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The Emotional and Cognitive Responses of Consumers to Innovative Practices in Online Marketing

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Die Fakultät hat diese Arbeit am 19. Mai 2022 auf Antrag der beiden Gutachter Prof. Dr. Harley Krohmer und Prof. Dr. Reto Hofstetter als Dissertation angenommen, ohne damit zu den darin ausgesprochenen Auffassungen Stellung nehmen zu wollen.

Contents

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Summary of the Dissertation

Innovation in online marketing is becoming increasingly important, especially as the global events of the last two years have accelerated digitization for consumers and businesses of all sizes and industries (i.e., Covid-19 pandemic, McKinsey, 2020). As consumers spend more time online it has never been more vital for companies to build trust, protect consumers data, and provide consumers with experiences that are built on their needs. The increasing development of innovations in online marketing has brought the importance of privacy and data use to the forefront as consumers become more concerned about protecting their data online. For example, recent study shows that as many as 66 % of global consumers are concerned about their personal data and how companies use them (Adobe, 2022). Moreover, the devastating data breaches of the past few years (e.g., Cambridge Analytica scandal) have demonstrated how easy it is to obtain personal data of consumers. Furthermore, the innovations have also enabled new methods of online marketing. For example, influencer marketing is becoming increasingly important with an estimated annual growth rate of 32 % for the period between 2020 and 2025 (MarketsandMarkets Research, 2020). Therefore, brands often advertise their products or services through various small and large influencers on social media platforms such as Instagram. Since influencers use their own channels, they create the impression of a personal recommendation rather than a commercial promotion making this online practice different from other forms of online advertising and therefore increasingly popular among brands.

Overall, due to the increasing innovation in online marketing there is a shift in consumers' perception of online advertising that needs to be studied in more detail. Especially, the cognitive and emotional responses to innovation in online marketing are of great importance so that researchers and marketers better understand how consumers perceive

brands' rapidly changing innovative online marketing strategies and what consequence these innovations have.

This thesis consists of three papers that investigate consumers' perceptions of different innovations in online marketing. Paper I explores consumers' perceptions of different influencer types in influencer marketing context on Instagram. Since consumers spend more time on social media platforms like Facebook and Instagram, online advertising on social media through influencers is becoming more relevant for companies. For example, recent market research study shows the importance of influencer marketing as there is an increasing impact that social media influencers have on consumers' purchases (Adobe, 2020). These Influencers use their own social media channels for advertising, which is different from other forms of online advertising practices. The so-called native advertising blurs the line between advertising and consumer-generated content, making it sometimes difficult for consumers to identify advertising as such (Campbell et. al, 2019). This issue has not gone unnoticed by regulatory agencies. In recent years, several regulatory guidelines were released to protect consumers by forcing influencers to disclose their relationships in online media endorsements more clearly (e.g., European Advertising Standards Alliance [EASA], 2018; the Federal Trade Commission [FTC], 2017; the Word of Mouth Marketing Association [WOMMA], 2017). In the real world, however, this desirable practice of sponsorship disclosure is often absent or hidden. It is believed that influencers are concerned about their likability when disclosing sponsorships (Audrezet & Charry, 2019; BBC, 2020). As there are several different influencer types on Instagram, Paper I investigates the role of sponsorship disclosure among these different influencer types and the effect of the disclosure on consumers' brand evaluation and influencer likability. Paper I was published in the Journal of Interactive Marketing Special Issue: Examining the Unanticipated Consequences of Interactive Marketing.

Paper II and Paper III deal with the phenomenon of creepiness, which is becoming increasingly relevant in online marketing. Especially, personalized online advertising is perceived as creepy by consumers (Schomer, 2021). As a consequence, for example, a large number of consumers unsubscribe from personalized online advertising (Periscope by McKinsey, 2019). As the phenomenon of creepiness in personalized online advertising is increasingly important, there is a need to understand and measure it. To measure whether personalized online advertisements evoke creepiness we developed a measurement instrument in Paper II that captures the phenomenon of creepiness in personalized online advertising context. Using established scale development methods, we conceptualized creepiness and its dimensions in the specific context of personalized online advertising. Further, the research shows that personalized online advertisements that are perceived as creepy have a negative impact on the advertising effectiveness of the advertising brand.

Paper III deals with the inner-psychic mechanisms of the phenomenon of creepiness in personalized online advertising but also in a more general context. The underlying mechanism of the phenomenon of creepiness has not yet been sufficiently studied. Most research has been centered around the antecedents and consequences of this complex emotion. A comprehensive conceptualization of the emotion creepiness is still largely missing. Therefore, the aim of Paper III is to conceptualize the phenomenon of crepiness as an emotion using theories of emotion (i.e., Appraisal Theory) and to elaborate its different components in a process component model of creepiness across different situation related and unrelated to advertising. Moreover, Paper III investigates the consequences of creepiness as well as the moderating role of consumer-brand relationship in creepy advertising situations.

In conclusion, my dissertation has two main topics: Perception of influencer marketing and the phenomenon of creepiness in personalized online advertising and beyond.

Both topics are timely and relevant since digital marketing is becoming increasingly important and due to the current pandemic, the digital migration is even more rapid (Baig et al., 2020). Thus, studying consumer responses to different digital advertising strategies is an important contribution to research and practice.

Summary of The Specific Papers

Paper I examines the issue of sponsorship disclosure in influencer marketing. This issue stems from the fact that some influencers are trying to hide the fact that their posts contain paid advertising despite the demand of several regulatory parties, which force influencers to disclose their material Relationships (e.g., European Advertising Standards Alliance [EASA]). This leads to difficulties for consumers who are often unable to make an accurate distinction as to whether the influencer is offering a personal recommendation or doing a promotion. Given this issue and the fact that there are different influencer types (e.g., micro, macro, etc.), we examine to what extent sponsored posts of different influencer types affect consumers' evaluations of the sponsoring brand and the influencer as well as what role the sponsorship disclosure plays therein. We use several experimental studies and demonstrate that sponsored posts of mega influencers increase consumers' persuasion knowledge relative to the posts of nano influencers, which decreases the trustworthiness of those posts and in turn negatively impact both brand and influencer evaluations. Interestingly, our results reveal that this indirect effect is only present when the sponsorship is not disclosed. Therefore, more transparency by disclosing the material relationship with the brand can eliminate the negative impacts of persuasion knowledge on the trustworthiness of posts and subsequent evaluations of the brand and the influencer.

In Paper II we developed a measurement instrument that captures the phenomenon of creepiness in personalized online advertising context. Using established scale development

methods, we conceptualized creepiness and its dimensions in the specific context of personalized online advertising and developed a 15-item scale to measure it. This is important since increasing number of consumers find personalized online advertising creepy (Periscope by McKinsey, 2019). Thus, researchers and marketers are in need of a measurement to assess potential level of creepiness. Creepiness in personalized online advertising has three unique dimensions – the perception of privacy intrusion, the perception of surveillance, and the feeling of uneasiness among consumers. Moreover, our experimental study shows that personalized online advertisements that are perceived as creepy lead to lower brand attitude, lower purchase intention and a more negative affective response towards the advertisement.

Paper III takes a deeper perspective and investigates the inner-psychic processes of the creepiness emotion and its components in marketing related and unrelated situations. Prior research acknowledged that creepiness is an emotional response (e.g., Langer & König, 2018; McAndrew & Koehnke, 2016), however, there is a dearth of studies that appropriately investigated the phenomenon in a nuanced way by using theories of emotion. Across a series of studies, we show that creepiness is an emotion with different elements in a component process model. Using theories of appraisal, we show that creepiness emerges when a situation is perceived as ambiguous regarding potential harm/threat and intrusively surveilling. These two appraisals lead to the feeling of uneasiness in consumers which in turn activates reactance. In marketing related context, the evoked reactance lowers brand attitude and purchase intention. Interestingly, our study shows that this effect is stronger for consumers with prior higher levels of brand trust than for consumers with prior lower levels of brand trust. Thus, we provide a much better understanding of the creepiness emotion by utilizing the process component model (Scherer, 2005) as well as directly incorporating and drawing upon the appraisal theory (Moors et al., 2013) to examine the various components and their respective roles in the creepiness emotion.

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Paper I

SPONSORSHIP DISCLOSURE OF INFLUENCERS – A CURSE OR A BLESSING? [1]

Giuffredi-Kähr, A., Petrova, A., & Malär, L. (2022). Sponsorship Disclosure of Influencers – A Curse or a Blessing? *Journal of Interactive Marketing*.

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Sponsorship Disclosure of Influencers – A Curse or a Blessing?

Andrea Giuffredi-Kähr, Alisa Petrova, and Lucia Malär

Abstract

Influencer marketing has become increasingly important in the field of marketing communication as an effective way to reach the appropriate target group. Using their own social media channels, influencers often give the impression that they have a personal rather than a commercial relationship with the brand and the products they promote. Therefore, when influencers post sponsored content, consumers often experience difficulty making accurate distinctions as to whether the influencer is offering a personal recommendation or doing a promotion. Given this issue, we examine to what extent sponsored posts of different influencer types affect consumers' evaluations of the sponsoring brand and the influencer as well as what role the sponsorship disclosure plays therein. Across four experimental studies, we demonstrate that sponsored posts of mega influencers increase consumers' persuasion knowledge relative to the posts of nano influencers, which decreases the trustworthiness of those posts and in turn negatively impact both brand and influencer evaluations. Interestingly, our results reveal that this indirect effect is only present when the sponsorship is not disclosed. Thus, more transparency by disclosing such sponsorship can eliminate the negative impacts of persuasion knowledge on the trustworthiness of posts and subsequent evaluations of the brand and the influencer. These findings have important implications for marketing practice and research.

Keywords

influencer marketing, influencer type, persuasion knowledge, sponsorship disclosure

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In recent years, influencer marketing has become increasingly important in marketing communication as an effective way to reach the appropriate target group. With the influencer marketing industry estimated to be worth $15 billion by 2022 (Insider Intelligence 2021), almost 60% of marketers plan to maintain or even increase their influencer budgets in 2021 despite decreased overall digital marketing budgets due to the pandemic (Linqia 2020). Through influencer marketing, companies use famous people and locals with large numbers of followers across one or more social media platforms to promote their brands. Using their own social media channels, influencers often give the impression that they have a personal rather than a commercial relationship with the brand and the products they promote. So called native advertising blurs the line between advertising and consumer-generated content, making it difficult for consumers to identify advertising (Campbell and Grimm 2019). Therefore, when influencers post sponsored content, consumers often experience difficulty making accurate distinctions as to whether the influencer is offering a personal recommendation or doing a promotion (Boerman, Willemsen, and Van Der Aa 2017; Campbell and Grimm 2019; Evans et al. 2017).

To protect consumers and help them make accurate distinctions between personal recommendations and actual promotions, several regulatory parties released guidelines for influencers to disclose their relationships in online media endorsements more clearly (e.g., European Advertising Standards Alliance [EASA], 2018; the Federal Trade Commission [FTC], 2017; the Word of Mouth Marketing Association [WOMMA], 2017). However, when looking at the actual use of sponsorship disclosure, many influencers and companies still do not adequately disclose paid relationships (Langford 2020; Maheshwari 2016; Swant 2016). Some

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influencers may try to hide the fact that a post is sponsored by using multiple hashtags where #ad or #sponsored can get easily lost or not disclosing the sponsorship at all. Some are even requested by the sponsoring companies to not disclose the partnership. A common concern seems to be that disclosing the sponsorship would damage the traditional neutrality of influencers and hurt their likeability for "selling out" (Audrezet and Charry 2019; BBC, 2020).

Regulatory disclosing guidelines apply alike to celebrity and mega influencers with millions of followers as well as nano influencers with local or niche character and much fewer followers. While celebrity presence is historically associated with advertising, recommendations by consumers signaled neutrality, free speech, and credibility (Campbell and Grimm 2019). Today, celebrities are easily friended on social media, leading to stronger personal connections between celebrities and consumers, potentially reducing celebrities' traditional ability to signal advertising (Campbell and Grimm 2019). On the other hand, "everyday consumers" are being paid for posting sponsored content and acting as endorsers, reducing their "free speech." These developments make disclosure practices even more important.

Therefore, we propose that the examination of disclosure practices should be tied to influencer types. For many years, companies were spending large amounts of money to promote their products using celebrity, mega, and macro influencers. Recently, however, there is increasing industry interest in nano and micro influencers (Influencer Marketing Hub 2020). To date, there is still uncertainty on whether certain influencer types are more effective. On the one hand, prior research found that higher numbers of followers positively affect an influencer's credibility and likeability (de Veirman, Cauberghe, and Hudders 2017; Jin and Phua 2014), whereby celebrity, macro, and mega influencers typically enjoy larger number of followers than micro and nano influencers (Campbell and Farrell 2020). On the other hand, others showed that people who produce content on YouTube and fall into the category of micro or nano influencers were perceived as more credible and led to higher purchase intentions than celebrity influencers (Djafarova and Rushworth 2017; Wiley 2014). To the best of our knowledge, only one study directly compared influencer types that are used within the field of influencer marketing (i.e., micro and macro/mega influencers). This study did not find differences between the types in terms of consumers' perception of the influencer and the brand (Boerman 2020).

Against this mixed evidence, we examine how different types of influencers (nano, micro, macro, mega, and celebrity influencers; Campbell and Farrell 2020) affect consumers' evaluations of the sponsoring brand (in terms of brand attitudes and purchase intentions) and the influencer (in terms of likeability). We suggest that the effect of influencer type on brand evaluations and influencer likeability varies because different influencer types raise distinct expectations regarding their advertising intent (i.e., persuasion knowledge; Friestad and Wright 1994). While celebrities' content may still be expected as being paid advertising, nano and micro influencers' content may rather signal neutrality (Campbell and Grimm 2019). Therefore, expectations regarding paid advertising in influencers' content may depend on the influencer type. These diverging levels of persuasion knowledge should then affect a post's trustworthiness (depending on sponsorship disclosure), ultimately affecting consumer's evaluations of the sponsoring brand and the influencer. Using experimental studies, we challenge the perspective that disclosing sponsorships most likely harms influencer marketing. We show that disclosure does not harm the sponsoring brand and the influencer when persuasion knowledge is high, which is the case with celebrity, mega, and macro influencers.

Doing so, we can make several important contributions to the academic literature and marketing practice. First, by showing that sponsored posts of five influencer types activate persuasion knowledge differently, we add to the scarcity of literature on influencer types (e.g., de Veirman, Cauberghe, and Hudders 2017; Jin and Phua 2014). Second, we contribute to the literature on persuasion knowledge in the context of influencer marketing which has been mostly studied as an outcome of sponsorship disclosure (e.g., Boerman 2020; De Jans and Hudders 2020; Evans et al. 2017). We take a different perspective and identify influencer type as an important driver of persuasion knowledge. Third, we contribute to the literature on sponsorship disclosure that has mostly documented negative effects on advertising effectiveness and influencer evaluations (e.g., Boerman, Willemsen, and Van Der Aa 2017; de Veirman, Cauberghe, and Hudders 2017; Evans et al. 2017; Liljander, Gummerus, and Söderlund 2015) by identifying influencer type and the associated level of persuasion knowledge as a boundary condition. Finally, based on our results, marketers and influencers can learn that when the sponsorship is clearly disclosed, then influencer types can be equally effective in gaining consumers' favorable evaluations of both the sponsoring brand and the influencer. Further, it can be beneficial to ensure that the influencer discloses the material relationship in such a way that consumers are aware of the sponsored relationship.

Conceptual Framework and Hypotheses Development

Our conceptual framework appears in Figure 1. While we initially discuss and explore all five types of influencers, our ultimate goal is to identify differences between large and small influencer types. Thus, for parsimony, we build our conceptual model around the exploration of differences between mega and nano influencers. That is, we are interested in the extent to which sponsored posts of mega versus nano influencers (X) affect consumers' evaluations of the sponsoring brand (Y_1) and their likeability judgments of the influencer (Y_2). We examine persuasion knowledge (M_1) and a post's trustworthiness (M_2) as the underlying mechanism. Further, we examine how sponsorship disclosure (W) affects this mechanism by

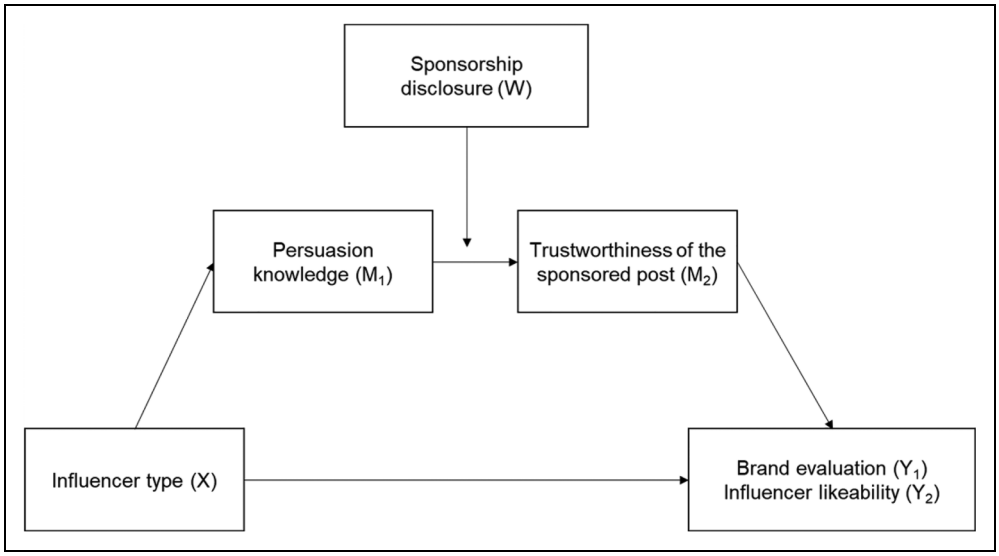

Figure 1. Conceptual framework with the proposed effects of the type of influencer on evaluations of the brand and the influencer via persuasion knowledge and trustworthiness of the post moderated by sponsorship disclosure.

studying its impact on the relationship between persuasion knowledge and that post's trustworthiness.

The Effect of Influencer Type on Consumers' Evaluations of the Brand and Influencer

Prior research has distinguished between different types of influencers, mostly based on the number of followers (Boerman 2020; Revell 2017). We follow Campbell and Farrell's (2020) typology that suggests five types that differ not only in terms of their number of followers but also in terms of their expertise, reach, and engagement rate: celebrity, mega, macro, micro, and nano influencers. Celebrity influencers have the largest follower base with over one million followers. They are international celebrities, such as actors, singers, and TV stars (Foxwell 2020). They are famous independent of their social media activities. However, they use social media to support their careers and propagate brand partnerships (Campbell and Farrell 2020). Examples include the Kardashians or Roger Federer. Similar to celebrity influencers, mega influencers have attained one million or more followers. In contrast to celebrity influencers, they gained celebrity status through social media. While they may be "internet famous," they are relatively unknown to people outside their follower base (Campbell and Farrell 2020). Macro influencers have between 100,000 and one million followers and are dominant within their subject domains (e.g., travel, food, music; Enke and Borchers 2018; Foxwell 2020). They achieve strong engagement rates, probably because their followers often aspire to be like them (Campbell and Farrell 2020). Micro influencers form the largest group of influencers (Boerman 2020). They have 10,000–100,000 followers localized to their geographic base, gathered through publishing content on social media (Campbell and Farrell 2020; Enke and Borchers 2018). Micro influencers usually have a strong relationship with their audience and enjoy high levels of trust and engagement among their followers (Chen 2016). Finally, followers of nano influencers are mostly friends, acquaintances, and others who live close by. These influencers are just beginning to grow their follower base and have fewer than 10,000 followers. Because nano influencers are personally accessible and authentic, they generate high engagement rates (Campbell and Farrell 2020).

Existing research provides mixed findings on the effects of different influencer types. Based on the number of followers, de Veirman, Cauberghe, and Hudders (2017) showed that influencers with a higher number of followers are perceived as more likeable and attributed to for higher opinion leadership. Further still, Jin and Phua (2014) demonstrated that a higher number of followers led to higher source credibility and the intention to build an online friendship with the influencer. This study also revealed that social identification with the influencer led to higher buying intentions. These findings would suggest that celebrity, mega, and macro influencers (with large number of followers) should perform better in terms of likeability and brand evaluation than micro and nano influencers. Based on this logic, Boerman (2020) hypothesized that mega/macro influencers should increase followers' intentions to engage with the post and parasocial interactions compared to micro influencers. However, this study did not show a significant effect of influencer type on consumers' behavioral intentions. In contrast, other studies found that people who produce content on YouTube and would typically fall into the category of micro or nano influencers were perceived as more credible and leading to higher purchase intentions than celebrities (Djafarova and Rushworth 2017; Wiley 2014). Against these conflicting results, we suggest that the five influencer types do

not lead to different levels of brand evaluations or influencer likeability. Rather, they evoke different expectations in terms of persuasion knowledge that in turn may affect the trustworthiness of the post and subsequently influence consumers' brand evaluations as well as likeability of the influencer.

Mediation Effect of Persuasion Knowledge and Trustworthiness of the Sponsored Post

Persuasion knowledge has been defined as consumers' personal knowledge about the tactics being used for persuasion attempts, such as advertising (Friestad and Wright 1994). Prior research has typically identified two components of persuasion knowledge: (1) advertising recognition, which refers to consumers' recognition of the commercial or paid persuasive content and (2) persuasive intent understanding, which represents consumers' understanding of the source's intention to convince them of the importance of these products (Eisend et al. 2020; Ham, Nelson, and Das 2015; Hudders et al. 2017). Persuasion knowledge helps consumers identify how, when, and why marketers are trying to influence them. Instagram users are familiar with advertising on the platform and, hence, may already have developed persuasion knowledge about influencers (Chen 2016; Djafarova and Rushworth 2017). This may particularly be true for celebrity, mega, and macro influencers, as they are successful in harnessing their followers for brand exposure (Campbell and Farrell 2020) and consumers are used to marketers using celebrities to promote products (e.g., McCracken 1989). Moreover, as consumers typically form weaker ties with influencers enjoying a large follower base than with micro and nano influencers (Foxwell 2020), they may suspect them of promoting products commercially rather than based on personal convictions, which activates their persuasion knowledge.

In terms of sponsored (non-disclosed) posts of micro and nano influencers, the material connection between the influencer and the brand may be less apparent, as consumers assume that these posts are rather personal recommendations than commercial promotions. Micro and nano influencers often establish strong ties with their followers (Abidin 2015). Friends or people we have strong ties with are seen as having no interest in promoting a particular product or brand (Bickart and Schindler 2001; van Noort, Antheunis, and van Reijmersdal 2012). Therefore, we expect micro and nano influencers' (non-disclosed) sponsored posts to activate consumers' persuasion knowledge less strongly than those of celebrity, mega, and macro influencers.

When coping with persuasion knowledge, consumers typically try to resist persuasion attempts (Friestad and Wright 1994), for example, by counter arguing (Zuwerink Jacks and Cameron 2003), which means that consumers perceive the sponsored post as less convincing. It has also been shown that persuasion knowledge increases skepticism (Boerman, van Reijmersdal, and Neijens 2012; Schindler, Morrin, and Bechwati 2005), which is defined as a consumer's disbelief in proffered advertising claims (Obermiller and Spangenberg 1998) and/or mistrust in the motives of the advertising agent (Foreh and Grier 2003). Transferred to our context, we suggest that consumers' increased persuasion knowledge will decrease a sponsored post's trustworthiness when the sponsorship is not disclosed. The lack of trust in the post can lower consumers' brand evaluations (Pan and Chiou 2011) and discourage consumers from purchasing the promoted products (Wang and Emurian 2005). Also, due to the strong positive association between likeability and trustworthiness, we suggest that lower trustworthiness of a post will decrease that influencers' likeability (e.g., Friedman and Friedman 1978). In sum, we propose that sponsored posts by celebrity, mega, and macro influencers that are not disclosed as sponsored may cause consumers to assume that these influencers have a commercial relationship with the brand and that the true purpose of the post is to increase sales. Consumers will thus mistrust the claims made in the post. Hence, we suggest that the higher persuasion knowledge associated with sponsored (non-disclosed) posts of celebrity, mega, and macro influencers should lower that post's trustworthiness and lead to lower levels of brand evaluations and influencer likeability judgments compared to sponsored (non-disclosed) posts of micro and nano influencers:

> **H_1**: Sponsored (non-disclosed) posts of celebrity, mega, and macro compared to micro and nano influencers activate consumers' persuasion knowledge more strongly to decrease that post's trustworthiness and leads to lower levels of a) brand evaluations and b) likeability of the influencer.

Subsequently, to reduce complexity, we focus on nano influencers as a reference group for smaller influencers with less evoked persuasion knowledge and mega influencers which are in the middle of macro and celebrity influencers as representative of a larger influencer with higher associated persuasion knowledge.

Moderating Effect of Disclosing a Sponsored Relationship

As consumers experience difficulties in making accurate distinctions on whether an influencer is making a personal recommendation or simply promoting a product, several regulatory parties have released guidelines to disclose endorsements more clearly (e.g., EASA, 2018; FTC, 2017; WOMMA, 2017). Prior studies have shown that disclosing sponsored content increases ad recognition, persuasion knowledge, and resistance to persuasion attempts (Boerman 2020; Cartwright, Van Reijmersdal, and Opree 2017; de Veirman and Hudders 2020). In terms of the impact on sponsoring brands and influencers, results have been mixed so far. For example, some studies found that sponsorship disclosure decreases brand attitudes, intentions to purchase or recommend the brand, and influencer credibility (Boerman, Willemsen, and Van Der Aa 2017; de Veirman and Hudders 2020; Evans et al. 2017), whereas others could not find significant effects on brand attitude and

purchase intention (Colliander and Erlandsson 2015) or influencer credibility (Liljander, Gummerus, and Söderlund 2015).

These mixed findings hint at the existence of boundary conditions (Eisend et al. 2020), such as disclosure characteristics (Boerman, van Reijmersdal, and Neijens 2012) and sample specifics (Hudders et al. 2017; Rozendaal, Buijzen, and Valkenburg 2010). For example, Eisend et al. (2020) revealed that sponsored content led to higher levels of persuasion knowledge, which then decreased brand evaluations among adults compared to children or adolescents. Another possible boundary condition of particular interest in the context of influencer marketing may be the type of influencer with consumers' corresponding expectations regarding sponsored content.

Subsequently, we discuss the role of sponsorship disclosure in the context of advertising expectations associated with different influencer types. Expectancy disconfirmation theory postulates that individuals form expectations (Oliver 1977, 1980). These expectations then serve as a frame of reference when making comparisons and forming satisfaction judgments. Specifically, when the performance outcome is better than expected (positive disconfirmation), individuals are more satisfied, whereas they are less satisfied when the performance falls short of their expectations (negative disconfirmation). Applied to our context, we suggest that consumers form expectations of whether a post by an influencer that includes a brand or product is sponsored or not. In this respect, consumers may not always need disclosures to recognize that content is sponsored (Kim, Pasadeos, and Barban 2001). As outlined earlier, we assume that consumers expect celebrity, mega, and macro influencers to promote products commercially, a fact that leads to increased persuasion knowledge. Thus, a lack of sponsorship disclosure should negatively disconfirm their expectations regarding the sponsored nature of that post. This negative disconfirmation may make consumers suspect deceptive advertising or a manipulation attempt (e.g., Cheung et al. 2009), thereby lowering the trustworthiness of the sponsored post. Indeed, prior research has found that persuasion knowledge raises doubts about the trustworthiness of the advertising content, whenever deceptive or manipulative tactics are suspected (Isaac and Grayson 2017). In contrast, when a nano influencer posts sponsored content, a commercial motive behind that posting is not expected. Accordingly, persuasion knowledge is not activated as much as for a mega influencer. Therefore, not disclosing such posts should confirm consumers' expectations and should not increase a disbelief in that sponsored post.

On the other hand, disclosing a sponsored post by a mega influencer confirms consumers' expectations that mega influencers promote products commercially. In this case, the higher levels of persuasion knowledge should not negatively affect the post's trustworthiness. In contrast, if nano influencers disclose a paid relationship, consumers may feel deceived because they expected the post to be a personal recommendation. Thus, consumers' expectations are negatively disconfirmed, which decreases that post's trustworthiness and subsequently produces lower evaluations of both the brand and the influencer.

H_2: Sponsored, non-disclosed posts of mega versus nano influencers activate consumers' persuasion knowledge more strongly to decrease that post's trustworthiness and leads to lower levels of a) brand evaluations and b) likeability of the influencer. However, when a sponsored post is disclosed, this mechanism is absent.

Overview of the Empirical Studies

The goal of Studies 1a and 1b is to provide initial evidence for H_1. Specifically, sponsored (non-disclosed) posts of celebrity, mega, and macro relative to micro and nano influencers should activate persuasion knowledge more strongly which then decreases the post's trustworthiness, leading to lower levels of brand evaluations and influencer likeability. Studies 2 and 3 examine the potential moderating effect of sponsorship disclosure on this suggested mechanism (H_2). While studies 1a, 1b, and 2 use fictitious influencers, Study 3 uses real influencers to provide further empirical evidence for H_2 with higher ecological validity.

Study 1a: Serial Mediation of Persuasion Knowledge and Post Trustworthiness

This study examines the potential differences between influencer types in terms of consumers' brand evaluations and likeability judgments of the influencer using the mechanism of persuasion knowledge and subsequent trustworthiness of the sponsored post. We included all five influencer types (Campbell and Farrell 2020) to learn more about how these different influencer types are associated with persuasion knowledge.

