (2024)

3.3. Measurement Scales Used

Upon completion of the test, the subjects were relocated to an adjacent room where they were required to respond to a self-administered questionnaire designed to assess engagement, emotional response, and recall. The social network engagement scale was adapted from the work of Hollebeek et al. (2014). This variable was measured using a Likert-type scale comprising ten items, with responses ranging from 1 (strongly disagree) to 5 (strongly agree).

The level of emotion generated by the stimulus was adapted from the scale developed by Shapiro et al. (2002) using the dimensions of arousal and valence. This scale has previously been employed in the analysis of emotional reactivity in advertising campaigns within the context of neuromarketing studies (Gómez-Carmona et al., 2021). The five-point semantic differential scale assesses the level of calm or activation that each image provokes when viewed at the extremes of the arousal dimension. Conversely, the valence dimension assesses the degree of pleasantness or unpleasantness associated with the image when observed.

The proposed recall measure was adapted from the methodology previously outlined by Muñoz-Leiva et al. (2019). The measure comprised the viewing of 15 images, including those that constituted the designed advertisements, in addition to an inquiry into the evoked recall of the brand that broadcast the content. The responses to these questions permitted a comparison of the images that were recalled by a greater number of participants. Furthermore, a cumulative recall variable was constructed with the objective of triangulating the eye-tracking data with recall.

3.4. Experimental Design

The proposed experimental design with repeated measures is intended to ascertain the attentional differences generated between subjects in response to the various publications. In other words, the aim is to compare advertisements featuring people (Ap) with those featuring landscapes (Al) and winery (Aw). All advertisements were displayed in the same location within the social network (see Appendix

1). Prior to commencing the experiment, participants were permitted five minutes to peruse the social network. Subsequently, the participants observed the wall displaying the various posts, including the experimental advertisements. A baseline stimulus (Bl) was included between the three experimental stimuli. This recreated the same scenario as the experimental stimuli, including a promotional wine advertisement in the area of interest. Consequently, each subject was exposed to the aforementioned stimuli (Bl, Ap, Al, Aw) on three occasions. To mitigate the effect of the order of presentation and to avoid any potential bias resulting from the initial attention metrics of the advertisements, the order of presentation was randomised, creating three presentation groups (PG) with the following orders (see Table 1).

Table 1. Order of presentation of experimental stimuli

Presentation group	**Order of display of advertisements**
GP1	Bl/Ap /Bl/Al/Bl/Aw; n=20
GP2	Bl/Aw /Bl/Ap/Ap/Bl/Al; n=20
GP3	Bl/Al /Bl/Aw/Bl/Ap; n=20

Source: Own elaboration (2024)

The random configuration of the presentation and the counterbalancing by sex and age ensure that the experiment has adequate internal validity, given that the independent variables are controlled (Zikmund et al., 2003). It is important to consider the potential for error due to the artificial nature of the laboratory setting in which the tests are conducted. The patterns of attention were recorded by delineating the areas of interest within the advertisements (see Figure 2).

Figure 2. Delimitation of stimuli

Source: Own elaboration, (2024)

In particular, the rectangles were defined in relation to each subject, from the moment the image became visible within the viewing area until it ceased to do so. The Gazepoint system is capable of dynamic AOI tracking, whereby all metrics are collected on a millisecond-by-millisecond basis.

3.5. Eye Movements and Statistical Analysis

The data pertaining to attentional metrics was analysed using IBM SPSS version 26 statistical software, following the extraction of time and fixation data for each subject from the Gazepoint analysis software. The metrics extracted were the number of fixations within the area of interest (AOI) (fixation, F). This measure provides information about the semantic interpretation of the image and is linked to information processing (Gómez-Carmona et al., 2021; Jacob & Karn, 2003). The number of revisits to the AOI (Revisits, R) is associated with increased mental effort and attention to the most salient aspects of the stimulus (Gwizdka & Zhang, 2015). The variable designated 'Time Viewed' (TV in seconds) is associated with subsequent decision-making processes. For example, product advertisements that are

viewed for a longer period of time are more likely to be selected (Wedel & Pieters, 2008). However, this measure should be employed in conjunction with other measures, as its interpretation is intricate with regard to cognitive processes. For a more detailed explanation, please refer to the original source: Orquin and Holmqvist (2018).

