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The playfulness of Facebook – Shaped by underlying psychological drivers and gender differences

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ABSTRACT

Despite perceived playfulness being at the core of Facebookers' experiences, research has yet to address this psychological phenomenon and its underlying drivers. Drawing theoretical insights from transportation theory, imagery literature, the arousal-as-information approach, and accounts of information processing and gender, this paper aims to fill the gap and examine the impact of imagery and arousal on perceived playfulness, and the moderating effect of gender. We develop a psychological model of playfulness formation and we test it empirically with a sample of 416 active users of Facebook. We validate the survey instrument and use a partial least squares (PLS) approach to examine the direct, mediating and moderating effects on perceived playfulness. The results provide support for the proposed model, which relates imagery to perceived playfulness, directly and through the path of transportation; considers the distinct roles of imagery elaboration and imagery representations; and includes the moderating influence of arousal. In addition, the results report that gender has a moderating effect on playfulness formation. The findings offer implications for marketing practitioners and information systems (IS) specialists alike.

1. Introduction

Facebook is perhaps one of the most popular consumption phenomena in the world today. As of 30 June 2018, 2.23 billion people worldwide were monthly active users of Facebook (Facebook, 2018) – who from now on we call *Facebookers*. Facebookers account for more than a quarter of the global population (Worldometers, 2018). What is more, year on year, the total number of monthly active Facebookers has increased steadily by around 11 per cent (Facebook, 2018). Parallel to this, about 70 million businesses around the world have pages on Facebook and more than five million are monthly active advertisers on this social networking service (SNS) (Chaykowski, 2017).

For many Facebookers, perceived playfulness, a subjective experience through which they take part in a non-productive activity that raises feelings of fun (Sibai, 2016), is one of the most distinctive and appealing facets of Facebook participation (Lambert, 2013; Schulze et al., 2014). This is not only due to the social pure-game features and applications embedded in Facebook (Lai and Yang, 2016), but also because Facebookers play when they use self-presentation and social interaction functionalities: when they update their status with self-deprecating, humorous autobiographical stories, and when they share memes, sketches of their favourite films and videos on politicians and celebrities, to name but a few examples. Interestingly, fellow Facebookers respond sympathetically to

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these posts expressing their views in a well-meaning, amusing fashion (Lewin-Jones, 2015). Sometimes, the conversations evolve and adopt exaggerated or overemotional tones, or they turn into lively discussions; in any case, the interactions encompass several users holding a common narrative frame of mind, who joke with and enjoy the story at hand (Lambert, 2013). This narrative context facilitates Facebookers' pleasurable immersion in the social interaction, and triggers their spontaneity. While individuals are being entertained and intrinsically having fun with stories, they are more likely to display their individual identities and strengthen bonds between them (Boxer and Cortés-Conde, 1997; Utz, 2015; Van Vleet and Feeney, 2015).

Despite the playful facet of Facebook being central to its usage (Pillai and Mukherjee, 2011; Sledgianowski and Kulviwat, 2009), playfulness, in and of itself, has received relatively little attention in Facebook literature. Remarkably, past research has connected online playful activities with hedonic positive outcomes, including psychological episodes of cognitive absorption (Agarwal and Karahanna, 2000) and intrinsic enjoyment (Finneran and Zhang, 2003; Woszczynski et al., 2002). More recent research has conceived playfulness (or its hedonic outcomes) as a pillar of gamification and reported its impact on continued usage (Pöyry et al., 2013) and purchase intention (Byun et al., 2017; Schulze et al., 2014). Nevertheless, current literature does not cast much light on the underlying psychological processes intervening in playful experiences (Mukherjee and Lau-Gesk, 2016). In this paper, we adopt this point of view and, through the lens of transportation theory, imagery literature and the arousal-as-information account, our first goal is to identify and then empirically examine the interplay of key psychological phenomena intervening in the formation of playfulness on Facebook.

Previous research has suggested that individual differences in gender account for a significant proportion of the variance in the use of Facebook for entertainment purposes (Błachnio et al., 2016); and also that female Facebookers are more interpersonally oriented than men, such that they spend more time on Facebook and have more Facebook connections than their male peers (McAndrew and Jeong, 2012). However, so far, no known work has assessed the role of gender in the formation of playful feelings on Facebook; and research in media usage has offered little and mixed evidence about the way males and females process media content with entertainment purposes (Arcand and Nantel, 2012; Sun et al., 2010). However, on the basis of information processing dichotomies (Meyers-Levy and Loken, 2015; Putrevu, 2004), it seems plausible to expect that female Facebookers, insofar as they are more predisposed to pursue interpersonal affiliation, are more inclined to consider and process information and opinions generated by others, so they will form more mental associations and more complex elaborations. Based on this, we can state that the relative importance of some psychological factors influencing playfulness on Facebook interacts with gender differences. This leads to the second goal of this paper: to assess the potential moderating role of gender in triggering playfulness experiences on Facebook.

The remainder of this paper is organised as follows. In Sections 2 and 3, we present the background theories that lead to our research model, and we justify the hypotheses. Next, we comment on data collection methods and the survey instrument used in the study, followed by a discussion of the results obtained. In the final section, we conclude with a discussion of the findings, their relevance and implications, and avenues for future research.

2. Theoretical background

Our research is derived from four main theoretical foundations: transportation theory, literature on imagery, the arousal-as-information approach and accounts of gender and information processing – which view women as comprehensive processors. We use transportation theory, imagery literature and the arousal-as-information account to build our main conceptual model of playfulness formation, while the information processing dichotomies offer theoretical support for the inclusion of interactive effects of gender in the model.

2.1. Connecting playfulness with transportation on Facebook

The transportation theory (Green and Brock, 2002, 2000) offers a broad paradigm for understanding consumers' playfulness with hedonic media products (Batat and Wohlfeil, 2009; Green et al., 2004). The central idea of transportation theory is that media content presented in the form of stories is something that people enjoy and that entertains them; and it achieves this through transportation, a psychological experience of full absorption into the world of the media story. When media audiences focus entirely on the narrative world and enact in their minds vivid mental images of the events depicted in the story, they engage strong emotions and feel 'transported', to the point where they feel lost in, or absorbed by, the story (Green and Brock, 2000).

Transportation requires focused attention on the narrative world, mental imagery, and affective feelings to emerge, but it is not merely a fusion of these. In essence, transportation entails a sense of being immersed in the story, or of taking it personally, so, although it involves the cognitive processes of focused attention and mental imagery, these are not distinctive features or components of transportation (Wang and Calder, 2006). Likewise, the emotional facet of transportation corresponds to an affective feeling construct. For this reason, we will conceive focused attention, mental imagery and affective feelings as potential explanatory constructs of transportation.

Transportation is further differentiated from analytical elaboration, a critical concept in dual-processing models of persuasion such as the elaboration likelihood model, or ELM (Petty and Cacioppo, 1981), and the heuristic-systematic model (Chaiken, 1980). Dual-processing models assert that only individuals highly committed to acquiring the information to which they are exposed thoughtfully process the claims that are central to the information. In doing so, they logically evaluate the information and compare it with inner mental inventories – which are based on previous personal experiences, thoughts and knowledge held in memory. Since people involved in analytical elaboration use not only the incoming information but also previous subjective judgements, analytical elaboration is characterised as a divergent process of processing information (Escalas, 2007; Green and Brock, 2000).

In contrast, transportation is conceived as a convergent mechanism to process information. This is because people engaged in transportation distance themselves from their own mental frames and focus on a single, critical object: the media content. Under transportation conditions, the individual immerses themself in the content, structures the information in the form of a narrative and derives its meaning (Escalas, 2007). From the individual's point of view, the transportation experience is capable of strengthening empathy and affective associations with friends and other people pictured in the media (Wohlfeil and Whelan, 2012), and it increases feelings of playfulness or enjoyment (Quintero Johnson and Sangalang, 2017).

Facebook encourages users to process content in a narrative way so they centre on the story elements being depicted in the posts rather than thoroughly analysing them. Facebook supports narrative thought in various forms, varying from promoting the self-presentation of narratives about the user's personal experiences to encouraging the user to provide feedback about others' narrative content. First, Facebook provides self-presentation functionalities that directly encourage users to generate (and share) accounts about themselves, such as autobiographical anecdotes, events they have witnessed and personal episodes involving family and friends. It also shows users life events and memories looking back on posts and friends' posts they are tagged in – all of which are, in many cases, conveyed in the form of stories (van Dijck, 2013). Facebook might also trigger narrative processing indirectly, through memes, sketches, short videos with funny stories and other content shared by friends and included in the Facebooker's News Feed. These events and situations pictured in the News Feed offer what can be deemed to be narrative cues: they provide people with the illusion that they are plunged into a world that transcends the concrete, ordinary realm of everyday life (Gordon et al., 2009), and give a narrative basis for self-generated thought (Escalas, 2004). The Facebooker might evoke autobiographical memories in the form of stories, imagine friends' interactions or future behavioural scenarios, or think in a narrative manner about external stories.

2.2. Mental imagery in content processing through transportation

When people process evocatively powerful stories, they not only attempt to comprehend the narrative but also experience what is called mental imagery. Mental imagery is conceived as spontaneous cognitive experiences that may be produced by the individual's exposure to stories (Gavilan et al., 2014; Kukkonen, 2014). Through mental imagery, people picture in their minds the individuals and events portrayed in the stories.

Mental imagery is one of the aspects mentioned most frequently by people when they recall the stories they have been exposed to (Sadoski et al., 1990). Furthermore, imagery experiences are often highly involving and make heavy processing demands, to the extent that few cognitive resources are left to access the individual's own mental frames (Kim et al., 2017) or to process additional messages (Chang, 2009). All of this facilitates the convergent information processing that leads to transportation. Furthermore, the mental imagery representations of the story at hand provide a basis for processing fluency, and thus comprehending the narrative (Chang, 2013).

2.3. Arousal as a source of internal feedback

Studies in evolutionary psychology, neuropsychology and cognition provide consistent lines of evidence that suggest that affective feelings, such as moods, emotions, and bodily sensations, are used adaptively (for a review, see Forgas et al., 2012) because they provide inner inputs to build evaluative judgements or responses (Huntsinger et al., 2014). Specifically, the affect-as-information approach (Schwarz and Clore, 2003, 1983) defends the assertion that, when people make judgements about situations or events, apart from taking into account incoming external information, they also ask themselves how they feel about the situations or events under consideration. They rely, therefore, on their affective feelings as a source of information (Clore and Palmer, 2009).

