# Fear of Missing Out and Social Media Use: Differential Effects of Priming on Attitudes Towards Products

# Abstract

Social media advertising has become ubiquitous. Consequently, social media platforms are increasing the level of advertising content that users may later encounter when navigating online shopping websites. It is unclear how the amplification of exposure to advertising through social media affects consumers’ attitudes to products sold online. Further, the roles of social media participation and proneness to experience fear of missing out (FOMO) on product attitude, remain largely unexplored. In this research (N = 980), we employed an online survey of U.S. Instagram users. These data were submitted to three-way moderation regression analyses with attitude toward the product as the dependent variable. Consumers who are more active on social media and had high (versus low) FOMO expressed more favorable attitudes toward online products after being exposed to Instagram content (versus not exposed). The theoretical and practical implications for cognitive processing research and advertising strategy and study limitations are discussed.

More than 35% of US adults use Instagram today; over 60% of those use the platform daily ([Pew Research Center, 2019](#_ENREF_47)). This makes Instagram the second most popular social media platform after Facebook. Today, Instagram serves as a popular source of information about products, brands, and trends ([Adjei, Noble, & Noble, 2010](#_ENREF_2); [Lamberton & Stephen, 2016](#_ENREF_39)). With more than 500 million daily users of Instagram Stories, Instagram, which is owned by Facebook, contributes heavily to Facebook’s overall success and is seen as an essential driver for the company’s growth strategy ([Amin, 2019](#_ENREF_6)). Further, consumers’ ability to share information, such as pictures, may help marketers and advertisers in their online communication efforts about products ([Shao, 2009](#_ENREF_58)), which can lead to increased purchase intention ([Alhabash et al., 2016](#_ENREF_4)).

Social media content that is posted by firms and users alike has the potential to increase consumers’ product awareness and familiarity by providing repeated exposure to these products. This increase in perceived awareness and familiarity with the product might be rooted in mere exposure effects ([Humphrey, 2017](#_ENREF_28)), which have been found to be powerful drivers of consumer behavior in early marketing research ([Zajonc, 1968](#_ENREF_68)). It is crucial for firms to understand when and how social media affects activation of accessible positive attitudes as consumers are more likely to buy products about which they have favorable (versus unfavorable) attitudes ([Kim & Lennon, 2008](#_ENREF_33)).

More importantly there might be individual differences that affect the relationship between exposure on social media and later attitudes toward the product. One of these individual differences could be consumers’ proneness to experience Fear of Missing Out (trait-FOMO). FOMO here is defined as a perceived experiential discrepancy between consumers’ current experience and a more rewarding alternative experience ([omitted for blind review]). Prior research has found that experiencing FOMO might yield threats to customer loyalty ([Hayran, Anik, & Gürhan-Canli, 2020](#_ENREF_25)), but others find that experiencing FOMO leads to more brand excitement ([Kang, Son, & Koo, 2019](#_ENREF_30)). Thus, it appears that research on how the FOMO experience affects important marketing and advertising outcomes is still in its nascent phase. Some qualitative research ([Hodkinson, 2019](#_ENREF_27)) proposes that FOMO induces a high cognitive load on consumers and therefore potentially interferes with consumers’ ability to cognitively process information they receive. Other findings suggest that FOMO leads to social media fatigue ([Bright & Logan, 2018](#_ENREF_12)). Thus it is possible that the effect of FOMO on consumer attitude formation as a cognitive process in the context of social media advertising is dependent on how actively consumers are actually engaged on the respective platform (i.e., Instagram).

In this study, we propose that FOMO and the degree of active participation on Instagram interact to affect the attitude formation process of products online after exposure to these products on Instagram. Thus, we employ a theory of attitude accessibility (i.e., MODE model) to investigate how consumers’ trait-FOMO affects the activation of accessible attitudes toward a product and whether attitude activation is dependent on the degree of active participation on Instagram~~.~~ Thus, we address a gap in the literature by linking exposure to social media advertising, the degree of active participation on Instagram, trait-FOMO, and consequent product liking. We have chosen the context of Instagram because this platform has gained popularity as an image-based advertising tool for companies ([Erkan & Evans, 2016](#_ENREF_18)).

## Attitude Accessibility

As a central outcome of interest, we examine attitudes toward products and the attitude formation process in online shopping contexts. *Attitudes* are defined as evaluative mental representations of an attitude object that range from negative to positive ([Petty, Wegener, & Fabrigar, 1997](#_ENREF_46)). Although theories such as the Theory of Reasoned Action or the Theory of Planned Behavior ([Madden, Ellen, & Ajzen, 1992](#_ENREF_42)) posit a strong relationship between attitudes and behavior, early research in cognition and behavior resulted in mixed findings regarding this relationship. That is, the attitude-behavior relationship was found to be unstable; more favorable attitudes did not always lead to consequent behavior ([Wicker, 1969](#_ENREF_66)). However, because attitudes are represented on a continuum of not accessible at all to highly accessible ([Rhodes & Ewoldsen, 2009](#_ENREF_52)), these differences in the attitude-behavior relationship might be dependent on attitude accessibility ([Fazio & Roskos-Ewoldsen, 2005](#_ENREF_22)). Attitude accessibility is defined as the ease of activation of attitudes. As accessibility increases, the likelihood of attitude activation increases, and therefore behavior is more likely to be affected by highly accessible attitudes versus attitudes low in accessibility. Thus, attitude accessibility has been used as an indication of attitude strength ([Ewoldsen, Rhodes, & Fazio, 2015](#_ENREF_19); [Kwon & Nayakankuppam, 2015](#_ENREF_37)). Attitudes low in accessibility require more cognitive effort and controlled thoughts to be activated, while attitudes high in accessibility require lower cognitive effort to be activated ([Ewoldsen et al., 2015](#_ENREF_19); [Fazio, Sanbonmatsu, Powell, & Kardes, 1986](#_ENREF_23); [Herring et al., 2013](#_ENREF_26)).