Method

We manipulated the five different influencer types using a between subject design with fictitious influencers. We recruited 282 Western European consumers (68% female; $M_{age} = 35.4$ years) from the Qualtrics online panel. To ensure that our participants used Instagram, the panelists were screened for having an account and usage frequency. As we chose our influencers in the food domain, we also screened for affinity for food-related topics (see Table A.1 in Web Appendix A). Study 1a was introduced as a study on the perception of social media posts. Participants were randomly assigned to one of the five influencer type conditions: nano, micro, macro, mega, or celebrity influencer. To avoid potential confounds regarding different influencers, we used fictitious influencers. In all scenarios, we first showed participants an Instagram profile of an influencer called Sara Kehl along with a descriptive text of her, followed by her Instagram post. The profile information was identical for all scenarios except that we varied the number of prior posts of the influencer (436 for the nano – 8,265 for the celebrity), number of followers (2,489 for the nano – 109.2 million for the celebrity) and number of people Sara Kehl was following (395 for the nano – 2,349 for the celebrity). The descriptive text contained

information about the influencer's area of expertise (identical for all: food and indulgence). Therein, we also adapted the influencer's status (e.g., celebrity outside of Instagram) and reach (e.g., more than 100 million followers worldwide) according to the respective influencer type (Campbell and Farrell 2020). The fictitious post was identical for all scenarios except that we adapted the engagement rate based on the number of likes (nano: 963, celebrity: 1,528,800). The post showed cheering hands with a lemonade of the brand Urs. We avoided showing Sara Kehl's face since influencer attractiveness affects brand evaluations (Torres, Augusto, and Matos 2019). The post read "It's URS o'clock!" and contained several hashtags such as #ursdrink, #Fridays, and #favorites to create a realistic scenario as most influencers use several hashtags to enlarge the reach of their post (Erz, Marder, and Osadchaya 2018). The posts did not contain any information on the sponsorship by the brand. We pretested the scenarios to ensure that they are perceived as intended (see Web Appendix B for the detailed scenarios and pretest).

Participants then had to answer questions on the mediating variables of perceived persuasion knowledge (Kruikemeier, Sezgin, and Boerman 2016; Tutaj and Van Reijmersdal 2012) and the post's trustworthiness (Ohanian 1990). We next measured their brand evaluations (composite of Putrevu and Lord 1994 for brand attitude and Kozup, Creyer, and Burton 2003 for purchase intention) and influencer likeability (Bekk and Spörrle 2010) as dependent variables. Unless indicated otherwise, we used 7-point Likert scales ranging from 1 = "completely disagree" to 7 = "completely agree" for all measures in all studies. These scales were all validated (see Table A.1 in Web Appendix A). Next, we administered manipulation check measures for the influencer type with an overall description of the different influencer types (e.g., nano influencer: "Sara Kehl is from Berlin. She has just over two thousand followers, who are mainly from her circle of friends and acquaintances and follow her daily life"). Participants had to identify the correct statement out of a selection for the five influencer types and one option "none of the above." Finally, subjects indicated their demographics before undergoing a debriefing.

Results and Discussion

Manipulation check. To test whether participants perceived the influencer types as intended, we applied a Pearson's chi-square test for the measure capturing the overall description of the influencer. There was a significant association found between influencer type and the assessment of the overall descriptions ($\chi^2(20) = 529.49$, $p < .001$). Furthermore, z-tests indicated that the proportions that selected the correct statements for the respective influencer were significantly different from those who did not (see Table B.2 in Web Appendix B).

Serial mediation effect. Before testing our serial mediation model, we conducted a MANOVA with influencer type as factor for all our mediating and dependent variables (i.e., persuasion knowledge, trustworthiness of the post, brand evaluation, and likeability of the influencer). Using Pillai's trace, there was no significant effect of influencer type on our outcome variables (V = .07, F(16, 1,108) = 1.23, $p = .24$). However, and importantly, a separate univariate ANOVA revealed a significant effect of influencer type on persuasion knowledge ($p < .05$), whereby the sponsored post of the nano influencer led to significantly lower levels of persuasion knowledge (EMM = 4.96) compared to the post of all other influencers (EMM ≥ 5.44). Further separate univariate ANOVAs showed no significant effect of influencer type on the other outcome variables ($p \geq .26$; see Table A.2. in Web Appendix A for the results).

We conducted two serial mediation analyses using ordinary least squares path analyses with PROCESS model 6 (Hayes 2017). Influencer types were dummy–coded with the nano influencer serving as reference group (Hayes and Preacher 2014). Persuasion knowledge and post trustworthiness figured as serial mediators, brand evaluation was the dependent variable in model 1 and influencer likeability in model 2. The serial mediation analyses revealed significant negative indirect effects on brand evaluations and influencer likeability through the suggested mediators of persuasion knowledge and the post's trustworthiness for all respective influencer types relative to the nano influencer but for the micro influencer (Table 1).

Specifically, relative to the nano influencer, those assigned to the macro influencer condition showed significantly higher persuasion knowledge (B = .66, SE = .26, t(277) = 2.56, $p < .05$), as did those assigned to mega (B = .65, SE = .26, t(277) = 2.48, $p < .05$) and celebrity influencers (B = .70, SE = .26, t(277) = 2.70, $p < .01$), which then decreased the post's trustworthiness (B = -.37, SE = .06, t(276) = −6.01, $p < .001$). The post's trustworthiness, in turn, was positively associated with brand evaluations (model 1; B = .47, SE = .05, t(275) = 9.36, $p < .001$) and with influencer likeability (model 2; B = .65, SE = .05, t(275) = 13.03, $p < .001$), leading to significant and negative indirect effects on both dependent variables. In contrast, the indirect effect of the micro relative to the nano influencer was not significant as the difference in persuasion knowledge was only marginally significant (B = .49, SE = .28, t(277) = 1.73, $p = .08$).

The mediation model simultaneously tested two alternative single-mediator pathways (see Table 1). First, it tested whether the effect of influencer type on brand evaluations and influencer likeability was mediated by persuasion knowledge alone. This analysis revealed the same pattern of results as the serial mediation analysis: indirect effects were significant and positive for macro, mega, and celebrity influencers relative to nano influencers but not for micro influencers. Second, the model tested whether the effect of influencer type on brand evaluations and influencer likeability was mediated by the post's trustworthiness alone. These indirect effects were not significant. Finally, the relative total and direct effects were not significant for both dependent variables (see Tables B.3 and B.4 in Web Appendix B for the detailed results and all other comparisons among the different influencer types).

Table 1. Indirect Effects of Influencer Type on Brand Evaluations and Influencer Likeability Through Persuasion Knowledge and Post Trustworthiness.

	Indirect Effects		
Influencer Type	**IT → PK → DV**	**IT → TW → DV**	**IT → PK → TW → DV**
Brand evaluations (= DV; Model 1)			
Micro vs. Nano	B = .08, SE = .05 [−.01, .19]	B = −.01, SE = .11 [−.23, .21]	B = −.08, SE = .05 [−.19, .01]
Macro vs. Nano	*B = .11, SE = .06* *[.02, .24]*	B = .14, SE = .12 [−.08, .37]	*B = −.12, SE = .05* *[−.22, −.03]*
Mega vs. Nano	*B = .11, SE = .06* *[.02, .24]*	B = .04, SE = .11 [−.17, .25]	*B = −.11, SE = .05* *[−.23, -.02]*
Celebrity vs. Nano	*B = .12, SE = .06* *[.02, .25]*	B = .09, SE = .11 [−.12, .29]	*B = −.12, SE = .05* *[−.23, −.03]*
Influencer likeability (= DV; Model 2)			
Micro vs. Nano	B = .06, SE = .04 [−.01, .16]	B = -.01, SE = .15 [−.30, .29]	B = −.12, SE = .07 [−.26, .02]
Macro vs. Nano	*B = .08, SE = .05* *[.003, .20]*	B = .19, SE = .16 [−.11, .51]	*B = −.16, SE = .07* *[−.30, −.04]*
Mega vs. Nano	*B = .08, SE = .05* *[.003, .20]*	B = .06, SE = .15 [−.22, .35]	*B = −.16, SE = .07* *[−.31, −.03]*
Celebrity vs. Nano	*B = .09, SE = .05* *[.01, .20]*	B = .12, SE = .15 [−.16, .41]	*B = −.17, SE = .07* *[−.31, −.05]*

Notes: IT = Influencer type, PK = Persuasion Knowledge, TW = Trustworthiness of the post, DV = Dependent variable, [ ] = 95% Confidence Interval, *italics* mark significant results.

Discussion. In line with H_1, our results showed that the sponsored (non-disclosed) posts of the celebrity, mega, and macro influencers led to higher levels of persuasion knowledge relative to the one of the nano influencer. When persuasion knowledge was high (i.e., consumers expected the post to be sponsored, which was the case for celebrity, mega, and macro influencers), the post appeared less trustworthy, thereby leading to negative brand and influencer evaluations. In contrast, we found no significant differences in brand evaluations and influencer likeability when we compared sponsored posts of micro and nano influencers. The post of the micro influencer only increased consumers' persuasion knowledge relative to the nano influencer at a marginal significance level, suggesting that consumers had less strong expectations that the posts of micro and nano influencers were sponsored. In sum, these results reveal that consumers' brand evaluations and influencer likeability judgments vary as a result of the different influencer types and the associated persuasion knowledge which, in turn, affects how trustworthy consumers perceive the influencer's post to be.

However, as an alternative to our proposed mechanism, these results may arise from other systematic differences apart from the influencer type, such as the number of people an influencer follows or the number of prior posts published on the platform. For example, Valsesia, Proserpio, and Nunes (2020) showed that following fewer others benefits a social media user's perceived influence. Since the nano influencer followed less people relative to the other influencers in our study design, this difference may have led to the different evaluations of the brand and the influencer. Further, while the engagement rate is typically higher for nano as compared to other influencers (Campbell and Farrell 2020), providing this information may indicate additional signals such as the post's attractivity. As the engagement rate (i.e., number of likes relative to number of followers) was higher for the nano than for the other influencers in our study, it is possible that this difference in engagement rate may be responsible for our effects. We will address these alternative explanations in our next Study 1b.

Study 1b: Replication of the Serial Mediation of Persuasion Knowledge and Post Trustworthiness

To rule out that other characteristics than the influencer type drive the negative effect of sponsored posts of larger influencers (i.e., celebrity, mega, and macro) relative to smaller influencers (i.e., micro and nano) on brand evaluations and influencer likeability, Study 1b aims to replicate the results of Study 1a in a more controlled setting. Therefore, to manipulate influencer type, we varied the number of followers of the influencer and omitted any information regarding the number of prior posts or people following. To ensure that our operationalization fits the conceptualization of Campbell and Farrell (2020), we also manipulated the engagement rate by either displaying the number of likes of the post or omitting this information.

To reduce complexity in this as well as subsequent studies, we focus on nano influencers as a reference group for smaller influencers with less evoked persuasion knowledge and mega

influencers as representative of larger influencers with higher associated persuasion knowledge.

Method

We conducted an online experiment applying a 2 (influencer type: nano influencer with a small number of followers vs. mega influencer with a large number of followers) × 2 (engagement rate: absent vs. present) factorial between subject design. We recruited 251 participants (41% male, $M_{age} = 34.1$) from the crowdworking platform Clickworker and used the same screening questions as in Study 1a. Study 1b was introduced as a study on the perception of Instagram posts. Participants were randomly assigned to either the nano or the mega influencer and a post with or without engagement rate. Analogue to Study 1a, we used a fictitious influencer and first showed participants an Instagram profile of Rob Eder followed by an Instagram post. The profile information was identical for both scenarios except that we varied the number of followers which we based on the conceptualization of Campbell and Farrell (2020) for nano and mega influencers (nano: 4,765, mega: 1.3 million). The descriptive text contained information about the influencer's area of expertise which was the same for both scenarios (sustainability and outdoor activities) and regarding the status and reach (mega: he became famous through Instagram and has more than one million followers from around the world, nano: his almost 5.000 followers are mostly friends and acquaintances). To enhance ecological validity in the condition with the nano influencer, we also asked participants to imagine that they have known Rob for some time (see Campbell and Farrell 2020).

We presented the same fictitious post for both influencer types except for the engagement rate. In the engagement rate condition, the post of the nano influencer displayed 2,685 "likes," whereas the one of the mega influencer showed 52,014 "likes." We omitted this information in the condition without engagement rate. The post showed a drinking bottle of the fictitious brand Pullman in the hand of the influencer with an outdoor background at the beach. Again, we did not show the face of the influencer. The post read "Wanderlust with Pullman bottle" along with the hashtags #sustainable, #environment, #freeofplastic without any indication of the sponsorship (see Web Appendix C for the detailed scenarios and the results of the pretest).

We then assessed the mediating variables (i.e., persuasion knowledge and post trustworthiness), followed by the dependent variables of brand evaluations and influencer likeability. We used the same Likert scales and measures as in Study 1a (Table A.1 in Web Appendix A). Subsequently, we administered manipulation checks. Thereby, we also asked participants whether they imagined that they knew the influencer personally. We closed by requesting demographics and delivering a debriefing.

Results and Discussion

Manipulation check. To test whether our manipulation of the influencer type worked as intended, we used a full-factorial model (Table C.3 in Web Appendix C). In this log-linear analysis, we included influencer type and engagement rate as factors and the overall description of the influencer served as manipulation check measure. First, the one-way and higher-order effects were significant (Pearson $\chi^2(23) = 988.68$, $p < .001$). Importantly, the number of followers and the description of the influencer were significantly associated ($\chi^2(5) = 307.35$, $p < .001$), indicating that our manipulation worked as intended. Further, we assessed whether participants imagined knowing the influencer personally with a full-factorial ANOVA. This analysis revealed that those assigned to the nano influencer imagined that they knew the influencer personally ($M = 4.24$, $SE = .16$) whereas those assigned to the mega influencer did not ($M = 2.09$, $SE = .16$; $F(1, 247) = 94.99$, $p < .001$).

Conditional serial mediation effect. Before testing our conditional serial mediation model, we conducted a MANOVA with influencer type and engagement rate as factors for all our mediating and dependent variables. Using Pillai's trace, there was a significant effect of influencer type on our outcome variables ($V = .06$, $F(4, 244) = 3.84$, $p < .01$) but not for engagement rate and neither for their interaction ($ps \geq .30$). Importantly, a separate univariate ANOVA revealed a significant effect of influencer type on persuasion knowledge ($p < .001$), whereby the sponsored post of the nano influencer led to significantly lower levels of persuasion knowledge ($EMM = 5.15$) compared to the post of the mega influencer ($EMM = 5.68$). Further separate univariate ANOVAs showed a marginally significant effect of influencer type on the trustworthiness of the post and influencer likeability ($ps \geq .06$) and a significant effect of the engagement rate on the trustworthiness of the post ($p < .05$; see Table A.2. in Web Appendix A).

We then conducted two conditional serial mediation analyses using ordinary least squares path analyses with PROCESS (customized model; Hayes 2017). Influencer type was dummy-coded and served as independent variable (0 = nano influencer, 1 = mega influencer) interacting with the engagement rate (dummy-coded: 0 = absent, 1 = present) on the first mediator of persuasion knowledge. Post trustworthiness figured as second serial mediator, brand evaluation was the dependent variable in model 1 and influencer likeability was the dependent variable in model 2. These analyses revealed significant negative indirect effects on brand evaluations and influencer likeability through the suggested mediators of persuasion knowledge and the post's trustworthiness for the sponsored (non-disclosed) post of a mega relative to a nano influencer independent of whether an engagement rate was present or not (Table 2).

The sponsored post of the mega influencer significantly increased consumers' persuasion knowledge relative to the nano influencer ($B = .49$, $SE = .22$, $t(247) = 2.20$, $p < .05$). In contrast, engagement rate did not affect persuasion knowledge (main effect and interaction with influencer type: $ps \geq .69$). In turn, persuasion knowledge decreased the sponsored post's trustworthiness ($B = -.43$, $SE = .07$, $t(248) = -6.64$, $p < .001$), which was positively related to consumers' brand evaluations (model 1: $B = .44$, $SE = .05$, $t(247) = 8.07$, $p < .001$) and

Table 2. Indirect Effects of Influencer Type on Brand Evaluations and Influencer Likeability Through Persuasion Knowledge and Post Trustworthiness Conditional on Engagement Rate.

	Indirect Effects		
Influencer Type	**IT → PK → DV**	**IT → TW → DV**	**IT → PK → TW → DV**
Brand evaluations (= DV; Model 1)			
Overall:	-	B = −.04, SE = .07	-
Mega vs. Nano		[−.17, .08]	
Without engagement rate:	B = .02, SE = .03	-	*B = −.09, SE = .04*
Mega vs. Nano	[−.03, .08]		*[−.19, −.01]*
With engagement rate:	B = .02, SE = .03	-	*B = -.11, SE = .04*
Mega vs. Nano	[−.04, .09]		*[−.20, −.03]*
Index of moderated mediation	B = .003, SE = .02		B = −.01, SE = .06
	[−.03, .05]		[−.13, .09]
Influencer likeability (= DV; Model 2)			
Overall:	-	B = −.05, SE = .09	-
Mega vs. Nano		[−.23, .11]	
Without engagement rate:	B = −.01, SE = .03	-	*B = -.12, SE = .06*
Mega vs. Nano	[−.08, .05]		*[−.25, −.01]*
With engagement rate:	B = −.01, SE = .04	-	*B = −.14, SE = .06*
Mega vs. Nano	[−.09, .06]		*[−.28, −.04]*
Index of moderated mediation	B = -.002, SE = .02		B = −.02, SE = .08
	[−.05, .04]		[−.18, .12]

Notes: IT = Influencer type, PK = Persuasion Knowledge, TW = Trustworthiness of the post, DV = Dependent variable, [ ] = 95% Confidence Interval, *italics* mark significant results.

influencer likeability (model 2: B = .58, SE = .06, t(247) = 9.16, $p < .001$). Regarding conditional indirect effects, the sponsored post of the mega influencer increased persuasion knowledge relative to the one of the nano influencer, which decreased that post's trustworthiness, leading to significant and negative indirect effects on both dependent variables for both conditions, when the engagement rate was present and when it was absent, providing further support for H_1. Both indirect effects via persuasion knowledge or post trustworthiness alone were not significant (see Table 2). When considering the conditional indirect effects of influencer type via the two mediators on both dependent variables, the direct effects on brand evaluations and influencer likeability were not significant (see Table C.4 in Web Appendix C).

Discussion. The results of Study 1b provide additional support for H_1. The mechanism was present when an engagement rate was shown but also when this information was absent, thereby ruling out the alternative explanation that our mechanism appeared due to different engagement rates for mega compared to nano influencers. Further, influencer profiles did not include any information regarding the number of prior posts or how many people the influencer followed. Thus, this study provides evidence that our effects are driven by the type of influencer (based on the number of followers) and not by other profile characteristics.

Despite the non-significant total effects of the influencer type on brand evaluations and influencer likeability in Studies 1a and 1b (see the Discussion section for a discussion of the direct effects and single-mediator pathways of our studies), we believe that our results provide interesting insights into the mechanism of how different influencer types affect consumers' perceptions of promoted brands and the sponsored influencers (see e.g., Rucker et al. 2011). This should be particularly relevant when studying the role of sponsorship disclosure in consumers' brand and influencer perceptions which we will now turn to in Study 2.

Study 2: Conditional Effects Depending on Disclosure of a Material Relationship

Study 2 examines the potential moderating effect of sponsorship disclosure on the impact of influencer type (mega vs. nano) on brand and influencer evaluations through the suggested mechanism of persuasion knowledge and post trustworthiness (H_2).

Method

We conducted an online experiment with a 2 (influencer type: nano vs. mega) × 2 (sponsorship disclosure: non-disclosure vs. disclosure) factorial between subject design. We recruited 310 participants (56% male, $M_{age} = 35.3$) from the Qualtrics online panel. We used the same screening questions, fictitious influencer, post, and procedure as in Study 1b except that we varied the number of prior posts (nano: 1,567; mega: 3,475) and the number of people Rob Eder was following (nano: 349; mega: 1,134) to increase ecological validity. In order to manipulate sponsorship disclosure, we randomly assigned participants to a post containing "#advertising" and "@Pullman" or a post without this information. We based this manipulation on common Instagram practice and FTC's recommendations to

use simple and clear hashtags to make the material connection between the influencer and the brand evident (FTC, 2019). In line with our conceptualization of influencer type, posts also contained the number of "likes" (i.e., engagement rate; nano: 2,685, mega: 52,014) (see Web Appendix D for the scenarios).

We then assessed the mediating variables (i.e., persuasion knowledge and post trustworthiness), followed by the dependent variables of brand evaluations and influencer likeability. We used the same Likert scales and measures as in Studies 1a and 1b (Table A.1 in Web Appendix A). Subsequently, we administered manipulation checks. Thereby, we also asked participants whether they were aware of whether the sponsored post was marked as an advertisement with two items (i.e., "the Instagram post (1) was marked as advertisement", (2) contained #advertising"). We closed by requesting demographics and delivering a debriefing.

Results and Discussion

Manipulation check. To test whether our manipulation of influencer type and sponsorship disclosure worked as intended, we used a series of full-factorial models (Table D.1 and D.2 in Web Appendix D). In the first log-linear analysis, we included influencer type and sponsorship disclosure as factors and the overall description of the influencer serving as a manipulation check measure. First, the one–way and higher–order effects were significant (Pearson $\chi^2(23) = 1170.10$, $p < .001$). Importantly, influencer type and influencer type description were significantly associated ($\chi^2(5) = 357.30$, $p < .001$), indicating that our manipulation worked as intended. Further, we assessed whether participants imagined knowing the influencer personally with a full-factorial ANOVA. This analysis revealed those assigned to the nano influencer imagined that they knew the influencer personally ($M = 4.56$, $SE = .14$) whereas those assigned to the mega influencer did not ($M = 2.08$, $SE = .14$; $F(1, 306) = 154.14$, $p < .001$).

Regarding sponsorship disclosure, in a second log–linear analysis, we used influencer type and sponsorship disclosure as factors and the sponsorship disclosure items as manipulation check measures. The one–way and higher–order effects were significant (Pearson $\chi^2(7) = 337.54$, $p < .001$). Importantly, disclosing the sponsorship and whether or not the post was perceived to be marked as advertisement ($\chi^2(1) = 19.38$, $p < .05$) or contained #advertising ($\chi^2(1) = 28.93$, $p < .001$) were both significantly associated, providing evidence that our manipulation worked as expected. Specifically, 64.9% of participants in the disclosure condition correctly recalled that the post was marked as advertisement and 82.5% accurately indicated that the post contained #advertising. In total, 83.7% in the disclosure condition either responded that the post was marked as advertisement and/or that it contained #advertising.

Conditional serial mediation effects. First, we conducted a MANOVA with influencer type and sponsorship disclosure as factors for all mediating and dependent variables in our model. Using Pillai's trace, there was a significant effect of influencer type on our outcome variables ($V = .07$, $F(4, 303) = 5.66$, $p < .001$) as well as of sponsorship disclosure ($V = .03$, $F(4, 303) = 2.58$, $p < .05$) but not for their interaction ($p = .98$). Importantly, a separate univariate ANOVA revealed a significant effect of influencer type on persuasion knowledge ($p < .01$), whereby the sponsored post of the mega influencer led to higher levels of persuasion knowledge ($EMM = 5.99$) compared to the post of the nano influencer ($EMM = 5.70$). Further separate univariate ANOVAs also showed a significant effect of influencer type on the other outcome variables ($ps < .01$) and of sponsorship disclosure on persuasion knowledge ($p < .01$; see Table A.2. in the Web Appendix for the detailed results).

To test H_2, we conducted two conditional serial mediation analyses using ordinary least squares path analysis with PROCESS (customized model, Hayes 2017). Our manipulation of influencer type was dummy-coded and served as independent variable (0 = nano influencer, 1 = mega influencer). Persuasion knowledge figured as first mediator interacting with sponsorship disclosure as moderator (dummy-coded: 0 = no disclosure, 1 = disclosure) on the second mediator (i.e., post trustworthiness). Finally, evaluation of the sponsoring brand served as a dependent variable in the first analysis and influencer likeability in the second analysis. These analyses revealed significant moderated mediations (see Table 3).

The sponsored post of the mega influencer significantly increased persuasion knowledge relative to the nano influencer ($B = .31$, $SE = .11$, $t(308) = 2.93$, $p < .01$). In turn, persuasion knowledge was significantly interacting with the disclosure of the material relationship on the post's trustworthiness ($B = .34$, $SE = .16$, $t(305) = 2.17$, $p < .05$). To decompose this moderation effect, we used a pick-a-point approach that examines the effect of persuasion knowledge on the trustworthiness of the post at the two different levels of the moderator (i.e., no disclosure vs. disclosure). This approach revealed that persuasion knowledge decreased the trustworthiness of the post when the sponsorship was not disclosed ($B = -.51$, $SE = .11$, $t(305) = -4.84$, $p < .001$) but not when the sponsorship was disclosed ($B = -.17$, $SE = .12$, $t(305) = -1.41$, $p = .16$) (Figure 2). In turn, trustworthiness of the post significantly increased consumers' brand evaluations (model 1: $B = .47$, $SE = .04$, $t(306) = 11.15$, $p < .001$) and their likeability of the influencer (model 2: $B = .62$, $SE = .04$, $t(306) = 14.62$, $p < .001$).

Regarding the conditional indirect effects, the sponsored post of the mega influencer increased persuasion knowledge relative to that of the nano influencer, which decreased the post's trustworthiness when it was not disclosed. Trustworthiness of the post was generally positively related to brand evaluations and influencer likeability (leading to negative conditional indirect effects). In contrast, the sponsored post of the mega influencer increased persuasion knowledge relative to the nano influencer, which, however, did not affect the post's trustworthiness when it was disclosed, leading to a non-significant indirect effect on brand evaluations and influencer likeability, supporting H_2. When considering the conditional indirect effects of influencer type via the two mediators on both dependent variables, the direct effect on brand evaluations was not significant whereas

Table 3. Indirect Effects of Influencer Type on Brand Evaluations and Influencer Likeability Through Persuasion Knowledge and Post Trustworthiness Conditional on Sponsorship Disclosure.

	Indirect Effects			Indices of Moderated Mediation
Influencer Type	**IT → PK → DV**	**IT → TW → DV**	**IT → PK → TW → DV**	
Brand evaluations (= DV; Model 1)				
Overall:	B = −.02, SE = .02	*B = −.15, SE = .07*	-	*B = .05, SE = .03*
Mega vs. Nano	[−.06, .01]	*[−.28, −.02]*		*[.002, .12]*
Not disclosed:	-	-	*B = −.07, SE = .03*	
Mega vs. Nano			*[−.14, −.02]*	
Disclosed:	-	-	B = −.02, SE = .02	
Mega vs. Nano			[−.07, .01]	
Influencer likeability (= DV; Model 2)				
Overall:	B = −.01, SE = .02	*B = −.20, SE = .09*	-	*B = .07, SE = .04*
Mega vs. Nano	[−.04, .03]	*[−.38, −.03]*		*[.004, .17]*
Not disclosed:	-	-	*B = −.10, SE = .04*	
Mega vs. Nano			*[−.19, −.03]*	
Disclosed:	-	-	B = −.03, SE = .03	
Mega vs. Nano			[−.09, .01]	

Notes: IT = Influencer type, PK = Persuasion Knowledge, TW = Trustworthiness of the post, DV = Dependent variable, [ ] = 95% Confidence Interval, *italics* mark significant results.

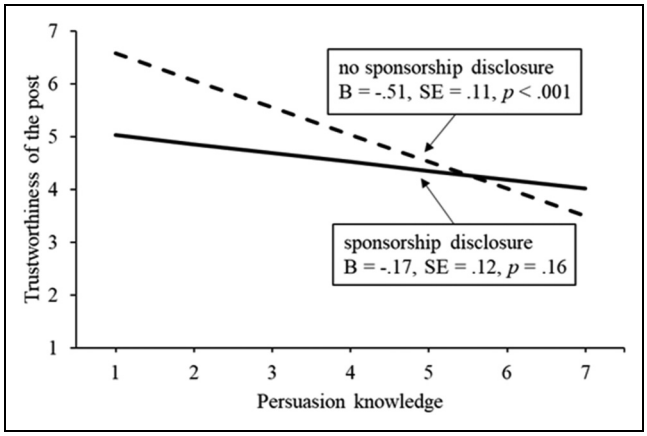

Figure 2. Simple effects of persuasion knowledge on trustworthiness of the post.

the one on influencer likeability was (B = −.30, SE = .10, $CI_{95\%}$ = [−.51, −.10]) (see Table D.3 in Web Appendix D). Furthermore, with regard to the two alternative single-mediator pathways, the indirect effect of a sponsored post of a mega relative to a nano influencer on both dependent variables through persuasion knowledge alone was not significant, whereas the other indirect path through trustworthiness of the post alone was significant and negative.

Discussion. Study 2 showed that sponsored posts of mega influencers led to higher levels of persuasion knowledge relative to those of nano influencers. In turn, higher levels of persuasion knowledge (i.e., when sponsorship was expected) decreased the post's trustworthiness when the sponsorship was not disclosed, leading to negative evaluations of the influencer and the brand. In contrast, such higher levels of persuasion knowledge did not affect the post's trustworthiness when the sponsorship was disclosed, thereby eliminating the negative effect of influencer type on consumers' brand and influencer evaluations, supporting H_2.

Study 3: Conditional Effects Depending on Disclosure of a Material Relationship Using Real Influencers

Study 3 was designed to replicate the findings of Study 2 using real influencers to increase ecological validity. We examined the moderating role of sponsorship disclosure on the impact of influencer type on evaluations of both the brand and the influencer through the suggested mechanism of persuasion knowledge and post trustworthiness (H_2).