Affective feelings are usually conceived as having two broad dimensions (e.g. Kuppens et al., 2017; Russell, 1980; Yik et al., 2011): valence, which refers to how pleasant the affect is; and arousal, which refers to its energy, intensity or activation. Although early empirical work through the lens of the affect-as-information approach had focused on the influence of valence on judgements, this approach is indeed consistent with arousal literature (see Schwarz and Clore, 2003) and, as shown in more recent studies (Bakalash and Riemer, 2013; Yan et al., 2016), it applies to the arousal dimension of affective feelings. In line with this, Storbeck and Clore (2008) suggest that the arousal dimension of affect evoked by external stimuli might lead the individual to make evaluations and show reactions congruent with the direction of arousal. In particular, high arousal might make a stimulus appear to be more important or of higher value, and might increase the individual's reliance on, and dedication to, the particular information processing style he or she is currently using (Yan et al., 2016).

To deal with the affect elicited by a product media such as Facebook, we focus on the function of the psychological arousal produced by the medium. By so doing, our study averts potential overlaps and gaps across specific typologies of affects (Riemer and Viswanathan, 2013) and, instead, it considers the intensity level of affective feelings.

There are some situational constraints that might limit the applicability of the arousal-as-information account insofar as they lead to a disregard for the informational value of affective feelings (Harber, 2005). However, these limitations do not apply to the context of Facebook usage. This is because people do not tend to access their feelings when the situations or events that are presented to them demand that they forge minimal or considerable thoughts, rather than moderated thoughts (Albarracín and Kumkale, 2003; Pham et al., 2001) – as is common in Facebook usage. In addition, people perceive their affective feelings as less informative when they are used to evaluate the fulfilment of instrumental goals (e.g. if a media product would be useful for writing an essay) than when they are employed to assess hedonic goals (Pham, 1998), such as having fun and being entertained with Facebook.

2.4. Mental imagery and gender in content processing

An intriguing research question regarding the usage of media products is whether gender differences translate into relevant female/male dissimilarities in processing media content (Arcand and Nantel, 2012; Sun et al., 2010). Despite the various studies on transportation, the role of gender in the formation of transportation experiences in individuals has been examined in only a few of these previous studies, which indeed have reported mixed results. For example, in an initial survey carried out by Green and Brock (2000) to develop a scale of transportation, females reported more transportation than their male counterparts; whereas in subsequent experiments, gender differences did not appear to be associated with transportation. Similarly to this first survey by Green and Brock (2000), Mar et al. (2009) noted that women scored themselves higher on narrative engagement and transportation.

However, according to research on information processing (Meyers-Levy and Loken, 2015), gender differences in biology, identity development, and cognition (Eagly and Wood, 2013) lead to different intrinsic predispositions that guide the processes through which females and males acquire and process information (Kim et al., 2007). Meyers-Levy and Maheswaran's selectivity hypothesis asserts that, compared to men, females tend to be involved in more exhaustive information processing and to consider a wider array of information, including information not easily accessible in the immediate environment and information retained in memory. Men, in contrast, are more inclined to employ a narrower variety of information cues, which are indeed salient and conveniently accessible (Meyers-Levy and Maheswaran, 2004, 1991). Complementary to this theory (Kempf et al., 2006) is Putrevu's item-specific/relational processing dichotomy (Putrevu, 2001), which suggests a tendency for male involvement in item-specific processing (Einstein and Hunt, 1980; Hunt and Einstein, 1981), in this way, men centre on separate pieces of information and view things in a less interrelated manner. Females, however, are more willing to consider similarities, differences and connections between many pieces of information.

These two compatible theories mainly focus on explaining gender variation in analytical elaboration behaviours. However, they both include an idea that is useful in examining the role of mental imagery in information processing through transportation (Chang, 2013), which is indeed in sync with early studies on mental imagery (Campos and Sueiro, 1993; Richardson, 2000). Specifically, women, as more comprehensive processors, might be expected to link the literal meaning and the figurative meaning, and so they are prone to transforming the media content into mental imagery (Putrevu, 2001) and evoke a greater number of vivid imagery-based interpretations in their minds (Wood, 1966). Consistent with this, females, compared to males, tend to place greater importance on sensory cues.

3. Research model and development of hypotheses

Overall, we propose a model of Facebook playfulness (see Fig. 1). Derived from transportation theory, imagery literature, the

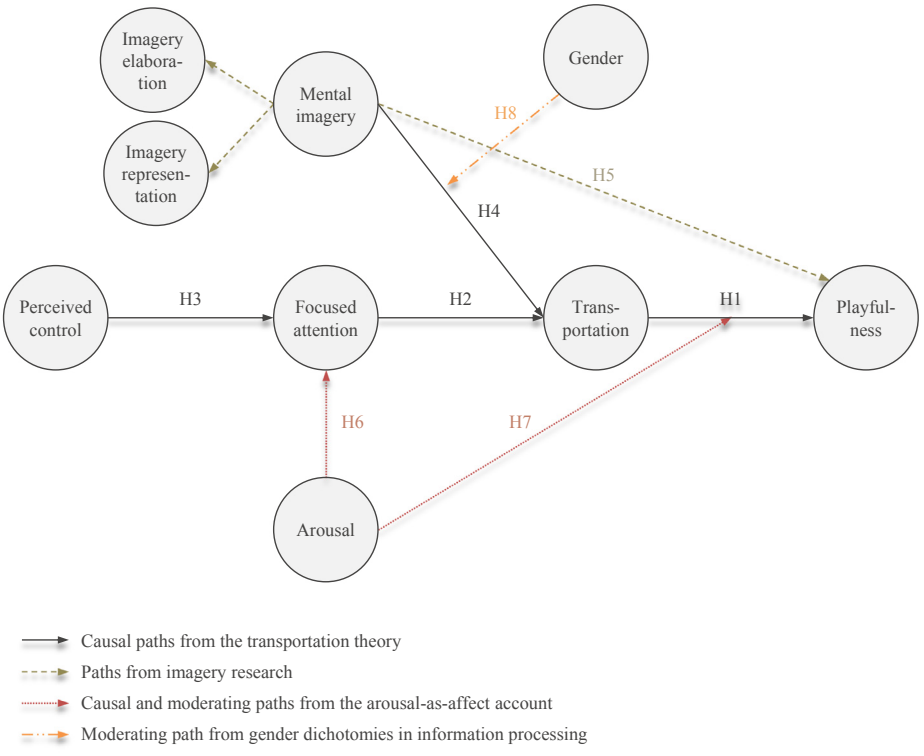

Fig. 1. The Facebook playfulness model.

arousal-as-affect account, and gender dichotomies in information processing (i.e. the selectivity hypothesis and the item-specific/relational processing dichotomy), the model integrates transportation, mental imagery, arousal, and gender as key explaining or moderating variables of playfulness formation.

Playfulness is an important aspect in the consumption of media products such as Facebook (Hung et al., 2016). Since Lieberman's classic study (1977), playfulness has been used to portray those subjective experiences that increase hedonic pleasurable outcomes of intrinsic enjoyment and amusement, and feelings of fun (Mukherjee and Lau-Gesk, 2016; Sibai, 2016; Van Vleet and Feeney, 2015). Playfulness denotes creativity, sense of humour, cognitive spontaneity, and a bent for novel experience seeking (Byun et al., 2017). Playfulness has also been related with highly interactive activities (Van Vleet and Feeney, 2015). In human–computer interaction, playfulness is often measured with a multi-item scale that captures the way in which people characterise their interactions while using a particular IT artefact (Woszczynski et al., 2002). Also, recent studies reveal that SNS users display creativity, sense of humour and amusement as a means for strengthening their personal social networks (Hsieh and Tseng, 2017; Lewin-Jones, 2015); by contrast, angry or frustrated rebukes are less frequent in SNSs since they might have repercussions in personal relationships (Hsieh and Tseng, 2017; Mayshak et al., 2017). Playfulness might materialise as story-telling (Jacucci et al., 2007), posts in humorous tones, creative language, self-denigrating updates, and jokes and memes light-heartedly created by users (Lambert, 2013; Sherman and Jaroslav, 2015). By creating and sharing stories and jokes with funny punchlines with their personal social networks, users increase playfulness (Hsieh and Tseng, 2017). Within the context of personal relationships, playfulness is recognised as having important functions, since it leads to people feeling in sync, helps to establish secure relationship contexts, triggers a sense of positive affect (Van Vleet and Feeney, 2015), and provides opportunities for self-presentation and building relational identities (Moalla, 2013; Tsakona, 2017).

Transportation experiences are the key element in our proposed model for explaining people's variability in perceived playfulness in response to Facebook usage. Before a feeling of pleasurable playfulness might occur, people will be plunged into stories (Green et al., 2004). Even though transportation has not been specifically connected with playfulness, mainly because it has been studied in low interactive contexts (such as written narratives, advertising and films), it has consistently been found to be central to pleasurable outcomes in media usage, such as the individual's connection with a story's characters (Hall and Bracken, 2011), and enjoyment (Batat and Wohlfeil, 2009; Chen and Lee, 2014; Quintero Johnson and Sangalang, 2017).

We conceive transportation as a holistic, psychological construct that underlies playfulness experiences in media products and represents the degree in which the individual is voluntarily engrossed in the media content (Escalas et al., 2004; Green et al., 2004). Under transportation experiences, people's thoughts are immersed in the story and they mentally picture the events, settings and characters as they develop; they also experience what the characters feel (Chang, 2009). This description illustrates the way in which people undergo transportation experiences, and it includes elements that are also characteristic of flow experiences. Under episodes of both flow and transportation, people feel deeply absorbed, to the point that they might forget about themselves, lose track of time, and become detached from the events happening around them (Green, 2004; Green et al., 2004; Nakamura and Csikszentmihalyi, 2009). With flow, however, the emphasis lies on the immersion in a particular action, an activity that they are currently performing, whereas people who feel transported are immersed into the mediated world of a narrative (Wissmath et al., 2009). Furthermore, to plunge into flow, people feel challenged by the demands raised by the activity, so they work at their full capacity to meet these demands (Rodríguez-Ardura and Meseguer-Artola, 2017). By contrast, individuals who are transported, although fully focused on the world of the narrative, do not necessarily feel challenged or required to make great efforts (Green et al., 2008). Moreover, people might experience flow in non-narrative settings (for example, in processing highly analytical didactic content that is not presented in story-like formats), while transportation appears mainly when people process narratives (Green et al., 2004; Rodríguez-Ardura and Meseguer-Artola, 2017).

