The impact of creativity in social AR filters on brand awareness, image, and behavioral intentions: The role of intrusiveness and Ad recognition

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ABSTRACT

Brands use Augmented Reality (AR) technologies in their marketing strategies. Among the AR applications, social AR filters enable brands to build new connections with customers on an intimate level, creating valuable experiences on social media and fostering consumers' storytelling. This research examines the effects of creativity of branded social AR filters, a key feature for the success of entertainment products, on users' responses toward brands. The results from an online questionnaire indicate that perceived originality and enjoyment elicit positive cognitive (awareness) and affective (image) reactions toward brands, which subsequently influence behavioral intentions. Additionally, we analyze the moderating role of brand intrusiveness and ad recognition, which can lessen and reinforce the positive effects of creativity on brand responses. Our findings contribute to the theoretical development of user experiences with branded social AR filters and provide recommendations for brand managers to design creative AR filter experiences that foster effective customer-brand connections.

1. Introduction

Augmented reality (AR) is being increasingly applied to customer-brand touchpoints to generate novel and valuable experiences (Barta et al., 2025; Rauschnabel et al., 2024; Vieira et al., 2022). Recent forecasts highlight the growing relevance of AR: AR advertising is expected to generate over $5.2 billion in 2024, growing at nearly 10 % annually (Statista, 2023); the broader AR market is projected to grow at a rate of 53.4 % per year until 2029 (Technavio, 2025). Among AR applications, AR filters (multimodal overlays that augment a user's face or environment in real time) emerge as an innovative tool for engaging consumers on social media (Cowan et al., 2021; Javornik et al., 2022). AR filters represent a distinct, rapidly expanding application that blends entertainment, inspiration, and self-expression interaction on these platforms (Ibáñez-Sánchez et al., 2022; Scholz & Duffy, 2018).

Recognizing its potential, brands are increasingly leveraging AR filters to forge new bonds with consumers. In this interaction, brands provide entertainment that boosts engagement and loyalty (Lenslist, 2024). Unlike other AR tools designed for product promotion, such as virtual try-ons, AR filters create a "hedonic space of inspiration and ideation" (Scholz & Duffy, 2018, p.15), where users can engage with brands creatively and imaginatively. These filters are used on social

media to entertain, for example, by overlaying virtual objects like the Dalí mask from Money Heist or transforming faces into animated brand logos (e.g., Starbucks). The enjoyment reported with AR filters (Deloitte Digital, 2021) suggests that they are a powerful marketing tool, creating memorable and emotional bonds with users (Flavián et al., 2021).

AR filters support and encourage consumer storytelling by allowing users to incorporate branded elements into their digital narratives (Rauschnabel et al., 2019). Instead of being passive recipients of promotional content, consumers (especially Gen Z users on platforms like Instagram and TikTok; Bazi et al., 2023) actively interact with branded AR filters to co-create fun and self-expressive content. This change highlights a key shift in digital branding: moving from persuasion to participation, from transmission to collaboration. By providing interactive and shareable formats, AR filters boost the originality and emotional impact of the brand experience. Given this, brands should not overlook the potential of AR filters for achieving high-impact actions. For example, Gatorade introduced an AR filter during the Super Bowl, where users appeared to be dunked in the drink, generating 168 million impressions. (Medium, 2019). Taco Bell reached 224 million views in one day with an AR filter that transformed users' heads into giant taco shells during the Cinco de Mayo celebration (Adweek, 2016).

However, social media users report infrequent interactions with AR

filters, and current research on their impact on social media experiences remains in its early stages (Ibáñez-Sánchez et al., 2022). The limited literature on AR filters has mostly taken exploratory approaches (e.g., Ríos et al., 2018), focusing on motivations or risks for users (e.g., Cowan et al., 2021; Dodoo and Youn, 2021), or examining their effects on individual identity, well-being, or self-presentation (e.g., Javornik et al., 2021b). Only a few studies have investigated their influence on brand-related variables (e.g., Phua and Kim, 2018). This research aims to enhance the understanding of the characteristics of branded AR filters that influence user-brand connections. Considering the importance of creativity for the success of hedonic products (Casaló et al., 2021; Javornik et al., 2022), this research adopts an information processing perspective (Bloch, 1995; Eagly and Chaiken, 1993; Petty and Cacioppo, 1986; Trope and Liberman, 2010), along with the brand equity model (Keller, 1993), to analyze how the perceived creativity of branded AR filters (operationalized through perceived originality and enjoyment) influences users' responses toward brands, in terms of awareness, image and behavioral intentions.

Moreover, there is a lack of studies that critically address the psychological tensions that arise when entertainment and persuasion coexist with branded AR filters (Ibáñez-Sánchez et al., 2022). Our study introduces a novel perspective by examining when and how creativity in branded AR filters can backfire. Specifically, we examine whether perceived brand intrusiveness (Li et al., 2002) and ad recognition (De Veirman and Hudders, 2020) diminish the positive effects of creativity on brand responses. This interaction-based approach helps deepen our understanding of how consumers interpret and respond to immersive, branded experiences on social media.

This research makes four key contributions. First, it redefines branded AR filters as primarily hedonic and self-expressive media rather than utilitarian tools, emphasizing their role in entertainment and personal expression rather than immediate conversion. Second, it clarifies how embedded creativity in these filters fosters positive brand outcomes such as increased awareness, improved image, and stronger behavioral intentions. Third, it introduces psychological resistance variables (i.e., brand intrusiveness and ad recognition) as critical moderators influencing consumer interpretation of creative brand stimuli. Lastly, it provides practical guidelines for brands: balance creativity with subtlety and clarity to ensure AR experiences align with user expectations, optimizing brand engagement.

2. Theoretical background and hypotheses

2.1. Literature review on AR marketing and AR filters

In recent years, brands have been increasingly using AR to create innovative touchpoints, communicate value propositions, and enhance the expected brand value. (Rejeb et al., **2023**). With AR, brands can engage with their audiences through highly interactive and immersive experiences, fostering more profound and intimate connections with users (Scholz & Duffy, 2018; Javornik et al., 2021a). Rauschnabel et al. (2024) highlight that most AR marketing research focuses on later decision stages like evaluations or purchase intentions (e.g., Kumar et al., 2023; Pathak and Prakash, 2023), with less attention to early stages that involve inspiring consumers and building brand connections (Rauschnabel et al., 2022). Therefore, analyzing AR's role in communicating brand value during the early stages of the customer journey is essential.

Table 1 summarizes the literature that has addressed the impact of branded AR content on consumers. This review highlights research gaps that this study aims to address. First, few exceptions have studied the application of AR for branding purposes in the specific context of social media (e.g., Dodoo and Youn, 2021; Hawker and Carah, 2021), and most of these articles are theoretical (Eugeni, 2022; Hawker and Carah, 2021). Second, previous studies have focused on the positive aspects derived from AR experiences (e.g., the generation of brand love; Huang

and Liu, 2021; Rauschnabel et al., 2024), overlooking the negative features that may impact user-brand connections. Third, most articles have focused on unidirectional messages with AR in advertisements (e. g., Tsai et al., 2020) rather than the user-brand connection with AR on social media. On these platforms, AR filters are a specific form of AR technology that accommodates the interaction between brands and consumers, creating new connections and fostering consumer storytelling (Farace et al., 2017). AR filters are a popular, entertainment-focused marketing tool (Ibáñez-Sánchez et al., 2022; Tan et al., 2022), allowing playful user interaction with brand elements. Snapchat was the first social network to utilize AR filters, and others quickly followed, including Instagram, Facebook, and TikTok. These filters are mainly used for entertainment and are part of the visual storytelling culture on social media. Brands offer users AR filters that enable them to create content while engaging with the brand and other users. Instead of just passively receiving commercials, users team up to make branded content that combines fun and creativity, sharing it with others. Thus, we refer to this type of AR filters on social as social AR filters.

Early research on the user experiences with social AR filters is exploratory, including conceptual or qualitative studies. Ríos et al. (2018) interviewed Snapchat users of AR filters and found that people use social AR filters when they want to look better or make their friends laugh, projecting their personality. Eugeni (2022) reflected on the use of social AR filters for brands, stating that when employed, a new level of intimacy between the user and the brand can be achieved. Hawker and Carah (2021) elaborated on the role of social AR filters in brand culture (users creating branded ads) and the level of participation of users with these tools on social media. Scholz and Duffy (2018) conducted an ethnographic study, which shows that social AR filters create an inspiring and pleasurable space where users can relax and entertain themselves. These exploratory studies highlight social AR filters as a new way to create more personal and intimate, as well as interactive and co-created, customer-brand connections. Nevertheless, examining quantitatively how these interactions affect brands remains underexplored.

Following the notion that social AR filters enable brands to enter users' private space (either physical or mental), several studies have examined the factors that discourage usage and the negative consequences of their use for individuals. Cowan et al. (2021) highlighted that users' privacy concerns (e.g., biometric facial data) diminish the intentions to use social AR filters and share the experiences with others. Javornik et al. (2022) note that AR filters can reduce the users' well-being due to the idealization or faking of one's image, which decreases self-acceptance. AR filters can exacerbate the ideal-actual self-discrepancy, negatively affecting mental well-being by elevating ideal attractiveness standards and diminishing perceived self-attractiveness through social comparison (Javornik et al., 2021b; Kumar and Agarwal, 2025).