It is important to closely examine activation and formation of attitudes, because, in consumer behavior research, attitude accessibility and its effects have been found to be associated with product choice ([Hütter & Sweldens, 2018](#_ENREF_29)), differences in information processing contexts ([Kupor & Tormala, 2015](#_ENREF_36)), and increased number of exposures ([Berger & Mitchell, 1989](#_ENREF_8)). That is, [Hütter and Sweldens (2018)](#_ENREF_29) show in a series of experiments that visual affective stimuli (i.e., advertisements) can have effects on consumers’ attitudes and consequent behavior. [Kupor and Tormala (2015)](#_ENREF_36) found that argument quality effects as results of interruptions in a persuasive attempt were likely to emerge when individuals were highly likely to process the presented information. [Berger and Mitchell (1989)](#_ENREF_8) found evidence that attitude accessibility and attitude confidence mediate the effect of advertising repetition on attitude-behavior consistency. Consequently, from a marketer’s perspective, understanding what affects the formation of positive attitudes is important, as strong (i.e., more accessible) and positive attitudes are closely tied to consumption behavior ([Kim & Lennon, 2008](#_ENREF_33)). To understand the roles of accessibility on attitudes toward products we consulted the Motivation and Opportunity as Determinants (MODE) model ([Fazio, 1990](#_ENREF_20)).

## The MODE Model

The MODE model provides a theoretical framework for differentiating the means by which individuals process information: deliberate versus spontaneous processing ([Fazio, 1990](#_ENREF_20)). Building on the attitude accessibility literature, the MODE model proposes that motivation and opportunity to process information are two key determinants of whether accessible attitudes affect consequent behaviors ([Fazio, 1990](#_ENREF_20)).

First, when individuals are highly motivated to process information, they put more cognitive effort into information retrieval relevant to the judgement of the attitude object and will deliberate more carefully. Therefore, for high-motivation-to-process consumers, accessible attitudes have decreased influence on consequent behaviors, because these individuals not only use these highly salient cues to form judgments, but additionally consult carefully curated past memories and experiences. When individuals are low in motivation to process information, accessible attitudes significantly influence consequent behavior, since individuals will make judgements based on strong, easy-to-retrieve attitudes without deliberating on them too much ([Fazio & Olson, 2014](#_ENREF_21)).

Second, individuals need the opportunity or occasion to process available information ([Kruglanski & Sleeth-Keppler, 2007](#_ENREF_35)). This is crucial because if a person does not have the opportunity to process and consider available information, the individual relies predominantly on accessible information ([Ewoldsen et al., 2015](#_ENREF_19)). It follows that when highly motivated individuals are given the opportunity to process available information, they will process it more carefully. However, if motivation is low and/or individuals are not provided with the opportunity to process information, they will judge attitude objects more spontaneously using highly accessible attitudes. For consumer behavior, these differences in processing and degrees of deliberation are important because prior research has found that, in some cases, enhancing motivation and opportunity to process brand-related cues fosters consumers’ attending to advertisements ([MacInnis, Moorman, & Jaworski, 1991](#_ENREF_41)).

In this study we equate incidental exposure to Instagram content before viewing an online shop as giving consumers the opportunity to process heuristic information (i.e., social media as heuristic) about the product. We will elaborate on exposure effects next. Then, we will review literature on individual differences, such as the degree of participation on Instagram and the proneness to experience FOMO, which might pose differences in motivation to process heuristic information.

## Social Media Advertisements

Content, such as a picture on Instagram, that is distributed via social media and that users can interactively engage with is considered as one form of social media advertising ([Alhabash, Mundel, & Hussain, 2017](#_ENREF_5)). Research on the effects of content on social networking sites found that said content positively affects brand attitude ([Schivinski & Dabrowski, 2016](#_ENREF_55); [Stephen & Galak, 2012](#_ENREF_60)). These results might be an effect rooted in priming and exposure effects ([Tulving & Schacter, 1990](#_ENREF_64); [Zajonc, 1968](#_ENREF_68)). That is, when bringing to mind heuristic popularity cues (i.e., seeing a product posted on Instagram) the concept of “popularity” becomes more salient to the consumer ([Mrkva & Van Boven, 2020](#_ENREF_43)) and consequent stimuli are processed with this concept activated ([Lee & Labroo, 2004](#_ENREF_40)). This process is called *conceptual priming*, which is defined as actively evoking a conceptually related thought prior to exposure to the attitude object of interest ([Tulving & Schacter, 1990](#_ENREF_64)). Thus, by exposing consumers to a heuristic cue of seeing an object on a social platform like Instagram, favorable attitudes about the object in a consequent online shopping encounter will be more accessible. Based on the MODE model and replicating prior research, we propose that after consumers are exposed to the product stimulus, consequent product encounters will be judged more spontaneously as compared to when consumers have not been exposed to the product before consequent product encounters. This possible ease of consequent processing of the product in the online shop after prior exposure will lead to more favorable product evaluations.

**Hypothesis 1 (H1):** There will be a positive association between prior exposure to products on Instagram and attitudes toward the product.

## FOMO, Instagram Participation, and the Exposure-Attitude Relationship

Most investigations of FOMO focus on health issues, such as problematic internet use ([Wolniewicz, Tiamiyu, Weeks, & Elhai, 2018](#_ENREF_67)), media use and wellbeing ([Reer, Tang, & Quandt, 2019](#_ENREF_51)), and social media and stress ([Beyens, Frison, & Eggermont, 2016](#_ENREF_9)). However, advertising and marketing studies on FOMO are scarcer. One study found a positive relationship between FOMO and brand excitement and liking ([Kang et al., 2019](#_ENREF_30)). Another study used a qualitative approach to understand how FOMO appeals might be useful for marketing strategies and found that such FOMO appeals elicit significant cognitive and affective reactions from consumers and impose an anathema to wellbeing by affecting self-evaluative outcomes, like experienced shame ([Hodkinson, 2019](#_ENREF_27)).