Narrative content might be fictional or factual (Green, 2004). In the context of Facebook, stories often depict realistic events, which are consistent with the user's prior knowledge and personal social network and involve familiar characters. In addition, Facebook usage might not raise transportation experiences to their full extent as previously described. Hence, we will characterise transportation on Facebook as a moderate immersion in the content of the medium.

Based on the foregoing discussion, we suggest the following hypothesis:

H1. *Transportation has a positive effect on playfulness.*

Sustained, focused attention to the story, understood here as the degree in which users take notice of the story and are not diverted by thoughts unconnected to the narrative, has been suggested as a necessary antecedent of transportation (Quintero Johnson and Sangalang, 2017; van Laer et al., 2014). This is because transportation deploys in a convergent processing of information, in such a way that the individual subjectively disengages from the immediate surroundings (Green and Brock, 2000) and centres their mental resources on the media's stories (Bezdek and Gerrig, 2017), so they take them personally (Escalas et al., 2004). Accordingly, we hypothesise a positive impact of focused attention on transportation.

H2. *Focused attention has a positive effect on transportation.*

In interactive media products, focused attention is enabled by perceived control – the user's sense of being competent and autonomous in their movements into the virtual environment (Ajzen, 2002). On Facebook, a user may feel in control when he or she perceives they can effectively and freely interact with friends and is not subject to strict limits that restrain their actions online, so they feel in charge of their experiences. This sense of being capable of making things happen online might facilitate the user's concentration on the events happening in the virtual environment (Rodríguez-Ardura et al., 2016). This reasoning gives rise to expectations of a positive effect of perceived control on focused attention.

H3. *Perceived control has a positive effect on focused attention.*

Mental imagery has been defined as either a mental, imaginal process through which imagery is elaborated (MacInnis and Price, 1987) or as an inner representation, a knowledge schema or script (Paivio, 1986) that might be multi-sensory and similar to a real perception (Pearson et al., 2015). Imagery elaborations consist of individuals' cognitive activities through which they encode external stimuli – presented here in the form of stories – and create and evoke sensory images in their minds (Bolls and Muehling, 2007) by means of imagination (Babin and Burns, 1998; Martin, 2004). Imagery representations, for their part, refer to concrete mental depictions, organised in a representational system, which result from imagery processing (Childers and Houston, 1983). Because imagery elaboration contributes to information processing, individuals cannot consciously access it, whereas imagery schemas are perceived consciously and have quasi-perceptual qualities (Marks, 1999): they might be quantifiable (i.e. number of images evoked) and vary in terms of vividness (i.e. clarity, level of detail, or intensity). This distinction is further in sync with Babin and Burns (1998), who differentiated between the elaboration dimension of imagery, vividness of the imagery and the quantity of representations of the imagery generated. Based on this rationale, we adopt an integrative approach and conceive mental imagery as a superordinate construct that subsumes imaginal elaboration (i.e. a process aroused by Facebook usage that makes use of imagination to elicit sensory stimuli) and imagery representations (i.e. mental simulations that portray Facebook events, characters and their relationships).

Mental imagery, elicited by captivating stories, is reportedly observed as a precursor of transportation (Kim et al., 2017; Wang and Calder, 2006; Wissmath et al., 2009). This is because when people are exposed to appealing stories, they experience mental imagery (Chang, 2013), through which they build mental multi-sensory images that represent the story's events and characters. This underlying mental imagery (Foglia and O'Regan, 2016) provides information and is used flexibly in information processing (Childers and Houston, 1983; Pearson and Kosslyn, 2015; Pylyshyn, 2002).

Consistent with this, we expect that Facebook stories, by way of mental imagery, make it relatively easier for Facebookers to process narratives, so that they foster the individual's transportation into the narrative world.

H4. *Mental imagery has a positive effect on transportation.*

The clear, detailed nature of imagery representations, created or maintained by imagery processing, suggests that a person's mental imagery is more than just an internal phenomenon. It is, rather, an experience well placed to be the basis of positive psychological outcomes (Hirschman and Holbrook, 1982; Le Bel and Dubé, 1998) – such as pleasure (Le Bel and Dubé, 1998; Lee and Qiu, 2009) and experiential value (Fiore et al., 2005b, 2005a); and leads individuals into behavioural contexts (Bolls and Muehling, 2007). Moreover, mental imagery is capable of fostering cognitive spontaneity and creative thought (Thomas, 1999; Wu, 2013), which are important facets of playfulness (Byun et al., 2017).

People employ mental imagery to make interactions enjoyable and playful (Møller, 2015). Mental imagery helps users to explore online scenarios they find novel, curious or imaginative, it helps, therefore, to externalise imagination into inventive and spontaneous behaviours (Chiang and Lin, 2010; Wang and Wang, 2008). This is because playfulness experiences are often 'anchored at the border between the real and the imaginary' (Sibai, 2016, p. 625) and also because mental imagery facilitates people's breaking away from conventional situations, finding fresh, novel alternatives (Runco, 2014) and being ready to embark upon them (Guitard et al., 2005, p. 21). Considering the preceding arguments, we hypothesise that:

H5. *Mental imagery has a positive effect on playfulness.*

Facebook users may experience affective arousal (Dickstein-Fischer, 2012; Tran et al., 2016). Arousal captures an inner sense of being emotionally activated, eager or engaged by outer stimuli (Wu and Holsapple, 2014), in our case coming from Facebook. Arousal is believed to be a psychological force that energises or intensifies the current behaviour of the individual (Zillmann, 1991).

On the basis of the arousal-as-information account, high arousal is associated with a more adaptively narrowed focus of attention (Storbeck and Clore, 2008). Conversely, an online user experiencing low levels of arousal might not become fully aware of the events taking place in the virtual environment because his or her cognitive and attentional efforts are not focused on the details (Wu and Holsapple, 2014). Accordingly, highly arousing events are more likely to be seen as more accessible and important, so they will draw the individual's attention; with the result that the informational value of the arousal in terms of unrelated, peripheral stimuli will be limited, thus these stimuli will sit unattended (Schwarz and Clore, 2007). Previous evidence for this enhancement effect of arousal on focused attention comes from Bakalash and Riemer's (2013) study, which observed that arousal elicited by advertisements fosters increased attention. Consistent with this:

H6. *Arousal has a positive effect on focused attention.*

Research on entertainment-related behaviour has documented the concomitance of arousal with playfulness (Mahatanankoon, 2007). What is more, people who experience arousal with a media product appear to be more inclined to use the product in a playful way (Wu and Holsapple, 2014) and to enjoy playing it (Wang et al., 2007).

The arousal-as-information account proposes a nuanced understanding of the potential link between arousal and playfulness by suggesting an interaction effect of information processing and arousal on judgement formation (Clore and Huntsinger, 2007). Following this line of thought, we presume that the affective cues of arousal moderate the impact of information processing (that is taking place in the form of transportation) by providing compelling experiential information. Therefore, arousal contributes to the user's judgement of Facebook playfulness by intensifying the individual's dedication to transportation into the virtual content.

H7. *The positive effect of transportation on playfulness is moderated by arousal.*

The selectivity hypothesis (Meyers-Levy and Maheswaran, 2004, 1991) and the item-specific/relational processing dichotomy (Putrevu, 2001) provide solid grounds for acknowledging the larger influence of mental imagery on females with regards to their being transported by stories. On the basis of these theoretical accounts, it seems reasonable to assume that male Facebookers are not as inclined as their female counterparts to pay attention to details of information, form lots of mental associations between disparate pieces of information, and engage themselves in connecting and processing all available content so as to facilitate transportation. Rather, male users are apt to take into consideration a smaller array of cues, which are indeed easily seen and accessible in stories. Furthermore, females produce more detailed imagery elaborations than men (Kim et al., 2007), and elicit more mental representations involving imagery associations (Kim et al., 2007). Therefore, it is hypothesised that:

H8. *The positive effect of mental imagery on transportation is stronger for females than for males.*

4. Research method

4.1. Sampling and data collection

Data was collected from users of Facebook Spain aged over 18 years old who had visited Facebook at least once in the month preceding the invitation to take part in the survey. Respondents were recruited through snowball sampling. Accordingly, in the first wave, the questionnaires were addressed to a convenient sample while, in the next waves, respondents recruited new participants by chain-referral – so the sampling scheme evolved into a semi-random selection (Baltar and Brunet, 2012). For data collection purposes, an online survey was used.

The initial sample consisted of 778 respondents. To proceed with the analyses, all uncompleted online questionnaires were removed, so the final sample comprised 416 cases. Because it is not possible to statistically design an unbiased semi-random sampling, we examined the sample's representativeness *ex-post*, by comparing the final sample with data on the Facebook population in Spain. The differences observed were slight and non-significant. First, Facebooker age distribution and the male–female ratio in the sample are very close to those of the population (see Table 1). Second, the deviations, assessed using the chi-squared test in the case of the age frequency distribution (p-value = 0.402) and the t-test in the case of gender, show that the online survey attained an acceptable representativeness.

4.2. Measurement

We developed the measurement items by adopting scales that had been validated in previous studies (Table 2). The perceived playfulness scale was an adaptation of Webster and Martocchio's (1992) scale, which was originally designed to capture the degree of cognitive spontaneity and inventiveness in human–computer interactions. Transportation was measured with an adaptation of McQuarrie and Munson's (1992) scale and captured the degree of experiencing a state of holistic immersion in the world of Facebook stories. Focused attention, understood as the extent to which individuals address their attention to the limited stimulus field of Facebook, was assessed with Ghani and Deshpande's (1994) scale. Perceived control, measured with Havlena and Holbrook's (1986) scale, captured the user's experience of being in charge of their interactions within Facebook. The measurement scale of mental imagery consisted of six items, which were arranged into two dimensions: imagery elaboration and imagery representation. Items corresponding to the elaboration dimension were adapted from Babin and Burns's (1998) imagery elaboration sub-scale, while items grouped in the representation dimension derived from Babin and Burns's (1998) imagery quantity and imagery vividness sub-scales and Walters et al.'s (2012) consumption imagery scale. Havlena and Holbrook's (1986) arousal scale was used to examine the arousal component of the Facebook experience. Responses to each scale item were scored on a seven-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (7).