On the positive side, previous research has analyzed individuals' motivations for using **social** AR filters and their responses toward them. Regarding motivations, Dodoo and Youn (2021) showed that the aesthetics, entertainment, and uniqueness derived from users' experiences are the primary incentives for engaging with Snapchat-branded AR filters. Applying the uses and gratifications theory, Ibáñez-Sánchez et al. (2022) found that entertainment primarily drives the playability (satisfaction and intentions to recommend) of social AR filters, while interactivity, curiosity, and compatibility also influence users' experiences. Similarly, Javornik et al. (2022) observed that perceived enjoyment, creative content curation, social interaction, and expressing opinions are the main factors driving the use of social AR filters. In sum, previous studies concur that entertainment is the primary motivation for using social AR filters, as this aligns with the primary purpose of social media itself (Bazi et al., 2023). Regarding users' responses to social AR filters (or specific features of these filters), Farace et al. (2017) found that "selfies" that include AR filters are more likely to receive comments from social media users compared to regular selfies, and that perceived

Table 1

Literature review on brand experiences with AR.

Study	Context	AR type	Research goal	Brand responses	Methodology	Takeaways
Hopp and Gangadharbatla (2016)	Advertising	Marker-based AR	Investigate the effects of exposure time, novelty perceptions, and technological self-efficacy in AR branded advertising.	Brand attitude	Quasi-experimental design in which users have an experience with branded content in AR. N = 96.	The exposure time to AR is negatively related to user attitude toward the AR application. Those with high levels of technological self-efficacy transfer these negative evaluations to the brand.
Phua and Kim (2018)	Advertising	AR filter	Analyze how the combined effects of self-brand congruity, self-referencing, and perceived humor in self-endorsed brand AR advertisements influence consumers' preferences toward the brand.	Self-brand congruity Brand attitude Brand purchase intention	Online questionnaire targeted at users who have previously employed Snapchat branded AR filters. N = 311.	Self-brand congruity, self-referencing, and perceived humor independently influence consumers' brand attitude and purchase intention. Interactions between self-brand congruity, self-referencing, and perceived humor, impacting both brand attitude and purchase intention.
Hinsch et al. (2020)	Entertainment	Marker-based AR	Examine the mechanisms driving the 'inspired-by/inspired-to' linkage, distinguishing between the 'wow-effect' and nostalgia, in the context of a branded AR app.	Inspired-to play with the brand App/brand congruence	An online survey is employed in which participants had an experience with the Lego Playground AR app. N = 145.	Nostalgia fully mediates the relationship between inspired-by and inspired-to, while the "wow-effect" does not significantly mediate this relationship.
Tsai et al. (2020)	Advertising	Marker-based AR	Investigate how AR interaction type (instrumental vs. hedonic), ad context (realistic vs. imaginative), and product type (think vs. feel) collectively impact perceived ad informativeness and brand liking.	Brand liking	Laboratory experiment using print ads including (or not) a marker-based AR system. Three manipulations: AR interaction (instrumental vs. hedonic), context (realistic vs. imaginative), and product (think vs. feel). N = 213.	AR, particularly instrumental AR, enhance perceptions of ad informativeness and brand liking.
Hawker and Carah (2021)	Entertainment	AR filter	Reflect on AR brand culture and the role that the user has in these experiences.	Brand culture	Critical proposal.	AR filters optimize the participation of consumers in producing ads for brands. Social media advertising has evolved beyond capturing user attention to actively enhancing user productivity in ad creation with AR filters. Deeper brand culture that maximizes participatory experiences on social media.
Huang and Liu (2021)	User experience	Markerless AR	Examine the impact of AR on humanizing the digital experience and its subsequent impact on brand love	Green destination brand love	Scenario based survey with an experimental manipulation (360° AR panorama versus 360° spin-of-the-mouse virtual environment). N = 263.	A 360° AR panorama generates a higher degree of anthropomorphism, self-representation, and intimacy, than a 360° spin of the mouse. AR positively affects brand love in terms of place identity, affective attachment, and compatibility. Technology readiness has a positive moderating effect.
Dodoo and Youn (2021)	Entertainment	AR filter	Analyze customers' motivation to engage with AR branded filters.	Brand fan Brand purchase motivation	Recalled-based questionnaire with Snapchat users. N = 415.	Perceived entertainment, aesthetics, uniqueness, curiosity, and brand fan significantly influence attitude toward the AR filter. Attitude positively influences ad engagement, which subsequently affects brand purchase motivation.
Eugeni (2022)	Entertainment	AR filter	Delve into AR filters from the socio-semiotics of dispositives and the use of this technology for marketing purposes.	Customer-brand connection	Theoretical proposal.	Analysis of AR filters from a socio-semiotic perspective: - Technology (mixed reality) - Socio-psychological use (personal identity) - Economic-political (face recognition, privacy) Categorization of branded AR filters: atmospheres, try-on, and disguise. New intimacy of brands and subjects with AR filters.
Sung et al. (2022)	Advertising	Marker-based AR	Examine how AR mobile app advertising can enhance escapism experiences by leveraging narrative transportation and spatial	Brand attitude Brand engagement	Participants download a beverage AR app. After viewing the content, answer a survey. N = 213.	AR app design increases narrative transportation and spatial immersion. Both enhances escapism, which subsequently affects social media sharing,

Table 1 (*continued*)

Study	Context	AR type	Research goal	Brand responses	Methodology	Takeaways
			immersion, and its effects on brand responses.			purchase intention, brand attitudes and brand engagement. AR marker-based lead to higher levels of informativeness and entertainment. Effect of AR marker based on brand attitude and purchase intention via entertainment. Different moderating effects of the considered variables.
Uribe et al. (2022)	Advertising	Marker-based AR	Compare the effectiveness of AR vs. traditional ads, distinguishing between marker-based AR and QR, and analyzing the moderating impacts of extraversion, neuroticism and openness to new experiences on consumer evaluation of AR advertising.	Brand attitude Brand purchase intention	Participants view an ad from a brand with either a printed version, a QR, or with AR. After that, they fill a questionnaire. *N = 173*.	
Lin et al. (2023)	Advertising	Marker-based AR	Explore the extent to which brand placements and TV show characteristics contribute to enhancing the advertising effectiveness of AR title sponsorships and product placements in entertainment television across various cultural contexts.	Aided brand recall Brand attitude	Experiment 2 (product placement: title sponsorship vs. background) × 2 (Congruence with program: congruent vs. incongruent) × 2 (3D vs. 2D) × 2 (USA vs. Taiwan) between-subjects design. Participants watch a clip with a QR code including the manipulation. *N = 386*.	For American viewers, incongruent brand recall surpasses congruent recall, while Taiwanese viewers exhibit more favorable attitudes toward AR dynamic advertisement presentations of title sponsorships that align with the program.
Khan and Fatma (2024)	Entertainment	Non-specified	Investigate the impact of AR app-based brand engagement on brand-related outcomes, while considering the mediating influence of attitude toward the brand and the moderating effect of AR app-based brand experience.	AR app-based brand engagement Brand attitude Brand love Brand co-creation. AR app-based brand experience	Questionnaire targeted at participants with experience using branded AR apps. *N = 383*.	Attitude toward the brand's AR app acts as a mediator in the relationship between AR app-based brand engagement and AR app-based brand love, AR app-based brand co-creation, and online review intention. Stronger effects for those with high AR app-based brand experience.
Rauschnabel et al. (2024)	User experience	Markerless AR	Examine the effect of branded AR content on the perceived distance between consumers and brands, leading to emotional relationships	Perceived closeness of the brand (physical, spatial) Brand love	Two studies. Study 1 (*N = 155*) manipulates the presence (vs. absence) of an AR feature on a branded app. Study 2 (*N = 173 females*) uses survey-based data to measure the impact of branded AR content in a pre−/post- use design.	AR usage increases perceived customer-brand closeness, which successively affects brand love. The effect of AR usage on perceived closeness increases if consumers are familiar with the brand.

silliness mediates this effect. Phua and Kim (2018) revealed that self-brand congruity, self-referencing, and perceived humor lead to positive responses toward brands among Snapchat users of branded AR filters.

This study aims to contribute to the existing literature by quantitatively examining how the perceived characteristics of branded social AR filters influence consumers' responses toward brands. Specifically, we analyze the effects of their creative potential (originality and enjoyment) and potential drawbacks (brand intrusiveness and ad recognition) on brand knowledge (awareness and image) and behavioral intentions. By integrating both positive and negative features of social AR filters, this research advances beyond prior exploratory or attitude-focused studies and contributes to a more holistic understanding of how social AR filters influence brand perceptions and consumer engagement. In doing so, it addresses the lack of confirmatory evidence on the consequences of branded social AR filters for brands, offering actionable insights for companies seeking to design AR experiences that foster meaningful and engaging brand interactions, thereby overcoming the barriers to mass adoption of these technologies (Deloitte Digital, 2021).

