Engaging with (vs. avoiding) personalized advertising on social media

Article *in* Journal of Marketing Communications · December 2023

DOI: 10.1080/13527266.2023.2289044

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Engaging with (vs. avoiding) personalized AI advertising on social media

Citation:

Loureiro, S., Hollebeek, L., & Rather, R. (2023). Engaging With (vs. Avoiding) Personalized Advertising on Social Media. *Journal of Marketing Communications*, https://doi.org/10.1080/13527266.2023.2289044.

Abstract

This study investigates binomial consumer brand engagement (vs. advertising avoidance) in the social media context featuring artificially intelligent algorithms. Grounded in social exchange theory, the relationships between personalized advertising, information control, privacy concerns, advertising avoidance, and consumer brand engagement are analyzed by drawing on a survey comprising n=429 participants. The findings reveal that AI-based personalized advertising boosts brand engagement, while also reducing privacy concerns. Moreover, privacy concerns are found to not significantly influence the reduction in consumers' brand engagement. Overall, this study demonstrates that consumers are able to recognize, or detect, personalized AI advertising and are open to relying on it.

Keywords: Consumer brand engagement; AI-based advertising; Perceived personalization; Information control; Privacy concerns; Advertising avoidance.

1. Introduction

With the growth and evolution of big data, privacy concerns represent a growing issue for contemporary firms (O'Brien 2022; Kemp 2020; Alkis and Kose 2022). Data privacy reflects a consumer's right to control his/her personal information that is collected, and used, by organizations (Gibson and Trnka 2020). It, thus, ensures that organizations only use that data shared by customers for its intended purpose. In other words, access to personal information is intrinsically tied to privacy in the online environment (Kemp 2020; Gibson and Trnka 2020).

Consumers may use social media to communicate with others and/or to gather information. Social media are increasingly using artificially intelligent (AI-based) personalized advertising (Forbes, 2021), including personalized video, retargeted advertising that permits advertising customization based on individual consumers' data, direct messaging, quizzes, and the adoption of a specific tone of voice. With the support of

(e.g., machine learning) algorithms, firms are, therefore, increasingly able to analyze consumers' past purchase, search, and/or other behavior, which is – in turn – used to recommend deemed relevant solutions to customers and/or to make predictions of their future behavior (Hollebeek et al. 2021).

Personalized advertising may, however, disrupt the customer's (e.g., browsing) experience by diverting attention away from their primary aim, yielding potentially unfavorable consumer responses (Brinson et al. 2018; Lee et al. 2022). Given customization's recognition, use, and targeting of users' personal characteristics (e.g., to share tailored content with them or to persuade them to take suggested, or promoted, actions), users may also become aware, or suspicious, of these persuasive attempts, in turn potentially limiting their persuasion (Pfiffelmann et al. 2020).

The rapid expansion of social media has fueled, or accelerated, the transition from product-based e-commerce systems to social-based commerce system, dubbed social commerce (s-commerce; Busalim et al. 2021), which allows users to sell, and/or purchase, items in online marketplaces (Xu et al. 2023). S-commerce, thus, facilitates e-commerce transactions in participatory social media environments. For example, s-commerce comprises social networking sites (e.g., Facebook) allowing advertising and commercial transactions, or e-commerce sites, like Amazon.com, permitting social networking (Liu et al. 2021).

For firms adopting s-commerce, personalized advertising is expected to be a valuable marketing technique. According to the elaboration likelihood model (ELM), tailored commercials attract greater attention, boosting consumers' mental elaboration of the message content (Chen and Chiu 2023) and, in turn, stimulating their engagement with, and emotional attachment to the brand (Hollebeek et al. 2014; Prentice et al. 2023; Hollebeek and Srivastava 2022).

Consumers may hold unfavorable opinions of tailored advertising (Sheehan and Hoy 1999), including due to the belief that such advertisements may violate their privacy. Sharing personal information may, thus, yield a breach in the implicit social contract between the customer and the firm (Boerman et al. 2021; Hayes et al. 2021). In the online communication context, a *social contract* is a fictional, unwritten set of rules between consumers and the firm that guide their (e.g., personal information disclosure) interactions (Kruikemeier et al. 2020).

Social contracts are a key driver of tailored advertising success (Ham, 2017). Scholars suggest that when customers agree to provide their personal information to a firm, they are agreeing to an unwritten contract, a mutual agreement that forms, and sustains, the consumer-business connection (Agnihotri 2020; Degutis et al. 2023). Though different services enable their users to choose the extent of their personal information that they wish to disclose to a company, protecting one's online privacy takes significant cognitive work and time (Dolnicar and Jordaan 2007). As a result, even when customers are aware of the risk, they are vulnerable to issues arising from the sharing of their personal data.

Consumers tend to believe that their personal data may be at risk online, with perceived disclosure-related risk exceeding its value. They may, thus, be skeptical of firms collecting their personal data (e.g., due to perceived data misuse; Varnali 2021). Therefore, based on the notions of information control and privacy, this study addresses consumer brand engagement (vs. advertising avoidance) in social media, as grounded in social exchange theory (SET; Blau 1964). Specifically, we explore (1) the way personalized advertising impacts consumers' engagement with brands, and (2) whether

the control of personal information affects consumer-perceived privacy concerns, advertising avoidance, and brand engagement, which remain tenuous to date.

Social exchange theory suggests that people trade tangible (e.g., money), and/or intangible (e.g., social services/relationships) resources, and rewards, with others, which may, over time, into trustworthy, reciprocal exchange (e.g., Blau 1964; Yan et al. 2016), thus giving rise to interdependent, mutually beneficial inter-actor interactions (Hollebeek 2011). Users participate in social media to attain utilitarian (e.g., brand-related learning/discounts), hedonic (e.g., fun), and/or social (e.g., content sharing) benefits (Prentice et al. 2019), whether by creating (e.g., posting) or consuming (e.g., reading) specific content. Over time, perceived favorable social exchange tends to strengthen participants' relational bond in, or through, their repeated interactions (Cortez and Johnston 2020).