Method

We conducted an online experiment with a 2 (influencer type: nano vs. mega) × 2 (disclosure: non-disclosure vs. disclosure) factorial between subject design. We recruited 286 participants (56% male, M_{age} = 34.2) from the Qualtrics online panel, using the same screening questions and Study introduction as in Study 1a. We first showed the influencer's Instagram profile, followed by a fictitious post. Jamie Oliver, a famous British chef with more than 6.5 million followers, served as the mega influencer. The descriptive text depicted his area of expertise, status, and

Table 4. Indirect Effects of Influencer Type on Brand Evaluations and Influencer Likeability Through Persuasion Knowledge and Post Trustworthiness Conditional on Sponsorship Disclosure.

	Indirect Effects			Indices of Moderated Mediation
Influencer Type	**IT → PK → DV**	**IT → TW → DV**	**IT → PK → TW → DV**	
Brand evaluations (= DV; Model 1)				
Overall:	B = .04, SE = .03	B = .04, SE = .06	–	*B = .04, SE = .03*
Mega vs. Nano	[−0.004, .11]	[−0.08, .17]		*[.002, .10]*
Not disclosed:	–	–	*B = −0.06, SE = .03*	
Mega vs. Nano			*[−0.12, −0.02]*	
Disclosed:	–	–	B = -0.02, SE = .02	
Mega vs. Nano			[−0.06, .01]	
Influencer likeability (= DV; Model 2)				
Overall:	B = .03, SE = .03	B = .03, SE = .05	–	*B = .03, SE = .02*
Mega vs. Nano	[−0.02, .10]	[−0.07, .14]		*[.001, .09]*
Not disclosed:	–	–	*B = −0.05, SE = .02*	
Mega vs. Nano			*[−0.11, −0.01]*	
Disclosed:	–	–	B = −0.02, SE = .02	
Mega vs. Nano			[−0.05, .01]	

Notes: IT = Influencer type, PK = Persuasion Knowledge, TW = Trustworthiness of the post, DV = Dependent variable, [ ] = 95% Confidence Interval, *italics* mark significant results.

reach. To produce a realistic setting for a nano influencer, we asked participants to name someone they know and follow on Instagram who is a cook or food enthusiast with fewer than 10,000 followers. Again, this helps to maintain ecological validity as the followers of nano influencers are mostly friends and acquaintances (Campbell and Farrell 2020). We used the fictitious Instagram post of Study 1a (including the engagement rate). In the disclosure condition, the post contained "#advertising" and "@ursaround" along with the feature "paid partnership with URS" below the influencer's name, a feature that Instagram introduced in 2017 to increase transparency of sponsored posts (Instagram 2021). Even though there is no obligation for influencers to use this feature, we included it in this study to exploit diverse disclosure possibilities across our studies (see Web Appendix E for the detailed scenarios).

Analogue to Studies 1a, 1b, and 2, we followed by assessing the mediating and dependent variables (Table A.1 in Web Appendix A). Subsequently, we administered manipulation checks: we assessed influencer type using the number of followers with three categories (less than 10,000 followers, 10,000 < and < one million followers, more than one million followers). Regarding sponsorship disclosure, we used the same measure as in Study 2 but adapted the second item (i.e., "the post contained *paid partnership with URS* below the influencer's name"). We again closed by requesting demographics and providing a debriefing.

Results and Discussion

Manipulation check. To test whether our manipulations worked as intended, we conducted a series of full-factorial models (see Tables E.1 and E.2 in Web Appendix E). In a first log linear analysis, we used influencer type and sponsorship disclosure as factors and the number of followers served as manipulation check measure. The one-way and higher-order effects were significant (Pearson $\chi^2(11) = 219.34$, $p < .001$). Importantly, influencer type and the number of followers were significantly associated ($\chi^2(2) = 223.91$, $p < .001$), indicating that our manipulation worked as intended. Regarding sponsorship disclosure, we used influencer type and disclosure as factors for the two manipulation check items. The one–way and higher–order effects were significant (Pearson $\chi^2(15) = 123.58$, $p < .001$). Importantly, disclosing the sponsorship and whether or not the post was perceived to be marked as advertisement ($\chi^2(1) = 4.67$, $p < .05$) or as a paid partnership ($\chi^2(1) = 15.05$, $p < .001$) were significantly associated, indicating that this manipulation also worked as expected. Specifically, 59.5% of the respondents in the sponsorship disclosure condition correctly recalled that the post was marked as advertisement and 63.4% accurately indicated that the post was marked as paid partnership with Urs. In total, 66.4% of participants in the disclosure condition responded that the post was either marked as advertisement and/or as paid partnership with Urs.

Conditional serial mediation effects. To start, we again conducted a MANOVA with influencer type and sponsorship disclosure as factors for all mediating and dependent variables in our model. Using Pillai's trace, influencer type had a significant impact on our outcome variables (V = .04, F(4, 279) = 2.78, $p < .05$) but not sponsorship disclosure and neither their interaction ($ps \geq .37$). Importantly, a separate univariate ANOVA revealed a significant effect of influencer type on persuasion knowledge

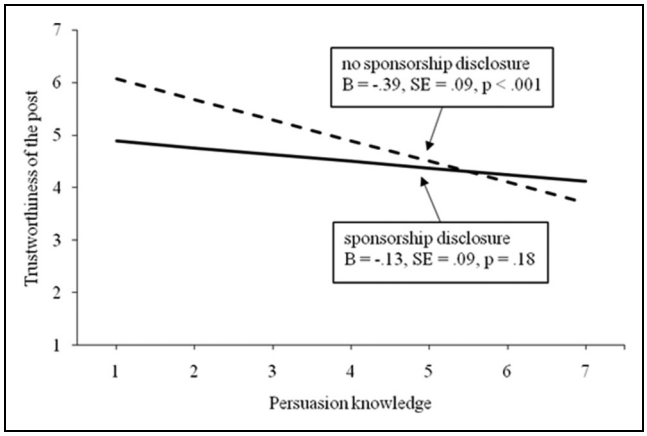

Figure 3. Simple effects of persuasion knowledge on trustworthiness of the post.

($p < .01$), whereby the sponsored post of the mega influencer led to significantly higher persuasion knowledge (EMM = 5.40) relative to the one of the nano influencer (EMM = 5.10). Further separate univariate ANOVAs on the outcome variables only showed a marginally significant effect of sponsorship disclosure on persuasion knowledge ($p = .06$; see Table A.2. in the Web Appendix for the detailed results).

To test H_2, we conducted two conditional serial mediation analyses using ordinary least squares path analysis with PROCESS (customized model; Hayes 2017) with influencer type as independent variable (0 = nano influencer, 1 = mega influencer), persuasion knowledge as the first mediator interacting with the sponsorship disclosure as moderator (0 = no disclosure, 1 = disclosure) on post trustworthiness (the second mediator), and brand evaluations (model 1) and influencer likeability (model 2) as dependent variables. These analyses revealed significant moderated mediations (see Table 4).

The sponsored post of the mega influencer significantly increased consumers' persuasion knowledge relative to the nano influencer (B = .43, SE = .16, t(284) = 2.78, $p < .01$). Persuasion knowledge was significantly interacting with the disclosure of the material relationship on the post's trustworthiness (B = .26, SE = .13, t(281) = 2.03, $p < .05$). We again used a pick–a–point approach to decompose this moderation effect. This approach revealed that persuasion knowledge decreased the post's trustworthiness of the post when the sponsorship was not disclosed (B = −0.39, SE = .09, t(281) = −4.36, $p < .001$); however, it did not when the sponsorship was disclosed (B = −0.13, SE = 09, t(281) = −1.35, $p = .18$) (Figure 3). In turn, post trustworthiness significantly increased brand evaluations (model 1: B = .37, SE = .06, t(282) = 6.68, $p < .001$) and influencer likeability (model 2: B = .30, SE = .07, t(282) = 4.44, $p < .001$).

Regarding the conditional indirect effects, the sponsored post of the mega influencer increased persuasion knowledge relative to that of the nano influencer, which then decreased the post's trustworthiness when it was not disclosed as sponsored. Post trustworthiness was generally positively related to brand evaluations and influencer likeability (leading to negative indirect effects). In contrast, persuasion knowledge did not affect the trustworthiness of the mega influencer's post when the sponsorship was disclosed, leading to a non-significant indirect effect on brand evaluations and influencer likeability, supporting H_2. Both indirect effects via persuasion knowledge or post trustworthiness alone were not significant. When considering the conditional indirect effects of influencer type via the two mediators on brand evaluations and influencer likeability, both direct effects of influencer type on brand evaluations and influencer likeability were not significant (see Table E.3 in Web Appendix E).

Discussion. Study 3 largely replicated findings of Study 2. Higher levels of persuasion knowledge associated with sponsored posts of mega versus nano influencers decreased the post's trustworthiness when sponsorship was not disclosed, leading to negative effects of mega versus nano influencers on brand evaluations and influencer likeability. These negative effects of influencer type disappeared when sponsorship was disclosed, supporting H_2.

Conclusion

Across four studies, we showed that sponsored posts of mega influencers increased consumers' persuasion knowledge relative to those of nano influencers. In turn, persuasion knowledge decreased the post's trustworthiness, negatively impacting brand and influencer evaluations. Interestingly, Studies 2 and 3 revealed that this negative indirect effect was no longer present when sponsorship was disclosed. Specifically, when the influencer revealed the material connection with the brand, the higher levels of persuasion knowledge associated with mega influencers no longer affected the post's trustworthiness relative to the lower levels of persuasion knowledge associated with nano influencers, thereby eliminating the negative effects on brand evaluations and influencer likeability judgments.

Discussion, Limitations, and Further Research

In Study 1a, we found that the higher levels of persuasion knowledge associated with celebrity, mega, and macro influencers relative to nano influencers increased brand evaluations and influencer likeability (single–mediator pathway). Whereas most prior studies found a negative effect of persuasion knowledge on brand attitude (Boerman, van Reijmersdal, and Neijens 2012; Campbell 1995; Lee 2010), Wei, Fischer, and Main (2008) showed that when consumers believed that marketer's tactics were fair, persuasion knowledge led to less negative brand attitudes. As influencers also need to make a living, consumers might believe that promoting brands through influencers' posts is fair, possibly allowing for a less negative or

even positive effect of persuasion knowledge on brand evaluation and influencer likeability. However, as these indirect effects were not significant in Studies 1b, 2, and 3, these processes require further investigation which might be an interesting path for further research.

Apart from the focal mechanism examined in this manuscript (indirect effect through persuasion knowledge and post trustworthiness), Study 2 also revealed a significant, negative single–mediator pathway through post trustworthiness on our dependent variables and a significant negative direct effect of influencer type on influencer likeability. These findings offer the possibility of other mediators involved in the process. Possibly, consumers may have perceived to have stronger parasocial interactions with nano relative to mega influencers. Breves et al. (2021) documented that stronger parasocial relations increase an influencer's credibility and purchase intentions of the promoted product. Therefore, such parasocial interactions might explain why sponsored posts of mega relative to nano influencers directly led to lower influencer likeability or indirectly on both our dependent variables due to potentially lower levels of post trustworthiness. However, as this indirect and direct effects were not significant in Studies 1a, 1b, and 3, further research could examine this promising mediator.

Whereas our research provides important first insights regarding the outcomes of different influencer types in the context of sponsorship disclosure, it is not without some limitations. First, in Studies 1a and 2, to provide a realistic setting, we manipulated the influencer type with the number of followers, how many people the influencer follows, number of prior posts, as well as the engagement rate. We provided a cleaner manipulation in Study 1b and could rule out that our proposed mechanism is driven by the engagement rate, number of people the influencer follows, or the number of prior posts. However, as Study 1b was conducted in a non-disclosure setting, we cannot tell with certainty that the number of followers is the main driver of influencer type in a disclosed sponsorship context. Yet, as we found evidence for our mechanism in all of our studies (in the non-disclosed conditions)—including Study 1b—we have reason to believe that the other characteristics of an influencer (e.g., engagement rate) may affect the perception of the influencer less strongly than the number of followers. However, future studies should examine whether the number of followers is the strongest driver of consumers' perceived persuasion knowledge independent of the disclosure context.

Also, we used fictitious influencers in Studies 1a, 1b, and 2, and real influencers in Study 3. The reason why we mainly focused on fictitious influencers was to control for potential confounds (e.g., attractivity of the influencer, number of past commercial deals). However, this focus comes with the limitation that we did not examine actual followers of these influencers. Examining actual followers could affect our results as parasocial relations that are developed and strengthened during repeated interactions with an influencer (Lee and Watkins 2016) might affect downstream variables of influencer marketing. Therefore, further research is encouraged to investigate if our results hold true in the presence of parasocial interactions.

Second, we did not assess the influencer's past activities in our studies. Future research could examine past commercial deals of an influencer as important boundary condition of consumers' evaluations of different influencers types. For instance, it is possible that a nano influencer publishes much more sponsored content compared to a mega influencer and this may affect persuasion knowledge considerations. Third, we did not incorporate an influencer's life cycle stage. Research has shown that celebrity endorsers experience ups and downs in their career journey due to fluctuations in their celebrity capital (Carrillat and Ilicic 2019). An influencer most likely runs through a similar life cycle that could affect consumers' perceptions. For example, an influencer might change category from nano to micro or even to macro influencer relatively quickly as Instagram is one of the easiest platforms to grow the follower base due to viral content (Zimmerman 2013). Further research could examine such influencer life cycle stages, by taking a dynamic perspective on consumers' evaluations of influencers as they grow their follower base over time. Relatedly, in the long run, as more and more marketers collaborate with micro or nano influencers, followers might also get used to them posting sponsored content, affecting persuasion knowledge associated with these influencer types.

Fourth, in our stimuli, the brand has been rather prominently displayed. Prior studies found that prominent brand presence results in a higher probability that advertisements are recognized and messages are perceived as persuasive attempts, potentially leading to negative responses (van Rejimersdal 2009). Thus, further research could examine the role of brand prominence for sponsored posts of different influencer types and study whether our effects are still present with subtly placed brands. Finally, future studies could address the role of disclosure characteristics depending on the sender. While we focused on influencers' sponsorship disclosures (e.g., by using hashtags), recent research introduced the distinction between influencer-generated (such as #sponsored or #ad) and official platform-generated disclosures (such as "*brand* has paid for this blog"; De Jans and Hudders 2020). Further research could study whether more official platform-generated disclosure would be more trustworthy when persuasion knowledge is strongly activated due to mega influencers versus influencer-generated disclosures for lower activation levels of persuasion knowledge related to nano influencers.

Academic and Managerial Implications

First, we contribute to the current scarce existing literature on perceptions of different influencer types (e.g., de Veirman, Cauberghe, and Hudders 2017; Jin and Phua 2014). By showing that consumers perceive sponsored posts of celebrity, mega, and macro relative to micro and nano influencers differently as a function of their expectations regarding the material relationships between influencers and brands, we help develop a more refined understanding of how consumers perceive different influencer types, which is subject to an urgent call for more research (Boerman 2020; Campbell and Farrell 2020). Second,

we contribute to the literature on persuasion knowledge in the context of influencer marketing, which has mostly studied persuasion knowledge as an outcome of sponsorship disclosure (Boerman 2020; De Jans and Hudders 2020; Evans et al. 2017). Our research took a different perspective and examined the effect that different influencer types exert on consumers' persuasion knowledge. As such, we were able to identify influencer type as an important driver of persuasion knowledge. Third, we contribute to the literature on sponsorship disclosure. Whereas this literature documented negative effects of disclosure on advertising effectiveness and influencer evaluations (e.g., Boerman, Willemsen, and Van Der Aa 2017; Evans et al. 2017), we identified the influencer type and its associated level of persuasion knowledge as a boundary condition. That is, when consumers' persuasion knowledge is already activated due to sponsored posts of mega influencers, disclosing the sponsorship can be beneficial, as doing so will increase the post's trustworthiness.

Our study also has implications for managers. Our findings revealed that sponsored posts by mega influencers lead to less positive evaluations of the sponsoring brand and the influencer relative to those for nano influencers due to increased levels of persuasion knowledge. However, this effect was only present when the sponsorship was not disclosed. In other words, greater transparency can indeed increase the effectiveness of influencer marketing. Therefore, particularly when collaborating with mega influencers, marketers should ensure that the influencer discloses the material relationship in such a way that consumers are aware of the sponsorship. For example, they could include such a condition in their contract or formulate recommendations on how sponsorships can be disclosed (e.g., "paid partnership with").

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SPONSORSHIP DISCLOSURE OF INFLUENCERS – A CURSE OR A BLESSING?

WEB APPENDIX

Web Appendix A. Measurement Items and Mean Values for All Studies

Table A.1. Measurement items and Cronbach's alphas for all studies

Scale	Items	Cronbach's alphas			
		Study 1a	**Study 1b**	**Study 2**	**Study 3**
Mediator Variables					
Persuasion Knowledge	Measure of Kruikemeier and colleagues (2016)[a b] • The Instagram post of [influencer] feels like an ad. • The Instagram post promotes [brand]. • [Brand] paid to Instagram post this message. • The Instagram post of [influencer] is an ad. • The Instagram post of [influencer] is sponsored by [brand]. Measure of Tutaj and Van Reijmersdal (2012) • The aim of this Instagram post is to sell [product category] of [brand]. • The aim of this Instagram post is to stimulate the sales of [product category] of [brand]. • The aim of this Instagram post is to influence my opinion. • The aim of this Instagram post is to make people like beverages or [brand].	.92	.88	.89	.92
Trustworthiness of the Post	Please indicate how you evaluate the Instagram post of [Influencer]. [c] • not trustworthy (1) – trustworthy (7) • dishonest (1) – honest (7) • unreliable (1) – reliable (7) • insincere (1) – sincere (7) • undependable (1) – dependable (7)	.93	.92	.93	.95
Dependent Variables					
Likeability of the Influencer	Please indicate to what extent you agree with the following statements. [b] • [Influencer] is likeable. • [Influencer] makes a positive impression on me. • I think many people take to [influencer]. • I like [influencer].	.90	.91	.91	.93
Brand Evaluation	Measure of brand attitude [a b] • The decision to buy (brand) is foolish. (reverse) • Buying [brand] is a good decision. • I think [brand] is a satisfactory brand. • I think [brand] has a lot of beneficial characteristics. • I have a favorable opinion of [brand]. Purchase intention • How likely would you be to purchase [product category] of [brand]? • Assuming you were interested in buying [product category], how likely would you purchase [product category] from [brand]? • How probable is it that you would consider the purchase of [product category] of [brand], if you were interested in buying [product category]?	.89	.90	.90	.88
Manipulation Checks					

Scale	Items	Cronbach's alphas			
		Study 1a	Study 1b	Study 2	Study 3
Influencer type	Measure used in Studies 1a, 1b and 2: Please indicate which of the statements below best describes the influencer that was presented to you (single choice question). • [Influencer] is from Berlin. S/he has just over two thousand (Study 1a) /fewer than ten thousand (Study 1b and 2) followers, who are mainly from her/his circle of friends and acquaintances and follow her/his daily life. (nano) • [Influencer] is from Berlin. S/he has tens of thousands of followers, mostly from Berlin, who follow her/his daily life. (micro) • [Influencer] is a successful influencer from Berlin. S/he has several hundred thousand followers, mainly from Berlin and the surrounding area, who follow her/his daily life. (macro) • [Influencer] is a very famous Instagram influencer from Berlin. S/he has over a million followers from all over the world who follow her/his daily life. (mega) • [Influencer] is a very famous actress/actor from Berlin. S/he has over a hundred million followers from all over the world who follow her/his daily life. (celebrity) • None of the above Measure used in Study 3: How many followers did the influencer shown have? (single choice question) • (nano): less than 10'000 • (macro): more than 10'000 and less than one million • (mega): more than one million				
Personal acquaintance	Please indicate to what extent you agree with the following statements. [b] While reading the Instagram post, I imagined… • to know the influencer personally. • that the influencer is a personal acquaintance / friend.		.93	.96	
Disclosure of material relationship	The Instagram post of [influencer]… [d] • was marked as an advertisement. • contained #advertising (Study 2) • was marked as a paid partnership with [brand] (Study 3)				
Screening questions					
Instagram account	Do you have an Instagram account? (single choice question) • yes (prerequisite to participate in our study) / no				
Instagram usage frequency	How often do you use Instagram? [c] 1 = seldom to never to 7 =several times daily (values >1 were required to participate in our study)				
Topic affinity	Please indicate to what extent you agree with the following statements. [b] I am interested in… (values >3 were required to participate in our study) • food-related topics (Studies 1a and 3) • outdoor topics / topics related to sustainability (Study 1b, 2)				

Note.— [a] a composite of both measures was used; [b] measured using a 7-point Likert scale anchored by 1 = "I totally disagree" to 7 = "I totally agree"; [c] measured using a 7-point semantic differential scale; [d] measured using a binary scale with 1 = "not true" and 2 = "true"

Table A.2. Estimated marginal mean values, standard errors, and (full-factorial) MANOVAS for Studies 1-3

Constructs	**Study 1a**					**Study 1b**		**Study 2**		**Study 3**	
Conditions	**Nano influencer**	**Micro influencer**	**Macro influencer**	**Mega influencer**	**Celebrity influencer**	**Nano influencer**	**Mega influencer**	**Nano influencer**	**Mega influencer**	**Nano influencer**	**Mega influencer**
Persuasion Knowledge	F(4, 277) = 2.81, $p < .05$					F(1, 247) = 12.91, $p < .001$		F(1, 306) = 7.92, $p < .01$		F(1, 282) = 8.03, $p < .01$	
EMM	4.96	5.44	5.61*	5.61	5.65**	5.15	5.68	5.70	5.99	5.10	5.54
SE	.17	.17	.17	.18	.17	.10	.10	.07	.08	.11	.11
Trustworthiness of the Post	F(4, 277) = .29, $p = .88$					F(1, 247) = 3.42, $p = .07$		F(1, 306) = 8.40, $p < .01$		F(1, 282) = .03, $p = .85$	
EMM	4.17	3.98	4.22	4.02	4.10	4.74	4.45	4.70	4.29	4.39	4.36
SE	.19	.18	.19	.19	.18	.11	.11	.10	.10	.12	.13
Brand Evaluation	F(4, 277) = .39, $p = .82$					F(1, 247) = .12, $p = .73$		F(1, 306) = 11.24, $p < .01$		F(1, 282) = .01, $p = .92$	
EMM	3.66	3.64	3.88	3.75	3.69	3.77	3.72	4.10	3.72	3.57	3.55
SE	.15	.15	.15	.16	.15	.09	.09	.08	.08	.10	.10
Likeability of the influencer	F(4, 277) = 1.34, $p = .26$					F(1, 247) = 3.64, $p = .06$		F(1, 306) = 17.68, $p < .001$		F(1, 282) = 2.30, $p = .13$	
EMM	4.15	4.21	4.58†	4.04	4.33	4.79	4.48	4.98	4.41	5.37	5.11
SE	.18	.17	.18	.18	.17	.12	.12	.09	.10	.12	.12
Conditions						**Without ER**	**With ER**	**Not disclosed**	**Disclosed**	**Not disclosed**	**Disclosed**
Persuasion Knowledge						F(1, 247) = .13, $p = .72$		F(1, 306) = 9.54, $p < .01$		F(1, 282) = 3.54, $p = .06$	
EMM						5.44	5.39	5.68	6.01	5.17	5.47
SE						.11	.10	.08	.08	.11	.11
Trustworthiness of the Post						F(1, 247) = 4.67, $p < .05$		F(1, 306) = .00, $p = .98$		F(1, 282) = .45, $p = .50$	
EMM						4.43	4.76	4.49	4.50	4.43	4.32
SE						.11	.11	.10	.10	.13	.12

Constructs	Study 1				Study 1b		Study 2		Study 3	
					Without ER	With ER	Not disclosed	Disclosed	Not disclosed	Disclosed
Brand Evaluation					F(1, 247) = 1.53, p = .22		F(1, 306) = .03, p = .86		F(1, 282) = .43, p = .52	
EMM					3.67	3.83	3.92	3.90	3.52	3.60
SE					.09	.09	.08	.08	.10	.10
Likeability of the influencer					F(1, 247) = 1.54, p = .22		F(1, 306) = .05, p = .82		F(1, 282) = .001, p = .98	
EMM					4.53	4.73	4.68	4.71	5.24	5.24
SE					.12	.11	.10	.10	.12	.12

Studies	Study 1b				Study 2				Study 3			
	Nano influencer		Mega influencer		Nano influencer		Mega influencer		Nano influencer		Mega influencer	
Conditions	Without ER	With ER	Without ER	With ER	Not disclosed	Dis-closed	Not disclosed	Dis-closed	Not disclosed	Dis-closed	Not disclosed	Dis-closed
Persuasion Knowledge	F(1, 247) = .07, p = .80				F(1, 306) = .02, p = .90				F(1, 282) = .71, p = .40			
EMM	5.20	5.11	5.69	5.67	5.54	5.85	5.82	6.16	4.89	5.31	5.46	5.62
SE	.15	.14	.14	.15	.10	.11	.11	.11	.16	.15	.16	.16
Post Trustwor-thiness	F(1, 247) = 1.54, p = .22				F(1, 306) = .09, p = .77				F(1, 282) = .22, p = .64			
EMM	4.47	5.00	4.38	4.52	4.68	4.72	4.31	4.27	4.49	4.29	4.38	4.34
SE	.16	.15	.15	.16	.14	.14	.15	.14	.18	.17	.18	.18
Brand Evaluation	F(1, 247) = .12, p = .73				F(1, 306) = .30, p = .58				F(1, 282) = .76, p = .38			
EMM	3.67	3.87	3.67	3.78	4.08	4.12	3.76	3.68	3.46	3.67	3.57	3.54
SE	.13	.12	.13	.13	.11	.12	.12	.11	.14	.13	.14	.14
Likeability of the influencer	F(1, 247) = .08, p = .77				F(1, 306) = .00, p = 1.00				F(1, 282) = .53, p = .47			
EMM	4.71	4.87	4.35	4.60	4.96	4.99	4.39	4.42	5.30	5.43	5.17	5.05
SE	.17	.16	.16	.17	.13	.14	.14	.14	.17	.17	.17	.17

Note.- EMM = estimated marginal mean, SE = standard error, ER = engagement rate, significant differences based on simple contrasts with nano influencer as reference category with * at the $p < .05$ and ** at the $p < .01$ significance level

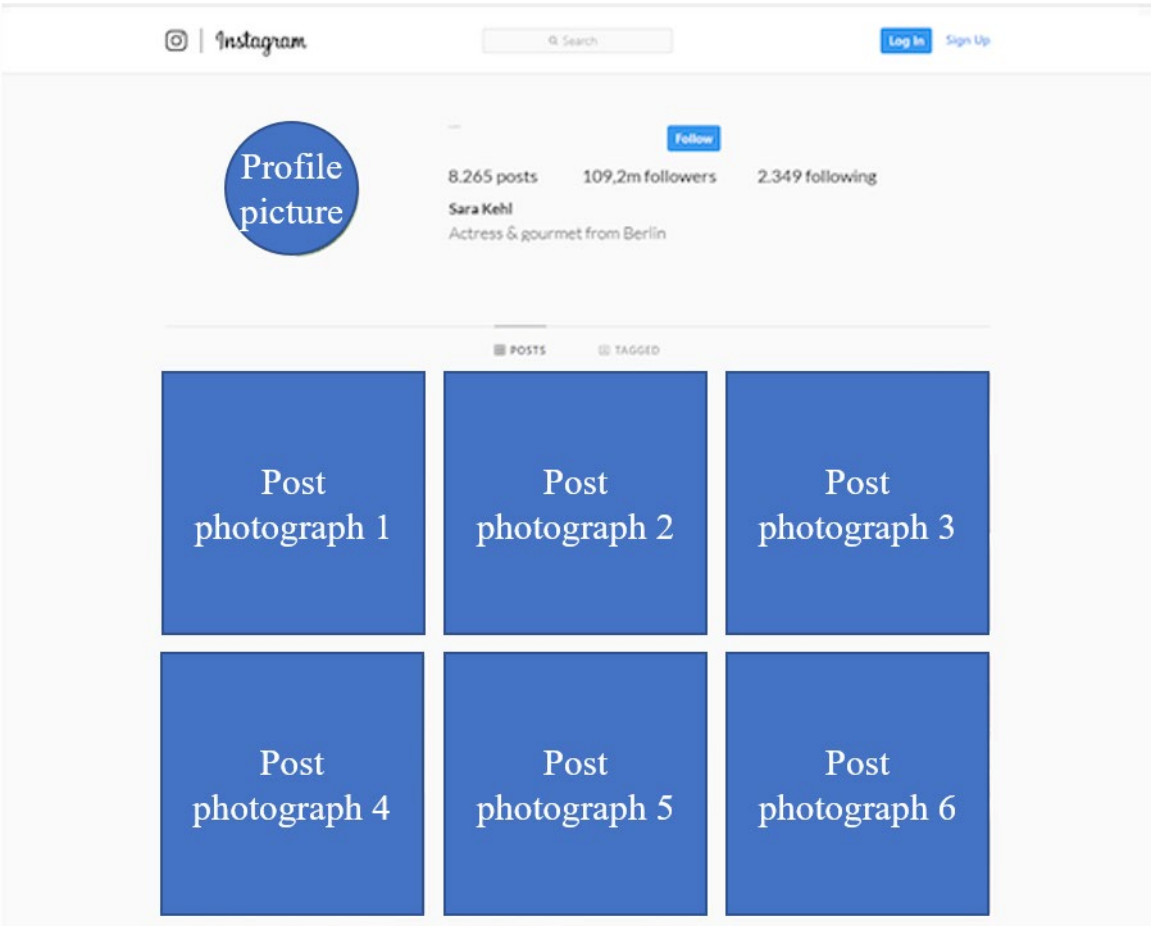
Web Appendix B. Additional Information on Study 1a

Stimuli description

Celebrity influencer

Sara Kehl is a very famous actress from Berlin. She is also known from Hollywood movies. Sara was famous even before social media existed. She maintains an Instagram profile on which she shares photos and posts. She enjoys over a hundred million followers from all over the world who follow her daily life. On Sara's Instagram profile you will mainly find photos from her everyday life as an actress as well as her private life. She also uploads a lot of photos from the food and indulgence area as it is her hobby. Below you can see Sara Kehl's Instagram profile. Please look carefully at the profile.