2.2. Hypotheses development

Creativity is a critical factor for marketing effectiveness (Ameen et al., 2022; Hirschman, 1980). In advertising, it plays a central role in engaging consumers, influencing their attitudes, and fostering favorable brand responses (Smith and Yang, 2004). Although widely acknowledged as important, creativity remains ambiguously defined due to its subjective and culturally dependent nature (Rosengren et al., 2020). Nevertheless, a cross-disciplinary consensus has emerged in the field of marketing communications, where creativity is increasingly conceptualized as a construct based on two key dimensions: novelty and appropriateness (Amabile, 1996; Rosengren et al., 2020; Smith and Yang, 2004). Novelty -also referred to as originality or uniqueness- refers to the extent to which the content is perceived as different or unexpected. Appropriateness, or relevance, reflects how coherent, useful, and aligned the content is with the sender's communication goals (Rosengren et al., 2020; Smith and Yang, 2004). This is particularly relevant in advertising, where messages must not only capture attention but also connect with the audience in a meaningful way (Rosengren et al., 2020). Importantly, our focus is on creativity embedded in brand-designed social AR filter content, rather than in user-generated content or creative usage. This distinction is conceptually relevant, as this definition of creativity pertains specifically to the attributes of the branded stimulus intentionally designed by the firm.

Therefore, in this study, we adopt this two-part definition of creativity. However, due to the specific context of branded social AR filters on social media, we adapt the operationalization of appropriateness. As previously stated, social AR filters are typically used in hedonic digital settings (social media) and users engage with this content for entertainment, enjoyment, and playful self-expression (Ibáñez-Sánchez et al., 2022; Cowan et al., 2021). Consequently, the appropriateness dimension of creativity is assessed not by informativeness or task utility, but by the enjoyment (i.e., the intrinsic entertainment and pleasure experienced during interaction with the technology) derived from the

experience (Van der Heijden, 2004; Wu et al., 2015; Ameen et al., 2022).

The impact of creativity in branded social AR filters can be analyzed through the lens of aesthetic response theory, which posits that consumers' exposure to visually novel and engaging stimuli (such as creative AR filters) evokes cognitive, affective, and behavioral responses (Bloch, 1995). The originality of branded social AR filters can capture consumer attention by standing out from conventional design norms, thereby triggering initial perceptual and cognitive responses (Bloch, 1995; Veryzer and Hutchinson, 1998). At the same time, enjoyment is a core affective reaction that intensifies positive mood states and reinforces deeper engagement with the brand or product (Bazi et al., 2023).

From an information processing perspective, the mechanisms through which creativity shapes brand responses can be explained using the Elaboration Likelihood Model (ELM; Petty and Cacioppo, 1986) and the Heuristic-Systematic Model (HSM; Eagly and Chaiken, 1993). Both models propose two routes of information processing: the central (systematic) route, which involves extensive cognitive elaboration and the scrutiny of message arguments, and the peripheral (heuristic) route, which relies on superficial cues such as the attractiveness of the source, design features, or novelty (Petty and Cacioppo, 1986; Eagly and Chaiken, 1993). Construal Level Theory (CLT) complements these dual-process models by explaining how psychological distance affects the way individuals mentally represent and evaluate stimuli (Trope and Liberman, 2010). According to CLT, people process information either at a high-level construal, which is abstract, decontextualized, and focused on overarching goals or values, or at a low-level construal, which is concrete, contextual, and centered on immediate details and experiences (Trope et al., 2007). The level of construal depends on the type of psychological distance (e.g., temporal, spatial, or social) and the cognitive effort required to process it.

In hedonic contexts, where users seek to gratify their entertainment needs, such as browsing social AR filters (Ibáñez-Sánchez et al., 2022), the motivation to process information and cognitive involvement are typically low, and psychological distance tends to be minimal. Thus, users are likely to be in a low-construal state and adopt a peripheral route of processing, where heuristics such as originality and visual appeal strongly shape brand responses (Petty et al., 1983). In these situations, the originality of social AR filters serves as the primary trigger, capturing attention through perceptual novelty.

Prior research has found that originality enhances users' affective responses, such as joy, surprise, and curiosity (Casaló et al., 2021; Kornish and Jones, 2021; Rosengren et al., 2020). These responses are essential in shaping the perceived enjoyment of a digital experience, particularly in contexts where the user's primary goal is to entertain themselves. In their meta-analysis, Rosengren et al. (2020) show that originality primarily triggers affect transfer mechanisms, which foster positive attitudes through humor and emotional responses. For branded social AR filters, originality may manifest through novel or unique visuals, all of which intensify the user's emotional engagement (Dodoo and Youn, 2021). Originality thus operates as a powerful peripheral cue that affects the hedonic experience and enhances perceived enjoyment:

H1. Users' perceived originality of branded social AR filters will positively influence the perceived enjoyment.

Although prior research identifies perceived creativity as a key antecedent of users' attitudes toward branded AR filters (Dodoo and Youn, 2021), the mechanisms through which its components (perceived originality and enjoyment) shape brand-related responses remain unexplored. Following aesthetic response theories (Bloch, 1995) and the brand equity model (Keller, 1993), we examine the effect of perceived originality and enjoyment of branded social AR filters on brand awareness, brand image, and behavioral intentions toward the brand. According to Keller (1993); Keller et al. (2010), brand knowledge is shaped by two main components: brand awareness and brand image. Brand awareness refers to the capacity of consumers to recall and recognize a brand (Keller, 1993). Brand awareness is a necessary

component of the communication process, and its impact on brand equity, consumer behavior, and marketing outcomes is widely acknowledged in the literature (Yoo et al., 2000; Keller, 2009), especially in social media contexts. Brand image refers to the perceptions and emotions that consumers associate with a brand, as reflected in the brand associations stored in their memory (Keller, 1993; Low and Lamb, 2000). Both sources of brand equity are key elements for building brand equity in social media settings (e.g., Osei-Frimpong and McLean, 2018; Divakaran and Xiong, 2022). Finally, we analyze behavioral intentions toward the brands, which represent the eagerness of users to perform specific actions (e.g., recommending or purchasing the advertised brand), and this is a strong signal of how the user plans to behave in the future (Casaló et al., 2021).

In the process of conducting brand-building actions with AR-based tools, raising brand awareness and strengthening brand image are particularly important (Rauschnabel et al., 2022). Specifically, when users perceive that a commercial action is original and genuine, they tend to pay attention to it, which enhances their brand recall and recognition (Barreda et al., 2015). Thus, we expect that the perceptions of originality of branded social AR filters will raise brand awareness. In addition, considering that marketing activities shape brand image, the originality of the marketing actions carried out by brands (e.g., social AR filters) can be transferred to the brand's image itself (Wu et al., 2015). Thus, if users perceive a social AR filter as unique and original, this can enhance their perception of the image projected by the brand. Finally, when branded content is original, users are more likely to exhibit positive behaviors toward the brands (Casaló et al., 2021). This is because unique content can engage and motivate users to perform positive behavioral outcomes (Dodoo and Youn, 2021).

All these effects can be explained from an information processing perspective. In digital hedonic environments, such as Instagram or Snapchat, where branded AR filters are commonly deployed, users engage predominantly in peripheral processing. Originality functions as a salient heuristic cue that facilitates affective responses and fosters favorable brand evaluations (particularly when users are not highly involved with the product or category). In addition, originality in branded social AR filters can reduce psychological distance by displaying the brand more closely to the user, which matches with a low-construal level mindset. This effect is particularly evident in AR campaigns that incorporate branding elements. Using Gatorade's Super Bowl AR filter as an example (see the introduction section; Medium, 2019), the brand successfully transformed a well-known brand symbol into an original experience, reinforcing brand responses and engagement. Thus, we propose:

H2. Users' perceived originality of branded social AR filters will positively influence the brand (a) awareness, (b) image, and (c) behavioral intentions.

Perceived enjoyment can play a fundamental role in shaping brand responses. Enjoyment is a key driver of user engagement, attitude, and brand-related outcomes in AR contexts (e.g., Attri et al., 2024; Dodoo and Youn, 2021; Rese et al., 2017). Empirical research demonstrates that enjoyment not only fosters favorable affective responses toward the brand but also improves users' ability to recognize it (i.e., awareness; Wang and Li, 2012), forming positive associations (i.e., image; Godey et al., 2016), and acting on those impressions (i.e., behavioral intentions; Ballester et al., 2021). Ibáñez-Sánchez et al. (2022) show that enjoyment with social AR filters significantly enhances user satisfaction and motivates them to engage in electronic word-of-mouth. In the Gatorade's Super Bowl AR filter example (Medium, 2019), the brand generated enjoyment during the interaction by simulating the iconic "ice dunk" associated with victory celebrations. This playful feature enhanced the fun of the experience with the AR filters and made the branded encounter more memorable, thereby strengthening brand responses. When users engage with AR filters in low-involvement, entertainment-driven settings, perceived enjoyment operates as a peripheral

cue that positively influences brand responses ("if the filter is enjoyable, the brand feels fun and friendly") (Eagly and Chaiken, 1993; Petty and Cacioppo, 1986). In addition, enjoyable and immersive AR interactions can reduce the psychological distance and create concrete, vivid brand experiences, thereby enhancing message relevance and emotional connection. Therefore:

H3. Users' perceived enjoyment of branded social AR filters will positively influence the brand (a) awareness, (b) image, and (c) behavioral intentions.