4.3. Preventive measures to avoid common method biases

To prevent the issue of common method biases, in the questionnaire design stage we implemented procedural measures recommended by Podsakoff et al. (2003). We adapted the measurement items' wording to fit the context of Facebook usage (Table 2). Furthermore, eight scholars with track records of extensive research in social media experiences confirmed the content validity of the

Table 1
Descriptive statistics of the sample.

Variables		Population (%)*	Sample (%)
Age	18–39	52.0	49.6
	40–64	42.0	45.5
	≥65	6.0	4.9
Gender	Male	47.0	46.6
	Female	53.0	53.4

*Source: The Social Media Family (2018).

Table 2
Questionnaire measurement scales.

Constructs	Original scales	Adapted questionnaire scales
Playfulness	(Webster and Martocchio, 1992)	*[While using Facebook I feel I am:]* (P1) Imaginative (P2) Creative (P3) Playful (P4) Spontaneous
Transportation	(Green and Brock, 2000)	(T1) I can easily picture the events on Facebook taking place (T2) I can picture myself in the places, scenes or stories that I visit on Facebook (T3) I am mentally involved in scenes or stories on Facebook while reading them (T4) While I browse pages and resources on Facebook, I find my mind wandering while I read stories on Facebook
Focused attention	(Ghani and Deshpande, 1994)	*[While using Facebook:]* (FA1) I am deeply engrossed in the activity (FA2) I am absorbed intensely in the activity (FA3) My attention is focused on the activity (FA4) I concentrate fully on the activity
Perceived control	(Havlena and Holbrook, 1986)	*[While using Facebook:]* (PC1) I have the feeling that I control my actions on Facebook (PC2) I feel I am autonomous on Facebook (PC3) I feel I influence my actions on Facebook (PC4) I feel I dominate my actions on Facebook
Imagery elaboration	(Babin and Burns, 1998)	*[While I browse pages and resources on Facebook:]* (IE1) I can daydream about places, people or events that appear on Facebook (IE2) I can imagine what it would be like to visit places, meet people or experience events on Facebook (IE3) I can imagine the actual, physical characteristics of places, people or events on Facebook
Imagery representation	(Babin and Burns, 1998; Walters et al., 2007)	*[While I browse pages and resources on Facebook:]* (IR1) Many images come to my mind (IR2) The mental images that come to mind are very clear (IR3) The mental images that come to mind form a series of events in my mind which I am a part of
Arousal	(Havlena and Holbrook, 1986)	*[While using Facebook I feel I am:]* (A1) Frenzied (A2) Excited (A3) Stimulated (A4) Aroused

measurement instrument. The measurement items were then translated into the two languages most prominent in Facebook Spain by scholars in the field and specialised translators. These measures aimed to facilitate respondents' understanding of the measurement items (Gioia and Sims, 1985) and avoid random responses (Podsakoff et al., 2003).

5. Analysis and results

The predictive power of the proposed model, together with the hypothesised relationships between constructs, was tested with the variance-based structural equation modelling (SEM) technique known as partial least squares or PLS. PLS is a robust and versatile technique for casual inquiry (Hair Jr et al., 2011), which builds on groups of variables and maximises the explained variance of the dependent variables through the independent variables to estimate model parameters (Roldán and Sánchez-Franco, 2012). PLS is considered to be a suitable method to appropriately explain in any regression in the model the residual variance of the unobserved and observed variables (Vinzi et al., 2010). Hence, PLS can be used to estimate both the relationships among the latent variables (i.e. the constructs being studied) and the links between the manifest variables (i.e. the scale items) and their associated underlying constructs. This results in a two-step analysis. In the first step, it is assessed how well the measurement scales relate to the corresponding constructs. This implies examining the reliability and the convergent and discriminant validity of the measurement model. Once the psychometric properties of reliability and validity are guaranteed, in the second step the structural model is estimated and the parameters that predict the endogenous constructs are calculated. This two-step sequence is completed by drawing conclusions about the causal links between constructs.

In comparison with covariance-based SEM (CB-SEM) techniques, PLS deals better with measurement errors (Lowry and Gaskin, 2014), so it is more sensitive to mediator effects (Chin et al., 2003) and requires smaller sample sizes (Reinartz et al., 2009). Used along with a product indicator approach, PLS is indeed more effective than CB-SEM in assessing interaction effects (Chin et al., 2003; Henseler and Chin, 2010). In addition, PLS is well suited to assessing models with many constructs or scale items (Hair Jr et al., 2017a) and higher-order latent structures; and, in contrast with CB-SEM, it does not require the data to be multivariate normally

distributed (Reinartz et al., 2009).

The reasons that led us to use PLS were threefold. Firstly, our structural model is complex in terms of the number of latent constructs (six) and their dimensionality (*mental imagery* is defined as a second-order construct while the rest are first-order constructs). Secondly, *H7* and *H8* include interaction effects that needed to be tested with a product indicator approach. Thirdly, the data follows non-normal multivariate distributions (the *p*-value of the Shapiro-Wilk test for multivariate normality is 0.000). Furthermore, our data collection provided a valid sample size for a robust PLS estimation, according to the popular rule of thumb originally proposed by Barclay et al. (1995). This is because the product of 10 times the largest number of paths directed towards a specific endogenous construct in the structural model was 40, which was clearly exceeded by the size of the sample (416).

Because *mental imagery* was conceived as a second-order construct and was reflective in nature (Lowry and Gaskin, 2014), this research created a molar model and used the repeated indicators approach (Wold, 1982) to determine the degree to which the first-order factors contribute to *mental imagery*. In this approach, the second-order latent variable is constructed through a latent variable that represents all the observed variables of the first-order latent variables; and the observed variables associated to the lower-order factors are used to directly measure the higher-order factor.

To examine the potential moderating role of arousal and gender (see hypotheses *H7* and *H8*), we applied the product indicator approach proposed by Chin et al. (2003). This approach requires the creation of a new latent variable (the latent interaction term), which is measured through all possible pairwise products of the items of the exogenous variable and the moderator variable.

Since our data does not follow a multivariate normal distribution, to test the significance of the path coefficients in the structural model we performed a bootstrapping nonparametric technique (Streukens and Leroi-Werelds, 2016). The bootstrapping procedure consists of creating a predefined number of bootstrap samples from the original sample by performing a repeated random sampling (with replacement), with the particularity that the bootstrap samples and the original sample both have the same number of cases. Next, the PLS algorithm is used to estimate the model from each bootstrap sample, and all estimates for each parameter are employed to create its sampling distribution. Based on the data yielded by the algorithm, a Student's *t*-test is employed to assess the significance of each parameter.

5.1. Measurement model

In PLS, the assessment of the measurement model for reflective indicators considers both the internal consistency reliability and the individual item reliability. As seen in Table 3, all Cronbach's α values and Dillon-Goldstein's ρ values are greater than the minimum required value of 0.70. Additionally, the first eigenvalues of the correlation matrix of each set of items exceeds 1, and the second eigenvalues are lower than 1. Based on these results, we deem that the reflective-item internal consistency reliability of the measurement model is fulfilled.

The loadings of the items with their respective constructs (see Table 4) are all higher than the accepted cut-off level of 0.70; hence all communalities exceed 0.50. In most cases, more than 70% of the item's variability is captured by its latent variable. Therefore, the individual item reliability is satisfactory. Additionally, the average variance extracted (AVE) of each construct was above the recommended acceptable 0.50 level. All these results also indicate that the convergent validity of the measures is satisfied.

Positive evidence of discriminant validity of the measures was found by taking into consideration both the cross loadings of the items and Fornell and Larcker's (1981) criterion. On the one hand, loadings of each item on its constructs are greater than the cross loadings on other constructs (Table 5). On the other hand, the AVE of each construct (Table 4) is higher than the highest squared correlation of that construct with any other construct (Table 6).

5.2. Assessment of common method biases

Since all the data was collected using the same instrument, we considered two *post hoc* methods to uncover and control any possible common method bias issues. Firstly, we used the unrotated factor analysis for all observed variables to find the results of Harman's single-factor test. The largest factor accounted for 40.1% of the variance of the model – which is less than the maximum required value of 50% for not having common method bias. Secondly, we examined the pairwise squared correlations between constructs. As shown in Table 6, all the squared correlations between different constructs are significantly less than the recommended cut-off of 0.81 (Pavlou et al., 2007). This also suggests that the potential existence of common method biases will not significantly interfere in the data analysis.

Table 3
Internal consistency reliability of the measurement model.

	Number of items	Cronbach's α	Dillon-Goldstein's ρ	First eigenvalue	Second eigenvalue
Playfulness	4	0.874	0.914	2.905	0.552
Transportation	4	0.849	0.898	2.755	0.523
Focused attention	4	0.914	0.940	3.183	0.448
Perceived control	4	0.796	0.868	2.490	0.850
Imagery elaboration	3	0.923	0.951	2.599	0.260
Imagery representation	3	0.904	0.940	2.520	0.310
Arousal	4	0.928	0.949	3.289	0.362

Table 4
Individual item reliability and convergent validity of the measurement model.

	AVE	Weight	Loading	Communality
Playfulness	0.726			
P1		0.311	0.862	0.743
P2		0.303	0.878	0.771
P3		0.276	0.835	0.698
P4		0.283	0.832	0.692
Transportation	0.689			
T1		0.307	0.808	0.652
T2		0.308	0.864	0.749
T3		0.290	0.820	0.673
T4		0.300	0.826	0.680
Focused attention	0.795			
FA1		0.267	0.865	0.748
FA2		0.268	0.909	0.826
FA3		0.283	0.881	0.776
FA4		0.303	0.913	0.833
Perceived control	0.621			
PC1		0.315	0.782	0.625
PC2		0.310	0.799	0.638
PC3		0.379	0.875	0.766
PC4		0.320	0.785	0.617
Imagery elaboration	0.866			
IE1		0.366	0.912	0.832
IE2		0.357	0.946	0.894
IE3		0.352	0.934	0.872
Imagery representation	0.840			
IR1		0.364	0.920	0.846
IR2		0.372	0.938	0.880
IR3		0.355	0.891	0.793
Arousal	0.822			
A1		0.236	0.855	0.731
A2		0.287	0.938	0.880
A3		0.303	0.909	0.826
A4		0.275	0.922	0.851

5.3. Structural model

We created a second-order molar construct for *mental imagery* that was reflectively related to its two dimensions (i.e. *imagery elaboration*, *imagery representation*). By using the repeated indicators approach, we introduced this molar structure into the model estimation. As suggested by Becker et al. (2012), the mode of measurement for the higher-order repeated indicator was mode A; and the inner weighting scheme used for the PLS algorithm was centroid.