According to the theory, reciprocal connections are a key aspect of online interactions (Rosado-Pinto and Loureiro 2020). Users may interact, communicate, and/or participate in specific (e.g., brand-related) events on social media for the purpose of consuming posted content, or by sharing particular (e.g., user-generated) content, in turn potentially satisfying their specific (e.g., social) needs (Kimmel and Kitchen 2014). Overall, individuals are encouraged to engage in social media-based interactions if they experience an appropriate balance between the attained (e.g., social/information acquisition) benefits and costs (e.g., time spent/information sharing). That is, consumers, who share content on social media, may perceive it "fair" if others also share relevant information, in turn stimulating them to engage in future social media-based interactions (i.e., fostering reciprocity).

As social exchange theory inherently comprises exchange, its possible social media-based benefits are expected to be predominantly intangible. For instance,

consumer engagement can yield intrinsic advantages, including joy and/or fulfilment and/or extrinsic benefits (e.g., prizes/promotions; Yan et al. 2016; Hollebeek et al. 2021). This study intends to understand how consumers' perception of personalized advertising – using artificially intelligent algorithms – and their control over their personal information – may boost their engagement with the advertised brand (vs. trigger advertising avoidance). In this vein, this social exchange theory-informed research contributes to the scholarly discourse on perceived personalization by addressing the process by which (1) information control, and privacy, concerns foster consumer brand engagement or induce advertising avoidance, (2) information control, and personalization, may reduce privacy concerns, and (3) demonstrates the role of privacy concerns in enhancing ad avoidance, but not in reducing a consumer's brand engagement.

The paper is structured as follows. Section 2 reviews key literature, and developed the proposed hypotheses, on personalized advertising, AI-based personalized advertising, consumer engagement, perceived personalization and privacy concerns, information control and advertising avoidance, and privacy concerns and advertising avoidance, respectively. In section 3, we outline the methodology adopted to explore these issues, followed by the main findings in section 4. In section 5, we conclude the paper by addressing pertinent theoretical, and managerial, implications that arise from this work and by offering avenues for further research.

2. Literature Review and Hypothesis Development

2.1 Personalized Advertising

When message content is tailored to an individual's interests, needs, or preferences (e.g., as driven by their self-concept/group membership; De Keyzer et al. 2015; Boerman et al. 2021), it is said to be *personalized*. Personalization, typically, begins

with data collected about an individual's preferences and/or behavioral tendencies, followed by an (e.g., marketing communications/content) customization process contingent on those preferences (Alzaidi and Agag 2022).

Many firms use personalized content, or communications, to send individualized adverts to consumers based on their personal preferences (Li et al. 2021), thus fitting in firms' online (e.g., social media/email-based), and/or relationship marketing, strategies (Chen and Chiu 2023). As their bond develops, the consumer's attachment and loyalty to the brand should grow, in turn stimulating their purchase decision-making (e.g., Hollebeek et al. 2014). Personalization is becoming increasingly important in online environments, as businesses gain access to rapidly growing amounts of (e.g., big) data (e.g., on customer shopping, buying, or browsing habits, or on their tastes/preferences), which can be used to create AI-informed customer profiles (Huang and Rust 2018; Loureiro et al. 2021).

Personalization allows businesses to tailor their customer interactions based on their respective personal information and/or behavior, including by targeting users with similar products to those they have recently searched for and/or by highlighting user-perceived favorable brand attributes. To customize their advertising, marketers may leverage AI-based contextualization, identification, and/or anticipation techniques (Thomasa and Fowler 2021). *Contextualization* involves structuring ads by using relevant contextual elements, including social identification, group membership, individual preferences, and/or demographics (Boerman and Smit 2023). *Identification* entails using a person's name, and/or other personal details, in ads to boost their liking of the ad and/or their purchase behavior. *Expectation* implies creating phrases that promise, or guarantee, personalized offers (e.g., "This deal is just for you;" Hawkins et al. 2008).

2.2 Artificial Intelligence and Personalized Advertising

AI mimics human intelligence in terms of its ability to *learn* through repeated tasks that were, traditionally, performed by humans, yielding rising levels of task efficiency (Loureiro et al. 2021). AI is founded on the premise that human cognitive capabilities may be reproduced and automated, resulting in machines that can read, explore, and/or learn (Huang and Rust 2018). Given these abilities, AI can be used to personalize brand-related content and target relevant individuals more efficiently, boosting their engagement with brands (Hollebeek et al. 2021).

AI is seeing a rapid uptake in contemporary business, allowing the implementation of (e.g., machine/deep) learning in applications, ranging from chatbots to self-driving cars (Loureiro et al. 2020). Organizations have also turned to this technology to boost their (e.g., service) offerings (e.g., by enhancing customer decision-making, reinvigorating business operations, facilitating transactions, and, more importantly, improving the customer experience through its added convenience and flexibility (Ajayi et al. 2022). For instance, AI can be used to manage customer relationships, including by collecting and/or monitoring customer information (e.g., purchases, habits, likes), in turn improving users' experience through more personalized services (e.g., Netflix/YouTube). As in any commercial service, the value, and quality, of AI (vs. non-AI)-based services are contingent on customers' service perceptions and assessments (Prentice et al. 2023).

Programmatic, or personalized, advertising is a new, rapidly expanding phenomenon that has received significant attention, particularly in the email and social media marketing contexts (Winter et al. 2020). Here, *personalization* denotes firms' adoption of different types of (e.g., content) tailoring, or customization, tactics to suit individuals' needs, wants, and preferences (Winter et al. 2020; Hollebeek and Macky

2019), including by using their personal information (e.g., a person's name or photo), information generated from their prior actions (e.g., websites visited or conversations in close proximity to the individual's phone through cue-based personalization).