Specifically with respect to social media and advertising, [Bright and Logan (2018)](#_ENREF_12) found that FOMO leads to positive attitudes toward following brands on social media, but simultaneously to experienced fatigue with social media. In a social media context, the relationship of FOMO and fatigue is further evidence for the cognitive tax FOMO imposes. That is, consumers who receive information via social media seem to process this information more deliberately, especially when they are high in trait-FOMO.

One possible reason for the increased motivation to process available information might be the link of FOMO to feelings of being socially disconnected from an important social group ([Abel, Buff, & Burr, 2016](#_ENREF_1)). This has been demonstrated in recent literature. One study’s finding indicated that the FOMO experience is linked to interdependent self-construal ([Dogan, 2019](#_ENREF_16)). That is, individuals who construct their personality based on feeling interdependent with others are more likely to experience FOMO. Another study, using EEG measures, showed that the FOMO experience leads consumers to pay greater attention to positive internal states of others when being presented stimuli of social inclusion ([Lai, Altavilla, Ronconi, & Aceto, 2016](#_ENREF_38)) This speaks to the relevance of FOMO when marketing popular brands and products. That is, feelings of social exclusion affect consumer behavior, which is a result of participants’ desire to restore control and dependent on the belongingness maintenance capacity of possible alternative products or services ([Su, Jiang, Chen, & DeWall, 2016](#_ENREF_61)). Further, based on traditional theories of human attitudes and behavior, such as the Theory of Reasoned Action or Theory of Planned Behavior, perceived social norms and affiliation cues (i.e., paying attention to positive internal states of others) might affect the attitude formation process in consumer behavior ([Ajzen, 2008](#_ENREF_3)).

However, another recent series of studies demonstrated that popularity cues might not actually be as important as other factors when experiencing FOMO ([Hayran et al., 2020](#_ENREF_25)). In seven survey, experimental, and field studies, [Hayran et al. (2020)](#_ENREF_25) show that, in a decision-making task, self-relevance and attractiveness of a given alternative rather than popularity are driving factors for the FOMO experience. Therefore, perhaps the impact of trait-FOMO on the exposure-attitude relationship in the social media context is dependent on consumers’ degree of active participation on the respective social media platform. Consumers participate in social media platforms, such as Instagram, in diverse ways. For example, users can choose to actively or passively interact with Instagram content. The more active users engage on social media platforms by posting and sharing content and information and commenting on other users’ postings. Passive users, on the other hand, consume content and information rather than posting and sharing it by reading, scrolling through and silently observing other users’ activities ([Burke, Kraut, & Marlow, 2011](#_ENREF_14)). Prior studies about posters and lurkers revealed that lurkers and posters perceive user-generated content (i.e., movie ratings) very differently ([Schlosser, 2005](#_ENREF_56)). That is, posters were only influenced by negative (not by positive) reviews, whilst lurkers (as opposed to posters) were less affected by negative reviews ([Schlosser, 2005](#_ENREF_56)). These differences imply that active and passive users might process information differently.

Consumers’ goals, identities, and values are key antecedents that determine their degree of active participation on social media platforms ([Bolton, 2013](#_ENREF_10)). For example, prior research found that one of the reasons why lurkers (highly passive users) lurk is because they do not feel a sense of belonging to the group in which they are lurking ([Preece, Nonnecke, & Andrews, 2004](#_ENREF_48)). In contrast, highly active users have been found to engage in more conversational dialogue on platforms, and thus might feel a higher sense of belongingness ([Schlosser, 2005](#_ENREF_56)). Thus, with respect to the impact of FOMO on the exposure-attitude relationship, the degree of active participation on a given social media platform (i.e., Instagram) might be important in two ways.

First, in the context of Instagram advertising the effect of trait-FOMO on the attitude formation process is higher for consumers who are very active on Instagram. That is, by engaging more on social media platforms like Instagram, consumers might consider these platforms and specifically information delivered via Instagram as more relevant to their selves. Therefore, we hypothesize:

**Hypothesis 2 (H2):** Highly active users will form more favorable attitudes toward products after seeing them on social media with increasing FOMO.

Second, for passive users the effects of FOMO will be reversed. That is, after being exposed to products on Instagram, passive users will form less favorable attitudes toward products as their FOMO increases. This is rooted not only in the lack of self-relevance of posted content, but also in the cognitive tax these consumers pay. The increased cognitive effort, in combination with the cued lack of belonging ([Preece et al., 2004](#_ENREF_48)) might reflect negatively on the product for these more passive users, therefore leading to less favorable product attitudes. Thus, we propose:

**Hypothesis 3 (H3):** Highly passive users will form less favorable attitudes toward products after seeing them on social media with increasing FOMO.

# Methods and Materials

## Open Science Statement

All stimuli, full survey instrument (including items used), script of analysis, and supplemental information (e.g. factor loadings of constructs of interest and detailed sample composition) can be found online on our Open Science Framework (OSF) website: https://bit.ly/2PbiFvs.

## Procedure

We employed the online survey method using a 4 (product: “artsy wall clock” versus “basic wall clock” versus “monstera plant” versus “basil plant”) by 2 (store: IKEA versus The Home Depot) by 2 (context: control versus Instagram advertising) between-subject factorial design, where participants were randomly assigned to one of 16 conditions. Two different kinds of house plants were chosen as the product stimuli because of their popularity amongst millennial shoppers ([Boone, 2018](#_ENREF_11)) and their hedonic character. Two different wall clocks were included based on their relative low popularity on Instagram and their utilitarian character. By including two house plant and wall clock types in this study, we aimed to address possible product biases. Similarly, we addressed potential channel (store) biases by including IKEA and The Home Depot in the study. Thus, we aimed to minimize effects of previous experience or attitude toward the stores.