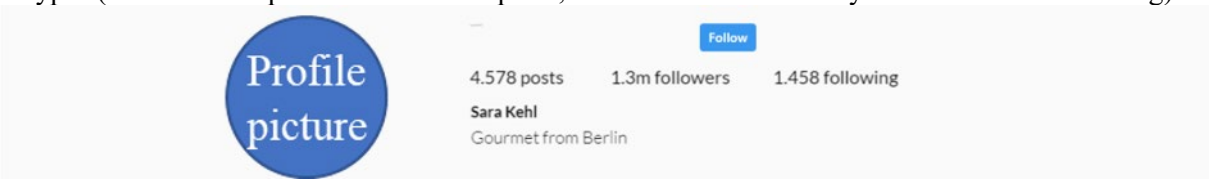
Below you find a mockup of the Instagram profile we showed for the fictitious influencer Sara Kehl. The picture that we used for the profile can be accessed via the following link: Profile picture of Sara Kehl For the post photographs, we used neutral pictures related to food and indulgence (i.e., no faces or branded products). Examples can be found via the following links: Photo 1, Photo 2, Photo 3, Photo 4 (please consult Web Appendix F for all detailed links of the photographs that we used; for requests of the stimulus material including the photographs, please contact the authors of this manuscript).



Mega influencer

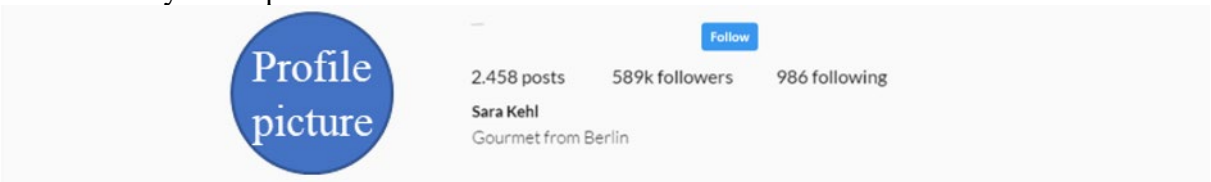
Sara Kehl is a very famous Instagram influencer from Berlin. She maintains an Instagram profile on which she shares photos and posts. She became famous through her Instagram profile. She enjoys over a million followers from all over the world who follow her daily life. On Sara's Instagram profile you will mainly find photos from her private life. She also uploads a lot of photos from the food and indulgence area as it is her hobby. Below you can see Sara Kehl's Instagram profile. Please look carefully at the profile.

In this Web Appendix, we only show the upper part of Sara Kehl's profile for the different influencer types (where we adapted the number of posts, followers and how many others she was following).



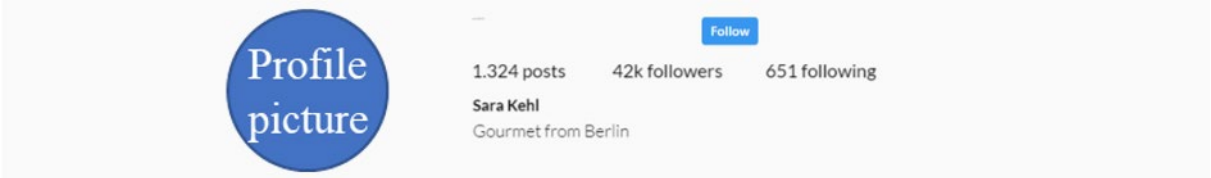
Macro influencer

Sara Kehl is a successful influencer from Berlin. She maintains an Instagram profile on which she shares photos and posts. She enjoys several hundred thousand followers, who are mainly from Berlin and the surrounding area and who follow her daily life. On Sara's Instagram profile you will mainly find photos from her private life. She also uploads a lot of photos from the food and indulgence area as it is her hobby. Below you can see Sara Kehl's Instagram profile. Please look carefully at the profile.



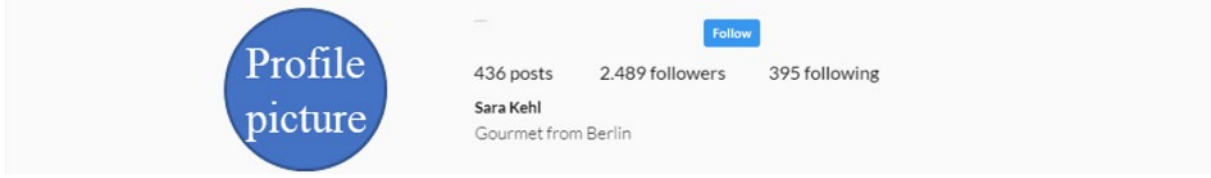
Micro influencer

Sara Kehl comes from Berlin and maintains an Instagram profile on which she shares photos and posts. She enjoys tens of thousands of followers from Berlin who follow her life and value her opinion. On Sara's Instagram profile you will mainly find photos from her private life. She also uploads a lot of photos from the food and indulgence area as it is her hobby. Below you can see Sara Kehl's Instagram profile. Please look carefully at the profile.

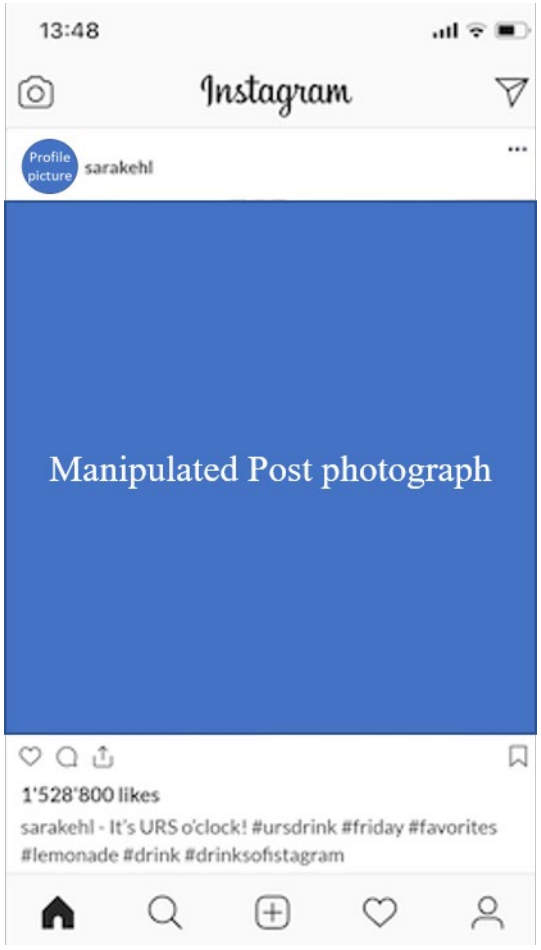


Nano influencer

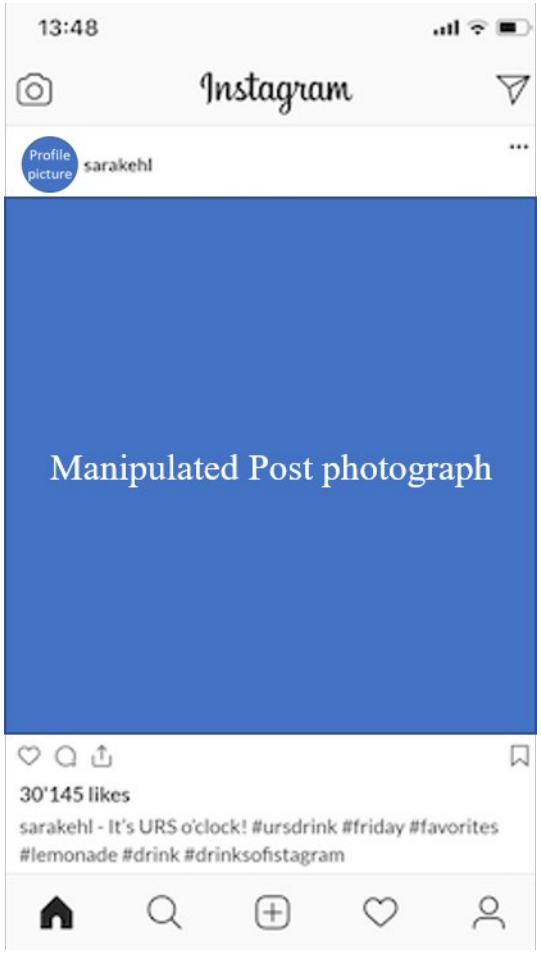
Sara Kehl comes from Berlin and maintains an Instagram profile on which she shares photos and posts. She has a little over two thousand followers. Most of them are her friends and acquaintances. On Sara's Instagram profile you will mainly find photos from her private life. She also uploads a lot of photos from the food and indulgence area as it is her hobby. Below you can see Sara Kehl's Instagram profile. Please look carefully at the profile.



Celebrity influencer post



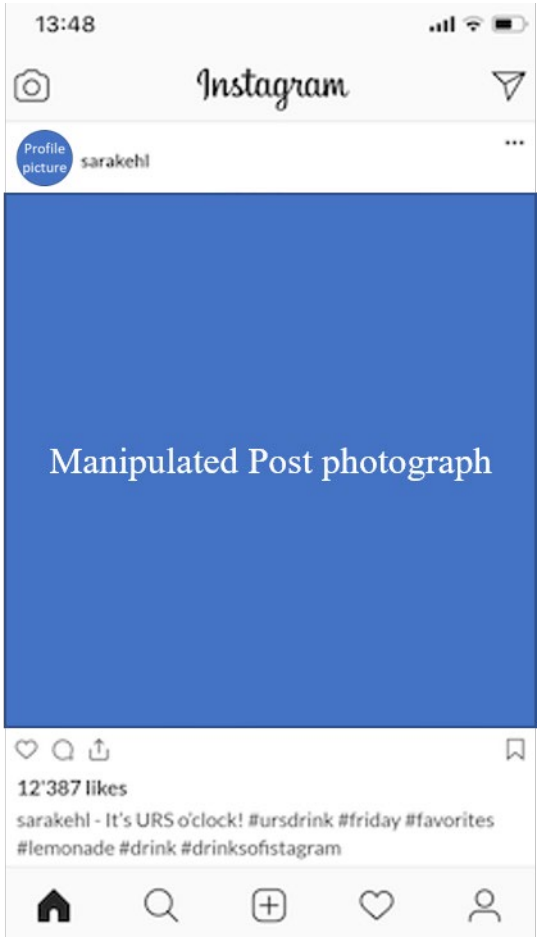
Mega influencer post



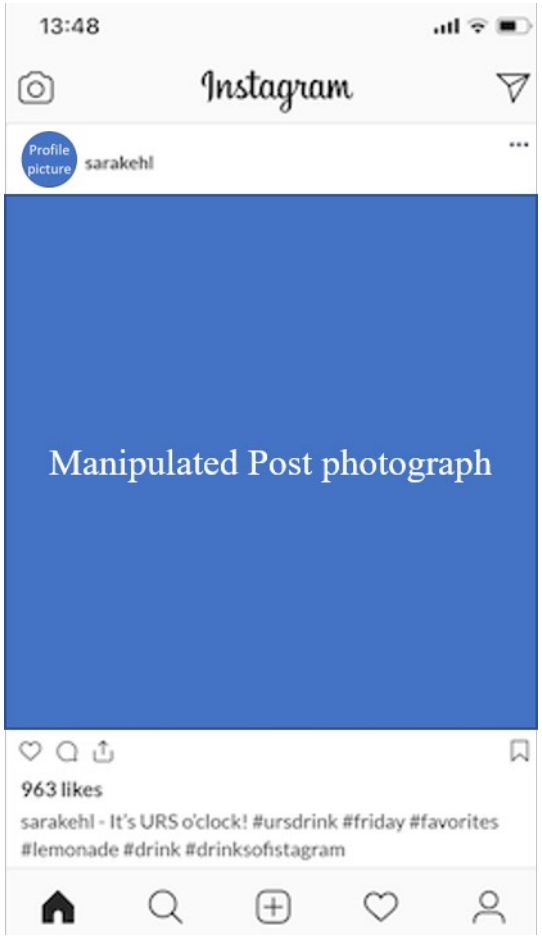
Macro influencer post

The picture used in the manipulated post can be accessed here

Micro influencer post



Nano influencer post



Description of Pretest for Study 1a

We pretested the stimuli used in Study 1a (see the detailed scenarios above) with 157 Western European consumers (56% female; M_{age} = 36.33 years) from the Qualtrics online panel. The pretest used the same screening questions as in Study 1a (having an Instagram account, Instagram usage frequency, and affinity for food-related topics). Participants then saw an Instagram profile of Sara Kehl along with a descriptive text of her, followed by her Instagram post. Participants then completed the manipulation check (using the same measures as in Study 1a) and their demographics.

Manipulation Check. To test whether participants perceived the influencer types as intended, we applied a Pearson's chi-square test for the measure capturing the overall description of the influencer. There was a significant association found between influencer type and the assessment of the overall descriptions ($\chi^2(20) = 309.73$, $p < .001$). Furthermore, z-tests that compare the proportion of the total frequency of the respective column in a set row against the proportion of the total frequency to the other columns that fall into the same row indicated that the proportions that selected the correct statements for the respective influencer were significantly different (indicated by a subscript letter that is different from the other columns within the same row) (see Table B.1).

Manipulation Checks

Table B.1. *Assessment of influencer type based on influencers description (Pretest for Study 1a).*

Influencer type	Sara Kehl is from Berlin. She has just over two thousand followers, who are mainly from her circle of friends and acquaintances and follow her daily life	Sara Kehl is from Berlin. She has tens of thousands of followers, mostly from Berlin, who follow her daily life.	Sara Kehl is a successful influencer from Berlin. She has several hundred thousand followers, mainly from Berlin and the surrounding area, who follow her daily life.	Sarah Kehl is a very famous Instagram influencer from Berlin. She has over a million followers from all over the world who follow her daily life.	Sara Kehl is a very famous actress from Berlin. She has over a hundred million followers from all over the world who follow her daily life.	None of the above.	Total
Nano influencer	29_{b} (93.5%)	0_{a} (0.0 %)	1_{a} (3.2 %)	0_{a} (0.0%)	1_{a} (3.2%)	0_{a} (0.0 %)	31 (19.7%)
Micro influencer	$2_{a, b}$ (6.3%)	23_{c} (71.9%)	$4_{a, b}$ (12.5%)	1_{a} (3.1%)	0_{a} (0.0%)	2_{b} (6.3%)	32 (20.4%)
Macro influencer	2_{a} (6.1%)	3_{a} (9.1%)	23_{b} (69.7%)	0_{a} (0.0%)	1_{a} (3.0%)	4_{b} (12.1%)	33 (21.0%)
Mega influencer	1_{a} (3.7%)	2_{a} (7.4%)	5_{a} (18.5%)	19_{b} (70.4%)	0_{a} (0.0%)	0_{a} (0.0%)	27 (17.2%)
Celebrity influencer	2_{c} (5.9%)	$3_{b, c}$ (8.8%)	2_{c} (5.9%)	7_{b} (20.6%)	19_{a} (55.9%)	$1_{b, c}$ (2.9%)	34 (21.7%)
Total							157 (100%)
Correct recall of influencer type [d]			113 (72.0%)				

Note.- Percentages in parentheses are the proportions of the cell compared to the other columns in the same row. In the column *Total*, the percentages in parentheses reflect the proportion of the total frequency. Subscript letters that are different from the other columns within the same row mark that the number is significantly different from the numbers of the other columns in the same row at the .05 level. [d] Those participants who correctly identified the matching description to the influencer.

Table B.2. *Assessment of influencer type based on influencers' description (Study 1a).*

Influencer type	Sara Kehl is from Berlin. She has just over two thousand followers, who are mainly from her circle of friends and acquaintances and follow her daily life.	Sara Kehl is from Berlin. She has tens of thousands of followers, mostly from Berlin, who follow her daily life.	Sara Kehl is a successful influencer from Berlin. She has several hundred thousand followers, mainly from Berlin and the surrounding area, who follow her daily life.	Sarah Kehl is a very famous Instagram influencer from Berlin. She has over a million followers from all over the world who follow her daily life.	Sara Kehl is a very famous actress from Berlin. She has over a hundred million followers from all over the world who follow her daily life.	None of the above.	Total
Nano influencer	47_{c} (85.5%)	$2_{a, b}$ (3.6 %)	$3_{a, b}$ (5.5 %)	0_{a} (0%)	0_{a} (0.0%)	3_{b} (5.5 %)	55 (19.5%)
Micro influencer	6_{a} (10.2%)	44_{b} (74.6%)	4_{a} (6.8%)	2_{a} (3.4%)	1_{a} (1.7%)	2_{a} (3.4%)	59 (20.9%)
Macro influencer	3_{a} (5.5%)	13_{a} (23.6%)	35_{b} (63.6%)	1_{a} (1.8%)	1_{a} (1.8%)	2_{a} (3.6%)	55 (19.5%)
Mega influencer	0_{b} (0.0%)	$7_{a, b}$ (13%)	$4_{a, b}$ (7.4%)	40_{c} (74.1%)	$1_{a, b}$ (1.9%)	2_{a} (3.7%)	54 (19.1%)
Celebrity influencer	1_{c} (1.7%)	$4_{b, c}$ (6.8%)	$5_{b, c}$ (8.5%)	11_{b} (18.6%)	34_{a} (57.6%)	4_{b} (6.8%)	59 (20.9%)
Total							282 (100%)
Correct recall of influencer type [d]			200 (70.9%)				

Note.- Percentages in parentheses are the proportions of the cell compared to the other columns in the same row. In the column *Total*, the percentages in parentheses reflect the proportion of the total frequency. Subscript letters that are different from the other columns within the same row mark that the number is significantly different from the numbers of the other columns in the same row at the .05 level. [d] Those participants who correctly identified the matching description to the influencer.

Serial Mediation

Table B.3. *Regression coefficients, standard errors, and model summary information for brand evaluation serial mediator model for Study 1a*

		Persuasion knowledge (M_1)					Trustworthiness of the post (M_2)					Brand evaluation (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	4.95	.21	23.72	.00	i_2	6.00	.33	18.31	.00	i_3	.84	.40	2.10	.04
Micro vs. nano	a_1	.49	.28	1.73	.08	d_1	-.01	.24	-.05	.96	c'_1	-.01	.18	-.08	.94
Macro vs. nano	a_2	.66	.26	2.56	.01	d_2	.29	.24	1.20	.23	c'_2	.08	.20	.43	.67
Mega vs. nano	a_3	.65	.26	2.48	.01	d_3	.09	.22	.40	.69	c'_3	.05	.20	.24	.81
Celebrity vs. nano	a_4	.70	.26	2.70	.01	d_4	.18	.23	.81	.42	c'_4	-.05	.17	-.28	.78
Macro vs. micro	a_5	.17	.24	.72	.47	d_5	.30	.27	1.13	.26	c'_5	.10	.19	.52	.61
Mega vs. micro	a_6	.17	.25	.68	.50	d_6	.10	.25	.40	.69	c'_6	.06	.20	.32	.75
Celebrity vs. micro	a_7	.21	.24	.88	.38	d_7	.19	.25	.77	.44	c'_7	-.03	.16	-.21	.84
Mega vs. macro	a_8	-.005	.22	-.02	.98	d_8	-.20	.26	-.77	.44	c'_8	-.03	.21	-.16	.87
Celebrity vs. macro	a_9	.04	.21	.18	.86	d_9	-.11	.26	-.42	.68	c'_9	-.13	.18	-.73	.47
Celebrity vs. mega	a_{10}	.04	.22	.20	.84	d_{10}	.09	.25	.38	.71	c'_{10}	-.10	.19	-.50	.62
Persuasion knowledge (M_1)		—	—	—	—	d_{11}	-.37	.06	-6.01	.00	b_2	.17	.05	3.33	.00
Trustworthiness of the post (M_2)			—	—	—		—	—	—	—	b_3	.47	.05	9.36	.00
		R^2 = .04, F(4, 277) = 2.23, p = .07					R^2 = .12, F(5, 276) = 7.72, p < .001					R^2 = .29 F(6, 275) = 15.88, p < .001			

Relative total effects	Coeff.	SE	LLCI	ULCI
Micro vs. nano	-.02	.21	-.44	.39
Macro vs. nano	.22	.21	-.19	.63
Mega vs. nano	.09	.24	-.39	.56
Celebrity vs. nano	.04	.19	-.35	.42
Macro vs. micro	.24	.21	-.18	.66
Mega vs. micro	.11	.24	-.37	.59
Celebrity vs. micro	.06	.20	-.33	.45
Mega vs. macro	-.13	.24	-.61	.35
Celebrity vs. macro	-.18	.19	-.57	.20
Celebrity vs. mega	-.05	.23	-.51	.40

Relative direct effects	Coeff.	SE	LLCI	ULCI
Micro vs. nano	-.01	.18	-.34	.36
Macro vs. nano	.08	.20	-.27	.47
Mega vs. nano	.05	.20	-.33	.45
Celebrity vs. nano	-.05	.17	-.38	.29
Macro vs. micro	.10	.19	-.27	.47
Mega vs. micro	.06	.20	-.33	.45
Celebrity vs. micro	-.03	.16	-.35	.28
Mega vs. macro	-.03	.21	-.46	.39
Celebrity vs. macro	-.13	.18	-.48	.22
Celebrity vs. mega	-.10	.19	-.47	.28

Relative indirect effects	Influencer typ - persuasion knowledge - brand evaluation				Influencer type - trustworthiness - brand evaluation				Influencer type - persuasion - trust-worthiness - brand evaluation			
	Coeff.	SE	LLCI	ULCI	Coeff.	SE	LLCI	ULCI	Coeff.	SE	LLCI	ULCI
Micro vs. nano	.08	.05	-.01	.19	-.01	.11	-.23	.21	-.08	.05	-.19	.01
Macro vs. nano	.11	.06	.02	.24	.14	.12	-.08	.37	-.12	.05	-.22	-.03
Mega vs. nano	.11	.06	.02	.24	.04	.11	-.17	.25	-.11	.05	-.23	-.02
Celebrity vs. nano	.12	.06	.02	.25	.09	.11	-.12	.29	-.12	.05	-.23	-.03
Macro vs. micro	.03	.04	-.05	.13	.14	.13	-.09	.41	-.03	.04	-.12	.05
Mega vs. micro	.03	.05	-.05	.13	.05	.12	-.18	.29	-.03	.04	-.12	.05
Celebrity vs. micro	.04	.05	-.04	.14	.09	.12	-.14	.33	-.04	.04	-.13	.04
Mega vs. macro	-.001	.04	-.08	.08	-.10	.12	-.35	.14	.001	.04	-.08	.08
Celebrity vs. macro	.01	.04	-.07	.09	-.05	.12	-.31	.19	-.01	.04	-.08	.07
Celebrity vs. mega	.01	.04	-.07	.09	.04	.12	-.19	.27	-.01	.04	-.08	.07

Note.— Regression Coefficients are unstandardized. PROCESS models were calculated with the HC3 estimator, which means that all standard errors for continuous outcome models were based on the hc3 estimator. Level of confidence for all confidence intervals is 95%.

Table B.4. *Regression coefficients, standard errors, and model summary information for influencer likeability serial mediator model for Study 1a*

		Persuasion knowledge (M_1)					Trustworthiness of the post (M_2)					Influencer likeability (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	4.95	.21	23.72	.00	i_2	6.00	.33	18.31	.00	i_3	.82	.42	1.97	.05
Micro vs. nano	a_1	.49	.28	1.73	.08	d_1	-.01	.24	-.05	.96	c'_1	.13	.19	.65	.51
Macro vs. nano	a_2	.66	.26	2.56	.01	d_2	.29	.24	1.20	.23	c'_2	.32	.20	1.64	.10
Mega vs. nano	a_3	.65	.26	2.48	.01	d_3	.09	.22	.40	.69	c'_3	-.09	.19	-.48	.63
Celebrity vs. nano	a_4	.70	.26	2.70	.01	d_4	.18	.23	.81	.42	c'_4	.14	.19	.76	.45
Macro vs. micro	a_5	.17	.24	.72	.47	d_5	.30	.27	1.13	.26	c'_5	.19	.20	.99	.32
Mega vs. micro	a_6	.17	.25	.68	.50	d_6	.10	.25	.40	.69	c'_6	-.22	.20	-1.11	.27
Celebrity vs. micro	a_7	.21	.24	.88	.38	d_7	.19	.25	.77	.44	c'_7	.02	.19	.09	.93
Mega vs. macro	a_8	-.005	.22	-.02	.98	d_8	-.20	.26	-.77	.44	c'_8	-.41	.20	-2.10	.04
Celebrity vs. macro	a_9	.04	.21	.18	.86	d_9	-.11	.26	-.42	.68	c'_9	-.18	.19	-.93	.36
Celebrity vs. mega	a_{10}	.04	.22	.20	.84	d_{10}	.09	.25	.38	.71	c'_{10}	.24	.19	1.24	.22
Persuasion knowledge (M_1)		—	—	—	—	d_{11}	d_{11}	.06	-6.01	.00	b_2	.12	.05	2.29	.02
Trustworthiness of the post (M_2)			—	—	—		—	—	—	—	b_3	.65	.05	13.03	.00
		R^2 = .04, F(4, 277) = 2.23, p = .07					R^2 = .12, F(5, 276) = 7.72, p < .001					R^2 = .43 F(6, 275) = 32.67, p < .001			

Relative total effects	Coeff.	SE	LLCI	ULCI
Micro vs. nano	.06	.24	-.41	.53
Macro vs. nano	.43	.22	-.01	.87
Mega vs. nano	-.11	.27	-.64	.41
Celebrity vs. nano	.18	.25	-.31	.67
Macro vs. micro	.37	.23	-.08	.82
Mega vs. micro	-.17	.27	-.71	.36
Celebrity vs. micro	.12	.25	-.38	.62
Mega vs. macro	-.54	.26	-1.06	-.03
Celebrity vs. macro	-.25	.24	-.73	.22
Celebrity vs. mega	.29	.28	-.26	.85

Relative direct effects	Coeff.	SE	LLCI	ULCI
Micro vs. nano	.13	.19	-.26	.51
Macro vs. nano	.32	.20	-.06	.70
Mega vs. nano	-.09	.19	-.48	.29
Celebrity vs. nano	.14	.19	-.23	.52
Macro vs. micro	.19	.20	-.19	.58
Mega vs. micro	-.22	.20	-.61	.17
Celebrity vs. micro	.02	.19	-.36	.40
Mega vs. macro	-.41	.20	-.80	-.03
Celebrity vs. macro	-.18	.19	-.55	.20
Celebrity vs. mega	.24	.19	-.14	.62

Relative indirect effects	Influencer typ - persuasion knowledge – influencer likeability				Influencer type - trustworthiness - influencer likeability				Influencer type - persuasion - trustworthiness - influencer likeability			
	Coeff.	SE	LLCI	ULCI	Coeff.	SE	LLCI	ULCI	Coeff.	SE	LLCI	ULCI
Micro vs. nano	.06	.04	-.01	.16	-.01	.15	-.30	.29	-.12	.07	-.26	.02
Macro vs. nano	.08	.05	.003	.20	.19	.16	-.11	.51	-.16	.07	-.30	-.04
Mega vs. nano	.08	.05	.003	.20	.06	.15	-.22	.35	-.16	.07	-.31	-.03
Celebrity vs. nano	.09	.05	.01	.20	.12	.15	-.16	.41	-.17	.07	-.31	-.05
Macro vs. micro	.02	.03	-.03	.11	.20	.17	-.14	.54	-.04	.06	-.17	.07
Mega vs. micro	.02	.03	-.04	.10	.07	.16	-.25	.39	-.04	.06	-.17	.07
Celebrity vs. micro	.03	.04	-.03	.11	.13	.16	-.20	.45	-.05	.06	-.18	.06
Mega vs. macro	-.001	.03	-.06	.05	-.13	.17	-.47	.20	.001	.05	-.11	.10
Celebrity vs. macro	.005	.03	-.05	.06	-.07	.17	-.42	.26	-.01	.05	-.11	.09
Celebrity vs. mega	.01	.03	-.05	.07	.06	.16	-.25	.37	-.01	.05	-.11	.10

Note.— Regression Coefficients are unstandardized. PROCESS models were calculated with the HC3 estimator, which means that all standard errors for continuous outcome models were based on the hc3 estimator. Level of confidence for all confidence intervals is 95%.