Typically, *cue-based personalization* – message customization by adding personal cues to specific generic text that is shared with consumers – has been found to exert little effect on the extent of message persuasion. However, several pathways are, typically, triggered through the addition of personal cues to this content. Specifically, personal cues are, first, employed to draw customers' attention (Boerman and Smit 2023). People have been shown to prioritize, and pay greater attention to, ads that incorporate their own names (vs. non-personalized ads; Bang and Wojdynski 2016). Second, cue-based personalization is thought to activate the self-referencing process, making the message more self-relevant (De Keyzer et al. 2015), improving the consumer's understanding of the message (Boerman and Smit 2023).

While personalized ads have been demonstrated to boost consumer attention (e.g., Winter et al. 2020; Bang and Wojdynski 2016), improve advertisement assessments and elicit positive behaviors such as improved click-through rates (e.g., Tucker 2014), its effectiveness remains inconclusive. On the one hand, authors have shown that advertising messages that are tailored to consumer preferences, personality traits, and identities (Boerman et al. 2021) may boost the customer experience. Specifically, the virtual self depicted in digital ads may influence the physical self, in turn inspiring positive brand sentiment. On the other hand, personalized ads may elicit unfavorable outcomes (e.g., if incorrect personal information is used, or incorrect inferences are drawn from this data; Baek and Morimoto 2012).

Prior research suggests that consumers' privacy concerns exerts a direct impact on their advertising avoidance (Söllner and Dost 2019), as mediated by skepticism (Baek and Morimoto 2012). As another example, consumer control over their personal information, and marketers' access to this information, tend to impact their m-commerce activity (Boerman and Smit 2023). The desire for data privacy predicts the acceptance of tailored social media marketing (Jozani et al. 2020). These findings highlight the relevance of consumer information management and the crucial role of privacy concerns in advertising effectiveness (Degutis et al. 2023). Tucker (2014) suggests that giving customers more control over their privacy enhances click-through rates for tailored advertising and can drive customer engagement (Prentice et al. 2023).

2.3 Consumer Engagement

In markets characterized by technological advancements (Kumar and Pansari 2016), brands are able to connect, and interact, with their customers outside physical points-of-sale (e.g., on social media; Agnihotri 2020), highlighting the relevance of having an engaged customer base (Maslowska et al. 2022).

Consumer engagement (CE), a consumer's psychological state characterizing his/her interactions with an organization (Brodie et al. 2011), transpires through interactive, co-creative customer experiences (e.g., customer referrals, influencing, and purchasing behavior; Hollebeek et al. 2014). The concept is, therefore, associated with co-creation between organizations and their customers, which has been heralded to boost customers' share-of-wallet, brand attachment, satisfaction, and loyalty (Kumar and Pansari 2016; Hollebeek and Belk 2021; Rather and Hollebeek 2021).

In the social media environment, consumer engagement has been defined as the consumer's (e.g., cognitive/temporal) resource investment in his/her brand-related social media interactions (Hollebeek et al. 2014, 2019; Bilro et al. 2019). Kumar et al.

(2010) identify customer referral value as a core CE constituent, which may transpire in the social media context by current customers turning prospects in their social networks into paying customers, for which they receive compensation (Kumar et al. 2019; Loureiro et al. 2022). For example, user-generated social media content, online ratings, blogs, comments, and reviews illustrate consumer-provided social influence value (Hollebeek et al. 2022). Social media's interactive nature, thus, facilitates the establishment, and maintenance, of close customer/firm relationships, given engagement's interactive core that facilitates the development of building value-laden exchange and emotional bonds with customers (Prentice et al. 2019; Loureiro et al. 2020).

2.4 Perceived Personalization and Privacy Concerns

Personalized (vs. non-personalized) communications tend to be more pertinent, pleasant, attention-grabbing, convincing, powerful, and easily remembered by customers, while buyers are also likely to spend more time considering, and digesting, these messages (Hawkins et al. 2008). According to social exchange theory, consumer–brand interactions are conducive to boosting brand loyalty, in turn increasing sales, profitability, productivity, and favorable word-of-mouth (Hollebeek 2011; Hollebeek et al. 2014; Srinivasan 2002). Consumers may build emotive associations with a brand's intangible attributes and/or values (Loureiro et al. 2020). By facilitating consumers' brand interactions, personalization, thus, offers a tool to engage consumers. As shown in Figure 1, we propose:

H1. Perceived personalization positively impacts consumer brand engagement.

Insert Figure 1 about here

However, personalization may also exert unfavorable effects (e.g., some individuals may find advertising intrusive; Morimoto 2021). This is particularly true for consumers, who discover their personal data has been collected without their informed consent (Tucker 2014; Hussain et al. 2021). Consequently, consumers' privacy concerns may rise through targeted personal advertising.

Privacy concerns may affect new media effectiveness, since customers may be alarmed about the safety, and/or security, of their personal information when using social media (e.g., Dolnicar and Jordaan 2007; Kelly et al. 2021). For example, privacy concerns are a major impediment for online purchase intentions (e.g., Alzaidi and Agag 2022; Bansal and Nah 2022). Though growing numbers of customers are concerned about their online privacy, there are no clear answers as to how individuals may respond to personalized advertising. Yet, privacy concerns are essential to the efficiency of targeted advertising (e.g., Morimoto 2021; Tucker 2014).

Privacy concerns have been previously linked to invasiveness, privacy control, perceived utility reductions, and consumer innovativeness (Morimoto 2021; Hussain et al. 2021). Therefore, the more consumers worry about their privacy, the less targeted advertising will, generally, be able to persuade them (Kelly et al. 2021; Dodoo and Wen 2021). That is, under rising privacy concerns, people are more likely to object to, or reject, the message. However, the adoption of AI algorithms in the process of preparing, and selecting, the adverts they view may alleviate this issue (Huang and Rust 2018, 2021), given their capacity to understand, or pre-empt, consumers' needs, wants, and preferences (Hollebeek et al. 2021). We postulate:

H2. Perceived personalization negatively impacts privacy concerns.