We used the product indicator approach to assess the moderating relationships considered in hypotheses *H7* and *H8*. Consistent with this, we obtained the interaction terms by multiplying predictors and moderator variables. Furthermore, to prevent any possible inflation of the moderation effect on the corresponding relationships (Hair Jr et al., 2017b), the structural model included the simple effect of the moderator variables on the corresponding endogenous latent variable (*gender* → *transportation*, *arousal* → *playfulness*).

Next, we assessed the model's quality. Although the goodness-of-fit index was 0.71, which can lead to the conclusion that the model has an overall high prediction power (Tenenhaus et al., 2005), we took additional quality measures into consideration. This is because statistics of PLS-model fit have been shown to be problematic (Henseler and Sarstedt, 2013). The coefficient of determination (R^2) associated to each regression in the model and the significance of the path coefficients, however, are suitable for validating the PLS models.

Table 7 shows the results of the four regressions included in the model. The R^2 values indicate that the levels of predictive accuracy are acceptable: there is moderate accuracy for both *focused attention*, and *playfulness* ($0.25 < R^2 < 0.75$); and high accuracy in the case of *transportation* ($R^2 > 0.75$). Also, the higher-order construct *mental imagery* is perfectly explained through its two dimensions ($R^2 = 1$). Although no hypothesis was proposed regarding the inclusion of *mental imagery* as a reflective construct in the model, it is worth noting that *mental imagery* is almost equally an imaginal process and an inner multi-sensory representation (the path coefficients between these dimensions are 0.585 and 0.536, respectively).

To complete the quality assessment, we checked the significance of the path coefficients. Because the data does not follow a multivariate normal distribution, the bootstrap re-sampling procedure (with 500 re-samples) was used to generate the standard errors and *p*-values. Table 8 shows that all *p*-values are lower than 0.05, which indicates that the path coefficients are significantly different from 0. Therefore, the proposed causal and moderating relationships are statistically different from 0 (see Fig. 2).

Table 5
Cross loadings of items.

	Playfulness	Transportation	Focused attention	Perceived control	Imagery elaboration	Imagery representation	Arousal
P1	**0.862**	0.426	0.410	0.443	0.341	0.399	0.595
P2	**0.878**	0.421	0.322	0.429	0.358	0.332	0.594
P3	**0.835**	0.381	0.331	0.406	0.325	0.394	0.530
P4	**0.832**	0.404	0.261	0.434	0.398	0.372	0.508
T1	0.392	**0.808**	0.346	0.274	0.751	0.593	0.223
T2	0.395	**0.864**	0.282	0.349	0.812	0.545	0.260
T3	0.387	**0.820**	0.427	0.399	0.634	0.482	0.331
T4	0.417	**0.826**	0.431	0.398	0.610	0.578	0.314
FA1	0.334	0.387	**0.865**	0.449	0.249	0.288	0.312
FA2	0.357	0.346	**0.909**	0.444	0.220	0.284	0.364
FA3	0.341	0.447	**0.881**	0.486	0.316	0.340	0.285
FA4	0.361	0.411	**0.913**	0.500	0.280	0.289	0.394
PC1	0.346	0.314	0.324	**0.782**	0.276	0.237	0.234
PC2	0.384	0.359	0.406	**0.799**	0.261	0.269	0.350
PC3	0.489	0.420	0.495	**0.875**	0.323	0.322	0.455
PC4	0.351	0.243	0.418	**0.785**	0.180	0.206	0.370
IE1	0.402	0.789	0.285	0.310	**0.912**	0.601	0.281
IE2	0.395	0.787	0.315	0.302	**0.946**	0.526	0.270
IE3	0.364	0.788	0.235	0.307	**0.934**	0.518	0.264
IR1	0.405	0.605	0.313	0.302	0.538	**0.920**	0.266
IR2	0.428	0.623	0.290	0.312	0.550	**0.938**	0.281
IR3	0.372	0.596	0.325	0.293	0.533	**0.891**	0.293
A1	0.475	0.258	0.326	0.369	0.192	0.248	**0.855**
A2	0.616	0.331	0.357	0.438	0.296	0.298	**0.938**
A3	0.688	0.346	0.340	0.445	0.286	0.305	**0.909**
A4	0.574	0.285	0.357	0.398	0.273	0.252	**0.922**

Table 6
Squared correlation between constructs.

	Transportation	Focused attention	Perceived control	Imagery elaboration	Imagery representtation	Arousal
Playfulness	0.230	0.152	0.252	0.173	0.192	0.429
Transportation		0.200	0.182	0.617	0.440	0.115
Focused attention			0.278	0.090	0.114	0.145
Perceived control				0.109	0.109	0.209
Imagery elaboration					0.348	0.085
Imagery representation						0.093

Table 7
Path coefficients.

			Esti-mate	Std. error	*t*-value	*p*-value	R^2
Regression 1							1.000
Intercept			*0.000*	*0.000*	*0.000*	*1.000*	
Imagery elaboration	→	Mental imagery	0.585	0.000	0.009	0.000	
Imagery representation	→	Mental imagery	0.536	0.000	0.008	0.000	
Regression 2							0.532
Intercept			*0.000*	*0.034*	*0.000*	*1.000*	
Transportation	→	Playfulness	0.426	0.091	4.680	0.000	
Mental imagery	→	Playfulness	0.168	0.061	2.754	0.000	
Arousal	→	Playfulness	0.908	0.092	9.890	0.000	
Arousal *x* Transportation	→	Playfulness	0.541	0.127	4.270	0.000	
Regression 3							0.819
Intercept			*0.000*	*0.021*	*0.000*	*1.000*	
Focused attention	→	Transportation	0.135	0.023	5.900	0.000	
Mental imagery	→	Transportation	0.515	0.034	0.153	0.000	
Gender	→	Transportation	0.546	0.047	0.123	0.000	
Gender *x* Mental imagery	→	Transportation	0.380	0.043	8.960	0.000	
Regression 4							0.303
Intercept			*0.000*	*0.041*	*0.000*	*1.000*	
Perceived control	→	Focused attention	0.447	0.046	9.680	0.000	
Arousal	→	Focused attention	0.176	0.046	3.820	0.000	

Table 8
Bootstrapping results.

			Path coefficients (original)	Path coefficients (bootstrapping)	Std. error	*p*-value
Transportation	→	Playfulness	0.426	0.422	0.071	0.000
Focused attention	→	Transportation	0.135	0.136	0.026	0.000
Perceived control	→	Focused attention	0.447	0.450	0.046	0.000
Mental imagery	→	Transportation	0.515	0.516	0.035	0.000
Mental imagery	→	Playfulness	0.168	0.171	0.066	0.000
Arousal	→	Focused attention	0.176	0.178	0.050	0.000
Arousal	→	Playfulness	0.908	0.907	0.086	0.000
Arousal *x* Transportation	→	Playfulness	0.541	0.543	0.055	0.000
Gender	→	Transportation	0.546	0.549	0.048	0.000
Gender *x* Mental imagery	→	Transportation	0.380	0.381	0.047	0.000

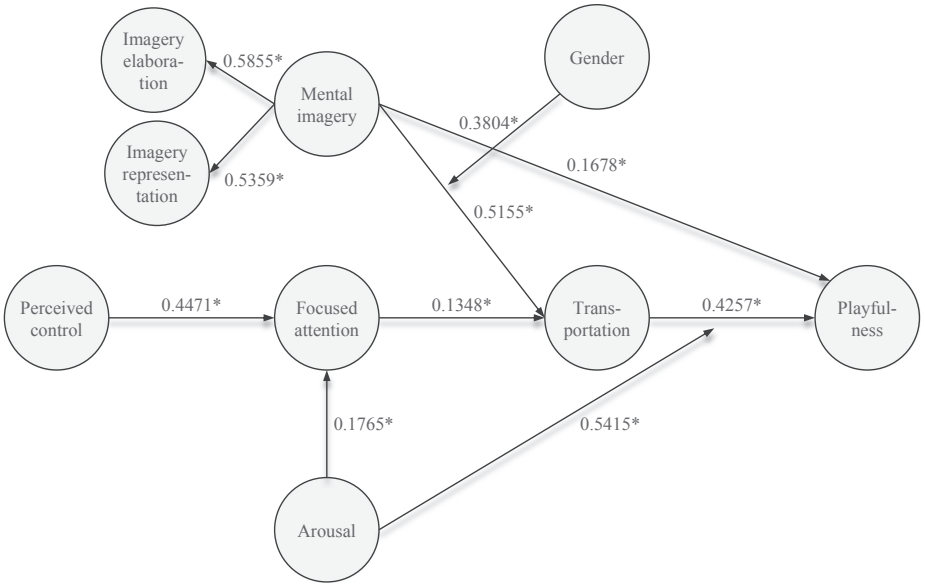

Fig. 2. PLS model-testing results. $^{*}p$-value < 0.001.

All hypotheses are supported on the basis of the empirical analysis. These results show that *perceived control* and *arousal* have a significant and positive effect on *focused attention* ($\beta = 0.45$ and $\beta = 0.18$, respectively), and that, in turn, *focused attention* positively influences *transportation* ($\beta = 0.14$). Also, the global perception of *mental imagery* (shaped as a holistic perception of imagery elaboration and imagery representation) has a significant and positive impact on *transportation* ($\beta = 0.52$), yet this impact is moderated by *gender* ($\beta = 0.38$). Finally, *playfulness* receives a significant influence from *mental imagery* ($\beta = 0.17$) and from *transportation* ($\beta = 0.43$) – although this latter relationship is moderated by *arousal* ($\beta = 0.54$).

Apart from the direct and moderating effects between constructs, the model includes some important indirect effects between *gender* and *playfulness* and between *mental imagery* and *playfulness*. Results in Table 9 reveal the important mediating role of *transportation*: five constructs (*focused attention*, *perceived control*, *mental imagery*, *arousal* and *gender*) have an indirect effect on *playfulness* through *transportation*. Added to this, bootstrapping results corroborate that these indirect effects are all statistically significant.

Table 9
Indirect effects between constructs.