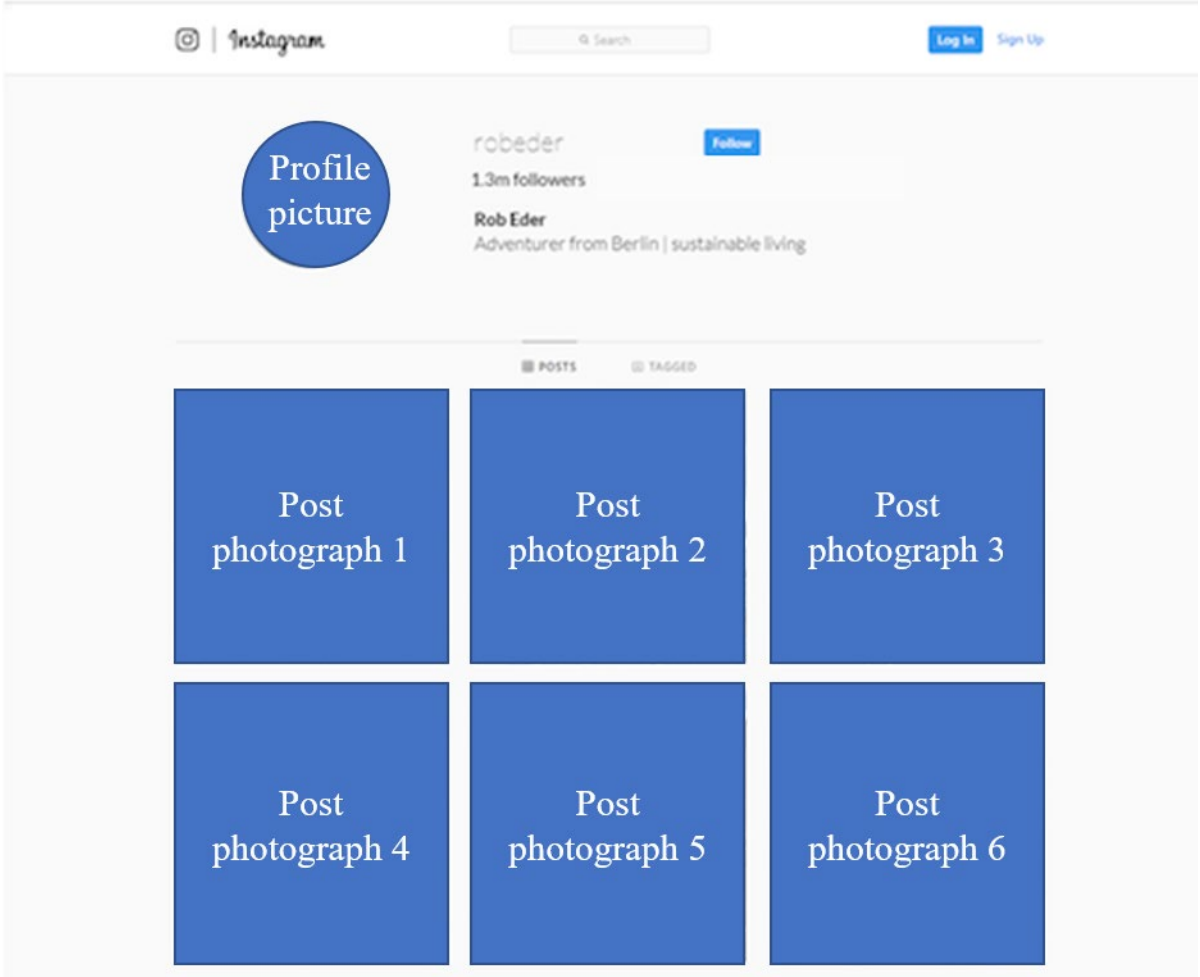
Web Appendix C. Additional Information on Study 1b

Stimuli description

Mega influencer

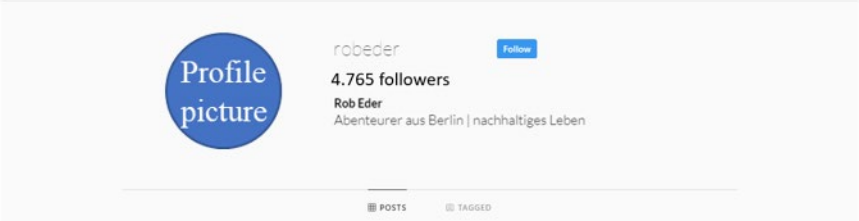
Rob Eder is a very famous Instagram influencer from Berlin. He maintains an Instagram profile on which he shares photos and posts. He became famous through his Instagram profile. He enjoys over a million followers from all over the world who follow his daily life. On Rob's Instagram profile you will mainly find photos from his private life. Rob is committed to the environment and loves to hike. Below you can see Rob Eder's Instagram profile. Please look carefully at the profile.

Below you find a mockup of the Instagram profile we showed for the fictitious influencer Rob Eder. The picture that we used for the profile can be accessed via the following link: Profile picture of Rob Eder For the post photographs, we used neutral pictures related to sustainability and outdoor activities (i.e., no faces or branded products). Examples can be found via the following links: Photo 1, Photo 2, Photo 3, Photo 4, Photo 5, Photo 6 (please consult Web Appendix F for all detailed links of the photographs that we used).



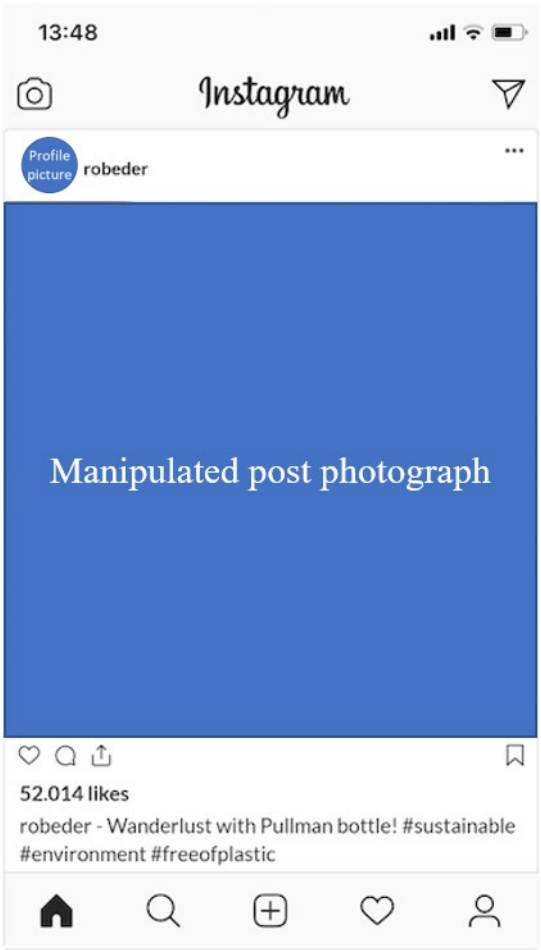
Nano influencer

Rob Eder is from Berlin and maintains an Instagram profile on which he shares photos and posts. Please take a moment and imagine that you have been friends with Rob for some time. You follow him on Instagram and look at his posts. He has almost five thousand followers. Most of them are from Berlin and many, like you, are his friends and acquaintances. On Rob's Instagram profile you will mainly find photos from his private life. Rob is committed to the environment and loves to hike. Below you can see Rob Eder's Instagram profile. Please look carefully at the profile.
In this Web Appendix, we only show the upper part of Rob Eder's profile for the nano influencer (where we adapted the number of posts, followers and how many others he was following).

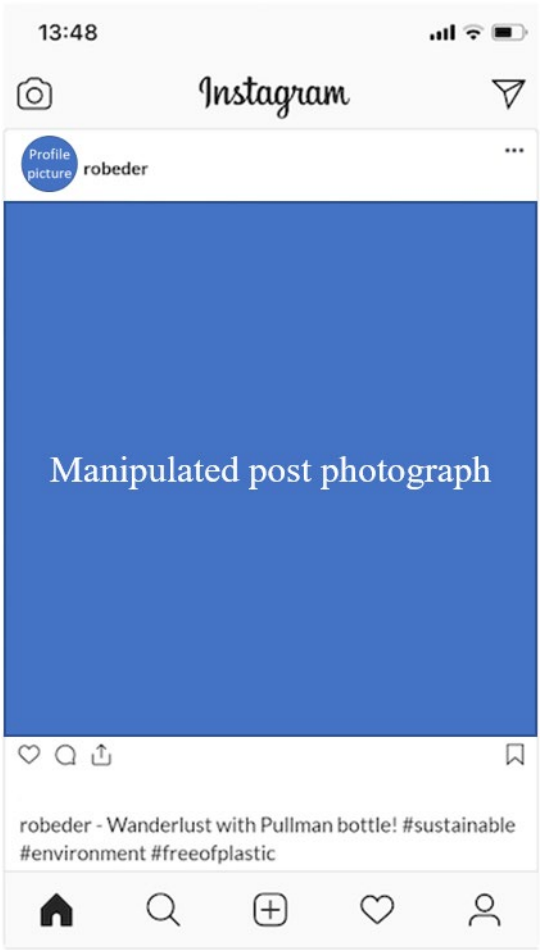


Mega influencer

With engagement rate



Without engagement rate



The picture used in the manipulated post can be accessed here

Nano influencer

With engagement rate

Without engagement rate

Description of Pretest for Studies 1b and 2

We pretested the stimuli used in Studies 1b and 2 (see the detailed scenarios above and the additional information for the scenarios of Study 2 in Web Appendix D) with 63 Western European consumers (48% female; M_{age} = 34.9 years) from the Qualtrics online panel. The pretest used the same screening questions as in Study 1b and 2 (having an Instagram account, Instagram usage frequency, and affinity for sustainability and outdoor activities topics). Participants then saw an Instagram profile of Rob Eder along with a descriptive text of him, followed by his Instagram post (based on the version of the scenarios of Study 2). Participants then completed the manipulation checks for influencer type and sponsorship disclosure (using the same measures as in Study 2) and their socio-demographics.

Manipulation check. To test whether our manipulation of influencer type and sponsorship disclosure worked as intended, we used a series of full-factorial models (see Tables C.1 and C.2). In the first log-linear analysis, we included influencer type and sponsorship disclosure as factors and the overall description of the influencer serving as a manipulation check measure. First, the one-way and higher-order effects were significant (Pearson $\chi2(23) = 210.91$, $p < .001$). Importantly, influencer type and influencer type description were significantly associated ($\chi2(5) = 61.81$, $p < .001$), which means that our manipulation worked as intended (see Table C.1). Further, we assessed whether participants imagined to know the influencer personally with a full-factorial ANOVA. This analysis revealed those assigned to the nano influencer imagined that they knew the influencer personally (M = 4.03, SE = .31) whereas those assigned to the mega influencer did not (M = 2.08, SE = .31; $F(1, 59) = 19.95$, $p < .001$).

To test whether our manipulation of the disclosure of the material relationship was perceived as intended, we again used a full-factorial model in our log linear analysis with influencer type and sponsorship disclosure as factors and the items whether or not the post was marked as an advertisement or contained #advertising as a manipulation check measures (see Table C.2). The one-way and higher-order effects were significant (Pearson $\chi2(15) = 101.83$, $p < .001$). Importantly, disclosing the sponsorship and whether or not the post was perceived to be marked as advertisement ($\chi2(1) = 29.34$, $p < .001$) or contained #advertising ($\chi2(1) = 39.48$, $p < .001$) were both significantly associated, providing evidence that our manipulation worked as expected. Specifically, 84.4% of participants in the disclosure condition correctly recalled that the post was marked as advertisement and 96.9% accurately indicated that the post contained #advertising.

Manipulation Checks

Table C.1. *Assessment of influencer type based on influencer description (Pretest for Studies 1b and 2)*

Influencer type	Sponsorship disclosure	Rob Eder is from Berlin. He has fewer than ten thousand followers, mostly from his circle of friends and acquaintances, who follow his daily life.	Rob Eder is from Berlin. He has tens of thousands of followers, mostly from Berlin, who follow his daily life.	Rob Eder is a successful influencer from Berlin. He has several hundred thousand followers, mainly from Berlin and the surrounding area, who follow his daily life.	Rob Eder is a very famous Instagram influencer from Berlin. He has over a million followers from all over the world who follow his daily life.	Rob Eder is a very famous actor from Berlin. He has over a hundred million followers from all over the world who follow his daily life.	None of the above.	Total
Nano influencer	No disclosure	13.5 (21.4%)	2.5 (4.0%)	1.5 (2.4%)	0.5 (0.8%)	0.5 (0.8%)	0.5 (0.8%)	19 (25.3%)
	Disclosure	12.5 (19.8%)	2.5 (4.0%)	0.5 (0.8%)	1.5 (2.4%)	0.5 (0.8%)	1.5 (2.4%)	19 (25.3%)
Mega influencer	No disclosure	1.5 (2.4%)	0.5 (0.8%)	0.5 (0.8%)	14.5 (23.0%)	0.5 (0.8%)	0.5 (0.8%)	18 (24.0%)
	Disclosure	1.5 (2.4%)	0.5 (0.8%)	0.5 (0.8%)	14.5 (23.0%)	0.5 (0.8%)	1.5 (2.4%)	19 (25.3%)
								75 (100%)
Correct recall of influencer type [a]			53 (70.7%)					

Note.- In the saturated models .5 was added to all observed cells. Percentages in parentheses are the proportions of the cell compared to the total frequency. [a] Those participants who correctly identified the matching description to the influencer.

Table C.2. *Assessment of the indication as advertisement based on the disclosure of the material relationship (Pretest for Studies 1b and 2)*

Influencer type	Sponsorship disclosure	The Instagram post of Rob Eder was marked as an advertisement.		Total	The Instagram post of Rob Eder contained #advertising.		Total
		Yes	No		Yes	No	
Nano influencer	No disclosure	3.5 (5.6%)	13.5 (21.4%)	17 (25.4%)	3.5 (5.6%)	13.5 (21.4%)	17 (25.4%)
	Disclosure	12.5 (19.8%)	4.5 (7.1%)	17 (25.4%)	16.5 (26.2%)	0.5 (0.8%)	17 (25.4%)
Mega influencer	No disclosure	3.5 (5.6%)	12.5 (19.8%)	16 (23.9%)	5.5 (8.7%)	10.5 (16.7%)	16 (23.9%)
	Disclosure	15.5 (24.6%)	1.5 (2.4%)	17 (25.4%)	15.5 (24.6%)	1.5 (2.4%)	17 (25.4%)
				67 (100%)			67 (100%)
Correct recall of sponsorship disclosure [a]		27 (84.4%)			31 (96.9%)		

Note. —In the saturated models .5 was added to all observed cells. Percentages in parentheses are the proportions of the cell compared to the total frequency. [a] Those participants in the disclosure condition who correctly assessed that the post was marked as advertisement or contained #advertising.

Table C.3. *Assessment of the influencer types based on influencer description for Study 1b*

Influencer type	Engagement rate	Rob Eder is a very famous actor from Berlin. He has over a hundred million followers from all over the world who follow his daily life.	Rob Eder is a very famous Instagram influencer from Berlin. He has over a million followers from all over the world who follow his daily life.	Rob Eder is a successful influencer from Berlin. He has several hundred thousand followers, mainly from Berlin and the surrounding area, who follow his daily life.	Rob Eder is from Berlin. He has tens of thousands of followers, mostly from Berlin, who follow his daily life.	Rob Eder is from Berlin. He has fewer than ten thousand followers, mostly from his circle of friends and acquaintances, who follow his daily life.	None of the above.	Total
Nano influencer	Absent	0.5 (0.2%)	1.5 (0.6%)	3.5 (1.4%)	5.5 (2.2%)	48.5 (19.3%)	0.5 (0.2%)	60.0 (22.8%)
	Present	0.5 (0.2%)	0.5 (0.2%)	4.5 (1.8%)	0.5 (0.2%)	62.5 (24.9%)	3.5 (1.4%)	72.0 (27.4%)
Mega influencer	Absent	1.5 (0.6%)	60.5 (24.1%)	3.5 (1.4%)	1.5 (0.6%)	0.5 (0.2%)	1.5 (0.6%)	69.0 (26.2%)
	Present	0.5 (0.2%)	56.5 (22.5%)	3.5 (1.4%)	0.5 (0.2%)	0.5 (0.2%)	0.5 (0.2%)	62.0 (23.6%)
								263 (100%)
Correct recall of influencer type [a]			226 (90.0%)					

Note. —In the saturated models .5 was added to all observed cells. Percentages in parentheses are the proportions of the cell compared to the total frequency. [a] Those participants who correctly identified the matching description to the influencer.

Conditional Serial Mediation

Table C.4. *Conditional indirect effects of influencer type on influencer likeability and brand evaluations through persuasion knowledge and trustworthiness of the post for Study 1b*

Predictor		**B**	**SE**	**t**	**p**
Mediator variable model with persuasion knowledge (M_1)					
$R^2 = .05$, $F(3, 247) = 4.50$, $p < .01$					
Constant	i_1	5.20	.18	29.31	.00
Influencer type (X)	a_1	.49	.22	2.20	.03
Engagement rate (W)	a_2	-.09	.23	-.39	.69
X x W	a_3	.08	.30	.26	.80
Mediator variable model with trustworthiness of the post (M_2)					
$R^2 = .17$, $F(2, 248) = 24.13$, $p < .001$					
Constant	i_1	6.99	.33	21.18	.00
Influencer type (X)	d_1	-.09	.15	-.59	.55
Persuasion knowledge (M_1)	d_2	-.43	.07	-6.64	.00
Dependent variable model (brand evaluation)					
$R^2 = .27$, $F(3, 247) = 25.00$, $p < .001$					
Constant	i_3	1.51	.44	3.45	.00
Influencer type (X)	b_1	.06	.12	.55	.58
Persuasion knowledge (M_1)	b_2	.03	.05	.69	.49
Trustworthiness of the post (M_2)	b_3	.44	.05	8.07	.00
Conditional effects of influencer type (X) at the two levels of engagement rate (W) through persuasion knowledge and trustworthiness of the post on brand evaluation					
Engagement rate		**Effect**	**SE**	**LLCI**	**ULCI**
Absent		-.09	.04	-.19	-.01
Present		-.11	.04	-.20	-.03
Dependent variable model (influencer likeability)					
$R^2 = .34$, $F(3, 247) = 32.91$, $p < .001$					
Predictor		**B**	**SE**	**t**	**p**
Constant	i_3	2.13	.52	4.09	.00
Influencer type (X)	b_1	-.13	.14	-.94	.35
Persuasion knowledge (M_1)	b_2	-.02	.06	-.36	.72
Trustworthiness of the post (M_2)	b_3	.58	.06	9.16	.00
Conditional effects of influencer type (X) at the two levels of engagement rate (W) through persuasion knowledge and trustworthiness of the post on influencer likeability					
Engagement rate		**Effect**	**SE**	**LLCI**	**ULCI**
Absent		-.12	.06	-.25	-.01
Present		-.14	.06	-.28	-.04

Note.— B = unstandardized regression coefficients; SE = standard error. PROCESS models were calculated with the HC3 estimator, which means that all standard errors for continuous outcome models were based on the hc3 estimator. Level of confidence for all confidence intervals is 95%.

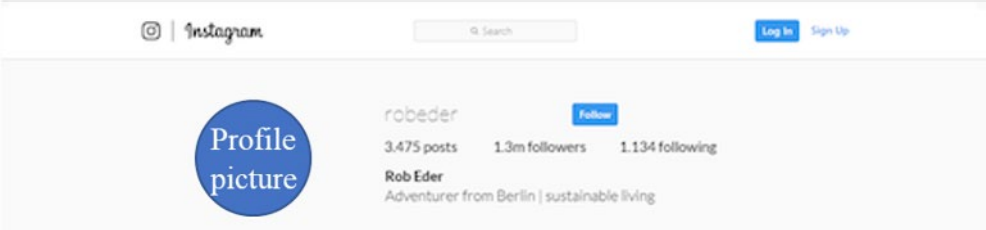
Web Appendix D. Additional Information on Study 2

Stimuli description

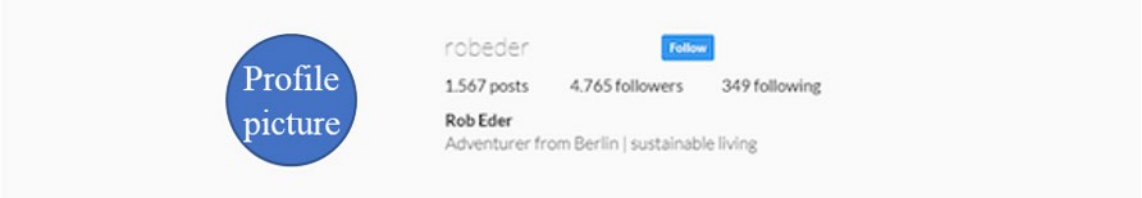
Study 2 used the same scenarios as Study 1b with the following adaptations. The profile information also contained the number of prior posts (nano: 1,567; mega: 3,475) and of people Rob Eder was following (nano: 349; mega: 1,134; see below). Furthermore, the posts were shown with engagement rate (nano: 2,685 likes, mega: 52,014 likes) and the one with sponsorship disclosure contained "#advertising" and "@Pullman" in the caption (see below).

Mega influencer

In this Web Appendix, we only show the upper part of Rob Eder's profile (where we adapted the number of posts, followers and how many others he was following).

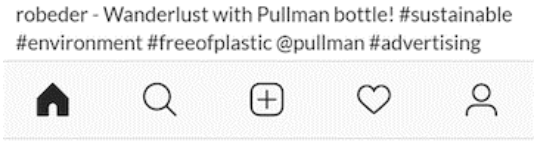


Nano influencer



Disclosure of sponsorship

In this Web Appendix, we only show the lower part of Rob Eder's post (where we added "#advertising" and "@Pullman" to manipulate sponsorship disclosure).



Manipulation Checks

Table D.1. *Assessment of the influencer types based on influencer description for Study 2*

Influencer type	Sponsorship disclosure	Rob Eder is from Berlin. He has fewer than ten thousand followers, mostly from his circle of friends and acquaintances, who follow his daily life.	Rob Eder is from Berlin. He has tens of thousands of followers, mostly from Berlin, who follow his daily life.	Rob Eder is a successful influencer from Berlin. He has several hundred thousand followers, mainly from Berlin and the surrounding area, who follow his daily life.	Rob Eder is a very famous Instagram influencer from Berlin. He has over a million followers from all over the world who follow his daily life.	Rob Eder is a very famous actor from Berlin. He has over a hundred million followers from all over the world who follow his daily life.	None of the above.	Total
Nano influencer	No disclosure	78.5 (25.3%)	5.5 (1.8%)	0.5 (0.2%)	1.5 (0.5%)	0.5 (0.5%)	0.5 (0.2%)	87 (27.0%)
	Disclosure	70.5 (22.7%)	4.5 (1.5%)	0.5 (0.5%)	1.5 (0.5%)	0.5 (0.5%)	1.5 (0.5%)	79 (24.5%)
Mega influencer	No disclosure	2.5 (0.8%)	2.5 (0.8%)	8.5 (2.7%)	59.5 (19.2%)	0.5 (0.5%)	1.5 (0.5%)	75 (23.3%)
	Disclosure	1.5 (0.5%)	3.5 (1.1%)	6.5 (2.1%)	67.5 (21.8%)	0.5 (0.5%)	1.5 (0.5%)	81 (25.2%)
Total								322 (100%)
Correct recall of influencer type			274 (85.7%)					

Note. —In the saturated models .5 was added to all observed cells. Percentages in parentheses are the proportions of the cell compared to the total frequency. [a] Those participants who correctly identified the matching description to the influencer.

Table D.2*. Assessment of the indication as advertisement based on the disclosure of the material relationship for Study 2*

Influencer type	Sponsorship disclosure	The Instagram post of Rob Eder was marked as an advertisement.		Total	The Instagram post of Rob Eder contained #advertising.		Total
		Yes	No		Yes	No	
Nano influencer	No disclosure	9.5 (3.1%)	75.5 (24.4%)	85 (27.1%)	21.5 (6.9%)	63.5 (20.5%)	85 (27.1%)
	Disclosure	44.5 (14.4%)	32.5 (10.5%)	77 (24.5%)	61.5 (19.8%)	15.5 (5.0%)	77 (24.5%)
Mega influencer	No disclosure	10.5 (3.4%)	62.5 (20.2%)	73 (23.3%)	19.5 (6.3%)	53.5 (17.3%)	73 (23.3%)
	Disclosure	56.5 (18.2%)	22.5 (7.3%)	79 (25.2%)	66.5 (21.5%)	12.5 (4.0%)	79 (25.2%)
Total				314 (100%)			314 (100%)
Correct recall of sponsorship disclosure [a]		100 (64.9%)			127 (82.5%)		

Note. —In the saturated models .5 was added to all observed cells. Percentages in parentheses are the proportions of the cell compared to the total frequency.
[a] Those participants in the disclosure condition who correctly assessed that the post was marked as advertisement or contained #advertising.

Conditional Serial Mediation

Table D.3. *Conditional indirect effects of influencer type on influencer likeability and brand evaluations through persuasion knowledge and trustworthiness of the post for Study 2*

Predictor		**B**	**SE**	**t**	**p**
Mediator variable model with persuasion knowledge (M_1)					
$R^2 = .03$, $F(1, 308) = 8.58$, $p < .01$					
Constant	i_1	5.69	.08	69.71	.00
Influencer type (X)	a_1	.31	.11	2.93	.00
Mediator variable model with trustworthiness of the post (M_2)					
$R^2 = .11$, $F(4, 305) = 9.71$, $p < .001$					
Constant	i_1	7.56	.57	13.34	.00
Influencer type (X)	d_1	-.31	.14	-2.23	.03
Persuasion knowledge (M_1)	d_2	-.51	.11	-4.84	.00
Sponsorship disclosure (W)	d_3	-1.89	.91	-2.07	.04
M_1 x W	d_4	.34	.16	2.17	.03
Dependent variable model (brand evaluations)					
$R^2 = .39$, $F(3, 306) = 57.78$, $p < .001$					
Predictor		**B**	**SE**	**t**	**p**
Constant	i_3	2.31	.42	5.44	.00
Influencer type (X)	b_1	-.17	.09	-1.85	.07
Persuasion knowledge (M_1)	b_2	-.07	.05	-1.31	.19
Trustworthiness of the post (M_2)	b_3	.47	.04	11.15	.00
Conditional effects of influencer type (X) at the two levels of sponsorship disclosure (W) through persuasion knowledge and trustworthiness of the post on brand evaluations					
Sponsorship disclosure		**Effect**	**SE**	**LLCI**	**ULCI**
No sponsorship disclosure		-.07	.03	-.14	-.02
Sponsorship disclosure		-.02	.02	-.07	.01
Dependent variable model (influencer likeability)					
$R^2 = .47$, $F(3, 306) = 92.22$, $p < .001$					
Constant	i_3	2.17	.42	5.13	.00
Influencer type (X)	b_1	-.30	.10	-2.92	.00
Persuasion knowledge (M_1)	b_2	-.02	.05	-.42	.68
Trustworthiness of the post (M_2)	b_3	.62	.04	14.62	.00
Conditional effects of influencer type (X) at the two levels of sponsorship disclosure (W) through persuasion knowledge and trustworthiness of the post on influencer likeability					
Sponsorship disclosure		**Effect**	**SE**	**LLCI**	**ULCI**
No sponsorship disclosure		-.10	.04	-.19	-.03
Sponsorship disclosure		-.03	.03	-.09	.01

Note.— B = unstandardized regression coefficients; SE = standard error. PROCESS models were calculated with the HC3 estimator, which means that all standard errors for continuous outcome models were based on the hc3 estimator. Level of confidence for all confidence intervals is 95%.

Web Appendix E. Additional Information on Study 3

Stimuli description

Mega influencer

Jamie Oliver is a British cook, television chef, gastronomer, and cookbook author. He is also a passionate ambassador for good food and is therefore one of the most famous faces on British television and around the world when it comes to indulgence. His nickname, The Naked Chef, goes back to his first cooking show and stands for the simplicity of the ingredients and preparation of his recipes.

Here you can see a mockup of the Instagram profile of Jamie Oliver which can be accessed following this link.

Mega influencer

Disclosure of sponsorship

Non-disclosure of sponsorship

The photograph of the manipulated post can be accessed here.

Nano Influencer

“Imagine someone you know who likes to cook and has less than 10.000 followers.”

Disclosure of sponsorship

Non-disclosure of sponsorship

Manipulation Checks

Table E.1. *Assessment of number of followers based on influencer type for Study 3*

Influencer type	Sponsorship disclosure	Less than 10'000 followers	10'000 < and < one million followers	More than one million followers	Total
Nano influencer	No disclosure	55.5 (19.4%)	14.5 (5.1%)	1.5 (0.5%)	71.5 (24.8%)
	Disclosure	62.5 (21.9%)	12.5 (4.4%)	0.5 (0.2%)	75.5 (26.4%)
Mega influencer	No disclosure	3.5 (1.2%)	40.5 (14.2%)	28.5 (10%)	72.5 (25.3%)
	Disclosure	4.5 (1.6%)	24.5 (8.6%)	43.5 (15.2%)	72.5 (25.7%)
Total					286 (100%)
Correct recall of influencer type		188 (66.4%)			

Note. —In the saturated models .5 was added to all the observed cells. Percentages in parentheses are the proportions of the cell compared to the total frequency.

Table E.2. *Assessment of the indication as advertisement based on the disclosure of the material relationship for Study 3*

Influencer type	Sponsorship disclosure	The Instagram post was marked as an advertisement.		Total	The Instagram post was marked as a paid partnership with Urs.		Total
		Yes	No		Yes	No	
Nano influencer	No disclosure	21.5 (8.3%)	44.5 (17.2%)	66 (25.1%)	19.5 (7.5%)	46.5 (18.0%)	66 (25.1%)
	Disclosure	40.5 (15.6%)	29.5 (11.4%)	70 (26.6%)	42.5 (16.4%)	27.5 (10.6%)	70 (26.6%)
Mega influencer	No disclosure	19.5 (7.5%)	44.5 (17.2%)	64 (24.3%)	18.5 (7.1%)	45.5 (17.6%)	64 (24.3%)
	Disclosure	38.5 (14.9%)	24.5 (9.5%)	63 (24.0%)	41.5 (16%)	21.5 (8.3%)	63 (24.0%)
Total				263 (100%)			263 (100%)
Correct recall of sponsorship disclosure [a]		78 (59.5%)			83 (63.4%)		

Note. —In the saturated models .5 was added to all observed cells. Percentages in parentheses are the proportions of the cell compared to the total frequency. [a] Those participants in the disclosure condition who correctly assessed that the post was marked as advertisement or as paid partnership with Urs.