In addition to the aforementioned metrics, the time to first fixation in the AOI (in seconds) was also measured. In order to achieve the research objectives, the impact of the emotion generated by each image was analysed by studying the arousal and valence values assigned to each image using a Friedman test. Furthermore, the visual attention metrics were correlated with the values assigned to the emotion metrics. Subsequently, the various attentional metrics (dependent variables) were extracted for each stimulus (TTFF, TV, F, R) and subjected to an analysis of variance (ANOVA) with repeated measures. The between-subjects factor was the level of engagement with the social network, while the within-subjects factor was the type of image (landscape, people, winery).

4. Data Analysis

4.1. Emotion Analysis

A Friedman test was conducted for each of the emotion dimensions, given that the effects of the different treatments applied in the randomised experiment are different. The results of the non-parametric test indicate that there are statistically significant differences between the various stimuli in terms of arousal and valence (see Table 2).

Table 2. Average emotion generated by each advertisement

Dimension	Chi-square	sign	$\overline{X}$ (Ap)	$\overline{X}$ (Aw)	$\overline{X}$ (Al)
Arousal	8.314	0.016	3.26	2.70	2.66
Valencia	26.016	0.000	4.48	3.85	4.46

Source: Own elaboration (2024)

In particular, the advertisement in question evokes a higher level of arousal and valence, which in turn generates a greater emotional response, as evidenced by the analysis of the emotional variables. This finding provides a definitive answer to our initial research question.

4.2. Analysis of Attention

First, the participants' fixation patterns were extracted using the corresponding heat maps (see Figure 3). The image shows a layer with cooler blue tones, representing the areas that receive less attention, and warmer red tones, representing the points that receive more attention. The parts of the ad that are not fixated retain their natural colour. It can be seen that the ad with people generally attracts the most attention, followed by the one with the vineyard and then the one with the landscape. Although the highest concentration of warm tones and red dots is found in the ad using people, the ad using the landscape also has several areas where warm tones are concentrated, while the ad with the fewest warm areas is the ad using the vineyard (see Figure 3).

Figure 3. Heat maps of each advertisement

Source: Own elaboration, (2024)

A repeated measures MANOVA test was then carried out, which allows us to see which ad achieves better attention metrics. In addition, it is possible to determine whether engagement has a significant effect on participants' visual attention depending on the type of ad.

To analyse the differences between the attention metrics of the different ads, we used a univariate approach. First, we confirmed the sphericity assumption for the error covariance matrix using Mauchly's test (see Appendix 2). The result indicates that there is sphericity in the measures (TTFF and RE) but not in (TV and F).

Therefore, the Greenhouse-Geisser transformation is used for the TV and F results with variances (SDTV= 0.981) and (SDF= 0.976) respectively. Next, we answer the second research question, which asks whether there are differences in the early capture of attention (pre-attentional modality) and in the cognition generated by the different ads used (attentional modality). Specifically, our data show that there are differences in all attentional metrics (see Table 3).

Table 3. Attentional metric values people advertisements (Ap) vs landscape (Al) vs warehouse (Aw).

Metrics	F	Sign.	$\overline{X}$ (Ap)	$\overline{X}$ (Bo)	$\overline{X}$ (Al)
TTFF	14.693	0.000	5.167	7.841	9.841
TV* TV* TV* TV* TV* TV* TV* TV* TV* TV* TV* TV	30.292	0.000	2.590	1.455	1.462
RE	18.840	0.000	3.480	1.603	1.457
F*	24.987	0.000	5.456	5.638	8.593

**Greenhouse-Geisser transform result*
Source: Own elaboration (2024)

Firstly, in the metrics related to early engagement (pre-attentive mode, TTFF) of attention, we find that ads showing people get the attention of Facebook users earlier (5.167 sec), followed by the ad showing a winery (7.841 sec) and the ad using a landscape (9.841 sec). This partially answers our second research question. In order to fully answer the second research question, cognitive metrics were analysed. These values are related to the information processing and semantic interpretation of the visual content of the ads (attention mode, TV, RE and F).