Relationships			Direct effects	Indirect effects	Total effects
Focused attention	→	Playfulness	0.000	0.057	0.057
Perceived control	→	Playfulness	0.000	0.026	0.026
Mental imagery	→	Playfulness	0.168	0.219	0.387
Arousal	→	Playfulness	0.908	0.010	0.918
Gender *x* Mental imagery	→	Playfulness	0.000	0.162	0.162
Gender	→	Playfulness	0.000	0.233	0.233
Perceived control	→	Transportation	0.000	0.060	0.060
Arousal	→	Transportation	0.000	0.024	0.024

6. Conclusions, limitations and future lines of research

This study makes some important contributions to the literature on online consumer behaviour. First, it proposes and successfully validates a novel model of playfulness on Facebook, an essential facet for guaranteeing the success of people's, brands' and organisations' initiatives in this SNS. The model is grounded on transportation theory, the arousal-as-information approach and theoretical perspectives that consider gender in information processing, and it clearly highlights the importance of mental imagery, transportation and arousal – insofar as they have a significant direct influence on users' feelings of playfulness on Facebook. These findings are particularly noteworthy given that, until now, very little was known about the amount of variance in playfulness accounted for by the feeling of being transported by a story.

Second, the study is more in line with the call made by some researchers for more investigation on users' experiences in specific-digital technology contexts, as opposed to generic user practices with digital technologies. This is particularly applicable to SNSs, which raise new paradigms in social interaction, people's communication and relationship marketing. Hence, this study emphasises the user's imagery and affective feelings triggered by Facebook-specific features and explains their impact in playfulness formation. Despite previous research having identified an array of drivers (e.g., imagination, creativity, affective feelings) that lead people to play in general (Møller, 2015; Mukherjee and Lau-Gesk, 2016; Yue et al., 2016), very little SNS research has explored the playfulness facet of Facebook. This study seeks to fill this gap by offering an explanation of playfulness that considers the user's psychological phenomena triggered by Facebook and, additionally, uses transportation as a new construct that reflects specificities of Facebook stories.

Third, the study provides solid evidence of the independent status of transportation, focused attention and mental imagery. Transportation literature has produced crucial insights into story processing; yet we concur with Wang and Calder (2006), that the conventional theoretical view of transportation denotes some conceptual redundancy of transportation with focused attention, mental imagery and affective feelings. We show that, despite transportation utilising the cognitive processes of focused attention and mental imagery, as well as emotional elements, these are not distinctive features or components of transportation. Consistent with this, we suggest that transportation is a sense of being immersed in a story that requires, in order for it to appear, focused attention, mental imagery and some arousal feelings. Furthermore, in contrast with most previous studies on antecedents of transportation – which largely consider situational and dispositional potential drivers – much of the present research is focused on the combined effects of inner, psychological processes that intervene in transportation formation. Furthermore, the study offers new empirical insights into the interaction effect of gender and transportation. This is especially relevant given the mixed results obtained in the scant previous studies on the issue.

From a managerial perspective, this study provides some prescriptive guidance to professionals, brands and organisations for enhancing their initiatives on Facebook. Specifically, the findings show that Facebookers' feelings of playfulness are a function of the subjective experiences raised by the content offered on Facebook. This suggests that communication strategies that make use of appealing storytelling, and provide users with the opportunity to mentally travel to other people's stories, are likely to amuse Facebookers and promote fun. Furthermore, the outcomes yielded by these communication programmes are expected to be more positive for Facebooker segments whose members are women and who experience more intense affective feelings. Consistent with this, it is suggested that managers and brands who aim their storytelling communications at Facebookers with such characteristics are likely to generate greater responses.

Our findings need to be considered in the light of a few limitations, which provide opportunities for future research. First, the pace of change in the context addressed by the study challenges the validity of the results in the long term, so users' enduring and new experiences with Facebook might shape their future practices in this SNS. Second, the study was conducted in a single-country setting, therefore, we should be cautious about extrapolating the findings to other Facebook contexts. Moreover, given the ubiquitous nature of Facebook, future research might shift the focus from a single country and provide valuable insights into Facebookers' feelings of playfulness using samples in a variety of countries. Third, we have operationalised gender differences by means of a self-reported variable that classifies Facebookers' population in binary terms. This measurement is used extensively in social sciences and psychology research (Springer et al., 2012) although is not exempt from drawbacks – mainly because many gender differences are 'fluid' (Short et al., 2013, p. S94) and show 'overlapping distributions' (Maney, 2016, p. 3). Future research might operationalise gender differences with a more sound, continuous variable that captures the relative femininity or masculinity of the Facebooker's psychological gender identity (Ainsworth, 2015). Given the importance of transportation for the formation of playfulness feelings on Facebook, another future line of research might be to extend the antecedents of the current model with personal and situational factors from generic models of transportation.

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References

Agarwal, R., Karahanna, E., 2000. Time flies when you're having fun: cognitive absorption and beliefs about information technology usage. MIS Q. 24, 665–694.
Ainsworth, B.Y.C., 2015. Sex redefined. Nature 518, 288–291.
Ajzen, I., 2002. Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. J. Appl. Soc. Psychol. 32, 665–683.
Albarracín, D., Kumkale, G.T., 2003. Affect as information in persuasion: a model of affect identification and discounting. J. Pers. Soc. Psychol. 84, 453–469.