2.5 Information Control and Advertising Avoidance

The capacity to manage one's own information and select when, and for what purpose, such information can be accessed by others is characterized as *information privacy* (Boerman and Smit 2023). Online information privacy control, particularly by avoiding, or minimizing, unauthorized exposure to one's personal information, is linked to perceived intrusiveness (Lee et al. 2022). In other words, consumers, typically, begin to worry about their privacy in terms of "possible violation[s] of the right to restrict the exposure of [their] personal information to others" (Baek and Morimoto 2012, p. 73).

Data-sharing activities, including the secondary use of personal information, can create a need for information control. Individuals, who are sensitive to third-party secondary information use tend to be more concerned about privacy, and may sense a loss of privacy control, when they discover that relevant third-parties are using (their) secondary information (Alzaidi and Agag 2022). Therefore, concerns about unlawful access to one's personal information (e.g., via mobile devices) represents a key driver of individuals' m-commerce engagement. Based on social exchange theory, consumers are predicted to feel in control of the information they provide online, rendering them more open to engaging with the brand (e.g., on social media; Bansal and Nah 2022).

Consumers, who believe they have limited control over their online privacy may view personalized advertising as *creepy* (Tucker 2014), reducing their expected engagement with the personalized ad implementing firm or brand (e.g., by skipping, or ignoring, those ads; Hussain et al. 2021). Prior empirical research has also linked consumers' information control and privacy concerns, as well as the detrimental consequences of privacy concerns on their attitudes and behavior. When consumers feel *in control* of their information, their privacy concerns tend to plummet, while their engagement, and purchase intent, tend to rise (Dolnicar and Jordaan 2007; Hollebeek et al. 2021).

Therefore, (e.g., social) media platforms, typically, attempt to alleviate consumers' anxiety in this regard (e.g., by offering their users the choice of how much of their personal data they wish to share; Alzaidi and Agag 2022).

Privacy concerns arise when people perceive an unwelcome intrusion to their privacy, or a lack of control over their personal information (Bansal and Nah 2022). In the event of privacy concerns, unauthorized access to one's personal information through personalized advertising is expected to lower advertising effectiveness (Kim et al. 2022; Kim 2021), exposing an association of perceived information control and privacy issues, where privacy concerns may act as a buffer between information control and personalized advertising outcomes. Overall, improved information management on social media is expected to lower consumers' privacy concerns, while boosting their sentiment toward tailored marketing content. Information can be controlled information based on psychological responses, the perceived influence of advertising intrusiveness, and/or avoidance. We suggest:

H3. Information control negatively impacts privacy concerns.

H4. Information control positively impacts consumer brand engagement.

H5. Information control negatively impacts ad avoidance.

2.6 Privacy Concerns and Advertising Avoidance

Though information management is an essential aspect of online privacy concerns, creating emotional bonds may help alleviate such concerns (e.g., by lifting customers' familiarity with, and trust in, the provider prior to disclosing their information; Sheehan and Hoy 2000; Urbonavicius et al. 2021). Scholars have discovered that when advertising personalization goes too far and consumers receive excessively targeted ads, they may feel they are losing control of their data, in turn raising their privacy concerns (Tucker 2014). In turn, they are predicted to feel skeptical about these perceived

intrusive ads, leading them to avoid these (Baek and Morimoto 2012). In other words, privacy issues may reflect consumers' perceived lack of autonomy, or control, over their personal information, thus impacting ad outcomes (e.g., by generating negative ad reviews), and reducing their engagement (e.g., by being less motivated to interact with the brand). Personal information sharing, and advertising avoidance, are, likewise, impaired by users' privacy concerns (Li et al. 2021), such that reduced privacy concerns may promote ad clicks and engagement (Tucker 2014; Kelly et al. 2021). We posit:

H6. Privacy concerns negatively impact consumer brand engagement.

H7. Privacy concerns positively impact ad avoidance.

3. Methodology

3.1 Research Design and Sampling

An online survey, using convenience sampling, was deployed to collect data. The target population was Instagram users since, according to Adobe (2022), Instagram has topped well over 1 billion monthly users and has become one of the most popular social media platforms for teens and young adults. We used Prolific to collect the data, given its capacity to generate high-quality, reliable, and valid data for scientific research (Yadav et al. 2019; Wenninger et al. 2022). The selected brands were Spotify and Starbucks, which are both on the Forbes list of the most valuable brands globally. Spotify, the world's largest music streaming service, and Starbucks, the world's largest coffee chain, represent instantly recognizable brands for most consumers.

3.2 Survey Instrument

In the first section of the survey, participants were requested to state whether they use Instagram. If they answered "No" to this screening question, their participation would be discontinued. To check whether the remaining participants understood the concept of AI-based personalized advertising, the second section included questions requesting

their awareness of personalized ads, and whether they encounter these ads when using Instagram. We also used two ad examples (one being highly personalized, while the other was not), and asked the respondents to evaluate "*How personalized does this ad feel to you*?" (1: Not at all personalized, through to 6: Highly personalized). Only those, who rated the non-personalized ad as either 1 or 2, and those rating the more personalized ad as 5 or 6, respectively, continued to the next stage of the questionnaire.

The third section focused on the concepts included in the conceptual model (i.e., perceived ad personalization, privacy concerns, information control, advertising avoidance, and consumer brand engagement). In the fourth section, the blue color marker was used. According to Williams et al. (2010), this marker variable is ideal to determine whether the data suffers from common method variance (CMV), a tendency for the correlations between variables obtained at the same time, from the same source, and using the same manner, to be artificially inflated. The survey's final section requested participants' demographic data. Demographic variables, such as age and gender, may exercise an influence on consumer brand engagement (e.g., Rather and Hollebeek 2021). We, thus, considered the demographic variables of age and gender as control variables. Prior to its launch, the questionnaire was also pilot tested with a sample of 10 consumers to ensure the respondents' comprehension of the items, which revealed no issues.