After being provided informed consent and indicating adherence to quality expectations of the researchers, participants answered questions about their previous online shopping experience, attitudes toward popular products, and attitude toward Instagram. Following that, participants in the Instagram advertising condition were exposed to an Instagram mock-up post (Figure 1) of one of the products displayed in the online shop (Figure 2). In the control condition, participants were not exposed to any additional stimuli before viewing the online shop stimuli. The online shop mock-up did not include price information. Next, participants reported on attitude toward the product and store familiarity. Last, participants answered questions about FOMO, their degree of participation within Instagram and a series of demographic questions. This study was reviewed and approved by the University’s Institutional Review Board.

## Data Collection, Sample, and Cleaning

Data were collected in a two-step process: We collected data for the “house plants”-conditions (N = 836) using the Qualtrics (www.qualtrics.com) participant pool. Then, we collected data for the “wall clocks”-conditions (N = 421) using the Dynata participant pool (www.dynata.com). We employed probability sampling, and participants were compensated based on their respective panel memberships. However, the first sample (“house plants”) included three conditions (control, “Instagram advertising with 14 likes”, and “Instagram advertising with 14,183 likes”) whereas the second sample (“wall clocks”) only contained two priming conditions (“no priming” and “priming with 14,183 likes”). Based on a full between-subjects design, we dropped the Instagram advertising condition with only 14 likes from the first sample, to match the surveys’ designs. No participants were excluded based on missing data points. The final sample was composed of N = 980 U.S. participants who were between 18 and 35 years old and had an active Instagram account.

## Measures

Dependent variable.Attitude toward the product(α = 0.94) was assessed using a nine-item, seven- point semantic differential scale (e.g., “not worth having” = 1 to “worth having” = 7) based on [Benedek and Miner (2002)](#_ENREF_7).

Independent variable. We manipulated context condition by showing participants in the Instagram advertising condition a screenshot of the product embedded in an Instagram frame prior to viewing the online shop stimulus. Participants in the control condition were not exposed to this additional Instagram stimulus.

Moderating variables. Degree of participation within Instagram (α = 0.87) was assessed using a six- item, six-point semantic differential scale (e.g. “passive” = 1 to “active” = 6) based on prior research ([Bolton, 2013](#_ENREF_10); [Schlosser, 2005](#_ENREF_56); [Shao, 2009](#_ENREF_58)). Fear of missing out (α = 0.84) was assessed using an eight-item, seven-point Likert-type scale (e.g., “I get anxious when I don't know what my friends are up to”), based on [Abel et al. (2016)](#_ENREF_1) and [Przybylski, Murayama, DeHaan, and Gladwell (2013)](#_ENREF_49).

Covariates. We assessed several control variables to account for possible confounds. We assessed prior experience with online shopping (α = 0.89) using a three item, seven-point Likert-type scale (e.g. “I shop online frequently”, “strongly disagree” = 1 to “strongly agree” = 7) ([Khalifa & Liu, 2007](#_ENREF_32)). Attitude toward popular products (α = 0.92) was assessed using a six-item seven-point Likert-type scale (e.g. “Buying a popular product makes me feel good”, “strongly disagree” = 1 to “strongly agree” = 7) based on prior research ([Burton, Lichtenstein, Netemeyer, & Garretson, 1998](#_ENREF_15)). Attitude toward Instagram (α = 0.90) was assessed using an adapted version of the Facebook Intensity Scale ([Ellison, Steinfield, & Lampe, 2007](#_ENREF_17)). We included six items on a seven-point Likert-type scale (e.g. “Instagram is part of my everyday activity”, “strongly disagree” = 1 to “strongly agree” = 7). We included store familiarity (α = 0.92) using a three item, seven-point semantic differential scale (e.g. “unfamiliar” = 1 to “familiar” = 7) ([Kent & Allen, 1994](#_ENREF_31)).

## Plan of Analysis

Data were analyzed using the R (version 3.5.2) software. We were interested in the effects of prior exposure to products on Instagram and consequent product evaluation in an online shopping context (H1). Further, we investigated the interactive effects of degree of participation within Instagram, and FOMO on the exposure-attitude relationship and product judgements in the context of Instagram advertising (H2 and H3). Therefore, we submitted the data to regression analyses and included context condition (control versus Instagram advertising) as categorical, and degree of active Instagram participation and FOMO as continuous independent variables, including their interactions and a three-way interaction. We further included product type (monstera, basil, and artsy wall clocks) as dummy coded control variables since significant correlations between products and attitude towards the product might affect findings. Further, we included attitude toward Instagram, attitude toward popular products, prior online shopping experience, and store familiarity as control variables in our model, because differences between participants might affect consequent results. Because constructs were assessed differently (e.g., attitude toward the product on seven-point semantic differential, degree of active participation on Instagram on six-point semantic differential, and FOMO on seven-point Likert scale) all variables were standardized before submitting them to regression analyses. In a second step, we submitted data for control and Instagram advertising conditions to two separate linear regression analyses with attitude toward the product as the dependent variable and FOMO and degree of active participation as independent variables, including their interactions. We did this to inspect intervals of significance for each condition using the Johnson-Neyman Technique ([Krishna, 2016](#_ENREF_34)).

# Results

## Descriptive Statistics

Participants were predominantly female (69%). Most participants identified as Caucasian (71%), had completed some college with no degree (29%), and had an annual household income between $10,000 and $49,999 (44%). The median age was 26 years, which is appropriate considering that most Instagram users are between 25 and 34 years old ([NapoleonCat, 2019](#_ENREF_44)). Table 1 summarized participants’ characteristics stratified by context condition and product-type. Table 2 summarizes means, standard deviations, construct reliabilities, square roots of average variance extracted (𝐴𝑉𝐸), and intercorrelations of all variables in the model. Internal consistencies of all measures were assessed by Cronbach’s alpha (𝛼 > 0.82). 𝐴𝑉𝐸 of all constructs of interest exceeds their correlations with other constructs, which indicates good discriminant validity of measures ([Fornell & Larcker, 1981](#_ENREF_24)).