Conditional Serial Mediation

Table E.3. *Conditional indirect effects of influencer type on influencer likeability and brand evaluations through persuasion knowledge and trustworthiness of the post for Study 3*

Predictor		**B**	**SE**	**t**	**p**
Mediator variable model with persuasion knowledge (M_1)					
$R^2 = .03$, $F(1, 284) = 7.70$, $p < .01$					
Constant	i_1	4.67	.25	19.03	.00
Influencer type (X)	a_1	.43	.16	2.78	.01
Mediator variable model with trustworthiness of the post (M_2)					
$R^2 = .08$, $F(4, 281) = 5.66$, $p < .001$					
Constant	i_1	6.31	.52	12.11	.00
Influencer type (X)	d_1	.10	.17	.58	.56
Persuasion knowledge (M_1)	d_2	-.39	.09	-4.36	.00
Sponsorship disclosure (W)	d_3	-1.45	.67	-2.16	.03
M_1 x W	d_4	.26	.13	2.03	.04
Dependent variable model (brand evaluations)					
$R^2 = .22$, $F(3, 282) = 16.15$, $p < .001$					
Constant	i_3	1.50	.43	3.49	.00
Influencer type (X)	b_1	-.05	.12	-.38	.70
Persuasion knowledge (M_1)	b_2	.10	.05	1.83	.07
Trustworthiness of the post (M_2)	b_3	.37	.06	6.68	.00
Conditional effects of influencer type (X) at the two levels of sponsorship disclosure (W) through persuasion knowledge and trustworthiness of the post on brand evaluations					
Sponsorship disclosure		**Effect**	**SE**	**LLCI**	**ULCI**
No sponsorship disclosure		-.06	.03	-.12	-.02
Sponsorship disclosure		-.02	.02	-.06	.01
Dependent variable model (influencer likeability)					
$R^2 = .10$, $F(3, 282) = 6.81$, $p < .001$					
Constant	i_3	3.97	.52	7.68	.00
Influencer type (X)	b_1	-.28	.17	-1.69	.09
Persuasion knowledge (M_1)	b_2	.07	.07	1.06	.29
Trustworthiness of the post (M_2)	b_3	.30	.07	4.44	.00
Conditional effects of influencer type (X) at the two levels of sponsorship disclosure (W) through persuasion knowledge and trustworthiness of the post on influencer likeability					
Sponsorship disclosure		**Effect**	**SE**	**LLCI**	**ULCI**
No sponsorship disclosure		-.05	.02	-.11	-.01
Sponsorship disclosure		-.02	.02	-.05	.01

Note.— B = unstandardized regression coefficients; SE = standard error. PROCESS models were calculated with the HC3 estimator, which means that all standard errors for continuous outcome models were based on the hc3 estimator. Level of confidence for all confidence intervals is 95%.

Web Appendix F. Links to the Photographs Used in the Stimulus Material

Study 1a
Profile picture: https://stock.adobe.com/53123967?as_campaign=TinEye&as_content=tineye_match&epi1=53123967&tduid=899f8c31e3f65980a0757d37eecebf53&as_channel=affiliate&as_campclass=redirect&as_source=arvato
Photo 1: https://www.freepik.com/premium-photo/woman-from-looking-into-water_4968236.htm
Photo 2: https://www.hbvl.be/cnt/dmf20201126_93136608
Photo 3: https://stock.adobe.com/images/Feet-warming-at-fireplace-with-hands-holding-wine/8648575?as_campaign=TinEye&as_content=tineye_match&epi1=8648575&tduid=899f8c31e3f65980a0757d37eecebf53&as_channel=affiliate&as_campclass=redirect&as_source=arvato
Photo 4: https://stock.adobe.com/images/Berlin%2C-germany-Skyline/59707874?as_campaign=TinEye&as_content=tineye_match&epi1=59707874&tduid=899f8c31e3f65980a0757d37eecebf53&as_channel=affiliate&as_campclass=redirect&as_source=arvato
Manipulated post photo: https://www.instagram.com/p/CEqd3f0svvR/

Study 1b
Profile picture: https://www.askmen.com/top_10/entertainment/10-morning-hacks-to-having-a-smooth-work-day/fresh-air.html
Photo 1: https://cheerfultrails.com/things-to-do-in-switzerland-bucket-list/
Photo 2: https://stock.adobe.com/de/images/Berlin-skyline-with-TV-tower-at-twilight%2C-Germany/102063454?as_campaign=TinEye&as_content=tineye_match&epi1=102063454&tduid=899f8c31e3f65980a0757d37eecebf53&as_channel=affiliate&as_campclass=redirect&as_source=arvato
Photo 3: https://www.alamy.com/stock-photo-berlin-germany-2nd-june-2017-corvin-merten-25-jumps-into-the-tegeler-143750130.html?irclickid=T%3AcQ9Ly%3ArxyIT-ISXQIR4LQfzUkGyFTXkP1xnzs0&irgwc=1&utm_source=77643&utm_campaign=Shop%20Royalty%20Free%20at%20Alamy&utm_medium=impact
Photo 4: https://www.pexels.com/ja-jp/photo/862517/
Photo 5: https://www.delfi.lv/turismagids/jaunumi/foto-devini-nervus-kutinosi-trosu-celigajejiem.d?id=45257558
Photo 6: https://www.shutterstock.com/de/image-photo/people-hands-cupping-plant-nurture-environmental-646067692?irclickid=URhXJCy%3Avx-yIRXkwNxzbe0EdUkGyFkUAP1xnzs0&irgwc=1&utm_medium=Affiliate&utm_campaign=TinEye&utm_source=77643&utm_term=&c3ch=Affiliate&c3nid=IR-77643
Manipulated post photo: https://www.instagram.com/p/B3J1GVVFyIS/

Study 3
Link to Jamie Oliver's Instagram profile: https://www.instagram.com/jamieoliver/
Manipulated post photo: https://www.instagram.com/p/BnwSVMRhSpR/

Paper II

CREEPINESS IN PERSONALIZED ONLINE ADVERTISING: SCALE DEVELOPMENT AND VALIDATION [2]

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[2] Earlier version of this paper has been submitted and presented at the Theory + Practice in Marketing Conference (TPM 2019, NYC, USA).

Creepiness in Personalized Online Advertising: Scale Development and Validation

Abstract

Personalization is a powerful method to reach consumers on individual level. However, increasing number of consumers find personalized online advertising creepy, which in turn negatively affects the advertising brands. In order to measure whether such advertisements evoke creepiness we developed a measurement instrument that captures the phenomenon of creepiness in personalized online advertising context. Using established scale development methods, we conceptualized creepiness and its dimensions in the specific context of personalized online advertising and developed a scale to measure it. Creepiness in personalized online advertising has three unique dimensions – the perception of privacy intrusion, the perception of surveillance, and the feeling of uneasiness. Moreover, we show that personalized online advertising that is perceived as creepy leads to lower brand attitude, lower purchase intention and a more negative affective response towards the advertisement. Thus, highlighting the importance of this emerging phenomenon in personalized online advertising.

Keywords: Creepiness, measurement scale, personalization, online advertising, negative consequences

Introduction

Personalized online advertising is increasingly perceived as creepy by consumers (Schomer, 2021). This does not remain without consequences. Approximately a third of consumers who unsubscribe from personalized online advertising do it because they find it creepy (Periscope by McKinsey, 2019). These online advertisements provide consumers with offerings that are supposed to be tailored to their individual behaviors and needs (Wedel & Kannan, 2016). Yet, consumers regularly experience negative emotional states like creepiness towards personalized online advertising, especially, if the advertising presents unsolicited or irrelevant offers and makes consumers feel "watched" (Boudet et al., 2018). Even though online personalization can have many benefits such as helping to generate revenue (Ho & Bodoff, 2014) and enhancing the advertising effectiveness (Bleier & Eisenbeiss, 2015) it can, if perceived as too personal, cause creepiness and other negative consequences among consumers. Research shows that with personalized online advertising consumers may exhibit negative cognitive and behavioral responses like being concerned about their privacy (Awad & Krishnan, 2006; Goldfarb & Tucker, 2011; Tucker, 2014), ignoring a personalized advertisement and intentionally contradicting it (Fitzsimons & Lehmann, 2004), or even falsifying information and spreading negative word-of-mouth (Martin et al., 2017). Despite the innovations in personalized online advertising in recent years, such as the emergence of microtargeting, which identifies interests of specific individuals or small groups, consumers still find online advertisements irrelevant and creepy (Fou, 2021). Therefore, research on creepiness in personalized online advertising is highly relevant but little examined phenomenon.

Research on creepiness in online advertising domain has been limited to one peer reviewed qualitative study that explored what makes marketing creepy (Moore et al., 2015).

When it comes to measurement of creepiness, one study developed the Creepiness of Situation Scale that examines creepiness in various situations, especially, related to novel technology (e.g., robots, Langer & König, 2018). Even though this scale provides a good measurement for creepiness in the domain of novel technology it cannot cope with the specific dimensions related to personalized online advertising such as privacy intrusion or feeling of beeing "watched". Research on creepiness suggest that the individuals' perception of being followed or watched is indeed important (McAndrew & Koehnke, 2016). Especially, in personalized online advertising consumers often feel followed by advertisements (Schomer, 2021). Moreover, research shows that in the domain of marketing, intrusive marketing tactics can evoke creepiness (Moore et al., 2015). Thus, a comprehensive scale to measure creepiness in personalized online advertising with all its relevant dimensions is still missing. The development of such a scale is necessary for researchers and practitioners to be able to evaluate consumers' perceptions of personalized online advertising. It is important to detect potentially creepy personalized online advertising by measuring the level of creepiness it triggers and thus be able to avoid creepiness in the future. Moreover, avoiding creepy personalized online advertising mitigates the potential downstream consequences for the brand.

Against this background, we developed and validated a novel and robust scale to measure creepiness in personalized online advertising context. We followed established scale development procedures (e.g., Churchill Jr, 1979) to develop and validate our creepiness in personalized online advertising scale (CPOA). Moreover, we show that creepiness has negative consequences for the brand in terms of lower brand attitude, purchase intention and affective response to the advertisement. These findings highlight the importance of the phenomenon of creepiness for the effectiveness of personalized online advertising.

Theoretical Background

Personalized Online Advertising

Personalization was selected as the marketing word of the year 2019 by the Association of National Advertisers (ANA, 2019) highlighting how important personalization became in recent years. Personalization adapts offerings and other marketing mix elements to individual consumers' needs (Khan et al., 2009). It uses consumers' data such as demographics, psychographics, geographics, and past online behavior to reach consumers online (Bleier & Eisenbeiss, 2015; Moore et al., 2015). Especially, in online advertising personalization is a common method to reach consumers. The goal of such personalized online advertising is to appear more relevant to the consumers and thus increase the advertising effectiveness (Ansari & Mela, 2003; Tucker, 2014). In general, different methods of personalization exist: pull, passive and push. Pull and passive personalization require consumers' action (i.e., requesting personalized experience or product). In contrast, push personalization method sends personalized offers to consumers without their explicit request (Wedel & Kannan, 2016). Therefore, personalized online advertising can be considered push personalization since, in the most cases, the consumer does not actively request the displayed advertisement. Furthermore, personalization can have different granularity levels: mass, segment, and individual level personalization. In mass personalization all consumers receive the same offering personalized to their average taste whereas in segment personalization consumers with homogenous preferences are identified and the offering is personalized for each segment (Wedel & Kannan, 2016). The individual level personalization uses consumers' data such as specific past online behavior or personal preferences that the consumers did not deliberately share with the advertising brand. For this reason, push personalization on an individual level is often classified creepy by consumers. An example of such online

personalization are recommendations systems that show products or services to consumers based on their prior interaction with the brand or their individual online behavior (Murthi & Sarkar, 2003). Such recommendation systems can be perceived as creepy if, for example, the consumers do not understand the connection between the recommendation and their past behavior and thus feel spied on by the advertising brand (Torkamaan, Barbu et al., 2019). In particular, covert data collection through innovative methods such as voice recognition and the subsequent usage of these data for personalized online advertising leaves consumers creeped out (Lynskey, 2019). Despite this fact, research on such negative emotional consequences of personalized online advertising has been limited.

Most of the research has been centered around the benefits of personalization stemming from the fact that personalization provides relevant content for consumers. Benefits of personalized online advertising from consumers' perspective include convenience (e.g., overview at glance), better discounts, personal relevance, added advertising value (i.e., more informative ads), and higher brand relativeness (Johnson et al., 2020; Strycharz et al., 2019). From marketers' perspective, personalized online advertising can increase click-through rates and thus the effectiveness if showed to the customer at the right time (i.e., at an early information state of the purchase decision process, Bleier & Eisenbeiss, 2015). Furthermore, if the personalized offering has a high fit with consumers' needs, it increases the purchase intention of the consumers (Van Doorn & Hoekstra, 2013). Thus, personalization undoubtedly has some benefits for both, consumers and brands. However, it also bears severe drawbacks. Especially, when the collected data are used in an inappropriate or intrusive way.

One of the most researched negative response linked to online personalization are consumers' concerns about their privacy. For example, studies show that consumers who value data transparency are at the same time less willing to partake in personalization. Thus, privacy sensitive consumers do not want to share their data. This is due to consumers'

privacy concerns and is referred to as personalization-privacy-paradox (Awad & Krishnan, 2006). Privacy concerns play an important role in the perception of personalized online advertising and the consequent consumers' behavior. For example, the collection and use of consumers' data can lead to damaging consumers' behavior towards the brand (i.e., falsifying information, spreading negative WOM, and engaging in switching behaviors, Martin et al., 2017). This is linked to consumers' perception of data vulnerability. Moreover, higher degrees of online personalization (e.g., adding personal identification or transaction information to browsing data) increases perceived intrusiveness and therefore lowers the purchase intention of the consumers (Van Doorn & Hoekstra, 2013). Personalization can also cause other unfavorable responses like, for example, feeling manipulated by the advertiser (Tucker, 2012; White et al., 2008).

These above-mentioned consumers' reactions to highly personalized online advertising are of cognitive nature. Yet, there are also unfavorable emotional reactions to such personalized online advertisements such as creepiness. Such reactions have not been sufficiently researched in personalized online advertising domain. One reason for the scarce literature on negative emotional response towards personalized online advertising could be due to the complex measurement of emotions like creepiness in such specific context. However, creepiness is increasingly relevant and has negative consequences for the brand. Recent market research study shows that consumers often unsubscribe from personalized online advertising because they find it to be creepy (Periscope by McKinsey, 2019). When consumers believe that companies violate their privacy by presenting them personalized online advertising, they can view the advertising as creepy and off-putting (Stone, 2010). Therefore, developing a measurement that is specific for creepiness in personalized online advertising is needed to be able to identify creepiness as a potential reason of lower advertising effectiveness and to take the necessary steps to avoid it in the future.

Creepiness

Research on creepiness has been limited, especially, in the online advertising context. However, some research on creepiness has been done in the domain of psychology and computer sciences. In general, creepiness is believed to be an emotional response to ambiguity about a possible threat (McAndrew & Koehnke, 2016). It can be elicited in various situations, for example, through individuals who exhibit non-normative behaviors such as watching other people before interacting with them, taking pictures of people without asking them first (McAndrew & Koehnke, 2016), or by violating social norms regarding the physical appearance of an individual and the corresponding perceived ambiguity of a threat (Watt, Maitland et al., 2017). However, not only personal encounters and interactions can be perceived as creepy. Research shows that technological advances like ambient social apps, personalized analytics, and data-driven marketing are often labeled as creepy if consumers perceived them as ethically ambiguous (Tene & Polonetsky, 2013) and therefore potentially threatening. For example, the ambient social app «Girls Around Me» that was able to determine individuals' location and then scan for women in the area who recently checked-in on the service was perceived as a violation of social norms, which led to the removal of the application from major platforms (Bilton, 2012). Even though the app was legal and did not violate any privacy settings it was perceived by many as distasteful and creepy (Tene & Polonetsky, 2013). Similarly, online behavioral advertising (a form of personalized online advertising based on past online behavior of the consumers) is considered «smart but creepy» by some individuals (Ur, Leon et al., 2012) because they feel stalked on the Internet, which makes them feel uneasy and uncomfortable. Research shows that the feeling of discomfort or uneasiness is often associated with creepiness (Langer & König, 2018; McAndrew & Koehnke, 2016). Individuals feel uneasy in situations that elicit creepiness.

In the context of marketing, research on creepiness has been even more scarce. One exploratory study investigated creepiness dimensions in marketing context (Moore et al., 2015). This study asked a sample of college students what creepy marketing consist of. The results of the study showed that creepy marketing consists of three dimensions: privacy intrusion, stalking behavior, and violation of social norms (e.g., using content that is perceived as too personal such as depression). Moreover, the study also found that creepy marketing leaves consumers with the feeling of discomfort. Thus, confirming some of the dimensions explored by other researchers in a more general context mentioned above (i.e., stalking behavior, violation of norms, and discomfort). Another study, in the domain of AI-enabled chatbots in service context found that consumers privacy concerns increase perceived creepiness. Moreover, the same study found that creepiness can decrease consumers' loyalty showing the relevancy of creepiness in customer service where AI-enabled machines and bots are used highlighting the potential negative consequences of creepiness for the brand (Rajaobelina, Prom Tep et al., 2021). Evidently, more research on creepiness in marketing and, especially, in online advertising context is greatly needed as several market research studies show the relevance of this phenomenon in personalized marketing domain (e.g., Periscope by McKinsey, 2019; Adobe, 2020). The first challenge, however, is to conceptualize and to measure creepiness. One study approached this challenge in the domain of novel technologies such as robots. The researchers developed a scale to measure creepiness in everyday situations and, especially situation related to novel technology (e.g., human-like robots). The scale consists of two dimensions: emotional creepiness (i.e., uneasy feeling) and creepy ambiguity. However, when it comes to creepy situations related to the specific context of personalized online marketing it seems that the feeling of being stalked on the Internet (e.g., Chen, 2018) and the perceived intrusion of consumers' privacy play a crucial role (Moore et al., 2015) and thus must be considered as dimensions of creepiness in

personalized online marketing. Therefore, our first research objective was to explore the content, dimensionality, and structure of consumers' perceived creepiness in the specific context of personalized online advertising. Based on the literature from various disciplines (e.g., McAndrew & Koehnke, 2016; Moore et al., 2015; Wattet al., 2017, etc.) and recent market research pieces (Periscope by McKinsey, 2019; Adobe, 2020) we specified three dimensions of creepiness in the context of personalized online advertising.

Privacy Intrusion

Personalized online advertisements are supposed to be tailored to the individual behaviors and needs of consumers (Wedel & Kannan, 2016). Such advertisements use personal data of consumers to individualize the advertising content (e.g., past online behavior, location, preferences, etc.). Using private data of the consumers to personalize advertisements suggest to consumers that the advertiser has collected and analyzed detailed information about them and is willing to exploit it (Anand & Shachar, 2009). This information can be characterized as to personal by the consumers and thus be perceived as an invasion into their privacy. This development is understandable given the recent history of consumer data breaches. For example, a recent study revealed that 87 percent of consumers would not do business with a company if they had concerns about its security practices regarding their privacy (Venky et al., 2020). Here, privacy can be defined as consumers' right to determine which information they want to make available and to whom (Westin, 1968).

However, as already mentioned above personalized online advertising often uses data that the consumers did not make deliberately available to the brand. Thus, with personalized online advertising consumers often feel that their privacy has been invaded by the advertiser leading to perceived ambiguity of a possible harm that such ownership of private data by a company may bear.

Privacy intrusion can lead not only to negative emotional responses but to actual consumers' behavior. For example, highly personalized online advertisements that are perceived as invasive or intrusive are clicked on less than targeted but not highly personalized advertisements (Tucker, 2014). Invasion of privacy also plays an important role in creepiness. Research shows that creepiness can be provoked by intrusive and invasive marketing tactics (Moore et al., 2015). Especially, tactics using private information of consumers that they did not voluntarily provide. These personalization tactics can also lead to the perception of invasion of personal space and are thus likely to be experienced as creepy (Watt et al., 2017). Therefore, the invasion of privacy in the context of creepy personalized online advertising plays a relevant role. Personalized online advertisements that evoke creepiness are perceived as privacy intrusive. We conceptualize privacy intrusion as consumers' assessment that the advertiser has gathered information about them that is perceived as too personal and was not knowingly provided by consumers.

Uneasiness

Another important dimension of creepiness is the feeling of uneasiness. Uneasiness is a mental discomfort that consumers experience, for example, when confronted with personalized online advertising that they perceive as creepy. Creepy situations are linked to ambiguity of a potential threat and therefore make consumers feel uneasy. Ambiguous situations are in essence vague and uncertain. This uncertainty or lack of reassurance about the possible outcome of the situation leads to an uneasy feeling. Research shows that in situations that elicit creepiness individuals tend to feel uneasy (McAndrew & Koehnke, 2016). In personalized online advertising, creepiness is accompanied with an uneasy feeling as well (Moore et al., 2015). Presumably, the felt uneasiness comes from the perceived ambiguity caused by owning and using personal data of consumers by a brand in a potentially harmful way. Therefore, we conceptualize uneasiness as consumers' unsettled and

uncomfortable feeling arising after being confronted with a highly personalized online advertising. This feeling is individual and subjective. Therefore, nothing that we point out to or compare it with can fully substitute the subjective experience itself (Gilbert, 2009).

Surveillance

Personalized online advertising often displays the same advertisements on every website and platform that consumers have visited leaving them with the impression of being followed around on the Internet by the advertisers (Chen, 2018). This practice raises questions among consumers about how the brands got the information and what other data they might have. This leads to ambiguity about a possible threat of owning and using such data brands. As a consequence, it causes creepiness among consumers.

Research on creepiness shows that even hobbies involving some «variation of watching» are perceived as creepy. For example, taking photos of individuals or watching them before interacting with them is believed to evoke creepiness among individuals (McAndrew & Koehnke, 2016). Moreover, research on personalized advertising shows that consumers feel followed around by irritating advertisements (Strycharz et al., 2019). Recent market research study confirms that consumers find advertisements creepy if they follow them repeatedly on the Internet (Adobe, 2020). Similarly, newer marketing tactics that use personalization, for example based on data collection from facial recognition in shops, are perceived as creepy because consumers know that someone is watching them (Frey, 2016). Therefore, perceived surveillance is important dimension in creepiness and especially in creepy personalized online advertising. We conceptualize surveillance as consumers' perception of being watched or spied on in the context of personalized online advertising.

Creepiness in personalized online advertising is a three-dimensional construct that encompasses consumers' perceived privacy intrusion, the feeling of uneasiness, and

perceived surveillance. Thus, creepiness includes a feeling component (uneasy feeling) as well as cognitive components (perception of privacy intrusion and surveillance). Creepiness in personalized online advertising can be defined as an emotion or an affective state (McAndrew & Koehnke, 2016). It can have negative consequences for the brand (Rajaobelina et al., 2021). Moreover, recent market research studies highlight the importance of creepiness by showing its relevancy from consumers perspective (Periscope by McKinsey, 2019; Adobe, 2020). Therefore, the measurement of creepiness in the domain of personalized online advertising is highly important for marketers and researcher to detect creepy advertising and thus avoid negative consequences.

Table 1. Creepiness in Personalized Online Advertising Orientation Dimensions.

Dimensions	**Definitions**
Privacy Intrusion	Consumers' assessment that the advertiser has gathered information about the consumer that is perceived as personal and was not knowingly provided by the consumer.
Uneasiness	Consumers' unsettled and uncomfortable feeling after being confronted with a highly personalized online advertising situation.
Surveillance	Consumers' perception of being watched or spied on in the context of personalized online advertising.

Measurement of CPOM

To develop a reliable and valid measurement of creepiness in personalized online advertising (CPOA), we followed the scale development procedure advocated in the literature (e.g., Churchill Jr, 1979). Across a series of four studies, we developed and validated the CPOA scale and additionally explored the consequences of creepiness for the brand. In Study 1, we generated a pool of Likert-type items based on literature review using deductive methods (Hinkin, 1995). Marketing faculty members assessed the items for content and face

validity. In Study 2, we performed a psychometric analysis and assessed construct validity and reliability. In Study 3, we tested known-group validity to show that our scale can discriminate between two group that differ on creepiness level. In Study 4, we tested discriminant validity to show that our measure of creepiness in personalized online adverting is novel and different from other related constructs. Finally, we used the data from Study 3 to additionally show the nomological validity of our construct. Thus, we show that our construct behaves as it should within a system of related constructs (i.e., negative consequences of creepiness).

Studies

Study 1: Item Generation

Based on the relevant literature from various disciplines (e.g., psychology, computer sciences, etc.) and on various recent market research reports, we specified three dimensions of creepiness and generated a pool of Likert-type items that are likely to capture the dimensions of creepiness in personalized online advertising (privacy intrusion, surveillance, and uneasiness). These items were extracted from relevant scientific and practical literature on creepiness (e.g., McAndrew & Koehnke, 2016; Tene & Polonetsky, 2013) and from market research reports (Adobe, 2020; Periscope by McKinsey, 2019; Skeldon, 2021). An initial set of 33 items was generated from this analysis. A range of marketing faculty experts (professors, lecturers, and PhD students) indicated how representative the items were of the underlying creepiness in personalized online advertising dimensions. After this procedure, 13 items were removed, resulting in a final set of 20 remaining items.

Study 2: Initial Administration

Method

A sample of 354 European participants (43.3% female, median age between 25 and 34 years) from Europe recruited via the crowdfunding platform Clickworker participated in an online study. The aim of this study was to assess the construct validity and reliability of our scale. Participants were randomly assigned to one of four personalized online advertising scenarios. To maintain breadth, two of the scenarios used products from existing brands (VIU glasses, Dr. Dre Beats headphones) while the other two used a product and a service from fictitious brands (coffee maker from Josh's Market, car loan from Star Bank). We ensured ecological validity by relying on the current advertising practices (retargeting, video tracking, location-based marketing, and secondary data use). First, participants read a story that described their online or offline behavior before seeing the advertisement. The scenarios were based on current practices that are often described as evoking creepiness in consumers (e.g., voice recognition, "What Makes Smart Speakers and Voice Assistants Creepy?," 2019). In the location-based marketing scenario, participants were asked to imagine the following story. They walked through the city center and stopped in front of a retail store window of a company that sells sunglasses (VIU). The shop had a shop window with displayed sunglass. Participants stood in front of the shop window and admired a pair of glasses for a while. They did not enter the store at any point and continued their walk. Despite never entering the store, they later received a personalized online VIU advertisement on their Facebook Newsfeed with the following personalized caption: "Saw a nice pair of glasses? Don't hesitate to visit our shop for consultation." In the retargeting-based personalization scenario, participants were asked to imagine the following story. They were interested in buying new headphones. To find the ones that suit them best they went on google.com and did a search for headphones. After looking through the search results for a while, they came across white

headphones of the brand Dr. Dre. They decided to postpone the purchase and left the website. Later that day, they went on their Facebook Newsfeed and they saw an advertisement for the exact same Dr. Dre headphones with the caption: “Do not wait any longer and get your favorite Beats right now!” In the video tracking scenario, participants were asked to imagine the following story. They were interested in buying a coffee maker. They went to a large supermarket Josh’s Market that also sells kitchen equipment. They saw one particular coffee maker that they liked the most. They took it off the shell and examined it for a short while. They decided not to buy it and left the shop without talking to any stuff members. Later that day, they saw an advertisement from Josh’s Market with the same coffee maker on their Facebook Newsfeed with the caption: “Visit us again and receive 20% of your favorite coffee maker”. In the last scenario, participants were asked to imagine the following story. They were interested in getting a loan for a car that they wanted to buy. For that purpose, they went to Star Bank, which was a bank that grants loans. After a consultation with a loan consultant, they decided that they want to postpone the purchase. Later that day they saw an advertainment from Star Bank on their Facebook Newsfeed with the caption: “Remember the feeling of owning your fist car? Experience that feeling again with a car loan”. Participants then indicated how strongly they agree with the final set of 20 items (e.g., “I feel like my personal information has been used without my permission”). All the items were measured using 7-point Likert scales ranging from 1 = “completely disagree” to 7 = “completely agree”. Full descriptions of the scenarios are presented in Appendix B.

Results

First, we conducted an exploratory factor analysis (EFA). Both the Bartlett’s Test (p = < .001) and the Kaiser-Meyer-Olkin criterion (KMO = .961) indicated that the variables were suitable for EFA. Thus, a principal component analysis was performed with Varimax rotation. Although it indicated the presence of two factors with eigenvalues greater than 1, a

three-factor solution was chosen based on the screen plot and theoretical considerations, which accounted for 71.9% of the variance. Research suggests that components can be reliable even if the eigenvalue is less than one (Cliff, 1988). These factors were labelled privacy intrusion (eigenvalue = 11.77), uneasiness (eigenvalue = 1.70), and surveillance (eigenvalue = .92). All items loaded > 0.6 on their respective factors. One item had a cross-loading < 0.2. We eliminated this item ("I feel alarmed"). For the sake of parsimony, we selected five items with the highest factor loadings for each dimension. The final set of 15 items reflects the dimensions privacy invasion (e.g., "I feel that the advertiser knows too much about me"), uneasiness (e.g., "It makes me feel unsettled"), and surveillance (e.g., "I makes me feel observed"). Next, we conducted a confirmatory factor analysis (CFA) using IBM SPSS Amos 25 (Arbuckle, 2014). We ran a model using the three derived dimensions – privacy intrusion, uneasiness, and surveillance. Results indicated an acceptable fit for the three-factor correlated model (NNFI = .94, GFI = 0.89, SRMR = .05, RMSEA = .08) and satisfactory psychometric properties of the scale (see Table 1). This model was therefore accepted as structural representation of creepiness in the context of personalized online advertising.