3.3 Measures

We collected the responses using scales, and their respective items, adapted from prior studies and employing six-point Likert-type scales (see Table 1). For example, to measure *personalized advertising*, we adapted Srinivasan et al.'s (2002) five-item scale, using 1 (Not at all personalized) through to 6 (Highly personalized). For the other constructs, participants' responses ranged from 1 (Strongly disagree) to 6 (Strongly

agree). The six-point Likert scales allowed us to avoid the neutral scale mid-point, which offers an "easy out." Thus, as shown in Table 1, privacy concern (6 items) was adapted from Dolnicar and Jordaan (2007), information control (3 items) from Mothersbaugh (2012), advertising avoidance (4 items) from Baek and Morimoto (2012) and, finally, consumer engagement (10 items aggregated in three dimensions) from Hollebeek et al. (2014).

Insert Table 1 about here

4. Results

The sample (n=429) was recruited on Prolific, with the selection criterion of respondents being Instagram users. The sample was well-balanced in terms of gender (50.2% female), and most of the participants were between 55-64 years old (25.4%), followed by 20.5% (45-54), and 18.2% (25-34), respectively, at the time of data collection. In terms of education level, 49.2% of the participants held a Bachelor's degree, while 28.9% hold a Master's degree. Finally, regarding technology expertise, most of the participants considered themselves to be average users (56.2%), while others (23.3%) view themselves as experienced users.

The data were analyzed by using two-stage partial least squares, SmartPLS 3.0, which serves to reduce Type II errors and allows for the analysis of formative second-order constructs (Hair et al., 2019). All Cronbach's alpha, and composite reliability, values exceeded the value of 0.6, while the factor loadings were higher than 0.7 (see Table 1). The Average Variances Extracted (AVEs) from the first-order constructs were above 0.5, demonstrating convergent validity. Table 2 also supports that the modeled constructs exhibit discriminant validity. Moreover, the variance inflation factors (VIFs) remained below 3.33 (see Table 3), thus indicating the absence of multicollinearity in the data. Consumer brand engagement, with its three first-order constructs – cognitive

processing, affection, and activation – was analyzed as a second-order construct (Hollebeek et al. 2014).

Insert Table 2 and Table 3 about here

The model explains 46.8% of the observed variance in consumer brand engagement and 24.5% of the variance in ad avoidance. The values of Q^2 (chi-squared of the Stone–Geisser criterion) are positive, revealing predictive validity (Hair et al., 2019). The model also exhibited good fit to the data: 0.068 (see Table 4). Each of the hypothesized relationships is supported, except for H6 (β= -0.052, t= 1.384, *p*= 0.167). The three indicators of consumer brand engagement – cognitive (weight = 0.255, *p*<0.01), affective (weight = 0.514, *p*<0.001), and behavioral (weight = 0.359, *p*<0.001) – have positive betas exceeding the value of 0.2 (Hair et al. 2019).

Insert Table 4 about here

The blue color marker construct used to assess potential common method variance in the data has a composite reliability of 0.905, while the Average Variance Extracted is 0.757. The results in Tables 1 and 4 show that the values with, and without, the marker are similar, indicating there is no significant variance in the measurement model. Regarding the control variables – age (β= -0.035, t= 0.890, *p*= 0.374) and gender (β= 0.054, t= 1.533, *p*= 0.126) – the results reveal that these do not exert a significant effect on consumer brand engagement. While gender was found to, indeed, affect privacy concerns (β=0.168, t= 3.405, *p*= 0.001), it did not influence ad avoidance (β=0.045, t= 1.094, *p*= 0.274), thus suggesting that men (vs. those identifying with other genders) tend to be less concerned about their online privacy. Age tends to affect both privacy concerns (β=0.166, t= 3.398, *p*= 0.001) and advertising avoidance (β=0.212, t= 4.830, *p*= 0.000).

5. Discussion and conclusion

5.1 Discussion

This study provides two key insights about consumer brand engagement (vs. ad avoidance). First, the findings suggest that perceived personalization of social media ads has a positive effect on consumer engagement, while exerting a negative impact on consumer-perceived privacy concerns. Based on the findings, personalized advertising, thus, represents an effective way to engage with consumers, particularly in the social media context. However, perceived personalization should also create a sense of confidence, leading to lower perceived privacy in the consumers' minds. Otherwise, consumers tend to see personalized advertising as a threat, feeling like an invasion of their privacy (Alzaidi and Agag 2022).

Prior studies suggest that advertising personalization can make consumers feel their freedom is being threatened, leading them to potentially reject ads to regain their perceived freedom (Kelly et al. 2021; Dodoo and Wen 2021). On the contrary, our results reveal that the perceived personalization of social media ads *reduces* consumer-perceived privacy concerns. This finding can be explained by consumer identification with the advertising through the firm's deployment of AI-based algorithms in its ads, which can induce consumer-perceived self-brand connection not only with the brand but also with the ad, thus extending Hollebeek et al.'s (2014) identified effect of engagement on consumer self-brand connection in the AI-based personalized advertising context.

Second, the findings suggest that consumer-perceived information control negatively impacts consumer-perceived privacy concerns and ad avoidance, while positively affecting consumer brand engagement. Therefore, individuals perceiving greater control over their personal information provided online tend to be less worried

about their privacy, in turn improving their ad perceptions and, consequently, facilitating, or increasing, their interactions (i.e., engagement) with the advertised brands (Hollebeek et al. 2019; Degutis et al. 2023), while decreasing their perceived need to avoid the advertisement. Though privacy concerns may raise consumer caution in their interactions with the advertised brand, this does not pose a sufficiently strong factor to reduce the individual's brand engagement. This engagement-insulating effect may transpire owing to the consumer's emotional brand connection or bond. In other words, emotional ties can act as the glue between the consumer and the brand, reducing their privacy concerns and fostering their repeated brand interactions (Cortez and Johnston 2020), in line with social exchange theory.