## Three-way Interaction

Results for regression analysis with three-way interaction are summarized in Table 3. We found a significant and positive main effect of Instagram advertising versus control condition on attitudes toward the product. Thus, Instagram advertising seemed to have a positive effect on the attitude formation process (H1). Further, we found significant main effects of degree of active Instagram participation, attitude toward popular products, store familiarity, basil, and artsy wall clocks (versus basic wall clocks). That is, participants, who reported more active participation on Instagram, who have a more favorable attitude toward popular products, and who are more familiar with the store brand formed more favorable attitudes toward the product. Basil plants (vs. Monstera) were perceived as more favorably and artsy (vs. basic) wall clock as less favorably.

We did not find interaction effects of degree of active participation within Instagram and context condition. However, we did find a marginally significant three-way interaction effect between participation, FOMO, and context (Figure 3). Variance Inflation Factors (VIF < 5) indicated no multicollinearity. We were interested in investigating interaction effects of active participation and FOMO stratified by condition to further assess intervals of significance for the degree of active participation as moderator of the FOMO effect on the exposure-attitudes relationship.

## Intervals of Significance

Control condition. In the control condition, we found significant positive main effects of active participation, attitude toward popular products, store familiarity and negative main effects of artsy wall clocks on product attitude. There was no significant interaction effect between FOMO and degree of active participation on Instagram (Table 4). According to Johnson-Neyman Technique findings (Figure 4), the slope for Instagram engagement was never significant (p < 0.05) for standardized values of FOMO. That is, for participants who were not exposed to Instagram advertising there was no significant effect of FOMO on attitudes irrespective of participants’ degree of active participation on Instagram.

Instagram advertising condition. Findings in the Instagram advertising condition differed from findings in the control condition. Similar to the control condition, we found significant positive main effects for active Instagram participation, attitude toward popular products, and store familiarity and negative main effects of artsy wall clocks on product attitude. However, results indicated a positive main effect of basil house plants and a statistically significant interaction effect between FOMO and degree of active participation (Table 4). That is, highly active Instagram users expressed the most favorable attitudes toward the product as they reported higher levels of trait-FOMO (H2). In contrast, as their reported level of trait-FOMO increased passive Instagram users expressed the least favorable attitudes toward the product (H3). This finding was also reflected by findings of Johnson-Neyman Technique, which indicated that the slope for trait-FOMO was significant (p < 0.05) only for standardized values of degree of active participation between [0.32, 2.16], and thus higher levels of trait-FOMO (Figure 4).

# Discussion

In summary, this study provides findings that are important for consumer research and theory and for advertising and marketing practice. First, we provide additional evidence that prior exposure on social media results in differences in product evaluations (H1); we thereby replicate early findings in mere exposure literature. Second, we extend research in Fear of Missing Out literature by providing support for the notion that FOMO and the degree of Instagram participation interact to differently influence product evaluations (H2 and H3). The connection between FOMO and social media has received wide attention in prior literature, specifically with respect to user wellbeing and life satisfaction. However, although some prior research suggested high cognitive demand of the FOMO experience in an advertising context, no prior research to date has investigated the link between FOMO, social media content and the attitude formation process. Therefore, in this study we address this gap and provide first evidence that consumers’ FOMO as well as the degree of active participation on a respective social media platform interactively affect outcomes important to product judgements and consumers behavior.

## Advertisement on Social Media

First, we found that consumers who were exposed to social media content prior to evaluating products in online shops evaluated these products more favorably than consumers who were not exposed. Thus, our findings confirm prior studies, which indicated that social media advertising might act as a priming mechanism and affect brand choice ([Humphrey, 2017](#_ENREF_28)). The mere exposure effect found in our study is also in line with information processing literature which states that consumers who are more often exposed to products have an easier and more positive information processing experience; so-called processing fluency. This ultimately leads to more positive product evaluations ([Shulman & Bullock, 2019](#_ENREF_59); [Zajonc, 1968](#_ENREF_68)).

These findings have important implications for theory and practice. For consumer research theory, our findings show that mere exposure enables consumers to process information more spontaneously and favorably. When evaluating products online, consumers rely on heuristic cues (e.g., seeing the product on Instagram) and the pleasantness of their processing experience, as proposed by literature in processing fluency ([Buechel & Townsend, 2018](#_ENREF_13); [Reber, Schwarz, & Winkielman, 2004](#_ENREF_50)). This is further demonstrated in our results by the positive effect store familiarity, as an additional heuristic cue, had on the attitude formation process. Prior research found that stimuli that are perceived as familiar are easier to process and therefore liked more ([Whittlesea, 1993](#_ENREF_65)). However, recent research that proposed a Salience Theory of Mere Exposure argues for salience of stimuli (instead of perceived familiarity) that actually drives the processing experience and consequent effects on the attitude formation process ([Mrkva & Van Boven, 2020](#_ENREF_43)). Although we did not account for salience of the product and therefore cannot confirm the Salience Theory of Mere Exposure, our results are in line with the familiarity hypothesis. However, future research could employ eye-tracking methods to account for store effects and the familiar (or more salient) product picture in the online shop. For practitioners, these findings suggest the effectiveness of advertising strategies involving Instagram as a mean of communicating products to consumers. However, other findings of this current research project call for caution in using social media advertising. We elaborate about this in the following section.

## FOMO, Instagram Participation, and the Exposure-Attitude Relationship

In this study we replicated prior research on exposure and extended findings by showing that product evaluations depend on whether consumers viewed advertisements on Instagram or not, and on their individual differences (trait-FOMO and degree of participation within the social media platform). According to prior research, highly active (versus highly passive) users make different decisions online and with respect to social media content ([Ruggiero, 2000](#_ENREF_54); [Sundar, 1998](#_ENREF_62)). In this current study, we provide evidence that the degree of participation on social media (i.e., Instagram) also affects the attitude formation process differentially. These perceptual differences help cluster individuals in two consumer groups. Specifically, when accounting for their trait- FOMO, we show that active Instagram users who are high in trait-FOMO have more favorable attitudes toward the product after being exposed to social media content. The opposite was found for passive Instagram users who were high in trait-FOMO. These differences might be explained by mental connections individuals form during the processing experience.