Previous literature has demonstrated the relationship between brand awareness and brand image (e.g., Yoo et al., 2000). Specifically, brand awareness is necessary to create and strengthen the associations in the brand image (Keller, 1993). When users interact with a social AR filter from a brand, they become aware of some of its peculiarities (Rauschnabel et al., 2022). This heightened awareness can strengthen the brand's image by improving users' perceptions and emotions toward it. Additionally, by raising brand awareness through the use of creative social AR filters, the brand will achieve higher positions in users' consciousness, leading them to take it into account more when making behavioral decisions (Barreda et al., 2015). Similarly, branded social AR filters can influence behavioral intentions through a positive impact of brand image. If users perceive that the image of a brand is enhanced after a particular touchpoint with this AR-based tool (Rauschnabel et al., 2022), they will be more likely to purchase and/or recommend the brand (Chen et al., 2014). In sum, when displaying creative social AR filters, brands should aim to raise awareness and enhance their image among the audience, enabling users to develop a greater willingness to take favorable actions (Scholz and Smith, 2016). Formally:

H4. Users' perceived brand awareness will positively influence (a) brand image and (b) behavioral intentions.

H5. Users' perceived brand image will positively influence behavioral intentions toward brands.

As previously noted, the perceived originality of a branded **social** AR filter may not always translate into favorable brand outcomes if users perceive the brand as excessively present or intrusive (Smink et al., 2019; Smink et al., 2020). In the Gatorade's example (Medium, 2019**),** which can be regarded as an original value proposition, imagine that the brand's logo was persistently displayed in the center of the screen (e.g., over the user's face) or the filter included a direct call-to-action (e.g., "buy now on our website"). In these cases, users may feel that commercial motives hijack their experience. As a result, even if they appreciated the originality of the filter, the experience would have been less enjoyable, and brand responses (awareness, image, and behavioral intentions) would have been damaged. This example highlights the balance brands must strike between originality and subtlety when incorporating their brand elements into these actions. Considering the above, this study examines how two specific consumer perceptions (brand intrusiveness and ad recognition) may negatively moderate the positive effects of the branded social AR filter's perceived originality on enjoyment, brand awareness, image, and behavioral intentions toward the brand.

According to Li et al. (2002), brand intrusiveness refers to "a psychological reaction to ads that interfere with a consumer's ongoing cognitive processes" (p. 39). Previous research has shown that, in a multitasking context, brand intrusiveness can positively affect the customers' responses (Yoon et al., 2011). However, most studies on marketing communications have found that it reduces effectiveness by interrupting the user experience, triggering psychological reactance, and activating persuasion knowledge (De Keyzer et al., 2022; Li et al., 2002; Smink et al., 2020). In our research context, when users perceive that the brand in the social AR filter is interrupting their primary motivation (their desire to be entertained on social media; Bazi et al., 2023), they may feel irritated or frustrated (Belanche et al., 2017; Scholz

& Duffy, 2018). These emotional responses can activate psychological reactance, leading users to resist the originality of the brand message and reduce their engagement with it (Smink et al., 2020). This negative moderation effect can be explained from an information processing perspective. As previously argued, interacting with branded social AR filters occurs in a low-effort, hedonic context, so the originality of the filter acts as a positive heuristic cue ("if it is original, the brand is different") (Petty and Cacioppo, 1986). However, if intrusiveness becomes salient (e.g., due to overly prominent logos), persuasion knowledge is activated and consumers can change to a more skeptical mode of processing information (De Keyzer et al., 2022). The branded social AR filter is no longer viewed as entertainment, but rather as a commercial tool, undermining the positive evaluations triggered by the filter's originality. As a result, the otherwise beneficial impact of originality on enjoyment and brand-related outcomes may be weakened. Similarly, perceived brand intrusiveness can increase psychological distance, changing users' mindset into a more abstract, high-construal level (Lee and Labroo, 2004). This mismatch between the message format (original and experiential) and the user's cognitive frame (analytical and distant) disrupts message fluency and reduces the persuasive effectiveness of the message. Thus, intrusiveness not only generates resistance but also interferes with the cognitive conditions under which originality is most impactful. Therefore, although users self-select filters for entertainment (Ibáñez-Sánchez et al., 2022), the positive effects of originality on perceived enjoyment and brand responses may be diminished if the social AR filter creates perceptions of intrusiveness:

H6. Users' perceived brand intrusiveness of social AR filters will negatively moderate the effects of perceived originality on (a) enjoyment, (b) brand awareness, (c) brand image, and (d) behavioral intentions toward the brand.

Perceived ad recognition refers to the extent to which users recognize a branded message as an advertisement. When ad recognition occurs, consumers tend to respond negatively toward the content and the brand, although it may have non-significant or even positive effects in social media contexts due to a feeling of transparency (e.g., native advertising, influencers; De Veirman and Hudders, 2020; van Reijmersdal et al., 2016). While some levels of brand visibility are inevitable and even expected in sponsored content, openly recognizable advertising can activate persuasion knowledge (Friestad and Wright, 1994), prompting users to adopt resistance strategies (De Veirman and Hudders, 2020; Scholz & Duffy, 2018). This may include skepticism and reduce the effect of originality. From an information processing standpoint, ad recognition may function as a peripheral cue that, in this case, shifts attention from the experiential qualities of the social AR filter (perceived originality) to the brand's persuasive intention. This redirection can diminish users' responses (perceived enjoyment) and the effectiveness of the social AR filter to produce positive brand-related responses. From a construal level perspective, if users perceive a persuasive attempt behind a branded social AR filter, they may experience higher psychological distance, which is incongruent with their a priori low construal mindset. As a result, the originality of the social AR filter is no longer perceived as authentic and becomes less persuasive, weakening its positive impact on the experience (enjoyment) and brand responses:

H7. Users' perceived ad recognition of social AR filters will negatively moderate the effects of perceived originality on (a) enjoyment, (b) brand awareness, (c) brand image, and (d) behavioral intentions toward the brand.

Fig. 1 displays the research model.

3. Methodology

We collected the data to test the hypotheses from an online questionnaire targeting users of branded AR filters on social media. We used the services of a market research company to distribute the survey. As
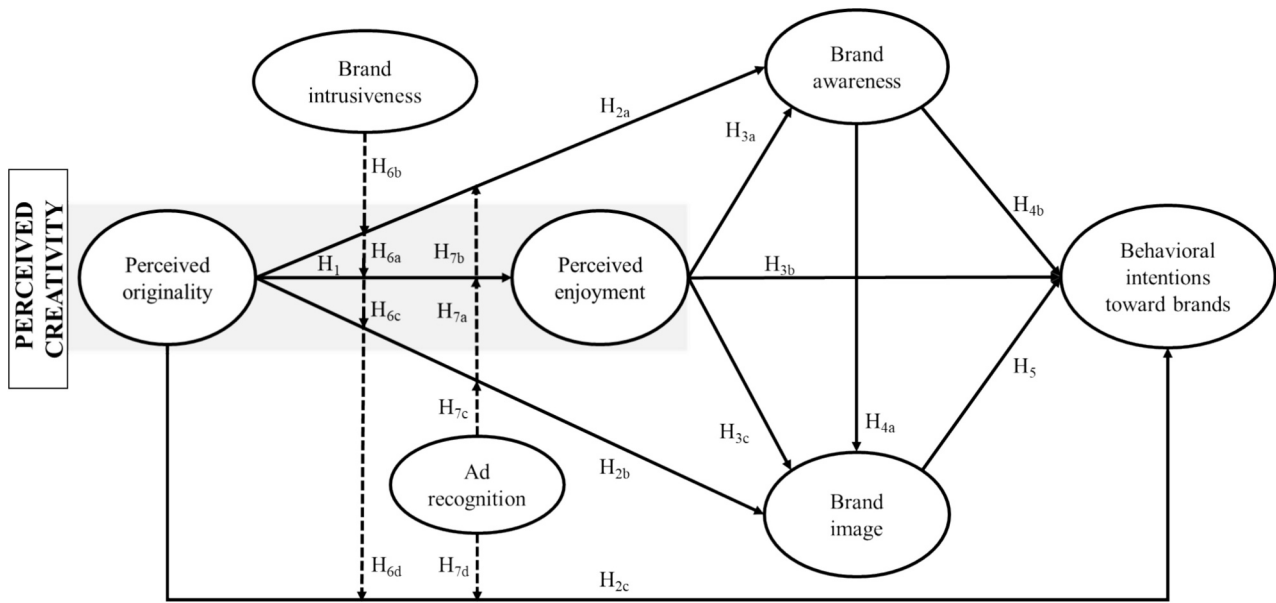
Fig. 1. Research model.

with previous studies into AR technologies (McLean and Wilson, 2019), to obtain a representative sample of social media users in Europe (Datareportal, 2020), the questionnaire was distributed following a quota-based sampling procedure in terms of gender, age, frequency of use of social media, and number of profiles in social networks.

The questionnaire started by defining social AR filters and displaying visual examples (Fig. 2.A). Only users of social AR filters were eligible to participate in the questionnaire; participants who had never used AR filters were thanked and excluded from the study. This screening process yielded an initial sample of 765 users of social AR filters. After answering questions related to their social media usage and experiences with AR filters, participants were given the following information: "Brands are adopting this technology by creating their filters. As you can see below [see Fig. 2.B], brands from industries such as fashion, restaurants, movies & TV shows, sports, or entertainment, are jumping on the bandwagon of this new technology". Then, they were asked: "Have you ever used social AR filters created or sponsored by brands?" If the answer was affirmative, they were asked to recall and report the names of the brands ("Please, type all the brands you remember that themed these filters") and answer questions about their perceptions of the filters and their attitudes and behavioral intentions toward the brands. Specifically, we used previously validated scales and adapted them for measuring perceived originality (6 items; Casaló et al., 2021), perceived enjoyment (6 items; Van der Heijden, 2004), brand awareness (3 items;

Yoo et al., 2000), brand image (6 items; Low and Lamb, 2000), brand intrusiveness (3 items; Li et al., 2002), ad recognition (3 items; De Veirman and Hudders, 2020; Van Reijmersdal et al., 2016) and behavioral intentions (6 items; Algesheimer et al., 2005; Lu et al., 2014). Seven-point Likert scales (from 1 = "strongly disagree" to 7 = "strongly agree") were employed. The appendix provides the complete list of items used in the questionnaire.