The data obtained show that the viewing time required to process each ad is different, with the ad with a vineyard landscape being viewed the longest (2,590 sec), followed by the ad with people (1,462 sec) and finally the ad with the winery (1,455 sec). When analysing the number of revisits, we found that the ad with a landscape has the highest number of revisits on average (3,480 revisits), followed by the image of the winery (1,603 revisits) and the image of people (1,457 revisits).

Finally, the number of fixations within the area of interest was analysed, in this case the data shows a higher number of fixations towards the ad with people (8,593 fixations), followed by the ad with a winery (5,638 fixations), the ad with the least number of fixations is the ad with the landscape (5,456 fixations). This answers our second research question about which ad attracts the user's attention for the longest time. We then analysed the direct effect of social network engagement on attention. Based on a test for between-subjects effects, we showed that there is an interaction between attention metrics and engagement (see Table 4).

Table 4. Attentional metric values people advertisements (Ap) vs landscape (Al) vs warehouse (Aw).

Effect	Λ of Wilks	F	d.f. hypothesis	d.f. of the error	Sign.
Intersection	0,047	278,769	4	55	0,000
Engagement	0,604	8,99	4	55	0,000

a. Design: Intersection + Engagement
Source: Own elaboration (2024)

In particular, the test of between-subjects effects shows that engagement significantly affects some of the participants' eye metrics. This partially answers our third research question, which asked about the effect of engagement on user attention.

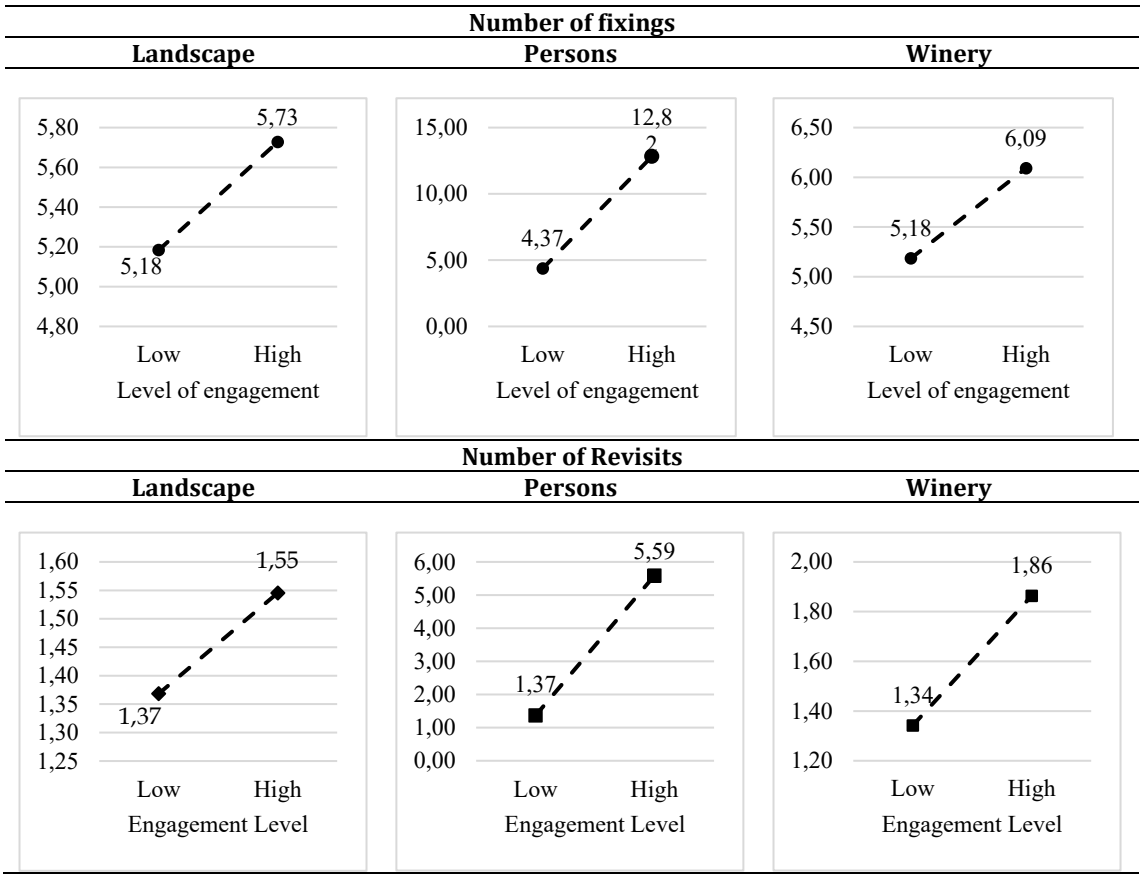
Table 5. Test for effects between-subjects.