Table 1. Creepiness in personalized online advertising scale and psychometric properties across studies.

	Study 2				Study 3				Study 4			
Factors and Items	Factor Loadings	Coefficient Alpha	CR	AVE	Factor Loadings	Coefficient Alpha	CR	AVE	Factor Loadings	Coefficient Alpha	CR	AVE
Privacy invasion		.91	.92	.69		.95	.95	.78		.94	.94	.75
I feel like my personal information has been used without my permission	.83				.90				.92			
I feel that the advertiser knows too much about me	.83				.84				.85			
The advertiser is capitalizing on my private personal information	.79				.82				.82			
This situation makes me feel my privacy has been invaded by the advertiser	.93				.93				.94			
This situation elicits a sense of intrusion	.77				.93				.82			
Uneasiness		.90	.90	.64		.94	.94	.77		.95	.95	.79
It makes me feel unsettled	.81				.93				.93			
It makes me feel uneasy	.86				.95				.95			
It makes me feel uncomfortable	.86				.94				.95			
It makes me feel anxious	.80				.76				.77			
It makes me feel irritated	.66				.78				.83			
Feeling of being stalked		.92	.92	.71		.93	.93	.73		.94	.94	.77
It makes me feel observed	.86				.83				.86			
It makes me feel watched	.79				.86				.90			
It makes me feel followed	.81				.72				.82			
It makes me feel surveilled	.86				.92				.89			
It makes me feel spied on	.88				.92				.92			

Note. CR = Composite Reliability, AVE = Average Variance Extracted.

Study 3: Known-Group Validity and Initial Nomological Network

Method Known-Group Validity

To demonstrate that our CPOA scale differentiates between different situations related to online personalization that are a priori expected to differ in perceived creepiness, we conducted a study with a new sample. A sample of 341 North American participants (60.3% female, median age between 25 and 34 years) recruited via Amazon's Mechanical Turk were randomly assigned to one of two scenarios. Both scenarios displayed the same personalized online advertisement. However, in the high-creepy scenario respondents' personal information used in the advertisement was gathered by phone's passive voice recognition in contrast to the relatively low-creepy scenario where simple retargeting method was used. It is believed that advertising based on voice recognition is perceived as highly creepy among consumers (Bacchi, 2021). In the high-creepy scenario participants were asked to imagine the following story: They met a friend for a chat in a local coffee shop. Upon arrival, they placed their smartphone on the table in front of them. However, they did not use the phone during the whole conversation. Among other things, they were also chatting about their wish to travel to Paris. Despite not using the phone during the whole conversation they later received a personalized online advertisement for a journey to Paris form the fictitious brand FRENCHMANN on their Facebook Newsfeed with the caption: "Make your dream come true and explore Paris with us"! In the relatively low-creepy group, participants were also asked to imagine a chat with their friend about Paris in a coffee shop. However, participants used their cookies and tracking-enabled phone during the conversation to make an Internet search for a journey to Paris. They visited different blogs and travel websites. Later, they received the same advertisement as the high-creepy scenario group. Participants then rated the encounter with the advertisement on the three-dimensional CPOA scale. Additionally, to prove the intended effectiveness of our scenarios, we assessed the degree of creepiness by

asking participants how creepy they perceived the situation. All scales were measured with a 7-point Likert scale with 1 = “strongly disagree” and 7 = “strongly agree”. Full descriptions of the scenarios are presented in Appendix C.

Results Known-Group Validity

To check whether participants perceived the high-creepy scenario as creepier than the relatively low-creepy scenario, we asked participants to indicate the creepiness level. We conducted an independent samples t-test to examine the creepiness level of the scenarios. We found a significant effect. Participants in the intended high-creepy group reported higher levels of creepiness ($M = 5.57$, $SD = 1.58$) than participants in the relatively low-creepy group ($M = 4.68$, $SD = 1.89$, $t(339) = -4.77$, $p < .001$). Results of the CPOA scale showed a significant difference between the two scenarios. Creepiness level of the CPOA scale was significantly higher in the high-creepy scenario ($M = 5.37$, $SD = 1.37$) than in the low-creepy scenario ($M = 4.65$, $SD = 1.41$, $t(339) = 4.63$, $p < .001$). Mean comparison on each dimension showed that there was a significant difference in the scores for high-creepy and relatively low-creepy scenario. In the high-creepy scenario participants indicated higher privacy intrusion ($M_{high} = 5.67$, SD = 1.28, $M_{low} = 4.92$, SD = 1.59, $t(310) = -4.49$, $p < .001$), uneasiness ($M_{high} = 4.84$, SD = 1.68, $M_{low} = 3.82$, SD = 1.81, $t(310) = -5.15$, $p < .001$), and surveillance ($M_{high} = 5.6$, $M_{low} = 5.13$, $t(310) = -2.84$, $p < .01$) then in the relatively low-creepy scenario. These results indicate known-group validity. CFA indicated a good fit for the three-factor correlated model (NNFI = .98, GFI = 93, SRMR = .03, RMSEA = .06) and satisfactory psychometric properties of the scale (see Table 1).

Method Initial Nomological Network

In addition to demonstrating known-group validity in Study 3, we also examined nomological validity by showing the construct’s possession of distinct consequences derived

from the practical literature and research reports. In general, research suggest that emotions lead to specific reactions and consequent behaviors of consumers (Roseman, 1984; Scherer, 2005; Scherer et al., 2001). For example, Sherman et al. (1997) suggest that triggered emotions may influence actual purchase behavior in a store. A recent notable market research study shows that consumers abandon brands that they find creepy, for example, by stop purchasing from the brand (Skeldon, 2021). Another recent and notable market research study shows that as much as 82% of consumers would stop purchasing from the brand if they experience creepy personalization (Adobe, 2020). Therefore, we examined the effects of creepy personalized online advertising on purchase intention as well as on brand attitude and affective response. We expect that the provoked creepiness mediates the negative consequences triggered by personalized online advertising. We measured perceived creepiness with our CPOA scale including our three dimensions. Attitude towards the brand was measured with a 7-point bipolar scale (e.g., "Unappealing - Appealing", Spears & Singh, 2004). Affective response was measured with two scales. First, we employed a general affective response scale using a three-item 7-point bipolar scale (e.g., "Left me with a bad feeling - Left me with a good feeling", Stuart et al., 1987). Second, we also administered the affective response to the advertisement using a ten-item 7-point bipolar scale (e.g., "Very angry - Not at all angry", Bhat et al., 1998). We measured purchase intention with four-item 7-point Likert scale ranging from 1 = “completely disagree” to 7 = “completely agree” (e.g., “What is the likelihood that you will visit the web site shown in the ad"?, Petrova & Cialdini, 2005). Full list of items and scale reliability can be found in Appendix A (Table A.1).

Results Initial Nomological Network

We conducted a mediation analysis using ordinary least square path analysis with PROCESS model 4 (bootstrapping of 10,000 damples; Hayes, 2017) to examine whether the effect of a less personalized (relatively low-creepy) versus highly personalized (high-creepy)

advertisement on brand attitude, affective response, and purchase intention was mediated by perceived creepiness. We found significant indirect effects for all the dependent variables (brand attitude as Y: B = -.42, SE = .10, 95 % CI [-.63, -.23], purchase intention as Y: B = -.42, SE = .10, 95 % CI [-.62, -.24], affective response: B = -.49, SE = .11, 95 % CI [-.71, -.27]) showing that highly personalized advertisements lead to lower brand attitudes, purchase intention, and affective response if they are perceived as creepy by consumers. The advertising technique using technology that has been identified as evoking creepiness (voice recognition) was indeed perceived as creepier compared to the advertising technique using retargeting (B = .70, SE = .15, $p < .001$). The evoked creepiness in turn decreased brand attitudes (B = -.60, SE = .06, $p < .001$), purchase intention (B = -.61, SE = .06, $p < .001$), and affective response (B = -.70, SE = .05, $p < .001$). Independent of this indirect effect, the high-creepy vs. relatively low-creepy advertisement did not significantly affect consumers' brand attitudes (B = .09, SE = .16, $p = .59$), purchase intention (B = .23, SE = .16, $p = .16$), or affective response (B = -.01, SE = .13, $p = .91$). Similarly, the total effects were not significant for consumers' brand attitude (B = -.33, SE = .18, $p = .07$), purchase intention (B = -.19, SE = .18, $p = .29$), but for effective response (B = -.50, SE = .16, $p < .001$).

Study 4: Discriminant Validity

Method

The discriminant validity of the CPOA scale was assessed by examining the relationship between the dimensions and the whole CPOA scale and other theoretically related but distinct constructs. A new sample of 405 North American participants (50.6% female, median age between 25 and 34 years) recruited via Amazon's Mechanical Turk participated in an online study. Participants were shown the same personalized online advertisement as in study 3 that successfully led to significantly higher perceived creepiness

(i.e., online advertising based on passive voice recognition). Next, participants completed the CPOA scale as well as related constructs.

Privacy intrusion was compared to individuals' concerns about organizational information privacy practices (Smith, Milberg et al., 1996). Information privacy can be defined as "the ability of the individual to personally control information about one's self" (Stone et al., 1983, p. 460). Similarly, privacy intrusion (Xu et al., 2008) and unauthorized secondary data use (Malhotra et al., 2004) are theoretically related to privacy intrusion. Moreover, we argue that creepiness is negative affective state and therefore theoretically related with other negative states. We use the PANAS negative scale that measures negative affect of an individual by having a number of mood scales (Watson et al., 1988) to show that this construct is related but distinct from the CPOA scale and its dimensions. Additionally, we compare perceived weirdness (Wagemans et al., 2019), and brand company mistrust scale (Chaudhuri & Holbrook, 2001) with our CPOA scale and the single dimensions of the scale. Full list of items and scale reliability can be found in Appendix A (Table A.1).

Results

The findings of the study met the Fornell and Larcker's (1981) criterion which demands that the squared estimated correlation of every pair must be smaller than each factor's AVE (AVE > r^2) and showed that creepiness in online personalized advertising is related to, but distinct from, other relevant constructs. Similarly, the single dimensions of CPOA scale are distinct from the constructs. The results of confirmatory factor analysis showed that all items of the scale loaded on the respective constructs. The measurement model provided an acceptable fit of the three-factor model (NNFI = .97, GFI = 91, SRMR = .03, RMSEA = .07) and satisfactory psychometric properties of the scale (see Table 1). The AVE for each construct was higher than the squared correlation between that construct and

other related constructs, indicating discriminant validity based on Fornell and Larcker (1981). Table 2 summarizes in detail the discriminant validity test.

Table 2. Study 4 discriminant validity tests: Comparison of average variance extracted and squared correlations between constructs.

Construct	AVE[a]	Squared correlations			
		Privacy Invasion AVE = .78	Uneasiness AVE = .77	Surveillance AVE = .73	CPOA Scale AVE = .76
Concerns About Organizational Privacy Practices	.64	.43	.26	.15	.40
PANAS Negative	.56	.01	.02	.01	.01
Privacy Intrusion	.80	.55	.35	.30	.55
Unauthorized Secondary Data Use	.74	.28	.14	.11	.25
Perceived Weirdness	.83	.29	.33	.27	.38
Brand Company Mistrust	.74	.25	.17	.26	.25

Note. [a]AVE = Average variance extracted; [b] Discriminant validity supported according to the Fornell-Larcker criterion.

Discussion, Implications, and Limitations

Online personalization that is executed well leads to sustainable competitive advantage of the brand (Lindecrantz et al., 2020). It is a powerful marketing method to reach consumers on an individual level online and is widely used by companies. However, it has recently become clear that personalized online advertising can be experienced by consumers as creepy (Skeldon, 2021). This development is confirmed by numerous market research pieces and is thus a highly relevant research topic (e.g., Periscope by McKinsey, 2019). Despite the increasing importance of the phenomenon of creepiness research has been limited. Therefore, academics and practitioners have an increasing interest in the construct of creepiness and its measurement in the specific domain of personalized online advertising.

We conceptualized creepiness in personalized online advertising context as a three-dimensional construct and developed a scale to measure it. We provide a new tool for more valid and reliable evaluation of the underlying phenomenon. The phenomenon of creepiness in personalized online advertising is highly important and to the best of our knowledge, its impact on the effectiveness of personalized online advertising in the eyes of consumers has not yet been sufficiently empirically studied. Across several studies we developed a 15 items CPOA scale that captures three unique dimensions of creepiness in personalized online advertising – the perception of privacy intrusion, the feeling of uneasiness, and the perception of surveillance – and is reliable across different online personalization methods (e.g., voice recognition, retargeting, etc.) and cultural contexts (North America and Western Europe). Thus, we give marketers and researchers a tool to measure potentially evoked creepiness of personalized online advertising. Moreover, we show that creepiness in personalized online advertising has negative consequences for the brands since it leads to lower purchase intention, lower brand attitude and more negative affective responses towards the advertisement. Only by understanding and measuring the phenomenon of creepiness in personalized online advertising with our reliable and valid scale marketers can avoid creepiness and thus the negative consequences that it bears.

Theoretical Implications

Despite the increasing relevancy of creepiness, research on it in the domain of online advertising has been very limited (e.g., Moore et al., 2015). Our findings contribute to the literature on personalized online advertising by providing a better understanding of the potential emotional negative effects of excessive personalization, which is important because most of the research has been centered around the positive effects of personalization. Thus, our research extends the literature, especially on emotional negative responses of personalized marketing. Across several studies we show that creepiness in personalized

online advertising has three unique dimensions: Privacy intrusion, uneasiness, and surveillance. In personalized online advertising individual data of consumers are collected and used in a way that consumers do not foresee or are not aware that they have ever shared information with the advertising brand. This leads to the perception of privacy intrusion of the consumers when confronted with advertisements that use data that is perceived as private. Especially, in individual level push personalization where consumers get advertisements based on their individual data and behavior (e.g., past online behavior), in contrast to segment or mass personalization, consumers often experience creepiness. This covert collection of personal data and information about the consumers and the subsequent usage on different platforms gives the consumers the impression of being surveilled by the advertisers. Moreover, it makes consumers feel uneasy since it is often ambiguous how the information about the consumers got into the hands of advertisers and what other data they may have about the consumers. These mentioned feelings and perceptions lead to creepiness in personalized online advertising which we are able to capture with our unique scale.

Additionally, we contribute to the literature on the consequences of excessive personalization that is perceived as creepy. We show that creepiness reduces the advertising effectiveness in form of reduced behavioral intentions and attitudes. Personalized online advertisements that are perceived as creepy lead to lower purchase intention, lower attitude towards the brand, and more negative affective response towards the advertisement. These findings contribute to the literature on consequences of creepiness. So far only one study empirically explored the consequences of creepiness in terms of lower consumers loyalty in the context of encounters with chatbots in service context (Rajaobelina, 2021). Thus, our findings extend existing research by providing evidence of further negative behavioral and attitudinal consequences of creepiness. More important, our experimental design demonstrates that the negative consequences are indeed explained through high levels

creepiness and not directly through the level of personalization (i.e., significant mediation effects but absence of significant direct effects).

Managerial Implications

Our study has important implications for marketers. First, we provide a tool to measure consumers' creepiness in personalized online advertisements. Thus, marketers are now able to survey consumers' and increase the effectiveness of personalized advertisements by avoiding advertisement that evoke creepiness among consumers. Further, our findings show that even though online personalization appears to provide consumers with relevant and tailored advertisements, it can negatively affect consumers' state of mind and in turn negatively affect their brand evaluations and behavioral intentions. It is important that marketers avoid privacy intrusive personalized advertisements that are based on consumers surveillance and provide consumers with some form of transparency and control about the personal data collection and the technology utilized to collect such data. Only by doing that they avoid creepiness and thus negative consequences.

Creepiness is a highly important phenomenon and marketers should not ignore it since market research shows that as much as 71% of consumers boycott creepy brands that misuse their data (Glenday, 2020). However, oftentimes it is not the advertiser who collects and analyzes consumers data but the platform such as Facebook or Google. In such cases, the advertisers should demand more transparency about the data collection on such platforms. Such steps could prevent the sense of creepiness among consumers and thus increase the advertising effectiveness.

Limitations and Directions for Further Research

While our research provides some important preliminary insights about creepiness in personalized online advertising, is not without limitations. A scale to measure creepiness in

the context of novel technology (e.g., robots, novel technological tools) exists (Langer & König, 2018). However, it is only partially applicable to the context of personalized online advertising. The existing scale has an overlap on the uneasiness dimension, which is indeed present in creepiness in general (see McAndrews & Koehnke, 2016), yet, it has its limitations for the use in the context of personalized online advertising since it doesn't capture the specific dimensions of privacy intrusion and surveillance.

In our scenarios we used the platform Facebook to present personalized online advertisement. Due to the increased criticism of Facebook, there are many consumers who maintain a negative opinion of this platform. One large survey on opinions and feelings about Facebook shows that most of the participants were concerned about the safety of their personal information online (Mozilla, 2018). Thus, future research should explore whether the display of personalized online advertising on different platforms, such as Google.com or Instagram, influences the consumers perceptions and the level of creepiness. Additionally, it is not clear whether creepiness has a long-term effect since some emotions last longer than others (Verduyn & Lavrijsen, 2015). Researchers believe that creepiness is an emotional state (e.g., McAndrews & Koehnke, 2016). Thus, it would be interesting to examine whether creepiness affects consumers' wellbeing and satisfaction in the long term. Moreover, it would be of great importance to examine creepiness as an emotion in a greater detail by using theories of emotions (e.g., Appraisal Theory). Such theories could help to understand how emotions like creepiness emerge and what components do they include when they arise. Lastly, an important research direction could be to examine which factors might mitigate the negative effect of creepiness on consumers' behavioral intentions and attitued. Perhaps, the relationship with the brand could play a role such as important factors like brand trust or emotional brand attachment.

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Appendix A

Table A.1. Scales and items used across studies.

Scale	Items	Cronbach's Alphas		
		Study 2	Study 3	Study 4
Individuals' concerns about organizational information privacy practices	Measure based on Smith, Milberg, & Burke, 1996 [c] • It usually bothers me when they ask me for personal information. • When companies ask me for personal information, I sometimes think twice before providing it. • It bothers me to give personal information to so many companies. • When people give personal information to a company for some reason, the company should never use the information for any other reason. • I am concerned that they are collecting to much personal information about me.	-	-	.89
Privacy Intrusion	Measure based on Xu et al., 2008 [c] • I feel that as a result of giving my data to others, they know about me more that I am comfortable with. • The Information and data about me that I consider private is more readily available to others than I would want to. • I feel that as a result of me using these websites, the information about me is out there that, if used, will invade my privacy. • I feel that as a result of me using these websites, my privacy has been invaded by the others that collect all the data about me.	-	-	.94
Secondary Data Use	Measure based on Malhotra et al., 2004 [c] • Online companies should not use personal information for any purpose unless the individuals who provided information have authorized it. • When people give personal information to an online company for some reason, the online company should never use the information for any other reason. • Online companies should never sell the personal information in their computer databases to other companies. • Online companies should never share personal information with other companies unless the individuals who provided the information have authorized it.	-	-	.91
Perceived Surveillance	Measure based on Xu et al., 2012 [c] • I believe that my location is monitored at least part of	-	-	.86

Scale	Items	Cronbach's Alphas		
		Study 2	Study 3	Study 4
	the time. • I am concerned that companies are collecting too much information about me. • I am concerned that companies may monitor my activities on my devices.			
Perceived Weirdness	Measure based on Wagemans et al., 2018 [b] Pleaase idicated how … you find this situation? • Not at all weird - Extremely weird • Not at all unusual – extremely unusual • Not at all bizarre – extremely bizarre • Not at all odd – extremely odd	-	-	.94
PANAS Negative	Measure based on Watson et al., 1988 [a] Please indicate to what extent you feel this way right now, that is, at the present moment. • Interested / distressed / excited / upset / strong / guilty / scared / hostile / enthusiastic / proud / irritable / alert / ashamed / inspired / nervous / determined / attentive / jittery / active / afraid	-	-	.90
Attitude Towards the Brand	Measure based on Spears & Singh, 2004 [b] Please describe your overall feelings about the FRENCHMAN brand you just saw in the advertisement. • Unappealing – Appealing • Bad – Good • Unpleasant – Pleasant • Unfavorable – Favorable • Unlikable - Likable	-	.98	-
Purchase Intention	Measure based on Petrova & Cialdini, 2005 [c] I consider booking the vacation with FRENCHMAN in the future. • I would request a brochure with further product information. • I would visit the web site shown on the ad. • I would visit the advertised destination given I were to plan such a vacation and had the necessary time and money.	-	.93	-
Affective Response	Measure based on Stuart et al., 1987 [b] • Unpleasant – Pleasant • Dislike very much - Like very much • Left me with a bad feeling - Left me with a good feeling	-	.93	-
	Measure based on Bhat et al., 1998 [b] • Very skeptical - Not at all skeptical • Very disgusted - Not at all disgusted • Very contemptuous - Not at all contemptuous • Very angry - Not at all angry	-	.96	-

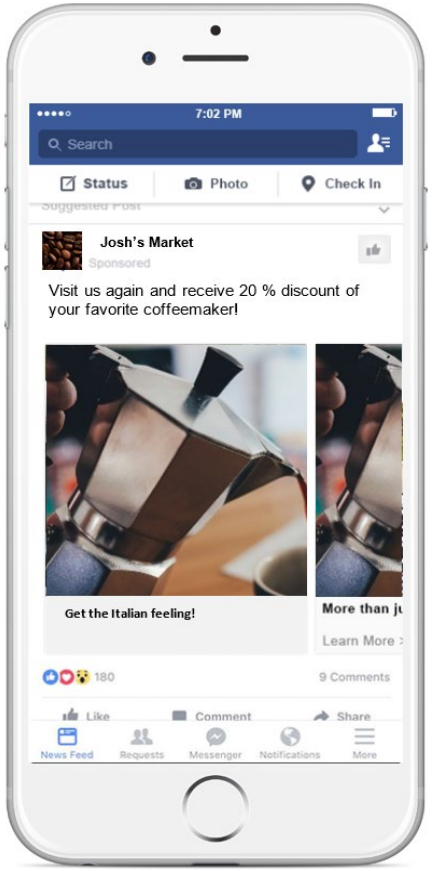
Scale	Items	Cronbach's Alphas		
		Study 2	Study 3	Study 4
	• Very distrustful - Not at all distrustful • Very irritated - Not at all irritated • Very uneasy - Not at all uneasy • Very scornful - Not at all scornful • Very revolted - Not at all revolted • Very worried - Not at all worried			

Note.[a] measured using a 7-point Likert scale anchored by 1 = "very slightly or not at all" to 7 = "extremely"; [b] measured using a 7-point semantic differential scale; [c] measured using a 7-point Likert scale anchored by 1 = "Strongly disagree" to 7 = "Strongly agree"

Appendix B Additional Information on Study 2

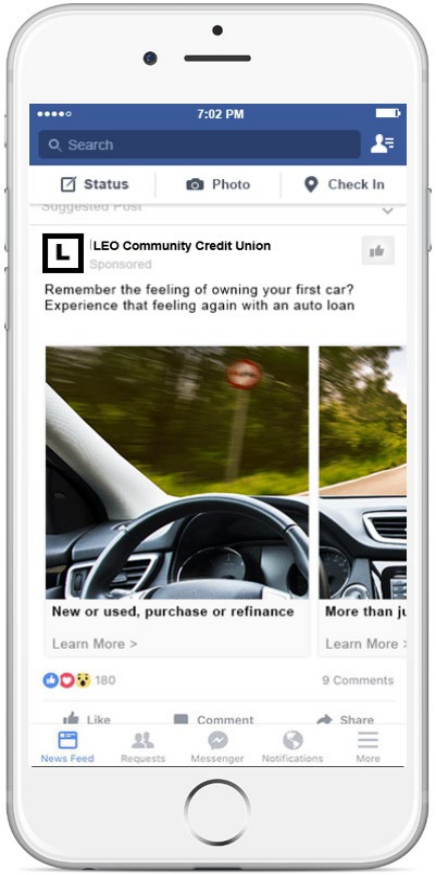
Stimuli Description A

As a coffee connoisseur, you know how important it is to have a good coffee maker. You decide to take a walk through the city and look if you can find a nice coffee maker for your daily morning coffee. On your way, you walk past the supermarket Josh's Market. You decide to look at the coffee makers they offer in the store. You see one particular Italian coffee maker that you like, and you start to examine it. However, because of the quite high price you decide not to buy it and to leave the shop. In the short time that you spent in the shop, you didn't have the chance to talk to any of the shop employees or look at other products. Few days later, while scrolling through your Facebook newsfeed you suddenly see an Internet ad of the same coffee maker you examined in the supermarket Josh's Market few days ago. Please click next and look at the ad carefully.



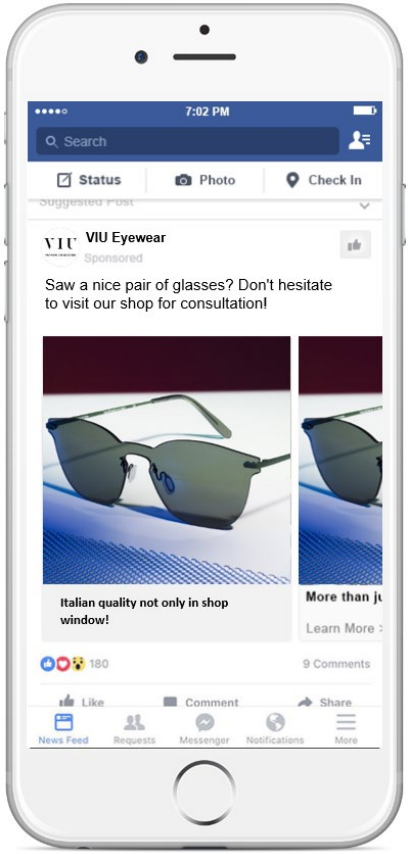
Stimuli Description B

Since a long time, you've been dreaming about owning a car. Unfortunately, you haven't saved enough money to buy a car, so you start thinking about other possibilities. You come across the company Star Bank that grants loans. You decide to make an appointment at Star Bank. After meeting a financial adviser, you realize that taking a loan isn't the best option and that it's better for you to save more money on your own. On the way back home from your meeting, you're scrolling through your Facebook newsfeed to see what your friends are up to. The following ad from another loan company you never came in touch with catches your attention. Please look at the next ad carefully.



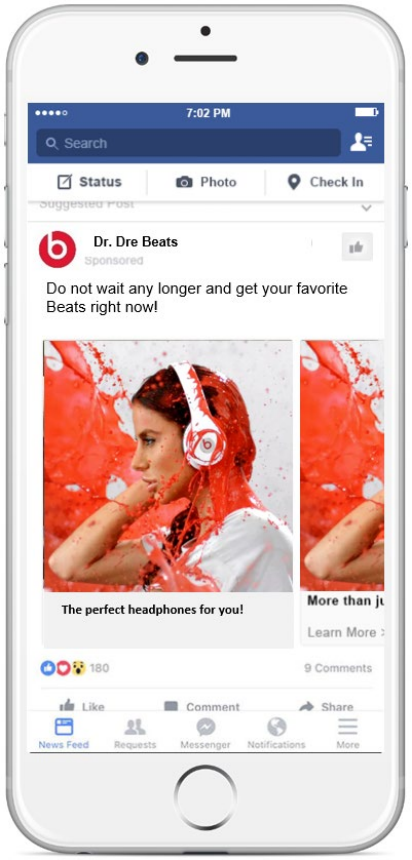
Stimuli Description C

On a nice and sunny Saturday morning, you stroll through the city center looking for something nice to buy for yourself. A nice pair of glasses in a shop window of the VIU EYEWEAR company catches your attention. After spending a short while admiring the glasses in the shop window you remember that you already own a nice pair of glasses and therefore you don't really need to go inside the shop and examine the glasses. You continue your way through the city for another while before meeting some friends for dinner. Back home, you're scrolling through your Facebook newsfeed. In between the news and posts of your friends, you see an ad of the same glasses you were just looking at couple of hours ago in the shop window. Please click next and look at the ad carefully.



Stimuli Description D

You enjoy listening to good music at work. You don't want to disturb your office neighbors and so you decide that you should look for high quality headphones that you could use while working in office. Since you don't know which ones would be the best for you, you start a search in Google. After searching for a while, you find the perfect headphones for you from the brand Dr. Dre. In addition, the white color of the headphones is to your liking. Even though you are pretty convinced that these nice headphones are the right ones for you, you still want to take some time and think about the costly investment. In a few days, while scrolling through your Facebook newsfeed you are shown an Internet ad of the same headphones you found on Google couple of days ago. Please click next and look at the ad carefully.