To control possible exogenous effects, the participants were asked to provide personal details. Previous studies have found that sociodemographic and psychographic characteristics may affect the adoption and usage of AR technologies (Abed, 2021; Dodoo and Youn, 2021; Smink et al., 2019). Specifically, women may be more likely to use AR-based technologies in their daily lives than men (Abed, 2021; Smink et al., 2019). In addition, young people and those with higher levels of education tend to adopt new technological developments more readily than others (Morris and Venkatesh, 2000). Therefore, the participants indicated their gender, age, and education level. Finally, as intensive use of social networks can affect the adoption of new embedded features (Dodoo and Youn, 2021), the participants indicated: their daily use of social networks (Table 2); whether they had profiles on the main social networks which use AR filters (Facebook, Instagram, Snapchat, and TikTok); and how often they used AR filters (Table 2).

(A)   **(B)**
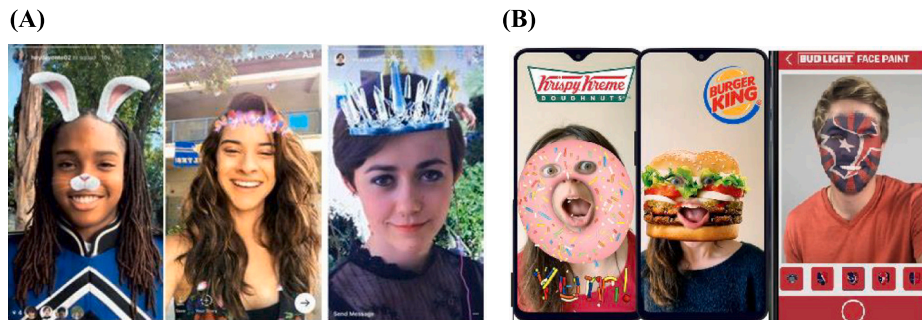
Note: Images with Creative Commons' licenses borrowed from Microsoft Bing Images

Fig. 2. Visual examples of social AR filters.
Note: Images with Creative Commons' licenses borrowed from Microsoft Bing Images.

Table 2

Sample characteristics: socio-demographic and psychographic information.

	Total sample	Branded social AR filters (n = 318)	Non-branded social AR filters (*n* = 447)
Gender (% female)	58.7 %	**62.6 %**	**55.9 %**
Age (years)			
16–24	10.3 %	9.1 %	11.2 %
25–34	67.7 %	**77.4 %**	**60.9 %**
35–44	13.2 %	**10.1 %**	**15.4 %**
45–54	5.4 %	**0.9 %**	**8.5 %**
> 55	3.4 %	2.5 %	4.0 %
Educational level			
High/secondary school	34.8 %	**5.3 %**	**40.0 %**
College (studying)	24.7 %	23.6 %	22.1 %
College (graduates)	27.7 %	25.8 %	24.8 %
Postgraduate	15.8 %	**45.3 %**	**13.0 %**
No. profiles in social networks (mean, std. dev.)	2.96 (0.93)	**3.14 (0.87)**	**2.82 (0.96)**
Daily use of social media			
Less than 1 h	8.4 %	**4.7 %**	**11.0 %**
1–2 h	37.1 %	**31.1 %**	**41.4 %**
3–4 h	35.0 %	36.5 %	34.0 %
More than 4 h	19.5 %	**27.7 %**	**13.6 %**
Frequency of use of social AR filters			
Less than once a month	43.5 %	**24.2 %**	**57.3 %**
At least once a month	22.4 %	25.8 %	19.9 %
At least once a week	23.8 %	**30.8 %**	**18.8 %**
Every day, or almost every day	10.3 %	**19.2 %**	**4.0 %**

Note: Bold numbers indicate significant differences (p < 0.05) between branded vs non-branded AR filters (according to Chi-square and independent samples t-tests); italic bold font indicates marginally significant differences (p < 0.10).

4. Analysis and results

Table 2 displays the sample's characteristics. As can be observed, the majority of users of AR filters on social media were women under 34 years old with higher education. In addition, most users of AR filters spent between one and four hours a day on social media and had, on average, almost three social media profiles. Regarding previous experience with AR filters, most participants (56.5 %) reported using them at least once a month, and more than 10 % used them daily (Table 2).

As shown in Table 2, 41.6 % of the sample (n = 318) recalled having previous experiences with branded social AR filters. Looking at the characteristics of users and non-users of branded social AR filters, Table 2 shows that branded AR filters were used slightly more by women than by men; young people (albeit not the youngest) from 25 to 34 years old declared the highest use of branded social AR filters. In addition, social media users with lower educational levels reported minimal use of branded AR filters, whereas those with higher educational levels indicated the opposite. The use of branded social AR filters was also positively associated with the number of profiles on social networks, the time spent on social media, and the frequency of use of social AR filters (Table 2).

Before testing the hypotheses, we explored the brands that the participants recalled from their AR filter experiences. We recollected 719 brand names, with an average of 2.28 brands per respondent (*std. dev.* = 1.43); 40.3 % of the respondents reported one brand name, and 18.1 % recalled three or more brand names. Fig. 3 is a word cloud, which includes the word count, depicting the brand names. We grouped the brands into common categories and identified four major industries: fashion and beauty (e.g., Gucci, Kylie cosmetics; 54 % of respondents), entertainment (e.g., Disney, Netflix; 47 % of respondents), sports (e.g., Nike, Premier League; 31 % of respondents) and food and beverages (e. g., Taco Bell, Coca-Cola; 28 % of respondents).

Considering the research instrument used to collect the data (a self-administered questionnaire), the possibility of common method bias was assessed. To mitigate this issue, participants were informed at the beginning of the survey that their answers would be completely anonymous (Podsakoff et al., 2012). In addition, Harman's single-factor test was conducted. An unrotated exploratory factor analysis including all items showed that the first factor accounted for 31.5 % of the total variance, suggesting that common method bias was not a significant concern (Podsakoff et al., 2003). Then, to verify the reliability and validity of the measurement instruments (Table 3), we ensured that all loadings from the items of the constructs were higher than 0.5 (Jöreskog and Sörbom, 1993). In addition, we verified that the composite reliabilities of the constructs exceeded 0.65 (Steenkamp and Geyskens, 2006) and that Cronbach's alphas exceeded the cut-off of 0.7 (Bagozzi and Yi, 1988), indicating internal consistency. Regarding convergent validity, the values of the average variance extracted (AVE) were all higher than 0.5 (Fornell and Larcker, 1981). Finally, to corroborate
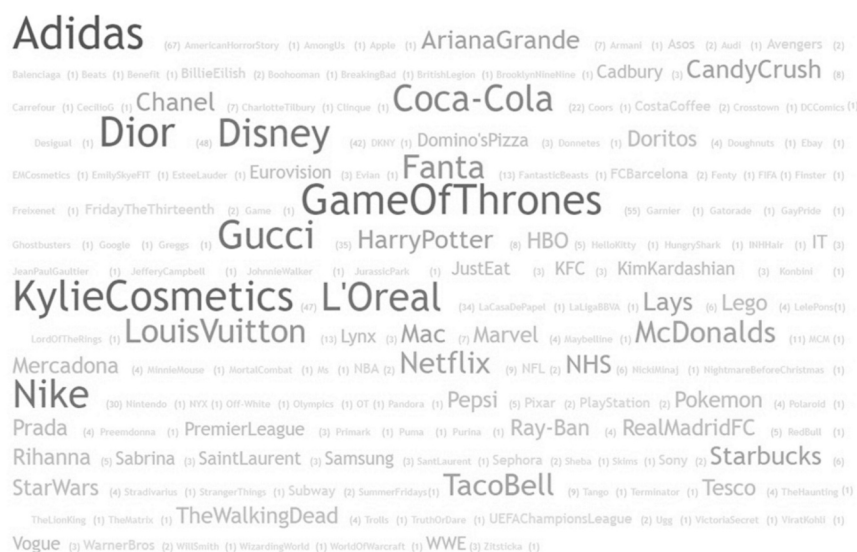

Fig. 3. Brand names recalled by participants.

Table 3
Reliability and validity.