Additional post-hoc analyses showed that higher levels of Instagram participation were associated with more positive attitudes toward the platform (𝛽 = 0.38, *p* < 0.01) and more favorable attitudes toward popular products (𝛽 = 0.08, *p* < 0.02). We argue that these differences in perceptions about the platform might be underlying drivers for our findings pertaining FOMO. That is, with increasing FOMO more passive users possibly make more deliberate judgements and retrieve more information when evaluating products. However, based on the negative attitudes passive users hold about social media, these more deliberate judgements of the attitude object are more negative because consumers might misattribute these negative attitudes toward Instagram toward the product ([Ewoldsen et al., 2015](#_ENREF_19); [Payne, Cheng, Govorun, & Stewart, 2005](#_ENREF_45)). By contrast, highly active users, who were found to have a more positive attitudes toward Instagram, will engage in more deliberate judgements as FOMO increases. Thus, positive attitudes toward the platform might aid the formation of accessible positive attitudes toward the product after mere exposure by providing a positive heuristic cue during evaluation ([Roskos-Ewoldsen & Fazio, 1997](#_ENREF_53); [Schwarz, 2004](#_ENREF_57)).

Therefore, this research addressed an important gap in prior research by showing that consumers’ trait-FOMO should be considered in future consumer behavior research. However, there seems to be boundary conditions as to when FOMO affects consumer judgements. That is, we suggest that effects of FOMO on the attitude formation process in an online and social media context are dependent on the degree of active participation. These boundary conditions, as well as a deeper understanding of the cognitive processes involved in the FOMO-dependent judgements should be addressed in future research.

## Product Type Effects on Attitudes

Our findings indicated product type effects on attitude, such that there were significant differences between basic (vs. artsy) wall clocks and basil plants. Basil plants were perceived more favorably, and artsy wall clocks were perceived less favorably. House plants (i.e., basil house plants) could be processed more easily because they are generally perceived as more hedonic (based on the product type “house plant” versus “wall clock”) and familiar. Because basil house plants might be used for cooking as well as decoration, individuals might have been more often exposed to them prior to the experiment and therefore process more familiar stimuli (basil house plants) more fluently than less familiar stimuli (monstera house plants, basic and artsy wall clocks); this results in a more hedonic processing experience and ultimately more liking ([Reber et al., 2004](#_ENREF_50)). However, this potential explanation based on fluency need to be tested further, because we did not measure product familiarity or fluency in this study.

## Managerial and Theoretical Implications

This research contributes to theory and practice by establishing that consumers’ trait-FOMO, differentially affects product perceptions, depending on consumers degree of social media (i.e., Instagram) participation. Our findings were in line with the basic premises of the MODE model. That is, we showed that the opportunity to take heuristic cues (i.e., Instagram content) into account led to differences in product judgements and consequently to more favorable attitudes (H1). In line with H2, we also show more favorable product liking for participants who made more favorable connections to the context in which they saw the product prior to its evaluation (active users) with higher motivation to process information (i.e., higher in FOMO). Partially in line with H3, we show that consumers who made more negative connections to the prior exposure-context (passive users) evaluated the product less favorable (as compared to active users) with increasing motivation to process (i.e., increasing FOMO). This last finding was only partially in line with our hypothesis because we expected decreasing product evaluation with increasing FOMO, and not lesser increases. All of these findings are in line with the MODE model, which suggests that consumers will judge attitude objects more deliberately when having the opportunity as well as motivation to do so.

This is of importance when developing advertising strategies that utilize FOMO-appeals and defining target audiences for online advertising strategies. FOMO appeals have become more prominent in recent years as exemplified by the failed FYRE music festival ([Talbot, 2019](#_ENREF_63)). That is, the FYRE festival used aggressive social media advertising strategies to promote an exclusive music festival, which ultimately miserably failed based on poor management and deceptive messages. However, up until the festival, these strategies of suggesting an exclusive and once-in-a-lifetime experience were based on FOMO appeals. Other brands like Supreme or Anti-Social Social Club utilize FOMO appeals by restricting their product supply and heavily advertising new product launches on social media. However, our research shows that these strategies might actually lead to negative product and brand evaluations. That is, when targeting social media users, our results suggest that marketers and advertisers need to be mindful of their audience. In that, lurkers and other passive users might actually form negative product attitudes if they encounter these products on Instagram before shopping. If prior exposure leads to negative product attitudes for passive social media users, then social media platforms like Instagram that have integrated a shopping experience might find that this exposure has a negative impact on sales.

Thus, we conclude that standardized advertising strategies lacking sufficient differentiation between different target audiences are not advisable. Marketers and advertisers need to be cognizant of the audience that is exposed to social media content when designing social media content and advertising campaigns. For example, for active users, marketing strategies on social media that are interactive in nature might be more suitable when marketing products via Instagram. Monitoring the brands audience in terms of their interactions not just with the brand itself, but generally is therefore advisable. Some brands navigate their online presence in a sphere with users that are highly engaged and vocal on social media, such as younger consumers. Our findings implicate that these consumers are more likely to form positive product attitudes with more aggressive advertising procedures and strategies by brands. These strategies would allow for active users to engage with the brand and product, which ultimately exposes them to said product, and therefore fosters more positive attitudes toward the product later on.

## Limitations and Future Research

There are several limitations that need to be addressed by future research to gain a more nuanced understanding of the effects of Instagram advertisements on product and brand attitudes and purchase intention. First, Instagram is not the only medium or social media platform that allows for repeated product exposure to consumers. Future research should investigate our results are Instagram specific or whether we would find similar results across other social media platform. Additionally, future research should tease out the role social media plays in the relationship between individual differences and attitudes toward the product; in other words, future research should examine whether there are additive effects of the priming stimulus when it is framed as a social media post versus not. Use of products other than clocks or plants may provide additional insight.