Third, in terms of consumer brand engagement (vs. advertising avoidance), the results show that while privacy concerns play an important role in impacting the effect of personalized advertising privacy concerns on ad avoidance, they do not significantly impact consumer brand engagement. This finding may be explained as follows. Consumers, who are more concerned with the privacy of their data are more likely to ignore, or discard, advertising. However, those consumers that are bonded, emotionally, with the brand, tend to be less concerned about the privacy of their information, leading them to continue interacting (i.e., engaging) with the brand (Hollebeek et al. 2019).

Finally, though data privacy is important to consumers, men were found to be less concerned with it than other genders. Likewise, older (vs. younger) consumers were identified to be more concerned about the privacy of their personal data, rendering them more likely to avoid ads. These findings yield pertinent theoretical implications, discussed further in the next section.

5.2 Theoretical Implications

Three major theoretical implications arise from this study. First, our results offer a deeper knowledge of personalized advertising on social media. We demonstrated the influence of personalized advertising on consumer brand engagement, privacy concerns, and advertising avoidance through information control and perceived personalization. By following consumers' online movements (e.g., by tracking their search history and/or personal information), we find this advertising strategy to have both positive (e.g., by raising consumers' brand engagement) and negative consequences (e.g., by raising ad avoidance). Though prior studies have suggested a direct effect of personalized advertising on consumer brand engagement (e.g., Hollebeek et al. 2014; Loureiro et al. 2020), this study extends this existing insight by considering indirect effects (i.e., through privacy concerns).

Second, when consumers perceive they control their personal information provided in the online advertising context, their predicted engagement with the advertised brand tends to rise. Here, perceived privacy, and information control, were found to be instrumental in facilitating the development of their brand engagement and reducing their ad avoidance. In other words, our analyses demonstrated a mechanism fostering consumers' engagement with brands advertised online.

Finally, we explored key antecedents (i.e., perceived personalization and information control), and consequences (i.e., privacy concerns, advertising avoidance, and consumer brand engagement), of the firm-based adoption of personalized ads on social media. Thus, grounded in social exchange theory, the proposed model presents the mechanism of engaging with (vs. avoiding) personalized AI-based advertising on social media. Overall, the findings offer important suggestions for the design of marketing strategies boosting consumers' brand engagement and bonds.

5.3 Managerial Implications

This study also offers valuable insight to marketers. First, the findings can help managers understand how personalized advertising influences consumer brand engagement, in turn impacting online advertising performance. For instance, based on the findings, brands are advised to design their AI-based, personalized ads to outline, or persuade, consumers of their intent to offer improved service to their customers (vs. violating their privacy), thus instilling greater consumer confidence in the way brands are using users' personal data and boosting consumer-perceived control of their data.

We found perceived ad personalization, and information control, to be key determinants of personalized advertising effectiveness or performance. Specifically, perceived personalization was found to exert a significant, positive impact on consumer brand engagement, exposing its strategic relevance. On social media, consumers may accept, or reject, personalized ads. By managing the disclosure of their personal data, consumers are able to maintain their freedom of choice in this regard, yielding a potential sense of autonomy and/or power (e.g., by deciding which of their data to share online; Urbonavicius et al. 2021).

Those, who believe their freedom, or privacy, has been violated, may reject, or engage negatively with, personalized ads (e.g., by disliking/avoiding these; Hollebeek and Chen 2014). However, consumers exhibiting elevated engagement with, or emotional ties to, the brand may perceive lower levels of privacy concerns, revealing a potentially insulating role of brand engagement, or emotional ties, in this regard. Conversely, we also recommend managers to understand the need to develop consumer confidence-instilling mechanisms (e.g., by transparently communicating with consumers how their personal data will be stored and/or used), particularly those targeting older consumers.

Finally, managers should be aware that using social media to afford customers greater control over the personal information they disclose online, and over the personalized advertising they consume (e.g., by filtering this content), can enhance their ad awareness, in turn boosting their (future) response to, or acceptance of, these ads and raising their engagement.

5.4 Limitations and Future Research

Despite its contribution, this study also has several limitations that offer opportunities for further study. First, not all of our respondents were Instagram users, leading us to omit a significant number of responses (i.e., 22.8% - 127 respondents) and reducing the sample size to 429 usable responses. Therefore, future researchers may wish to replicate our study design in the context of other social media platforms, including Facebook, TikTok, Twitter, or LinkedIn (Hollebeek et al. 2014; Rather 2021).

Second, while we used PLS-SEM to explore our objectives, scholars may wish to explore related dynamics or issues, using other types of (e.g., experimental) research designs. For example, they could manipulate the perceived intrusion, or value, of specific ads, and gauge consumers' (e.g., engagement-based) responses to these different stimuli. They may also wish to incorporate additional, or related, variables that are expected to impact consumers' engagement with personalized ads (e.g., ad length or vividness, satisfaction with the focal social media platform used), yielding further, or refined, insight.

Finally, given engagement's demonstrated cross-cultural differences (Hollebeek 2018), we suggest scholars to analyze the specificities of users' engagement with (vs. avoidance of), trust in, and/or perceived privacy of, personalized AI-based ads in different cultural environments.