Variable	Item loadings range	CR	α	AVE	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Perceived originality (1)	0.794–0.867	0.889	0.882	0.680	*0.825*	0.630	0.499	0.611	0.370	0.157	0.100
Perceived enjoyment (2)	0.653–0.919	0.930	0.918	0.716	0.580	*0.812*	0.126	0.630	0.498	0.155	0.126
Brand awareness (3)	0.883–0.924	0.881	0.879	0.805	0.444	0.436	*0.897*	0.712	0.601	0.096	0.298
Brand image (4)	0.711–0.880	0.906	0.903	0.675	0.548	0.578	0.635	*0.822*	0.614	0.194	0.118
Behavioral intentions (5)	0.866–0.934	0.959	0.957	0.825	0.341	0.459	0.554	0.574	*0.908*	0.064	0.132
Perceived intrusiveness (6)	0.559–0.944	0.884	0.789	0.659	−0.156	−0.142	−0.077	−0.204	−0.008	*0.812*	0.415
Ad recognition (7)	0.839–0.929	0.927	0.881	0.806	−0.078	−0.087	0.269	−0.018	0.129	0.349	*0.898*

Note: One item of perceived originality was removed from the analysis as they did not meet the criterion (loading > 0.5). CR (Composite Reliability), α (Cronbach's alpha), AVE (Average Variance Extracted). Bold numbers of the diagonal show the square root of the AVE. Construct correlations are shown below the diagonal. HTMT values are displayed over the diagonal.

discriminant validity, the value of the square root of the AVE was higher than the correlations among the constructs (Fornell and Larcker, 1981), and the values of the HTMT meet the criteria of being below 0.85 (Kline, 2011).

The PROCESS macro v3.3 for SPSS (Hayes, 2018; http://www.processmacro.org) was employed to test the hypotheses. PROCESS is a simple and user-friendly modeling system that utilizes OLS regression procedures (Hayes, 2018). Similar to other techniques based on Maximum Likelihood procedures (e.g., SEM), PROCESS estimates direct and indirect effects, eliminating the need for separate tests to assess the significance of the mediation effect. Unlike SEM, PROCESS can be used with irregular sampling distributions, as it employs bootstrapping methods to estimate indirect effects (Hayes, 2018; Hayes et al., 2017). These bootstrap confidence intervals enable more accurate and robust inferences than other approaches (Hayes, 2018). Both SEM and OLS produce similar results for observed variables (as in our case), given that the scales are formed by averaging the items (Hayes et al., 2017).

We ran Model 6 in PROCESS with perceived originality as the independent variable, perceived enjoyment, brand awareness, and brand image as mediators, and behavioral intentions toward brands as the key outcome variable. The respondents' characteristics (gender, age, education, number of social network profiles, daily social media use, and frequency of social AR filter use) were included as covariates. The results of the serial multiple mediator model appear in Table 4. The analysis showed a significant and positive direct effect of perceived originality on perceived enjoyment, brand awareness, and brand image, supporting H_1, H_{2a}, and H_{2b}, respectively. The direct effect of originality on behavioral intentions was not significant, thus rejecting H_{2c}. The H_3 was supported, given the positive and significant effect of enjoyment on brand awareness (H_{3a}), brand image (H_{3b}), and behavioral intentions (H_{3c}). In line with H_4, brand awareness had a positive relationship with brand image ($H4a$) and behavioral intentions ($H4b$), while brand image also had a positive relationship with behavioral intentions (support for H_5). Additionally, several sequential indirect effects were found as displayed in Table 4. The total effect of originality on behavioral intentions was also significant, offering indirect support for H_{2c} (Table 4).

We used Model 3 in PROCESS to analyze whether brand intrusiveness and ad recognition moderated the effects of perceived originality on perceived enjoyment, brand awareness, brand image, and behavioral intentions. The analyses revealed a significant negative interaction between brand intrusiveness and perceived originality on perceived enjoyment (*coeff.* = − 0.267, $p = 0.006$, $LLCI = −0.455$, $ULCI = −0.079$), brand awareness (*coeff.* = − 0.341, $p = 0.014$, $LLCI = −0.550$, $ULCI = −0.133$), brand image (*coeff.* = − 0.195, $p = 0.031$, $LLCI = −0.373$, $ULCI = −0.018$), and behavioral intentions (*coeff.* = − 0.311, $p = 0.015$, $LLCI = −0.561$, $ULCI = −0.060$). Similarly, the negative moderating effect of ad recognition was also significant for the relationships between perceived originality and enjoyment (*coeff.* = − 0.167, $p = 0.001$, $LLCI = −0.267$, $ULCI = −0.067$), brand awareness (*coeff.* = − 0.230, $p = 0.000$, $LLCI = −0.341$, $ULCI = −0.119$), brand image (*coeff.* = − 0.211, $p = 0.000$, $LLCI = −0.306$, $ULCI = −0.117$), and behavioral intentions (*coeff.* = − 0.148, $p = 0.029$, $LLCI = −0.281$, $ULCI$

$= −0.015$).

Despite these results support H_6 and H_7, the analyses surprisingly showed small, yet significant, positive three-way interactions between brand intrusiveness, ad recognition and perceived originality on perceived enjoyment (*coeff.* = 0.056, $p = 0.002$), brand awareness (*coeff.* = 0.072, $p = 0.003$), brand image (*coeff.* = 0.052, $p = 0.002$) and behavioral intentions (*coeff.* = 0.063, $p = 0.008$). Table 5 displays the results of the moderated moderation. Overall, a similar pattern emerged: when users did not perceive branded social AR filters as a form of advertising (low ad recognition), brand intrusiveness negatively moderated the effects of perceived originality on enjoyment and brand responses; that is, the higher the intrusiveness, the lower the effect. Conversely, when users highly recognized branded social AR filters as a form of advertising (high ad recognition), brand intrusiveness moderated positively the effects of originality on perceived enjoyment and brand responses (see Table 5), thereby strengthening the effect of originality. Similarly, when perceived brand intrusiveness was low, the influence of originality on brand responses decreased as the perceived ad recognition increased (negative moderation; Table 5). Overall, we found support for H_6 and H_7, particularly when perceptions of ad recognition and brand intrusiveness were low, respectively.

5. Discussion

The results of this study complement and extend previous literature about the use of social AR filters and their implications for brands, in two important ways: on the one hand, they advance the understanding of hedonic and self-expressive engagement in digital environments (Javornik et al., 2022; Ibáñez-Sánchez et al., 2022); and on the other, they highlight factors that had previously been explored mainly from qualitative or descriptive perspectives (Ríos et al., 2018; Eugeni, 2022; Hawker and Carah, 2021).

The descriptive analysis reveals that participants can recall a considerable number of brands in their experiences with social AR filters (an average of more than two brands per respondent and almost 20 % reporting three or more brand names). While previous studies have examined the impact of AR on responses toward specific brands on specific social networks or sectors (Dodoo and Youn, 2021; Phua and Kim, 2018; Scholz and Duffy, 2018; McLean and Wilson, 2019; Smink et al., 2019; Smink et al., 2020), this research captures a broad spectrum of the brandscape and social networks which offer AR filters. The results show that a variety of industries are benefiting from social AR filters, particularly the fashion and beauty, entertainment, sports, and food and beverage sectors.

Following an information processing perspective, the research model examined how the perceptions of creativity (operationalized through originality and enjoyment) of branded social AR filters affect brand-related outcomes. In line with the literature on branded entertainment and communications on social media (Barreda et al., 2015; Scholz & Duffy, 2018; Casaló et al., 2021), our data show that creativity acts as a powerful heuristic in contexts where users adopt a peripheral processing route (Petty and Cacioppo, 1986; Rosengren et al., 2020). Originality is

Table 4
Results of the analysis of the serial multiple mediation model.

Predictor	Coeff.	SE	t	P	LLCI	ULCI
Perceived enjoyment						
Constant	1.067	0.49	2.141	0.033	0.087	2.048
Originality	0.525	0.05	11.074	0.000	0.431	0.618
Gender	0.239	0.13	1.900	0.058	−0.009	0.488
Age	−0.048	0.09	−0.535	0.593	−0.225	0.129
Education	0.117	0.05	2.238	0.026	0.014	0.134
No. profiles in social networks	−0.031	0.06	−0.563	0.574	−0.141	0.078
Daily use of social media	−0.004	0.07	−0.053	0.958	−0.141	0.134
Frequency of use of AR filters	0.299	0.06	4.925	0.000	0.179	0.419
Model Summary	$R^2 = 0.401$; $F_{(7, 310)} = 29.610$, $p < 0.001$					
Brand awarenesss						
Constant	1.244	0.57	2.166	0.031	0.114	2.374
Originality	0.316	0.06	4.938	0.000	0.190	0.442
Enjoyment	0.309	0.07	4.755	0.000	0.181	0.437
Gender	−0.207	0.15	−1.424	0.155	−0.492	0.079
Age	0.245	0.10	2.385	0.018	0.043	0.447
Education	0.093	0.06	1.546	0.123	−0.025	0.212
No. profiles in social networks	0.042	0.06	0.660	0.509	−0.083	0.167
Daily use of social media	0.065	0.08	0.817	0.415	−0.092	0.222
Frequency of use of AR filters	−0.087	0.07	−1.202	0.230	−0.229	0.055
Model Summary	$R^2 = 0.282$; $F_{(8, 309)} = 15.185$, $p < 0.001$					
Brand image						
Constant	1.558	0.41	3.825	0.000	0.757	2.359
Originality	0.229	0.05	4.908	0.000	0.138	0.322
Enjoyment	0.226	0.05	4.768	0.000	0.133	0.319
Brand awareness	0.371	0.04	9.272	0.000	0.293	0.450
Gender	0.067	0.10	0.657	0.511	−0.134	0.269
Age	−0.059	0.07	−0.805	0.422	−0.202	0.085
Education	−0.040	0.04	−0.940	0.375	−0.124	0.044
No. profiles in social networks	0.015	0.04	0.330	0.741	−0.073	0.103
Daily use of social media	−0.187	0.06	−3.316	0.001	−0.297	−0.076
Frequency of use of AR filters	−0.015	0.05	−0.299	0.765	−0.115	0.085
Model Summary	$R^2 = 0.537$; $F_{(9, 308)} = 39.631$, $p < 0.001$					
Behavioral intentions toward brands						
Constant	−1.656	0.57	−2.887	0.004	−2.784	−0.527
Originality	−0.125	0.07	−1.865	0.063	−0.256	0.007
Enjoyment	0.250	0.07	3.704	0.000	0.117	0.383
Brand awareness	0.331	0.06	5.313	0.000	0.208	0.454
Brand image	0.336	0.08	4.282	0.000	0.181	0.489
Gender	−0.361	0.14	−2.123	0.035	−0.586	−0.022
Age	0.167	0.10	1.666	0.097	−0.030	0.365
Education	0.131	0.06	2.225	0.027	0.015	0.246
No. profiles in social networks	0.091	0.06	1.478	0.140	−0.030	0.212
Daily use of social media	0.069	0.08	0.874	0.383	−0.086	0.224
Frequency of use of AR filters	0.167	0.07	2.383	0.018	0.029	0.305
Model Summary	$R^2 = 0.439$; $F_{(10, 307)} = 24.004$, $p < 0.001$					
TOTAL EFFECT MODEL: Behavioral intentions						
Constant	−0.068	0.66	−0.102	0.919	−1.375	1.239
Originality	0.341	0.06	5.406	0.000	0.217	0.466
Gender	−0.321	0.17	−1.190	0.057	−0.652	0.010
Age	0.237	0.12	1.980	0.049	0.002	0.472
Education	0.215	0.07	3.075	0.002	0.077	0.352
No. profiles in social networks	0.101	0.07	1.358	0.175	−0.044	0.246
Daily use of social media	0.034	0.09	0.368	0.713	−0.149	0.217
Frequency of use of AR filters	0.262	0.08	3.235	0.001	0.102	0.421
Model Summary	$R^2 = 0.180$; $F_{(7, 310)} = 9.694$, $p < 0.001$					