Metric	F	Sign.
TTFF	0.175	0.677
TV	2.716	0.105
F	**28.402**	**0.000**
RE	**23.557**	**0.000**

Source: Own elaboration (2024)

The mean values of the significant metrics (F and RE) combining both factors (type of ad and level of engagement) are shown below.

Figure 4. Number of postings and revisits for each advertisement as a function of engagement



Source: Own elaboration (2024)

Figure 4 shows that subjects with a high level of engagement make a higher number of fixations on all ads than those with a low level of engagement. When analysing each ad, the ad with the highest number of fixations is the ad with people; specifically, subjects with a higher level of engagement make a higher average number of fixations (12.82 fixations) on this type of ad. It is noticeable that the subjects with the lowest engagement in the social network dedicate the lowest number of fixations (4.73 fixations) to this stimulus. In second place, the subjects with the highest engagement (6.09 fixations) fixate (6.09 fixations) on the ad that uses the image of a winery to promote wine tourism activities. The participants with the highest engagement devote the least number of fixations to interpreting the advertisement that promotes a visit to a winery with a landscape.

On the other hand, the participants with a low level of engagement devote the same number of fixations to the advertisements showing a winery as to those using a landscape (5.18 fixations). We then analysed the number of times Facebook users visited the different ads.

In general, subjects with a high level of engagement with the social network show a higher number of revisits to all ads, which means that they process more ads than subjects with a lower level of

engagement. For these subjects, the ad with the highest number of revisits is the People ad (5.59 visits), followed by the Winery ad (1.86 visits) and the Landscape ad (1.55 visits). For less engaged subjects, the number of revisits required to process the landscape and people ads is similar, with the winery ad requiring fewer revisits.

4.3. Analysis of Recall

Following the completion of the test, the recall of the advertisements was analysed. Initially, the recall of the brand responsible for publishing the advertisements on Facebook was examined. The results demonstrated that 30% of the respondents recalled the brand, whereas the remaining 70% did not recall the brand, in some cases associating the publication with designations of origin. Furthermore, the data revealed that 85% of the sample recalled at least one of the images viewed during navigation.

The remaining 15% of participants were unable to recall any of the images that had been presented to them following the completion of the eye-tracking test. The results of the analysis of recall generated by each advertisement individually demonstrate that 65% of participants recalled the advertisement featuring people, followed by the advertisement featuring the landscape (62%). The advertisement featuring the image of the winery was the least memorable of the three, with only 58% of participants able to recall it.

The analysis of brand recall among subjects with varying levels of engagement indicates that 72.2% of those with high engagement recall the brand. Conversely, only 27.8% of subjects with low engagement demonstrated brand recall. Among subjects with higher engagement, at least 53.33% demonstrated recall of at least one image from the advertisements. Conversely, only 31.66% of subjects with lower engagement recall at least one image.

In general, the subjects who demonstrated higher levels of engagement exhibited a greater capacity to recall the advertisements. In particular, 67.60% of participants with high engagement recalled the advertisement featuring a landscape, followed by the one utilising people (59%) and, subsequently, the one promoting wine tourism with an image of a winery (54.30%). In the case of subjects with low engagement, the most recalled advertisement was that which used the winery (45.70%), followed by the advertisement which used people (41.00%), and the advertisement which was recalled the least often was that which used landscapes (32.40%).