Arcand, M., Nantel, J., 2012. Uncovering the nature of information processing of men and women online: the comparison of two models using the think-aloud method. J. Theor. Appl. Electron. Commer. Res. 7, 106–120.
Babin, L.A., Burns, A.C., 1998. A modified scale for the measurement of mental imagery. Psychol. Mark. 15, 261–278.
Bakalash, T., Riemer, H., 2013. Exploring ad-elicited emotional arousal and memory for the ad using fMRI. J. Advert. 42, 275–291.
Baltar, F., Brunet, I., 2012. Social research 2.0: virtual snowball sampling method using Facebook. Internet Res. 22, 57–74.
Barclay, D., Higgins, C., Thompson, R., 1995. The partial least squares (PLS) approach to causal modeling: personal computer adoption and use as an illustration. Technol. Stud. 2, 285–309.
Batat, W., Wohlfeil, M., 2009. Getting lost "into the wild": understanding consumers' movie enjoyment through a narrative transportation approach. Adv. Consum. Res. 36 372–277.
Becker, J.M., Klein, K., Wetzels, M., 2012. Hierarchical latent variable models in PLS-SEM: guidelines for using reflective-formative type models. Long Range Plann. 45, 359–394.
Bezdek, M.A., Gerrig, R.J., 2017. When narrative transportation narrows attention: changes in attentional focus during suspenseful film viewing. Media Psychol. 20, 60–89.
Błachnio, A., Przepiorka, A., Boruch, W., Bałakier, E., 2016. Self-presentation styles, privacy, and loneliness as predictors of Facebook use in young people. Pers. Individ. Dif. 94, 26–31.
Bolls, P.D., Muehling, D.D., 2007. The effects of dual-task processing on consumers' responses to high- and low-imagery radio advertisements. J. Advert. 36, 35–47.
Boxer, D., Cortés-Conde, F., 1997. From bonding to biting: conversational joking and identity display. J. Pragmat. 27, 275–294.
Byun, K.-A., Dass, M., Kumar, P., Kim, J., 2017. An examination of innovative consumers' playfulness on their pre-ordering behavior. J. Consum. Mark. 34, 226–240.
Campos, A., Sueiro, E., 1993. Sex and age differences in visual imagery vividness. J. Ment. Imag. 17, 91–94.
Chaiken, S., 1980. Heuristic versus systematic information processing and the use of source versus message cues in persuasion. J. Pers. Soc. Psychol. 39, 752–766.
Chang, C., 2009. "Being hooked" by editorial content: the implications for processing narrative advertising. J. Advert. 38, 21–34.
Chang, C., 2013. Imagery fluency and narrative advertising effects. J. Advert. 42, 54–68.
Chaykowski, K., 2017. Facebook reports strong second quarter; sales growth beats estimates [WWW Document]. Forbes. URL https://www.forbes.com/sites/kathleenchaykowski/2017/07/26/facebook-reports-stellar-second-quarter-revenue-earnings-beat-estimates/#5fcce92d5477 (accessed 11.16.17).
Chen, T., Lee, H.M., 2014. Why do we share? The impact of viral videos dramatized to sell: how microfilm advertising works. J. Advert. Res. 54, 292–303.
Chiang, Y.-T., Lin, S.S.S.J., 2010. Early adolescent players' playfulness and psychological needs in online games. Soc. Behav. Pers. 38, 627–636.
Childers, T.L., Houston, M.J., 1983. Imagery paradigms for consumer research: alternative perspectives from cognitive psychology. Adv. Consum. Res. 10, 59–64.
Chin, W.W., Marcolin, B.L., Newstead, P.R., 2003. A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and an electronic-mail emotion/ adoption study. Inf. Syst. Res. 14, 189–217.
Clore, G.L., Huntsinger, J.R., 2007. How emotions inform judgment and regulate thought. Trends Cogn. Sci. 11, 393–399.
Clore, G.L., Palmer, J., 2009. Affective guidance of intelligent agents: how emotion controls cognition. Cogn. Syst. Res. 10, 21–30.
Dickstein-Fischer, L., 2012. Facebook Use in Relation to Gender, Introversion-Extroversion, and Sense of Belonging Among College Students. Northeastern University.
Eagly, A.H., Wood, W., 2013. The nature-nurture debates: 25 years of challenges in understanding the psychology of gender. Perspect. Psychol. Sci. 8, 340–357.
Einstein, G.O., Hunt, R.R., 1980. Levels of processing and organization: additive effects of individual-item and relational processing. J. Exp. Psychol. Hum. Learn. Mem. 6, 588–598.
Escalas, J.E., 2004. Narrative processing: building consumer connections to brands. J. Consum. Psychol. 14, 168–180.
Escalas, J.E., 2007. Self-referencing and persuasion: narrative transportation versus analytical elaboration. J. Consum. Res. 33, 421–429.
Escalas, J.E., Moore, M.C., Britton, J.E., 2004. Fishing for feelings? Hooking viewers helps!. J. Consum. Psychol. 14, 105–114.
Facebook, 2018. Company info | Stats [WWW Document]. URL https://newsroom.fb.com/company-info/ (accessed 7.27.18).
Finneran, C.M., Zhang, P., 2003. A person–artefact–task (PAT) model of flow antecedents in computer-mediated environments. Int. J. Hum Comput Stud. 59, 475–496.
Fiore, A.M., Jin, H.-J., Kim, J., 2005a. For fun and profit: hedonic value from image interactivity and responses toward an online store. Psychol. Mark. 22, 669–694.
Fiore, A.M., Kim, J., Lee, H.-H., 2005b. Effect of image interactivity technology on consumer responses toward the online retailer. J. Interact. Mark. 19, 38–53.
Foglia, L., O'Regan, J.K., 2016. A new imagery debate: enactive and sensorimotor accounts. Rev. Philos. Psychol. 7, 181–196.
Forgas, J.P., Wyland, C.L., Laham, S.M., 2012. Hearts and minds: an introduction to the role of affect in social cognition and behavior. In: Forgas, J.P. (Ed.), Affect in Social Thinking and Behavior. Psychology Press, New York, NY, pp. 3–18.
Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. J. Mark. Res. 18, 39–50.
Gavilan, D., Avello, M., Abril, C., 2014. The mediating role of mental imagery in mobile advertising. Int. J. Inf. Manage. 34, 457–464.
Ghani, J.A., Deshpande, S.P., 1994. Task characteristics and the experience of optimal flow in human-computer interaction. J. Psychol. 128, 381–391.
Gioia, D.A., Sims, H.P.J., 1985. On avoiding the influence of implicit leadership theories in leader behavior descriptions. Educ. Psychol. Meas. 45, 217–232.
Gordon, R., Gerrig, R.J., Franklin, N., 2009. Qualitative characteristics of memories for real, imagined, and media-based events. Discourse Process. 46, 70–91.
Green, M.C., 2004. Transportation into narrative worlds: the role of prior knowledge and perceived realism. Discourse Process. 38, 247–266.
Green, M.C., Brock, T.C., 2000. The role of transportation in the persuasiveness of public narratives. J. Pers. Soc. Psychol. 79, 701–721.
Green, M.C., Brock, T.C., 2002. In the mind's eye: transportation-imagery model of narrative persuasion. In: Green, M.C., Strange, J.J., Brock, T.C. (Eds.), Narrative Impact: Social and Cognitive Foundations. Lawrence Erlbaum Associates, Mahwah, NJ, pp. 315–341.
Green, M.C., Brock, T.C., Kaufman, G.F., 2004. Understanding media enjoyment: the role of transportation into narrative worlds. Commun. Theory 14, 311–327.
Green, M.C., Kass, S., Carrey, J., Herzig, B., Feeney, R., Sabini, J., 2008. Transportation across media: repeated exposure to print and film. Media Psychol. 11, 512–539.
Guitard, P., Ferland, F., Dutil, É., 2005. Toward a better understanding of playfulness in adults. OTJR Occup. Particip. Heal. 25, 9–22.
Hair Jr., J.F., Hollingsworth, C.L., Randolph, A.B., Chong, A.Y.L., 2017a. An updated and expanded assessment of PLS-SEM in information systems research. Ind. Manag. Data Syst. 117, 442–458.
Hair Jr., J.F., Hult, G.T.M., Ringle, C., Sarstedt, M., 2017b. A primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), second ed. Sage, Thousand Oaks, CA.
Hair Jr., J.F., Ringle, C.M., Sarstedt, M., 2011. PLS-SEM: indeed a silver bullet. J. Mark. Theory Pract. 19, 139–151.
Hall, A.E., Bracken, C.C., 2011. "I really liked that movie": testing the relationship between trait empathy, transportation, perceived realism, and movie enjoyment. J. Media Psychol. 23, 90–99.
Harber, K.D., 2005. Self-esteem and affect as information. Personal. Soc. Psychol. Bull. 31, 276–288.
Havlena, W.J., Holbrook, M.B., 1986. The varieties of consumption experience: comparing two typologies of emotion in consumer behavior. J. Consum. Res. 13, 394–404.
Henseler, J., Chin, W.W., 2010. A comparison of approaches for the analysis of interaction effects between latent variables using partial least squares path modeling. Struct. Equ. Model. 17, 82–109.
Henseler, J., Sarstedt, M., 2013. Goodness-of-fit indices for partial least squares path modeling. Comput. Stat. 28, 565–580.
Hirschman, E.C., Holbrook, M.B., 1982. Hedonic consumption: emerging concepts, methods and propositions. J. Mark. 46, 92–101.
Hsieh, S.H., Tseng, T.H., 2017. Playfulness in mobile instant messaging: examining the influence of emoticons and text messaging on social interaction. Comput. Human Behav. 69, 405–414.
Hung, S.Y., Tsai, J.C.A., Chou, S.T., 2016. Decomposing perceived playfulness: a contextual examination of two social networking sites. Inf. Manag. 53, 698–716.
Hunt, R.R., Einstein, G.O., 1981. Relational and item-specific information in memory. J. Verbal Learning Verbal Behav. 20, 497–514.
Huntsinger, J.R., Isbell, L.M., Clore, G.L., 2014. The affective control of thought: malleable, not fixed. Psychol. Rev. 121, 600–618.
Jacucci, G., Oulasvirta, A., Salovaara, A., 2007. Active construction of experience through mobile media: a field study with implications for recording and sharing. Pers. Ubiquitous Comput. 11, 215–234.
Kempf, D.S., Laczniak, R.N., Smith, R.E., 2006. The effects of gender on processing advertising and product trial information. Mark. Lett. 17, 5–16.

Kim, D.-Y., Lehto, X.Y., Morrison, A.M., 2007. Gender differences in online travel information search: implications for marketing communications on the internet. Tour. Manag. 28, 423–433.
Kim, E. (Anna)., Ratneshwar, S., Thorson, E., 2017. Why narrative ads work: an integrated process explanation. J. Advert. 46, 283–296.
Kukkonen, K., 2014. Literary narrative and mental imagery: a view from embodied cognition. Style 48, 275–293.
Kuppens, P., Tuerlinckx, F., Yik, M., Koval, P., Coosemans, J., Zeng, K.J., Russell, J.A., 2017. The relation between valence and arousal in subjective experience varies with personality and culture. J. Pers. 85, 530–542.
Lai, C.-Y., Yang, H.-L., 2016. Determinants and consequences of Facebook feature use. New Media Soc. 18, 1310–1330.
Lambert, A., 2013. Intimacy and Friendship on Facebook. Palgrave Macmillan, Basingstoke.
Le Bel, J.L., Dubé, L., 1998. Understanding pleasures: source, experience, and remembrances. Adv. Consum. Res. 25, 176–180.
Lee, Y.H., Qiu, C., 2009. When uncertainty brings pleasure: the role of prospect imageability and mental imagery. J. Consum. Res. 36, 624–633.
Lewin-Jones, J., 2015. Humour with a purpose: creativity with language in Facebook status updates. Linguist. Online 72, 69–87.
Lieberman, J.N., 1977. Playfulness: its relationship to imagination and creativity. Academic Press, New York, NY.
Lowry, P.B., Gaskin, J., 2014. Partial least squares (PLS) structural equation modeling (SEM) for building and testing behavioral causal theory: when to choose it and how to use it. IEEE Trans. Prof. Commun. 57, 123–146.
MacInnis, D.J., Price, L.L., 1987. The role of imagery in information processing: review and extensions. J. Consum. Res. 13, 473–491.
Mahatanankoon, P., 2007. The effects of personality traits and optimum stimulation level on text-messaging activities and m-commerce intention. Int. J. Electron. Commer. 12, 7–30.
Maney, D.L., 2016. Perils and pitfalls of reporting sex differences. Philos. Trans. R. Soc. B Biol. Sci. 371.
Mar, R.A., Oatley, K., Peterson, J.B., 2009. Exploring the link between reading fiction and empathy: ruling out individual differences and examining outcomes. Communications 34, 407–428.
Marks, D.F., 1999. Consciousness, mental imagery and action. Br. J. Psychol. 90, 567–585.
Martin, B.A.S., 2004. Using the imagination: consumer evoking and thematizing of the fantastic imaginary. J. Consum. Res. 31, 136–149.
Mayshak, R., Sharman, S.J., Zinkiewicz, L., Hayley, A., 2017. The infuence of empathy and self-presentation on engagement with social networking website posts. Comput. Human Behav. 71, 362–377.
McAndrew, F.T., Jeong, H.S., 2012. Who does what on Facebook? Age, sex, and relationship status as predictors of Facebook use. Comput. Human Behav. 28, 2359–2365.
McQuarrie, E.F., Munson, J.M., 1992. A revised product involvement inventory: improved usability and validity. Adv. Consum. Res. 19, 108–115.
Meyers-Levy, J., Loken, B., 2015. Revisiting gender differences: what we know and what lies ahead. J. Consum. Psychol. 25, 129–149.
Meyers-Levy, J., Maheswaran, D., 1991. Exploring differences in males' and females' processing strategies. J. Consum. Res. 18, 63–70.
Meyers-Levy, J., Maheswaran, D., 2004. Exploring message framing outcomes when systematic, heuristic, or both types of processing occur. J. Consum. Psychol. 14, 159–167.
Moalla, A., 2013. Tunisia in the aftermath of the revolution: insights into the use of humor on Facebook to create social bonds and develop relational identity. SAGE Open 3, 1–7.
Møller, S.J., 2015. Imagination, playfulness, and creativity in children's play with different toys. Am. J. Play 7, 322–346.
Mukherjee, S., Lau-Gesk, L., 2016. Retrospective evaluations of playful experiences. J. Consum. Mark. 33, 387–395.
Nakamura, J., Csikszentmihalyi, M., 2009. Flow theory and research. In: Snyder, C.R., Lopez, S.J. (Eds.), Oxford Handbook of Positive Psychology. Oxford University Press, New York, NY, pp. 195–206.
Paivio, A., 1986. Mental representations: a dual coding approach. Oxford University Press, New York, NY.
Pavlou, P.A., Liang, H., Xue, Y., 2007. Understanding and mitigating uncertainty in online exchange relationships: a principal-agent perspective. MIS Q. 31, 105–136.
Pearson, J., Kosslyn, S.M., 2015. The heterogeneity of mental representation: ending the imagery debate. In: Proceedings of the National Academy of Sciences of the United States of America, pp. 10089–10092.
Pearson, J., Naselaris, T., Holmes, E.A., Kosslyn, S.M., 2015. Mental imagery: functional mechanisms and clinical applications. Trends Cogn. Sci. 19, 590–602.
Petty, R.E., Cacioppo, J.T., 1981. Issue involvement as a moderator of the effects on attitude of advertising content and context. Adv. Consum. Res. 8, 20–24.
Pham, M.T., 1998. Representativeness, relevance, and the use of feelings in decision making. J. Consum. Res. 25, 144–159.
Pham, M.T., Cohen, J.B., Pracejus, J.W., Hughes, G.D., 2001. Affect monitoring and the primacy of feelings in judgment. J. Consum. Res. 28, 167–188.
Pillai, A., Mukherjee, J., 2011. User acceptance of hedonic versus utilitarian social networking web sites. J. Indian Bus. Res. 3, 180–191.
Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., Podsakoff, N.P., 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. J. Appl. Psychol. 88, 879–903.
Pöyry, E., Parvinen, P., Malmivaara, T., 2013. Can we get from liking to buying? Behavioral differences in hedonic and utilitarian Facebook usage. Electron. Commer. Res. Appl. 12, 224–235.
Putrevu, S., 2001. Exploring the origins and information processing differences between men and women: implications for advertisers. Acad. Mark. Sci. Rev. 2001, 1–16.
Putrevu, S., 2004. Communicating with the sexes: male and female responses to print advertisements. J. Advert. 33, 51–62.
Pylyshyn, Z.W., 2002. Mental imagery: in search of a theory. Behav. Brain Sci. 25, 157–238.
Quintero Johnson, J.M., Sangalang, A., 2017. Testing the explanatory power of two measures of narrative involvement: an investigation of the influence of transportation and narrative engagement on the process of narrative persuasion. Media Psychol. 20, 144–173.
Reinartz, W., Haenlein, M., Henseler, J., 2009. An empirical comparison of the efficacy of covariance-based and variance-based SEM. Int. J. Res. Mark. 26, 332–344.
Richardson, J.T.E., 2000. The availability and effectiveness of imaginal mediators in associative learning: individual differences related to gender, age, and verbal ability. J. Ment. Imag. 24, 111–136.
Riemer, H., Viswanathan, M., 2013. Higher motivation – greater control? The effect of arousal on judgement. Cogn. Emot. 27, 723–742.
Rodríguez-Ardura, I., Meseguer-Artola, A., 2017. Flow in e-learning: what drives it and why it matters. Br. J. Educ. Technol. 48, 899–915.
Rodríguez-Ardura, I., Meseguer-Artola, A., Ammetller, G., 2016. How do the experiences of virtual presence and flow differ? Evidence from Engineering and ICT online education. Int. J. Eng. Educ. 32, 1579–1585.
Roldán, J.L., Sánchez-Franco, M.J., 2012. Variance-based Structural Equation Modeling: Guidelines for Using Partial Least Squares in Information Systems Research, Research Methodologies, Innovations And Philosophies In Software Systems Engineering And Information Systems. IGI Global, Hershey, PA.
Runco, M.A., 2014. Personality and Motivation, 2nd ed, Creativity theory and themes: research, development, and practice. Elsevier.
Russell, J.A., 1980. A circumplex model of affect. J. Pers. Soc. Psychol. 39, 1161–1178.
Sadoski, M., Goetz, E.T., Olivarez, A., Lee, S., Roberts, N.M., 1990. Imagination in story reading: the role of imagery, verbal recall, story analysis, and processing levels. J. Lit. Res. 22, 55–70.
Schulze, C., Schöler, L., Skiera, B., 2014. Not all fun and games: viral marketing for utilitarian products. J. Mark. 78, 1–19.
Schwarz, N., Clore, G.L., 1983. Mood, misattribution, and judgments of well-being: informative and directive functions of affective states. J. Pers. Soc. Psychol. 45, 513–523.
Schwarz, N., Clore, G.L., 2003. Mood as information: 20 years later. Psychol. Inq. 14, 296–303.
Schwarz, N., Clore, G.L., 2007. Feelings and phenomenal experiences. In: Social Psychology: Handbook of Basic Principles. Guilford Press, New York, NY, pp. 385–407.
Sherman, T., Jaroslav, Š., 2015. "Grammar Nazis never sleep": Facebook humor and the management of standard written language. Lang. Policy 14, 315–334.
Short, S.E., Yang, Y.C., Jenkins, T.M., 2013. Sex, gender, genetics, and health. Am. J. Public Health 103, S93–S101.
Sibai, O., 2016. Playful consumption: a physical perspective. Adv. Consum. Res. 44, 625.
Sledgianowski, D., Kulviwat, S., 2009. Using social network sites: the effects of playfulness, critical mass and trust in a hedonic context. J. Comput. Inf. Syst. 49, 74–83.
Springer, K.W., Mager Stellman, J., Jordan-Young, R.M., 2012. Beyond a catalogue of differences: a theoretical frame and good practice guidelines for researching sex/