Our online survey design might lack ecological validity. We only exposed participants to a screenshot of an anonymized picture on Instagram; however, results might be different when individuals see these pictures on their own Instagram feed or when holding their own smartphone device. Future research should design studies that allow for more ecological validity and manipulate the source of the Instagram content. This research only provides preliminary findings of possible effects.

In addition, our study did not use markers or heuristics of the source of the Instagram content. That is, by blinding the source (e.g. user- versus firm-generated content) we examined main effects of exposure. However, future research should investigate whether there are differences in product perception when posts are created by close friends, general users, product mavens, influencers, and general firm-generated content. Therefore, our study findings open possibilities of further research, which should further explore the differences in modes of processing (deliberate versus spontaneous) for different product types to fully understand how consumers process online information and what role social media is playing.

# Conclusion

This research investigated attitude activation and judgements of online products. Specifically, we replicated prior studies in mere exposure research and extended these findings by examining the importance of individual differences in consumers’ degree of social media participation and trait-FOMO. We investigated these questions by consulting literature in attitude activation. The current research provided evidence for positive effects of social media advertising on product evaluations in online shops. However, these positive associations were qualified by consumers’ level of trait-FOMO and the degree of their active participation within the social media platform of interest (i.e., Instagram). Our results inform strategies to create effective social media advertisings. Further, studies of the effects of FOMO are scarce in the marketing literature, even though the phenomenon is frequently linked to marketing. This research provides initial evidence that FOMO as a dominant and contemporary consumer experience requires more scrutiny in marketing literature.