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Figure 1. Conceptual model

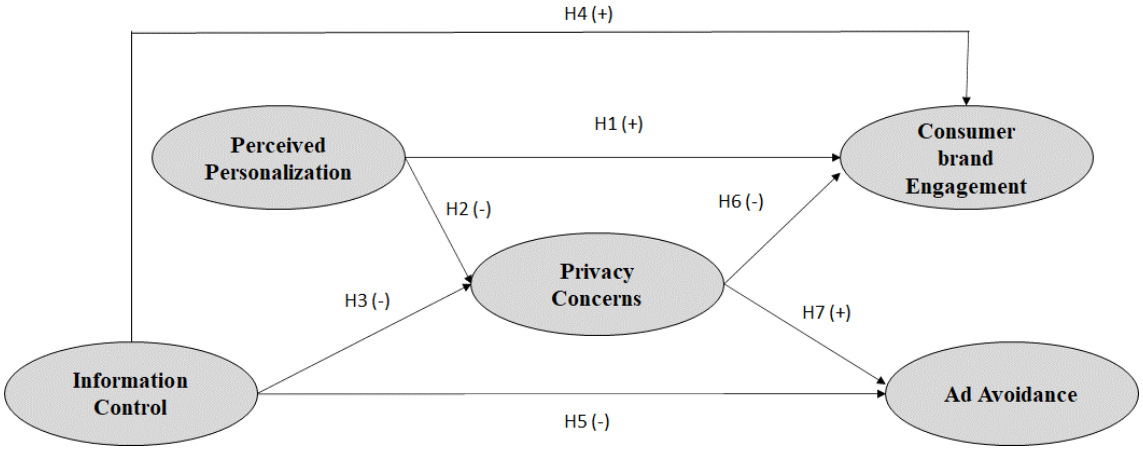

Table 1. Measurement model

Construct	Measurement items	Factor loading	Source
Perceived Personalization A=0.896, rho_A=0.897, CR=0.924, AVE=0.710 *$CR_{with\ blue\ color}$= 0.924*	PP1. This ad makes purchase recommendations that match my needs.	0.859	Srinivasan et al. (2002)
	PP2. I think that this ad enables me to order products that are tailor-made for me.	0.882	
	PP3. Overall. this ad is tailored to my situation.	0.894	
	PP4. This ad makes me feel that I am a unique customer.	0.714	
	PP5. I believe that this ad is customized to my needs.	0.851	
	When I receive personalized advertising on Instagram…		
Privacy Concerns A=0.868, rho_A=0.875, CR=0.903, AVE=0.610 ***$CR_{with\ blue\ color}$=*** *0.903*	PC1. I feel uncomfortable when information is shared without permission	0.806	Dolnicar and Jordaan (2007)
	PC2. I am concerned about the misuse of personal information.	0.861	
	PC3. It bothers me to receive too much advertising material of no interest.	0.701	
	PC4. I feel fear that information may not be safe while stored.	0.852	
	PC5. I believe that personal information is often misused.	0.805	
	PC6. I think companies share information without permission.	0.719	
Information Control A=0.731, rho_A=0.754, CR=0.846, AVE=0.648 ***$CR_{with\ blue\ color}$=*** *0.846*	IC1. I can easily control the number of ad messages I receive.	0.727	Mothersbaugh (2012)
	IC2. I choose the ways in which my personal information may be used for personalized advertising.	0.842	
	IC3. I have complete power over how the information I provide will be used later for personalized advertising	0.842	
Ad Avoidance A=0.891, rho_A=0.906, CR=0.925, AVE=0.757 ***$CR_{with\ blue\ color}$=*** *0.925*	AA1. I intentionally ignore any personalized advertising on Instagram.	0.755	Baek and Morimoto (2012)
	AA2. I hate any personalized advertising on Instagram.	0.930	
	AA3. It would be better if there were no personalized advertising on Instagram.	0.889	
	AA4. I discard personalized advertising on Instagram.	0.896	
Consumer brand Engagement	**Cognitive Processing A=0.774, rho_A=0.790, CR=0.867, AVE=0.686** ***CR with blue color=0.861***	CP1. Using (brand) gets me to think about (brand)	0.809	Hollebeek et al. (2014)
		CP2. I think about (brand) a lot when I'm using it	0.833	
		CP3. Using (brand) stimulates my interest to learn more about (brand)	0.842	
	AffectionA=0.936, rho_A=0.939, CR=0.955, AVE=0.841 ***$CR_{with\ blue\ color}$=0.952***	AF1. I feel very positive when I use (brand)	0.808	
		AF2. Using (brand) makes me happy	0.880	
		AF3. I feel good when I use (brand)	0.884	
		AF4. I'm proud to use (brand)	0.882	
	Activation A=0.900, rho_A=0.900,	AC1. I spend a lot of time using (brand). compared to other (category) brands	0.895	

CR=0.937, AVE=0.833 ***CR*$_{with\ blue\ color}$*=0.936***	AC2. Whenever I'm using (category). I usually use (brand)	0.933
	AC3. (Brand) is one of the brands I usually use when I use (category)	0.910

Notes: A: Cronbach's Alpha; CR: Composite Reliability; AVE: Average Variance Extracted.

Table 2. Collinearity assessment for structural model

VIF	1	2	3	4	5	6	7	8
1.Information control		1.031				1.082		1.237
2.Ad Avoidance								
3.Cognitive Processing								1.943
4.Affection								2.889
5.Activation								2.426
6.Privacy Concerns		1.031						1.095
7.Perceived Personalization						1.082		
8.Consumer brand Engagement								

Table 3. Discriminant validity

Construct	1	2	3	4	5	6	7
1.Information control	0.805	**0.246**	**0.400**	**0.491**	**0.461**	**0.218**	**0.334**
2.Ad Avoidance	-0.208	0.870	**0.573**	**0.598**	**0.46**	**0.538**	**0.596**
3.Cognitive 4.Processing	0.318	-0.494	0.828	**0.714**	**0.651**	**0.249**	**0.712**
5.Affection	0.414	-0.547	0.625	0.917	**0.814**	**0.263**	**0.647**
6.Activation	0.379	-0.414	0.556	0.750	0.913	**0.184**	**0.603**
7.Privacy Concerns	-0.172	0.478	-0.213	-0.236	-0.165	0.781	**0.288**
8.Perceived Personalization	0.275	-0.534	0.606	0.593	0.542	-0.257	0.843

Notes: Bottom-left Fornell-Lacker criterion; top-right in bold Heterotrait–Monotrait Ratio (HTMT) criterion.