gender in human health. Soc. Sci. Med. 74, 1817–1824.
Storbeck, J., Clore, G.L., 2008. Affective arousal as information: how affective arousal influences judgments, learning, and memory. Soc. Personal. Psychol. Compass 2, 1824–1843.
Streukens, S., Leroi-Werelds, S., 2016. Bootstrapping and PLS-SEM: a step-by-step guide to get more out of your bootstrap results. Eur. Manag. J. 34, 618–632.
Sun, Y., Lim, K.H., Jiang, C., Peng, J.Z., Chen, X., 2010. Do males and females think in the same way? An empirical investigation on the gender differences in web advertising evaluation. Comput. Human Behav. 26, 1614–1624.
Tenenhaus, M., Vinzi, V.E., Chatelin, Y.M., Lauro, C., 2005. PLS path modeling. Comput. Stat. Data Anal. 48, 159–205.
The Social Media Family, 2018. IV Estudio sobre los usuarios de Facebook, Twitter e Instagram en España. Madrid.
Thomas, N.J.T., 1999. Are theories of imagery theories of imagination? An active perception approach to conscious mental content. Cogn. Sci. 23, 207–245.
Tran, T.B., Uebelacker, L., Wenze, S.J., Collins, C., Broughton, M.K., 2016. Adaptive and maladaptive means of using Facebook: a qualitative pilot study to inform suggestions for development of a future intervention for depression. J. Psychiatr. Pract. 21, 458–473.
Tsakona, V., 2017. Constructing local identities via/for humour: a Cretan-Greek case study. Styles Commun. 9, 118–147.
Utz, S., 2015. The function of self-disclosure on social network sites: not only intimate, but also positive and entertaining self-disclosures increase the feeling of connection. Comput. Human Behav. 45, 1–10.
van Dijck, J., 2013. 'You have one identity': performing the self on Facebook and LinkedIn. Media. Cult. Soc. 35, 199–215.
van Laer, T., de Ruyter, K., Visconti, L.M., Wetzels, M., 2014. The extended transportation-imagery model: a meta-analysis of the antecedents and consequences of consumers' narrative transportation. J. Consum. Res. 40, 797–817.
Van Vleet, M., Feeney, B.C., 2015. Play behavior and playfulness in adulthood. Soc. Personal. Psychol. Compass 9, 630–643.
Vinzi, V.E., Trinchera, L., Amato, S., 2010. PLS path modeling: from foundations to recent developments and open issues for model assessment and improvement. In: Vinzi, V.E., Chin, W.W., Henseler, J., Wang, H. (Eds.), Handbook of Partial Least Squares: Concepts, Methods and Applications. Springer-Verlag, Berlin Heidelberg, Heidelberg, pp. 47–82.
Walters, G., Sparks, B., Herington, C., 2007. The effectiveness of print advertising stimuli in evoking elaborate consumption visions for potential travelers. J. Travel Res. 46, 24–34.
Walters, G., Sparks, B., Herington, C., 2012. The impact of consumption vision and emotion on the tourism consumer's decision behavior. J. Hosp. Tour. Res. 36, 366–389.
Wang, H.Y., Wang, Y.S., 2008. Gender differences in the perception and acceptance of online games. Br. J. Educ. Technol. 39, 787–806.
Wang, J., Calder, B.J., 2006. Media transportation and advertising. J. Consum. Res. 33, 151–162.
Wang, L.C., Baker, J., Wagner, J.A., Wakefield, K., 2007. Can a retail web site be social? J. Mark. 71, 143–157.
Webster, J., Martocchio, J.J., 1992. Microcomputer playfulness: development of a measure with workplace implications. MIS Q. 6, 201–226.
Wissmath, B., Weibel, D., Groner, R., 2009. Dubbing or subtitling? J. Media Psychol. Theor. Methods, Appl. 21, 114–125.
Wohlfeil, M., Whelan, S., 2012. 'Saved!' by Jena Malone: an introspective study of a consumer's fan relationship with a film actress. J. Bus. Res. 65, 511–519.
Wold, H.O.A., 1982. Soft modeling: the basic design and some extensions. In: Jöreskog, K.G., Wold, H.O.A. (Eds.), Systems under Indirect Observation: Causality, Structure, Prediction. North-Holland, Cartigny, pp. 1–54.
Wood, M.M., 1966. The influence of sex and knowledge of communication effectiveness on spontaneous speech. Word 22, 112–137.
Worldometers, 2018. World population clock: 7.6 billion people [WWW Document]. URL http://www.worldometers.info/world-population/? (accessed 7.9.18).
Woszczynski, A.B., Roth, P.L., Segars, A.H., 2002. Exploring the theoretical foundations of playfulness in computer interactions. Comput. Human Behav. 18, 369–388.
Wu, J., Holsapple, C., 2014. Imaginal and emotional experiences in pleasure-oriented IT usage: a hedonic consumption perspective. Inf. Manag. 51, 80–92.
Wu, Y., 2013. An empirical study of narrative imagery in implicit and explicit contexts. Comput. Human Behav. 29, 1580–1589.
Yan, L., Liu, M.T., Chen, X., Shi, G., 2016. An arousal-based explanation of affect dynamics. Eur. J. Mark. 50, 1159–1184.
Yik, M., Russell, J.A., Steiger, J.H., 2011. A 12-point circumplex structure of core affect. Emotion 11, 705–731.
Yue, X.D., Leung, C.-L., Hiranandani, N.A., 2016. Adult playfulness, humor styles, and subjective happiness. Psychol. Rep. 119, 630–640.
Zillmann, D., 1991. Television viewing and physiological arousal. In: Bryant, J., Zillmann, D. (Eds.), Responding to the Screen: Reception and Reaction Processes. L. Erlbaum Associates, Mahwah, NJ, pp. 103–134.

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