Bootstrap results for indirect effects	Effect	BootSE	BootLLCI	BootULCI
Originality → Enjoyment → Behav. intentions	0.131	0.04	0.058	0.216
Originality → Awareness → Behav. intentions	0.105	0.03	0.049	0.175
Originality → Image → Behav. intentions	0.077	0.03	0.028	0.144
Originality → Enjoyment → Awareness → Behav. intentions	0.054	0.02	0.024	0.089
Originality → Enjoyment → Image → Behav. intentions	0.039	0.01	0.015	0.072
Originality → Awareness → Image → Behav. intentions	0.039	0.01	0.015	0.072
Originality → Enjoyment → Awareness → Image → Behav. intentions	0.020	0.01	0.007	0.039

Note: n = 318. Confidence interval calculated at 95 % of significance. Bootstrap sample size = 5000. BootLLCI: lower limit confidence interval; BootULCI: upper limit confidence interval.

Table 5
Three-way interaction effects.

Enjoyment	Intrusiveness	Effect (creativity → enjoyment)	SE	t	p-value
Low	Low	0.646	0.072	8.972	0.000
	Medium	0.433	0.079	5.509	0.000
	High	0.281	0.120	2.333	0.020
Medium	Low	0.466	0.074	6.263	0.000
	Medium	0.427	0.055	7.718	0.000
	High	0.398	0.082	4.881	0.000
High	Low	0.239	0.155	1.549	0.122
	Medium	0.419	0.079	5.258	0.000
	High	0.547	0.082	6.706	0.000

Ad recognition	Intrusiveness	Effect (creativity → awareness)	SE	t	p-value
Low	Low	0.656	0.079	8.205	0.000
	Medium	0.346	0.087	3.966	0.000
	High	0.125	0.134	0.932	0.352
Medium	Low	0.427	0.083	5.172	0.000
	Medium	0.340	0.061	5.546	0.000
	High	0.278	0.091	3.069	0.002
High	Low	0.139	0.172	0.812	0.417
	Medium	0.333	0.088	3.770	0.000
	High	0.472	0.091	5.213	0.000

Ad recognition	Intrusiveness	Effect (creativity → image)	SE	t	p-value
Low	Low	0.654	0.068	9.621	0.000
	Medium	0323	0.074	4.359	0.000
	High	0.087	0.114	0.767	0.444
Medium	Low	0.550	0.070	7.896	0.000
	Medium	0.384	0.052	7.350	0.000
	High	0.261	0.077	3.390	0.001
High	Low	0.430	0.146	2.945	0.004
	Medium	0.459	0.075	6.114	0.000
	High	0.481	0.077	6.247	0.000

Ad recognition	Intrusiveness	Effect (creativity → intentions)	SE	t	p-value
Low	Low	0.434	0.096	4.529	0.000
	Medium	0.286	0.104	2.737	0.007
	High	0.180	0.159	1.127	0.260
Medium	Low	0.218	0.099	2.200	0.029
	Medium	0.264	0.074	3.596	0.000
	High	0.298	0.101	2.742	0.007
High	Low	−0.055	0.206	−0.265	0.791
	Medium	0.237	0.106	2.238	0.026
	High	0.445	0.108	4.108	0.000

Note: Low, medium and high levels of ad recognition correspond to the 16th, 50th, and 84th percentiles.

confirmed as an essential trigger to capture attention and foster both cognitive (awareness) and affective (brand image) reactions. This effect is consistent with and extends previous findings on branded AR content (Phua and Kim, 2018; Dodoo and Youn, 2021), in which humor, uniqueness, and entertainment emerge as decisive factors in shaping brand attitudes and purchase intentions.

However, the study findings complement earlier work. Our model shows that the effect of originality on behavioral intention is not direct but rather is mediated by both brand awareness and image, as well as by the enjoyment of the experience, suggesting a more complex and less immediate path of influence than previously assumed (Chen et al., 2014). This finding decouples the sequential logic proposed by Keller (1993) and highlights the importance of hedonic experience and its alignment with the user's playfulness motivation (Van der Heijden, 2004). Furthermore, the finding that enjoyment is a key predictor not

only of affective but also cognitive responses (awareness) reinforces the idea that immersive experiences aligned with entertainment expectations can facilitate both recall and emotional bonding (Sung et al., 2022).

Our findings reveal a nuanced role of perceived brand intrusiveness and ad recognition in shaping the impact of social AR filter creativity on brand-related responses. Specifically, when users perceive the brand's presence as intrusive (Smink et al., 2019) or recognize the persuasive intent of the filter (ad recognition; Friestad and Wright, 1994), the positive effect of creativity on brand responses weakens. From a CLT perspective, this can be explained by a shift in psychological distance: once users perceive the content as a marketing attempt rather than playful entertainment, they adopt a higher level of abstraction, which is less congruent with the concrete and experiential nature of creative AR stimuli (Lee and Labroo, 2004). Similarly, dual information processing models suggest that creativity typically acts as a peripheral cue, eliciting favorable heuristics in low elaboration contexts (Petty and Cacioppo, 1986; Eagly and Chaiken, 1993). However, when ad recognition or intrusiveness is triggered, users engage in more critical processing, diminishing the peripheral influence of creativity.

Interestingly, our results indicate that when both ad recognition and intrusiveness are high, the effect of creativity on brand responses strengthens. This double moderation can be interpreted as a recontextualization mechanism. Once users fully accept the branded nature of the content, creativity is evaluated as a central argument rather than as a superficial cue. In this case, the originality of the social AR filter becomes the focus of user evaluation, potentially leading to favorable brand judgments despite heightened awareness of persuasion. These results can also be explained by the congruity theory (Osgood and Tannenbaum, 1955), which suggests that people look for mental consistency in persuasive messages to avoid discomfort. When users perceive that a branded social AR filter is designed to promote a brand, the presence of overt brand cues (e.g., logos, slogans) becomes congruent with their expectations. This cognitive alignment reduces psychological discomfort and facilitates smoother message processing. In such cases, originality is not perceived as manipulative or misleading, but rather as part of a coherent branded experience. Combined with dual process theories, congruity facilitates peripheral message acceptance by avoiding skepticism that might otherwise prompt users to engage in central processing. Similarly, it resonates with CLT: when congruent cues match the user's construal level (either low or high), they enhance processing fluency. Nevertheless, this finding reinforces the idea that users' tolerance for sponsored actions has increased (Sicilia and López, 2022). It complements it by noting that this occurs when brand elements are explicitly displayed, allowing for consistent cognitive processing.

5.1. Theoretical implications

From a theoretical standpoint, this study contributes to understanding social AR as a space for participatory co-creation, refining the conceptualization of social AR filters as entertainment products, featured by the playful self-expression they provide (Hawker and Carah, 2021; Ibáñez-Sánchez et al., 2022; Tan et al., 2022). As outlined in our literature review, social AR filters differ from other AR-based tools commonly employed for instrumental or utilitarian purposes (e.g., virtual try-ons; Pathak and Prakash, 2023). Although often perceived as ephemeral or trivial, social AR filters are being increasingly adopted by brands as a novel form of communication to engage consumers and build relationships (Statista, 2023; Rauschnabel et al., 2024). At the same time, they offer users playful tools for entertainment and self-expression, contributing to the co-creation of new narratives on social media.