Table 4. Structural model results

Relationship	β	*β with blue color*	SD	T Statistics (|O/STDEV|)	*P* Values	Bias corrected bootstrap 95% confidence level		f^2	Hypothesis
						2.5%	97.5%		
Direct effect									
Perceived Personalization → Consumer brand Engagement	0.546***	*0.531*	0.035	15.721	0.000	0.477	0.608	0.493	H1-Supported
Perceived Personalization → Privacy Concerns	-0.226***	*-0.233*	0.044	5.185	0.000	-0.310	-0.139	0.051	H2-Supported
Information Control → Privacy Concerns	-0.110*	*-0.114*	0.049	2.228	0.026	-0.205	-0.006	0.012	H3-Supported
Information Control → Consumer brand Engagement	0.263***	*0.238*	0.042	6.310	0.000	0.181	0.339	0.119	H4-Supported
Information Control → Ad Avoidance	-0.130**	*-0.113*	0.047	2.757	0.006	-0.224	-0.041	0.022	H5-Supported
Privacy Concerns → Consumer brand Engagement	-0.052ns	*-0.067*	0.038	1.384	0.167	-0.131	0.019	0.005	H6-Not supported
Privacy Concerns → Ad Avoidance	0.455***	*0.465*	0.039	11.548	0.000	0.386	0.534	0.266	H7-Supported
Specific indirect effect									
Information Control → Privacy Concerns → Ad Avoidance	-0.051*		0.023	2.177	0.030	-0.092	-0.003		
Information Control → Privacy Concerns → Consumer brand Engagement	0.006ns		0.006	1.004	0.316	-0.002	0.021		
Perceived Personalization → Privacy Concerns → Consumer brand Engagement	0.012ns		0.009	1.287	0.199	-0.005	0.032		
Perceived Personalization → Privacy Concerns → Ad Avoidance	-0.103*		0.025	4.117	0.030	-0.153	-0.057		
Second order construct: Consumer brand Engagement	Weight	SD	T Statistics (|O/STDEV|)	*P* Values	Bias corrected bootstrap 95% confidence level				
					2.5%	97.5%			
Activation → Consumer brand Engagement	0.359***	0.009	39.815	0.000	0.340	0.376			
Affection → Consumer brand Engagement	0.514***	0.011	46.001	0.000	0.493	0.537			
Cognitive processing → Consumer brand Engagement	0.255***	0.011	23.465	0.000	0.233	0.275			

	$R^2_{ad\ avoidance}$	0.245	$Q^2_{ad\ avoidance}$	0.181	**Model fit**			
	$R^2_{privacy\ concerns}$	0.077	$Q^2_{privacy\ concerns}$	0.044	SRMR	0.058	Chi-Square	681.135
	$R^2_{consumer\text{-}brand\ engagement}$	0.468	$Q^2_{consumer\text{-}brand\ engagement}$	0.611	d_ULS	0.629	NFI	0.862
					d_G	0.266		

Notes: SD: Standard Deviation; *p<0.05; **p<0.01, ***p<0.001; ns: Non-significant.

Appendix

Item	Mean	Median	Standard Deviation	Excess Kurtosis	Skewness
personalization1	3.718	4.000	1.131	0.123	-0.545
personalization2	3.485	4.000	1.168	-0.283	-0.505
personalization3	3.583	4.000	1.153	-0.087	-0.656
personalization4	2.205	2.000	1.155	0.166	0.842
personalization5	3.228	3.000	1.221	-0.583	-0.120
Privacy1	5.030	5.000	1.151	1.291	-1.292
Privacy2	5.042	5.000	1.107	0.824	-1.150
Privacy3	5.364	6.000	0.955	4.043	-1.878
Privacy4	4.993	5.000	1.156	1.022	-1.214
Privacy5	4.932	5.000	1.098	0.793	-1.043
Privacy6	5.091	5.000	1.170	2.077	-1.491
Informationc1	2.413	2.000	1.171	0.032	0.693
Informationc2	2.723	3.000	1.231	-0.271	0.480
Informationc3	2.105	2.000	1.076	0.994	1.031
avoidance1	4.207	4.000	1.216	-0.752	-0.145
avoidance2	4.431	5.000	1.286	-0.823	-0.388
avoidance3	4.487	5.000	1.330	-0.781	-0.485
avoidance4	4.280	4.000	1.243	-0.762	-0.228
Cognitive1	3.779	4.000	1.272	-0.345	-0.602
Cognitive2	2.746	3.000	1.313	-0.567	0.471
Cognitive3	2.995	3.000	1.285	-1.006	-0.024
Affection1	2.641	3.000	1.175	-0.578	0.320
Affection2	2.266	2.000	1.103	0.158	0.694
Affection3	2.301	2.000	1.091	0.000	0.583
Affection4	2.131	2.000	1.091	0.483	0.884
Activation1	2.224	2.000	1.106	0.074	0.784

Activation2	2.184	2.000	1.097	0.072	0.809
Activation3	2.051	2.000	1.068	0.672	0.982
Gender	1.702	2.000	0.463	-1.143	-0.813
Age	3.455	4.000	1.562	-1.206	-0.140
education	3.215	3.000	0.682	-0.067	-0.488
expertise	2.352	2.000	0.780	-0.023	0.589
blue1	5.021	5.000	0.927	3.729	-1.521
blue2	4.438	4.000	1.164	-0.077	-0.508
blue3	4.809	5.000	0.911	2.046	-0.966
blue4	2.338	2.000	1.159	0.612	0.912