5. Conclusions

The findings of this study demonstrate that, irrespective of the stimulus employed to promote wine tourism activities (landscapes, monuments or people), all advertisements are effective in activating the appetitive motivational system. As previously documented in the literature, the activation of this motivational system is associated with the development of desire and attraction towards the stimulus that triggers it (Martinez-Fiestas et al., 2015; Lang, 1995). The results of our study demonstrate that, on average, users assign positive evaluations to all images presented in the advertisements. However, our findings indicate that the image that elicits the most emotionally effective response (arousal and valence) for promoting wine tourism is the one that employs the use of people. It is plausible that subjects, when perusing Facebook and encountering this category of advertisement, may identify with them (Braidot, 2005; Lindström, 2010) while enjoying an experience in the company of friends. In this instance, the advertisement is conveying an emotional response prior to consumption, which effectively elicits a positive emotional response among users of the network.

In examining the efficacy of advertisements that elicit the most pronounced attentional responses among Facebook users while they are browsing the platform without conducting an objective search, our findings indicate that the stimuli that evoke the most intense emotional reactions in the viewer are also those that capture their attention most rapidly. This result is consistent with previous research indicating that advertisements with higher levels of arousal and valence engage users' early attention earlier (Eijlers et al., 2020; Lang et al., 1995). In contrast to advertisements that employ landscapes or wineries to promote wine tourism activities, advertisements that utilise people within their content appear to capture the attention of participants at an earlier stage. In this instance, it is evident that the appetitive motivational system is dominant and is capable of directing involuntary attention towards this category of stimuli. It may be the case that advertising using images of people, in which the faces of

the protagonists are visible, has a strong effect on initial eye movements (Rutishauser et al., 2004; Wolfe & Horowitz, 2004). These findings align with those reported by Plassman et al. (2012), indicating that certain elements within advertisements, such as faces, can elicit automatic attention capture.

The analysis of the focal attention metric, or attentional mode, indicated that information from landscape advertisements was processed for a longer duration. Although it is reasonable to conclude that elements portraying nature are less activating (Bradley & Codispoti, 2001), it is also possible that the representation of the landscape is more complex, more effortful to interpret, and requires more time to process cognitively. Such behaviour is to be anticipated when subjects process images of natural scenes perceived as pleasant. These experiences may be described as 'virtual experiences of nature' (Hartmann & Apaolaza-Ibáñez, 2008:821). These findings align with those previously reported by Hartmann et al. (2013) in a comparative analysis of nature images and other visual stimuli. As with our own findings, the results presented by Hartmann and colleagues demonstrate that pictorial representations of nature elicit higher levels of attention than their counterparts. However, not all cognitive processing metrics indicate that the advertisement utilising landscapes is the subject of greater attention. In particular, the advertisement featuring people received the highest number of fixations. It is conceivable that the combination of the background scenery and the actors in the main scene may prove more distracting to users, thereby resulting in a higher number of fixations on this advertisement.

Similarly, this research corroborates the impact of engagement with the social network on attention, demonstrating that the higher the level of engagement, the greater the effectiveness of wine tourism advertising, as measured through attention metrics (number of fixations and higher number of revisits) (Cents-Boonstra et al., 2021; Huang & Narayanan, 2020). In other words, it was demonstrated that subjects who exhibited higher engagement levels demonstrated greater attention to promotional stimuli, irrespective of the specific stimulus employed. In this instance, the advertisement utilising human imagery demonstrated superior eye metrics in terms of in-ad fixations and revisits. It can be reasonably assumed that this greater attention will result in a higher level of recall for this advertisement, which will be the most memorable.

The paper demonstrates that advertising within the content of the Facebook wall is more effective than the use of banners in the bottom right corner for the generation of greater advertising recall (Muñoz-Leiva et al., 2019). In accordance with the findings of Gómez-Carmona et al. (2021), we were also able to demonstrate that this heightened level of involvement or engagement is a significant factor in enhancing recall rates among consumers. It can be posited that as consumers establish a bond of trust with the social network, they are more receptive to advertising displayed on their wall. This increased receptivity leads to greater attention being paid to the advertising, which in turn results in enhanced brand recall.

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