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Tables

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 1** Demographic composition; stratified by priming condition and product type | | | | |
|  | Control condition | | Instagram condition | |
|  | *Plants*  *(N = 284)* | *Clocks*  *(N = 198)* | *Plants*  *(N = 276)* | *Clocks*  *(N = 222)* |
| *Gender* |  |  |  |  |
| Male | 70 | 74 | 52 | 102 |
| Female | 214 | 122 | 224 | 119 |
|  |  |  |  |  |
| *Ethnicity* |  |  |  |  |
| Caucasian | 202 | 138 | 207 | 150 |
| African American | 4 | 8 | 32 | 33 |
| Hispanic | 15 | 9 | 10 | 6 |
| Asian | 11 | 22 | 17 | 16 |
| Mixed | 10 | 14 | 9 | 11 |
| Other | 5 | 4 | 1 | 3 |
|  |  |  |  |  |
| *Education* |  |  |  |  |
| Less than high school | 6 | 6 | 5 | 1 |
| High school graduate | 69 | 49 | 67 | 57 |
| Some college, no degree | 85 | 49 | 88 | 63 |
| Associate degree | 29 | 19 | 31 | 26 |
| Bachelor’s degree | 71 | 57 | 57 | 51 |
| Master’s degree | 15 | 17 | 24 | 17 |
| Doctoral degree | 1 | 0 | 2 | 4 |
| Professional degree | 6 | 0 | 2 | 3 |
|  |  |  |  |  |
| *Income* |  |  |  |  |
| Less than $10,000 | 25 | 20 | 25 | 30 |
| $10,000 - $49,999 | 125 | 80 | 131 | 96 |
| $50,000 - $99,999 | 99 | 67 | 86 | 61 |
| $100,000 - $149,999 | 26 | 25 | 22 | 18 |
| $150,000 or more | 9 | 6 | 12 | 14 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 2**Means, standard deviations, construct reliabilities, intercorrelations, and √AVE of the sample | | | | | | | |
|  | *1* | *2* | *3* | *4* | *5* | *6* | *7* |
| **Main variables** |  |  |  |  |  |  |  |
| 1 Attitude toward the product | **0.79** |  |  |  |  |  |  |
| 2 Fear of missing out | 0.15\*\*\* | **0.63** |  |  |  |  |  |
| 3 Degree of Participation | 0.25\*\*\* | 0.17\*\*\* | **0.73** |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Control variables** |  |  |  |  |  |  |  |
| 4 Attitude toward popular products | 0.23\*\*\* | 0.30\*\*\* | 0.22\*\*\* |  |  |  |  |
| 5 Online shopping experience | 0.10\*\* | 0.04 | 0.12\*\*\* | 0.32\*\*\* |  |  |  |
| 6 Attitude toward Instagram | 0.21\*\*\* | 0.38\*\*\* | 0.41\*\*\* | 0.37\*\*\* | 0.21\*\*\* |  |  |
| 7 Store familiarity | 0.33\*\*\* | 0.05 | 0.17\*\*\* | 0.17\*\*\* | 0.26\*\*\* | 0.22\*\*\* |  |
|  |  |  |  |  |  |  |  |
| **Conditions** |  |  |  |  |  |  |  |
| 8 Instagram advertising vs. control | 0.06 | -0.02 | -0.03 | -0.03 | 0.00 | 0.01 | -0.04 |
| 9 Monstera vs. all others | -0.02 | 0.07\* | 0.06 | 0.04 | -0.04 | 0.02 | -0.08\* |
| 10 Basil vs. all others | 0.16\*\*\* | -0.04 | 0.00 | 0.06 | 0.04 | -0.04 | 0.09\*\* |
| 11 Artsy wall clocks vs. all others | -0.16\*\*\* | -0.02 | -0.05 | -0.02 | 0.01 | -0.02 | -0.03 |
| 12 Basic wall clocks vs. all others | 0.00 | -0.02 | -0.02 | -0.08\* | -0.00 | 0. 04 | 0.02 |
| 13 IKEA vs. The Home Depot | -0.01 | 0.01 | -0.02 | -0.00 | 0.01 | 0.02 | -0.10\*\* |
| Mean | 4.74 | 3.75 | 3.31 | 4.63 | 5.36 | 4.72 | 5.29 |
| Standard deviation | 1.38 | 1.25 | 1.24 | 1.24 | 1.38 | 1.41 | 1.66 |
| Cronbach’s alpha | 0.94 | 0.84 | 0.87 | 0.92 | 0.89 | 0.90 | 0.92 |
| **Note.** Computed correlation used Pearson-method with listwise-deletion; square root of average variance extracted (√AVE) for endogenous variables on the diagonal | | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 3** Regression analysis including three-way interaction | | | | |
|  | **Attitude toward product** | | |  |
| *Predictors* | *Estimates* | *CI* | *p* | *VIF* |
| (Intercept) | -0.06 | -0.20 – 0.07 | 0.35 |  |
|  |  |  |  |  |
| **Main effects** |  |  |  |  |
| Context | 0.15 | 0.04 – 0.27 | **<0.01** | 1.04 |
| FOMO | 0.07 | -0.02 – 0.15 | 0.11 | 2.29 |
| Instagram participation | 0.14 | 0.06 – 0.23 | **<0.01** | 2.25 |
|  |  |  |  |  |
| **Control variables** |  |  |  |  |
| Attitude popular products | 0.13 | 0.06 – 0.19 | **<0. 01** | 1.36 |
| Online shopping experience | -0.05 | -0.11 – 0.01 | 0.13 | 1.20 |
| Store familiarity | 0.27 | 0.21 – 0.33 | **<0.01** | 1.14 |
| Attitude Instagram | 0.02 | -0.05 – 0.09 | 0.52 | 1.51 |
|  |  |  |  |  |
| **Product control** |  |  |  |  |
| Monstera | -0.06 | -0.22 – 0.10 | 0.46 | 1.67 |
| Basil | 0.19 | 0.03 – 0.35 | **0.02** | 1.67 |
| Artsy wall clock | -0.30 | -0.48 – -0.13 | **<0.01** | 1.55 |
|  |  |  |  |  |
| **Interactive effects** |  |  |  |  |
| Context x FOMO | -0.01 | -0.12 – 0.11 | 0.91 | 2.15 |
| Context x Instagram participation | 0.03 | -0.09 – 0.14 | 0.62 | 2.08 |
| FOMO x Instagram participation | -0.01 | -0.09 – 0.06 | 0.76 | 2.18 |
| Context x FOMO x Instagram participation | 0.10 | -0.01 – 0.20 | 0.07 | 2.24 |
| Observations | 977 | | |  |
| R2 / R2 adjusted | 0.21 / 0.20 | | |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 4** Regression analysis stratified by context condition | | | | | | | | |
|  | Attitude toward the product | | | | | | | |
|  | **Control** | | | | **Instagram advertising** | | | |
| *Predictors* | *Estimates* | *CI* | *p* | *VIF* | *Estimates* | *CI* | *p* | *VIF* |
| (Intercept) | 0.03 | -0.15 – 0.22 | 0.72 |  | 0.00 | -0.16 – 0.16 | 0.97 |  |
|  |  |  |  |  |  |  |  |  |
| **Main effects** |  |  |  |  |  |  |  |  |
| FOMO | 0.07 | -0.02 – 0.17 | 0.14 | 1.22 | 0.06 | -0.03 – 0.14 | 0.18 | 1.29 |
| Instagram participation | 0.16 | 0.06 – 0.25 | **<0.01** | 1.25 | 0.16 | 0.07 – 0.24 | **<0.01** | 1.24 |
|  |  |  |  |  |  |  |  |  |
| **Control variables** |  |  |  |  |  |  |  |  |
| Attitude popular products | 0.18 | 0.08 – 0.27 | **<0.01** | 1.33 | 0.09 | 0.00 – 0.17 | **0.05** | 1.35 |
| Online shopping experience | -0.08 | -0.18 – 0.01 | 0.08 | 1.19 | -0.02 | -0.10 – 0.06 | 0.59 | 1.23 |
| Store familiarity | 0.26 | 0.17 – 0.35 | **<0.01** | 1.14 | 0.28 | 0.20 – 0.36 | **<0.01** | 1.14 |
| Attitude Instagram | -0.02 | -0.13 – 0.08 | 0.67 | 1.52 | 0.07 | -0.03 – 0.16 | 0.16 | 1.52 |
|  |  |  |  |  |  |  |  |  |
| **Product control** |  |  |  |  |  |  |  |  |
| Monstera | -0.22 | -0.47 – 0.02 | 0.07 | 1.69 | 0.08 | -0.13 – 0.29 | 0.44 | 1.69 |
| Basil | 0.06 | -0.18 – 0.30 | 0.63 | 1.69 | 0.29 | 0.08 – 0.50 | **<0.01** | 1.67 |
| Artsy wall clock | -0.37 | -0.64 – -0.10 | **<0.01** | 1.50 | -0.24 | -0.46 – -0.02 | **0.03** | 1.60 |
|  |  |  |  |  |  |  |  |  |
| **Interactive effects** |  |  |  |  |  |  |  |  |
| FOMO x Instagram participation | -0.01 | -0.10 – 0.07 | 0.76 | 1.02 | 0.09 | 0.02 – 0.15 | **0.01** | 1.04 |
| Observations | 481 | | |  | 496 | | |  |
| R2 / R2 adjusted | 0.18 / 0.16 | | |  | 0.26 / 0.25 | | |  |

Figures

**Figure 1** Example of an Instagram stimulus in the Instagram advertising condition

A picture containing table, sitting, flower, small

Description automatically generated

**Figure 2** Example of an online shop mock-up stimulus

A screenshot of a cell phone

Description automatically generated

**Figure 3** Three-way interaction effect of FOMO and degree of active participation dependent on context condition

A close up of a map

Description automatically generated

|  |  |
| --- | --- |
| **Figure 4** Results of Johnson-Neyman technique stratified by context condition | |
|  |  |
|  | |