While prior studies mainly focused on technological features, usability, or attitudes toward AR (e.g., Scholz and Duffy, 2018; McLean and Wilson, 2019; Cowan et al., 2021), this study advances literature by stressing creativity, defined by perceived originality and enjoyment, as a key characteristic of social AR filters. Using a comprehensive definition

of creativity (Rosengren et al., 2020; Smith and Yang, 2004), this approach provides insights into how creative AR content influences brand responses. This study develops a broader model of consumer responses to branded AR filters by integrating psychological frameworks. Using information processing theories, it shows how originality in AR content serves as a peripheral cue, enhancing brand evaluations in low-involvement settings. It also examines how perceived intrusiveness or ad recognition can alter consumers' sense of psychological distance, potentially disrupting immersive and experiential forms of message processing. The model redefines perceived enjoyment as an indicator of message appropriateness, linking creative design with brand equity. This helps refine the understanding of AR filter experiences in experiential marketing.

One of our most innovative contributions is in the interaction effects. While brand intrusiveness and ad recognition are commonly seen as resistance triggers (Smink et al., 2020), our findings challenge this idea by showing that when both perceptions are high, the adverse effects become positive. This suggests that congruence between persuasive intent and execution may play a crucial role in shaping user responses and opens up new possibilities for rethinking how persuasion knowledge operates in immersive and creative settings. While not explicitly tested, this dynamic also relates to emerging privacy concerns in AR (Cowan et al., 2021; Doligalski et al., 2024; Lavoye and Kumar, 2025), as the perception of intrusiveness can imply discomfort with the implicit use of personal data (e.g., biometric information), especially when users are not cognitively prepared to interpret the commercial content.

5.2. Managerial implications

Our findings have important implications for brand managers aiming to deliver superior and valuable experiences through social AR filters. Specifically, we recommend that brand managers incorporate creative elements into their social AR filter designs. For example, the AR filter could respond to specific user movements (such as winking an eye), incorporate storytelling aspects, or utilize gamification to enhance the experience. Doing so helps brands stand out, attract user attention, and increase awareness, which is essential for building positive associations (brand image) and encouraging positive behaviors (such as purchasing or recommending). Additionally, creative filters can yield better outcomes for brands, as they align with users' motivations for using these filters to discover new content on social media (Ibáñez-Sánchez et al., 2022).

However, creativity alone is not enough. Our results show that brand intrusiveness and ad recognition can lessen the effectiveness of original social AR filters unless users see them as aligned with the brand's communication intent. Therefore, brands need to strike a balance between visibility and subtlety, carefully adjusting how prominently the brand is incorporated based on the communication goal and platform context. For example, if the goal of the AR filter is to promote the brand, it is obvious that the brand elements must be clearly shown and easily identifiable; therefore, they must be prominently displayed and acknowledged by the brand. Including the most characteristic elements of the brand (e.g., logos, colors, shapes, styles) and indicating that users are in front of a promotional action (e.g., hashtags with #AD or #SPONSOR in the filter or its description) appears to be a good strategy. In contrast, when the goal is to inspire user-generated content or storytelling, subtle brand cues may be more effective, as they avoid resistance and preserve the hedonic nature of the interaction. To illustrate, imagine a sportswear brand launching an AR filter during the Olympics that lets users visualize themselves crossing the finish line in branded gear. The filter prominently displays the brand logo and a tagline, such as "Train like a champion – Buy now." While this would typically risk being perceived as intrusive, the congruence between the theme, timing, and user expectations makes the branding feel legitimate and even enhances the experience. In such cases, brand intrusiveness is not penalized but instead normalized through contextual fit and creative

execution, demonstrating that well-aligned promotional strategies can amplify rather than hinder the effectiveness of branded AR filters.

Importantly, this strategy should be tailored by industry. For instance, in the fashion and beauty industries (one of the most highlighted by participants), social AR filters should reflect the brand's aesthetic identity, using minimalist yet distinctive elements that align with aspirational experiences. In the food and entertainment industries, playful and gamified filters may encourage broader engagement and social sharing. For tech or performance-based brands, filters can highlight product functionality or innovation, thereby reinforcing their positioning. The key is to match the level of branding with the user's expectation of the context and platform.

Finally, beyond immediate marketing results, branded social AR filters serve as an early sign of the shift toward more immersive and hybrid brand-consumer experience ecosystems. As AR technologies become increasingly embedded in everyday life through smartphones and wearables (Flavián et al., 2019), brands will need to adapt their strategies to deliver sustained value across digital-physical touchpoints. This evolution will demand not only creative content but also ethical considerations related to data use, identity representation, and user well-being in immersive environments (Jin and Ryu, 2025). Brands that anticipate these shifts by designing AR experiences that are not only engaging but also respectful, inclusive, and adaptive will be better positioned to build lasting customer relationships.

5.3. Limitations and future research

This study has several limitations, mainly related to the use of a single recall-based survey to test the hypotheses, which offer opportunities for future research. First, despite measures like response anonymity and Harman's single-factor test to mitigate common method bias, this study's reliance on retrospective self-reported data still faces limitations related to memory accuracy. In addition, while this approach allows access to a wide range of real-world branded social AR filter experiences, it limits control over exposure to specific stimuli and restricts causal interpretations. Future studies should employ experimental designs with controlled stimuli to isolate the effects of creative elements and systematically test the impact of brand visibility, interactivity, or ad disclosure cues. Including platform-level behavioral data or actual user interactions could also enhance the validity of the findings. Moreover, as our sample focused on European social media users, cross-cultural research is needed to assess the generalizability of these results.

Second, although the current study focused on creativity (operationalized through originality and enjoyment), it did not explicitly examine other key experiential attributes of AR, such as interactivity, immersion, or ideal self-presentation. These dimensions are central to augmented environments and may significantly shape affective and cognitive brand responses (Javornik et al., 2022). Future research could extend the proposed model by integrating these experiential variables to provide a more holistic understanding of consumer engagement with branded social AR filters.

Third, the study did not differentiate between industries, AR content types, or social media platforms, which may play a moderating role. For example, users might respond differently to overt branding in luxury fashion versus fast-moving consumer goods (FMCG), or on Instagram versus TikTok. Future research could explore these boundary conditions by comparing entertainment versus informational filters, hedonic versus utilitarian goals, and industry-specific expectations, thereby helping to refine theories of consumer–brand interaction in immersive environments. Also, it would be interesting to explore how users experience AR game filters (or gamified AR filters; Sinha and Srivastava, 2022), which apply gamification to enhance interaction on social media.

Fourth, while our findings suggest a role for congruence in moderating responses to intrusiveness and ad recognition, this mechanism was not formally tested. Future studies should explicitly incorporate this

variable as a psychological moderator, examining how alignment between user expectations and brand signals influences engagement and persuasion outcomes.

Fifth, although not directly measured, the concept of brand intrusiveness in AR contexts may relate to broader privacy concerns (Lavoye and Kumar, 2025), especially given the use of biometric data. Future research should investigate how perceived intrusiveness interacts with privacy sensitivity, particularly in settings where users are unaware of how their data are processed (Doligalski et al., 2024). This line of inquiry could further inform ethical design practices for branded AR experiences.

CRediT authorship contribution statement

Carlos Orús: Writing – review & editing, Writing – original draft, Visualization, Supervision, Methodology, Investigation, Conceptualization. **Sergio Ibáñez-Sánchez:** Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Conceptualization. **Carlos Flavián:** Writing – review & editing, Writing – original draft, Supervision, Project administration, Conceptualization.

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Declaration of competing interest

None.

Appendix A. Items used in the online questionnaire

Perceived originality (adapted from Casaló et al., 2021**)**
My experiences with branded AR filters are…
 original
 novel
 different
 unique
 creative
 sophisticated (*)
Perceived enjoyment (adapted from Van der Heijden, 2004**)**
Using branded AR filters provides me with entertaining moments.
I have fun while using branded AR filters.
Using branded AR filters gives me pleasant moments.
I think using branded AR filters is interesting.
My experiences with branded AR filters are exciting.
During my experiences with branded AR filters, I feel as if my emotions are awakened.
Brand awareness (adapted from Yoo et al., 2000**)**
Branded AR filters help people…
 to recognize these brands among others
 to be aware of these brands
 to know what these brand look like
Brand image (adapted from Low and Lamb, 2000**)**
Brands that use AR filters are…
 friendly
 modern
 useful
 popular
 gentle
 natural (*)
Brand intrusiveness (adapted from Li et al., 2002**)**
The presence of the brand in the AR face filter is…
 distracting
 disturbing
 intrusive
Ad recognition (adapted from De Veirman and Hudders, 2020**;** Van Reijmersdal et al., 2016**)**
During my experiences with branded AR filters, I realize that they…
 are like conventional advertising
 are like another commercial from the brand
 contain advertising elements
Behavioral intentions toward brands (adapted from Algesheimer et al., 2005**;** Lu et al., 2014**)**
After using branded AR filters, …
 I would consider buying the brands
 it is very likely that I will buy the brands
 I would have the intention to buy the brands
 I would likely recommend the brands to friends and relatives interested
 I would seldom miss an opportunity to tell others interested about the brands.
 I would probably say positive things about the brands.

Note: (*) This item was removed from the analysis as it did not reach the minimum loading of 0.5.

Data availability

Data will be made available on request.

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