Appendix C Additional Information on Study 3

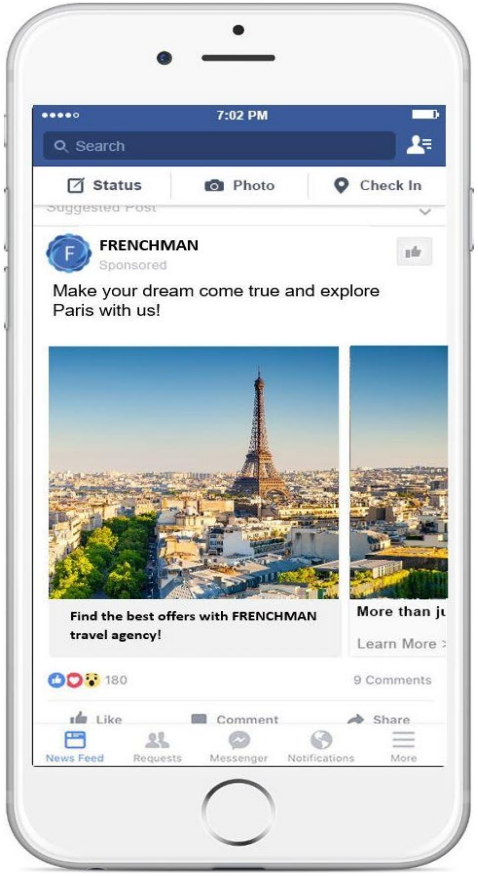
Stimuli Description High-Creepy	Stimuli Description Low-Creepy	Advertisement for Both Scenarios
On a nice and sunny Saturday, you meet your good friend for a coffee in your favorite local café. You arrive at the café where your friend is already waiting for you. Before sitting down, out of habit, you put your smartphone on the table even though you know that you will not use it. After chatting with your friend about how your day is going, you switch to the topic of traveling. You start telling your friend about your plan to travel to Paris. You talk about all the nice places you want to see and explore in Paris. Your friend gives you some suggestions regarding what to visit. For a while, you are sitting there sipping your coffee and talking about how nice it would be to spend some time in Paris. You also discuss how expensive the flights possibly could be and what the main attractions of Paris are. Throughout the whole conversation, you never use your smartphone that still lies untouched on the table. After a while, you say goodbye to your friend and leave the café. Upon arrival home, you log in to your Facebook profile and scroll through the newsfeed after which you suddenly see the following ad. Please click next and look at the ad very carefully.	On a nice and sunny Saturday, you meet your good friend for a coffee in your favorite local café. You arrive at the café where your friend is already waiting for you. After chatting with your friend about how your day is going, you switch to the topic of traveling. You start telling your friend about your plan to travel to Paris. You talk about all the nice places you want to see and explore in Paris. Your friend gives you some suggestions regarding what to visit. For a while, you are sitting there sipping your coffee and talking about how nice it would be to spend some time in Paris. You also discuss how expensive the flights possibly could be and what the main attractions of Paris are. After a while, you decide that you actually want to check it out on your cookies- and tracking-enabled phone. You run an Internet search and visit some websites that provide information about sightseeing in Paris. You search with your friend for a while and visit different blogs and tourist websites on your phone. However, after finishing your coffee you have to go so you say goodbye to your friend and leave the café. Upon arrival home, you log in to your Facebook profile and scroll through the newsfeed after which you see the following ad. Please click next and look at the ad very carefully.	

Table C.1. t-test Results Comparing High and Relatively Low Creepiness Scenario on Perceived Creepiness in Study 3.

							95% Confidence Interval of the Difference	
Scenario	Mean	SE	T	*df*	Sig (2-tailed)	Mean Diff.	Lower	Upper
High-Creepy	5.57	.14	-4.77	339	.00	-.90	-1.27	-.53
Low-Creepy	4.68	.12						

Table C.2. t-test Results Comparing High and Low Creepiness Scenario on Three Dimensions of Interest in Study 3.

Condition	High Creepiness		Low Creepiness				
Construct	Mean	SE	Mean	SE	*t*	*df*	*p*
Privacy Invasion	5.67	.10	4.92	.13	-4.49	310	.00
Uneasiness	4.84	.14	3.82	.14	-5.15	310	.00
Surveillance	5.6	.12	5.13	.12	-2.83	310	.00

Table C.3. Regression Coefficients, SE, and Model Summary Information for Brand Attitude, Purchase Intention, and Affective Response Mediator Model for Study 3.

		Consequent								
		Creepiness (M)					Brand Attitude (Y)			
Antecedent		B	SE	*t*	*p*		B	SE	*t*	*p*
Constant	i_1	3.95	.24	16.60	.00	i_3	6.62	.34	19.62	.00
High vs. low creepy	a_1	.70	.15	4.63	.00	c'_1	.09	.16	.55	.59
Creepiness (M)		—	—	—	—	b_2	-.60	.06	-10.6	.00
		$R^2 = .06$, $F(1,339) = 21.41$, $p < .001$					$R^2 = .26$ $F(2,338) = 58.10$, $p < .001$			

		Consequent								
		Creepiness (M)					Purchase Intention (Y)			
Antecedent		B	SE	*t*	*p*		B	SE	*t*	*p*
Constant	i_1	3.95	.24	16.60	.00	i_3	5.81	.34	17.33	.00
High vs. low creepy	a_1	.70	.15	4.63	.00	c'_1	.23	.16	1.41	.16
Creepiness (M)		—	—	—	—	b_2	-.61	.06	-10.7	.00
		$R^2 = .06$, $F(1,339) = 21.41$, $p < .001$					$R^2 = .25$ $F(2, 338) = 57.81$, $p < .001$			

		Consequent								
		Creepiness (M)					Affective Response (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	3.95	.24	16.60	.00	i_3	7.13	.27	26.64	.00
High vs. low creepy	a_1	.70	.15	4.63	.00	c'_1	-.01	.13	-.11	.91
Creepiness (M)		—	—	—	—	b_2	-.70	.05	-15.4	.00
		$R^2 = .06$, $F(1,339) = 21.41$, $p < .001$					$R^2 = .43$ $F(2, 338) = 126.87$, $p < .001$			

Note. Regression Coefficients are unstandardized. Level of confidence for all confidence intervals 95%. Number of bootstrap samples for percentile bootstrap confidence intervals: 10 000.

Photo References

Photograph of a car on street. *Adobe Stock*. https://stock.adobe.com/search/images?filters%5Bcontent_type%3Aphoto%5D=1&filters%5Bcontent_type%3Aillustration%5D=0&filters%5Bcontent_type%3Azip_vector%5D=0&filters%5Bcontent_type%3Avideo%5D=0&filters%5Bcontent_type%3Atemplate%5D=0&filters%5Bcontent_type%3A3d%5D=0&filters%5Bcontent_type%3Aaudio%5D=0&filters%5Bcontent_type%3Aimage%5D=1&filters%5Binclude_stock_enterprise%5D=0&filters%5Bis_editorial%5D=0&native_visual_search=620e56a41dbc0&order=relevance&safe_search=1&similar_content_id=&model_id=&serie_id=&find_similar_by=all&k=&search_page=1&search_type=visual-search-browse&get_facets=1&asset_id=95658538

Photograph of pouring coffee. *Adobe Stock*. https://stock.adobe.com/images/Pouring-coffee/217850419?as_campaign=TinEye&as_content=tineye_match&epi1=217850419&tduid=899f8c31e3f65980a0757d37eecebf53&as_channel=affiliate&as_campclass=redirect&as_source=Arvato

Photograph of Beats by Dr. Dre. *Branding Strategy Insider.* https://www.brandingstrategyinsider.com/innovating-brands-on-function-and-emotion/#.WDDIrZJVPwA

Photograph of cityscape of Paris by sunset. *Adobe Stock.* https://stock.adobe.com/images/cityscape-of-paris-by-the-sunset/119257632?as_campaign=TinEye&as_content=tineye_match&epi1=119257632&tduid=899f8c31e3f65980a0757d37eecebf53&as_channel=affiliate&as_campclass=redirect&as_source=arvato

Paper III

The Process Component Model of the Creepiness Emotion and its Marketplace Consequences: Does Prior Brand Relationship Matter?[3]

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[3] Earlier versions of this paper have been submitted and presented at the American Marketing Association Winter Academic Conference (Winter AMA 2020). It is intended to submit this manuscript in the International Journal of Research in Marketing special Issue: The Tensions and Opportunities of New Technologies in Marketing.

The Process Component Model of the Creepiness Emotion and its Marketplace Consequences: Does Prior Brand Relationship Matter?

Abstract

Creepiness as an unpleasant emotional response to marketing related and unrelated situations has become increasingly important, especially, due to recent technological advances. However, marketers and researchers have difficulties to understand what makes a situation creepy and thus how to avoid creepiness and its potential negative consequences. Across a series of studies, we show that creepiness is an emotion with different elements in a component process model. Using theories of appraisal, we show that creepiness emerges when a situation is perceived as ambiguous regarding potential harm/threat and intrusively surveilling leading to uneasiness and in turn to reactance. In marketing related context, the evoked reactance lowers brand attitude and purchase intention. However, this effect is stronger for consumers with prior moderate and higher levels of brand trust than for consumers with prior lower levels of brand trust. Thus, our research conceptualizes creepiness as an emotion and shows its potential consequences for a brand giving researchers and marketers a better understanding of the emergence of creepiness and thus potential strategies to avoid it in the marketplace.

Keywords: Creepiness, emotion, personalization, brand relationship, online advertising, trust

Introduction

"I was in Walmart just talking about a PUR filter in the hardware section. On the next day something really creepy happened: I got an email that advertised the exact same filter and the PUR brand. Was this just a coincidence or was someone or something listening and how?"

Quote from a Reddit user

The concept of creepiness is increasingly gaining attention from both researchers and practitioners (Fou, 2021). We propose that creepiness is an unpleasant emotional response towards a person, a technology, or a situation. Conventional examples include looking at a vaguely threatening doll, not being able to see in a suddenly dark room, hearing footsteps behind you in an isolated place, and so on. In today's world, the phenomenon is becoming increasingly relevant. In part provoked by technological advances such as humanoid robots, artificial intelligence or personalized online advertisements and communication, consumers are now often confronted with brands or marketing efforts that they perceive as creepy. The above quote, for instance, referencing a technology-enabled consumer-brand interaction illustrates the phenomenon. In addition, the following questions are of great concern to many consumers and could be interpreted as examples of situations that evoke creepiness: What is Facebook doing with our data? How are advertisers tracking our interests? Are humanoid robots going to replace humans in shops and restaurants?

Despite the fact that creepiness is becoming increasingly relevant phenomenon in relation to today's new technologies, research on this important topic is relatively scarce and scattered. From a conceptual standpoint, there appears to be an emerging consensus that creepiness is an emotion or an affective state (McAndrew & Koehnke, 2016) which is caused by various

antecedents that have been primarily investigated mostly in the domain of psychology. Such antecedents include ambiguity of a possible threat (e.g., McAndrew & Koehnke, 2016) and violation of certain social norms regarding physical appearance (Watt et al., 2017). One study in marketing concluded that creepiness is provoked by invasive or unordinary marketing tactics (Moore et al., 2015). However, there is only limited empirical research that examines the effect of these antecedents on creepiness (e.g., Rajaobelina et al., 2021).

Due to the new technological advancements in digital marketing, creepiness is a phenomenon that is becoming increasingly important to understand (Shankar et al., 2021). Based on detailed data on personal customers preferences, marketing is becoming so personalized that it risks appearing creepy for many consumers. As a consequence, the potential benefits of digital personalization of marketing may become overshadowed by consumers' creepiness-related reactance. To avoid such a possibility, it becomes essential for marketers and academics alike to understand how and when creepiness occurs. However, a vast majority of current research efforts are unable to provide a satisfactory answer to this challenge - the fundamental underlying psychological phenomenon of creepiness is still not well understood. Prior research has examined single/stand-alone elements of the emotion creepiness such as the feeling component and even though some scholars acknowledge that creepiness is an emotional state (e.g., McAndrew & Koehnke, 2016), a systematic enquiry using theories of emotion (e.g., appraisal theory) that would shed light on creepiness and its components in greater detail is so far missing. That is, the psychological process of the perceptions of creepiness by consumers requires more attention given how increasingly prevalent these inferences are in today's marketplace. To the best of our knowledge, there is no comprehensive component process model of creepiness in prior research which instead tends to be characterized by rather disjointed, stand-alone, one-

sides, or partial enquiries. A component process model defines an emotion as an episode of interrelated changes in the states of different components, such as cognitive, feeling, and motivational components as a response to the evaluation of external or internal stimuli (see also Scherer, 1987, 2001). Adopting such a process perspective is crucial to fully understand all the nuances of consumers' creepiness-induced reactions. Such an understanding should also enable marketers to diagnose and potentially reduce the level of creepiness of their marketing activities while increasing the effectiveness of their personalized digital marketing.

To fill this research gap, we provide a systematic analysis of the various components of creepiness. We posit that despite promising initial insights on the drivers of creepiness, questions regarding the actual appraisal process and emergence of the creepiness emotion remain underexamined and unanswered. This can be attributed to the fact that prior research appears to take a somewhat preliminary and exploratory perspective on creepiness, which urgently warrants a more fine-grained perspective to better understand this relatively complex novel emotion.

Further, prior limited research on creepiness has tended to focus on the antecedents of creepiness such as certain actions of potentially creepy individuals (McAndrew & Koehnke, 2016) and has visibly neglected the possible outcomes of creepiness. This is rather unfortunate as the consequences of creepiness are especially relevant from a marketing standpoint. As an example, creepiness can have a negative impact for the brand in the context of personalized online marketing. In two recent and notable industry studies, 30% of consumers who unsubscribed from personalized advertising altogether did it because they found it creepy (Periscope by McKinsey, 2019) while 49% of consumers shun and blacklisted 'creepy' brands tracking their online activity (The Drum, 2021). Thus, even though personalized online advertisements provide consumers with offerings that are tailored to their individual behaviors

and needs (Wedel & Kannan, 2016), a negative impact on consumers and therefore the brand via increased creepiness might manifest. These considerations highlight the importance of systematic and rigorous academic examination of the relevant consequences of creepiness for the brand and the consumer-brand relationship, which is largely missing to date, thus representing a second research gap which the current work tackles.

Against this background, we develop a component process model of the emotion creepiness, which distinguishes among its cognitive, feeling, and motivational components and examines creepiness' consequences for the brand. Here, emotion is defined as an episode of interrelated changes in the states of cognitive, feeling, and motivational components as a response to the evaluation of an external stimulus event (Scherer, 1987, 2001). Within this process component perspective, theories of appraisals play an important role which we therefore build on both conceptually and empirically in the current research (Frijda et al., 1989; Moors et al., 2013; Scherer et al., 2001a, 2001b). In the case of creepiness, we argue that the appraisals ambiguity and intrusive surveillance lead to the feeling of uneasiness which in turn increases reactance towards the stimulus.

Across a series of studies, we go on to operationalize and empirically examine the different components of the emotional episode of creepiness in a more general context as well as in an online and offline advertising-related context. Further, we investigate the potential downstream brand consequences of purchase intention and brand attitude. Lastly, we examine the moderating role of a prior brand relationship in form of brand trust on the effect between motivational reactance and purchase intention.

Taken together, our findings suggest that creepiness emerges when a stimulus is appraised as ambiguous and intrusively surveilling. Emotions are not linked to a specific context

but are rather the product of consumers' appraisals of a creepy event. These appraisals then lead to an uneasy feeling in an individual and in turn to motivational reactance. In an online advertising context, this reactance lowers the brand attitude and purchase intention and thus reduces marketing effectiveness. Interestingly, our findings indicate that perceived creepiness is especially dangerous for consumers with stronger prior brand relationships (i.e., greater brand trust). In a creepy online marketing situation, consumers with higher levels of prior brand trust show greater reactance and thereby lower purchase intention than consumers with lower levels, underscoring that creepiness affects consumers with stronger relationships more. The current research thus provides a better understanding of the different components and consequences of creepiness, which has a potential to equip marketers and scholars with tools to root cause and potentially reduce perceived creepiness of marketplace activities like today's personalized online ads (see Periscope by McKinsey, 2019). Only by understanding what leads an emotion to emerge it becomes possible to refrain from and mitigate such emotions like creepiness.

The current research also aligns/fits with and contributes to the Special Issue on The Tensions and Opportunities of New Technologies in Marketing (Inman et al., 2021) in at least two key ways. First, our findings shed light on consumers' responses (i.e., creepiness emotion and the resulting reduction in brand attitudes and purchase intentions) to an increasing loss of privacy in today's increasingly digitized world arising from increased information sharing. Second, our findings also underscore the creepiness emotion and its corresponding lowered brand attitudes and purchase intentions as important unintended consequences of highly targeted marketing communications, with consumers' who have a prior brand relationship (i.e., greater brand trust) being particularly susceptible to such unforeseen outcomes.

Literature Review

The academic roots of the creepiness concept can be traced back to psychology. Here, a related concept was discussed - the concept of uncanniness. Uncanniness was first mentioned by the German psychiatrist Ernst Jentsch who described it as the feeling of intellectual insecurity towards the strange and the unfamiliar (Jentsch, 1906). Sigmund Freud also discussed the psychological concept of the uncanny (Freud, 1919), which relates to invisible and oppressed threats and dangers. Freud's discussion is rooted in what lies in and outside the home – the "unheimlich". In his concept he drew on literary sources, especially on the mechanical doll that appears in the story of "The Sandman" (Hoffmann, 1962). In a similar sense, the concept of "Uncanny Valley" describes the assumption that if human replicas (e.g., human like dolls, robots, etc.) look more realistic but do not exactly resemble a human being, people have a difficulty interpreting the conflicting perceptual cues (robot versus human) and therefore experience uncanny sensation (Mori, 1970). These predecessors of the creepiness concept share a commonality in that they discuss humans' negative emotional responses towards ambiguously threatening stimuli. In fact, the discussion about the perception of humanlike robots and the feeling of discomfort and creepiness such robots can evoke still continues. For example, a recent study by Mende and colleagues (2019) explored the interaction between consumers and humanoid service robots (versus human employees) in a restaurant service context and its consequences for consumers and companies. The authors found that humanoid robots trigger consumers' discomfort (e.g., eeriness) and thus lead to lower assessment of the server. Similarly, another recent study explored consumers' interaction with intelligence-based human-like chatbots. The authors found that service encounters with a chatbot are perceived as creepy because of consumers' heightened privacy concerns. This study additionally found that

creepiness has a negative impact on consumers' loyalty in the context of service encounters with an intelligence-based human-like chatbots (Rajaobelina et al., 2021).

While the earlier treatments of the uncanny were of more philosophical nature, researchers have recently begun conceptualizing creepiness as a distinct construct. In one of the few studies on creepiness as a general psychological phenomenon, online participants were asked how they define creepiness. The results show that creepiness is a response to something or someone with an ambiguous possibility of threat which causes discomfort in individuals. The study further concluded that males are more likely to be perceived as creepy as well as individuals who display unusual patterns of nonverbal behavior or have physical characteristics that are outside the norm and thus unpredictable. Such individuals evoke creepiness because of the perceived ambiguity of a possible threat (McAndrew & Koehnke, 2016). Similar results were found in another psychology study that used undergraduates who provided qualitative data on the characteristics of creepiness. This study used photographs of individuals and was therefore focused on the appearance-related characteristics of creepiness. The study concluded that creepiness involves a violation of social norms regarding the physical appearance of an individual and the corresponding perceived ambiguity of a threat (Watt et al., 2017). Another, more recent study in psychology, concluded that creepy situations are ambiguous and elicit an uneasy feeling in individuals. The aim of the study was to develop a scale measuring general creepiness of a situation. This study preliminary assumed that creepiness is based on two dimensions – emotional creepiness and creepy ambiguity – without a systematic consideration of any theory of emotion (Langer & König, 2018). Lastly, one stand-alone study investigated creepiness in marketing context. The qualitative study utilized a student sample to discover thoughts and feelings about creepy marketing. The results of the study showed that creepy

marketing includes invasive tactics used by the marketers and discomfort that consumers feel because of these marketing tactics. Further, marketing communication that violates social norms in form of intrusive tactics (e.g., using content that might be personal, such as depression) and tactics that are not ordinary (e.g., salespeople who act in an unusual manner) were also described as creepy (Moore et al., 2015).

These prior studies have predominantly examined different antecedents that potentially lead to perceived creepiness. However, there still is a surprising lack of knowledge regarding the different components of creepiness as an emotion. Even though some researchers have acknowledged that creepiness is an emotional state (e.g., McAndrew & Koehnke, 2016), absent from the literature is the study which would use theories of emotion (e.g., appraisal theory) to systematically understand creepiness and its components. In other words, we know very little about the inner psychic processes of consumers appraising potentially creepy stimuli and how this emotion emerges in the first place. Creepiness, like other emotions, is not evoked by the stimulus per se but by the individual's appraisals of the stimulus (Scherer et al., 2001b). Therefore, prior studies that have started to explore the antecedents of creepiness did contribute to the knowledge about stimuli that cause creepiness but failed to explore in a nuanced manner why and how those stimuli lead to creepiness. Moreover, a single exploratory study was conducted in the marketing context but did not examine the potential consequences of creepy marketing tactics for the brand or the consumer (Moore et al., 2015). Only one of the extant studies investigated potential consequences of creepiness. This study was conducted in a specific context of service encounters with an intelligence-based human-like chatbots (Rajaobelina et al., 2021). Thus, the results of this study are only partially applicable to other potentially creepy contexts. This is particularly unfortunate given that emotions motivate actions and are thereby

likely to have profound consequences (Izard, 2009) which warrant a systematic investigation. In summary, our research enables both researchers and marketers to conceptualize and operationalize creepiness and therefore to better understand the process that leads to creepiness in individuals. This is critical in light of the increasing proliferation and prevalence of personalized marketing strategies and tactics. Furthermore, we show that creepiness has negative consequences for the brand and therefore represents a marketing-relevant emotion.

Conceptual Framework and Hypotheses Development

We construe creepiness as an unpleasant emotion that has several components in a process model of creepiness (Figure 1). According to such a component process model, an emotion is defined as an episode of interrelated changes in the states of cognitive, feeling, and motivational components as a response to the evaluation of external or internal stimuli (see also Scherer, 1987, 2001). Creepiness is elicited by a stimulus which can be an individual, an object or a situation. The appraisals of the stimulus represent the first component of creepiness model and include ambiguity and intrusive surveillance. Appraisals are cognitive (conscious or unconscious) evaluations of the situation and crucial for an emotion to emerge (Moors et al., 2013). These appraisals lead to an emotional experience of the individual consumer in form of the feeling of uneasiness. A feeling is a subjective conscious phenomenon (Scherer, 2004) and in our component process model of creepiness it represents the second component. The uneasy feeling associated with the two appraisals leads to an action tendency in form of reactance of the individual. Action tendency is the motivation to act or a form of action readiness. The motivation to act forms the last component of our component process model of creepiness. It motivates individuals to act upon the stimulus that evoked creepiness. These consequences can be

manifested with lower purchase intention of the consumer. However, they can be influenced by a prior relationship with the brand (Figure 1).

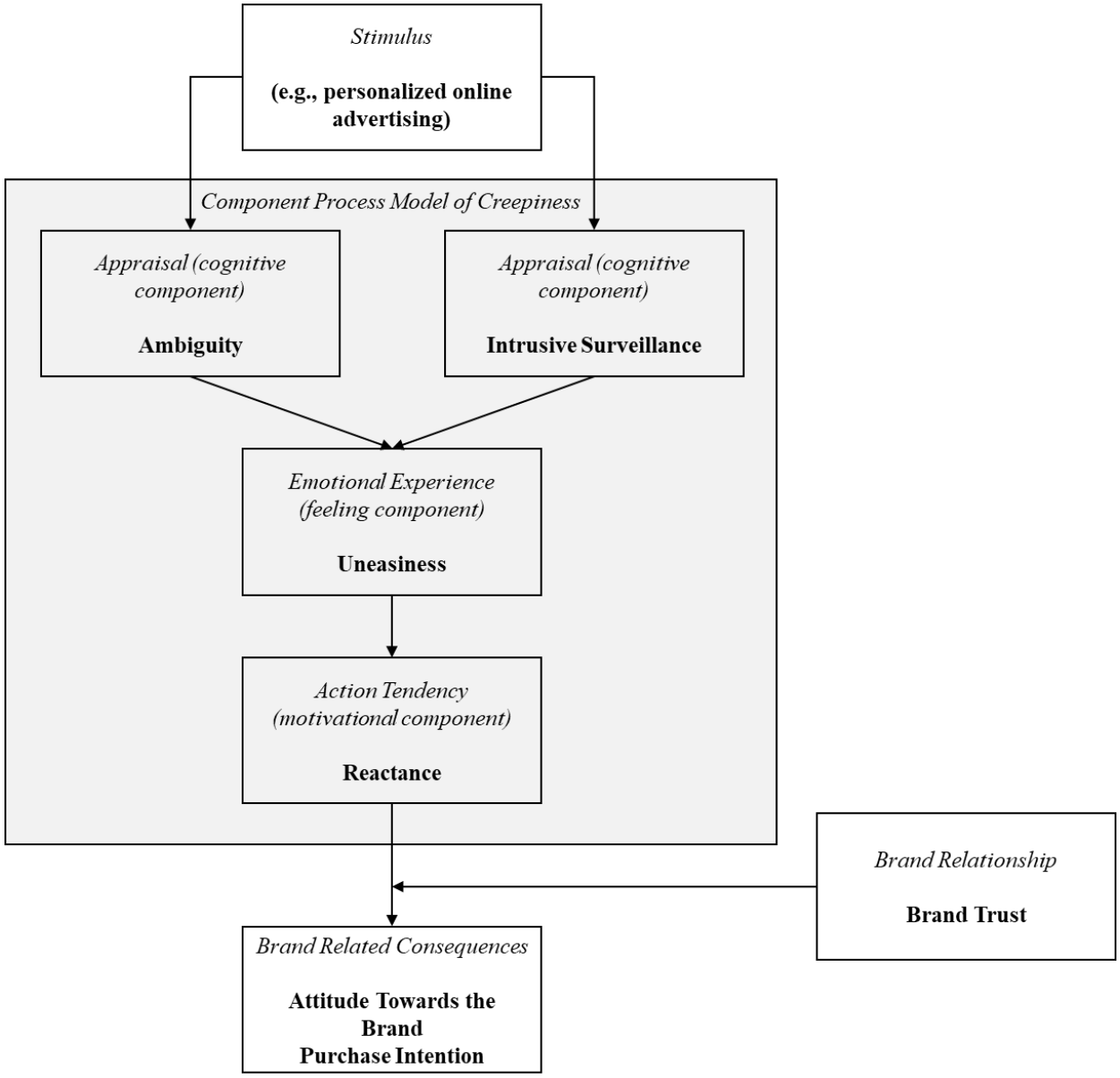

Figure 1. Conceptual framework of the current research

In our theoretical framework, we propose a component process model of creepiness that distinguishes between the different components of this emotion and builds on theories of

appraisal to explain how creepiness emerges (Moors et al., 2013; Scherer, 2005, 2009; Scherer et al., 2001a, 2001b; Siemer et al., 2007). An emotion is a response to the evaluation of external or internal stimuli (see also Scherer, 1987, 2001). These stimuli, which can be in the form of events, individuals, or objects, are representing the starting point of our conceptual framework. They play an important role in the emergence of an emotion (Bagozzi et al., 1999; Scherer, 2005), in our case the emotion of creepiness. Emotions, however, are not limited to a specific stimulus but rather to the evaluations of the stimulus. These evaluations of the stimulus are made by the individual in form of appraisals.

The corresponding appraisals of the stimulus represent the cognitive component in our component process model of creepiness. More specifically, appraisal theories suggest that emotions are elicited from conscious or unconscious cognitive evaluations of the stimulus. Thus, emotions arise in response to cognitive appraisals that individuals make for something of relevance to their well-being (Bagozzi et al., 1999). Appraisals are direct, immediate and intuitive evaluations (Ellsworth & Scherer, 2003). Typically, a number of appraisals is necessary and sufficient to predict a certain emotion (Siemer et al., 2007).

The individual's personal appraisals of the stimulus result in some stimuli being perceived as creepy by one individual and not creepy at all by another. For example, simple retargeting on Amazon may be perceived as creepy by one individual and completely normal by another. In general, stimuli that are appraised positively cause pleasant emotions like, for example, joy whereas stimuli that are appraised negatively cause unpleasant emotions like fear. Sometimes, however, it is difficult for an individual to recognize the direction of the potential outcome of an event. Often, people feel creeped out when it's difficult for them to predict

whether a situation, a person or an object could be potentially threatening to them or their personal space resulting in the evaluation of the stimulus as ambiguous (McAndrew & Koehnke, 2016). This is why there seems to be an emerging consensus that ambiguity of a potential threat to the individual plays an important role in creepiness (e.g., Langer & König, 2018). Consequently, the first cognitive appraisal in our component process model of creepiness is *ambiguity* with regard to a potential threat.

Ambiguous events are accompanied by unfamiliar, complex, uncertain, or incongruent clues that are subject to multiple possible interpretations (Furnham & Ribchester, 1995; McLain, 1993). Ambiguity plays an important role in creepiness because the meanings or intentions of events, persons or objects that cause creepiness are often unclear and therefore subjects to multiple interpretations (Langer & König, 2018; McAndrew & Koehnke, 2016). We conceptualize *ambiguity* as an appraisal wherein the individual cannot attribute one specific and clear meaning to the underlying stimulus and thus might perceive the stimulus as ambiguously threatening. A stimulus with unfamiliar, complex, unclear, or incongruent clues related to a potential threat is evaluated as ambiguous. In a general context, a person may stare at an individual in a public place for a longer period of time than usual without sending a clearly hostile or friendly signal. This behavior allows for several interpretations (interest, friendliness, intention to harm, hostility, etc.) and therefore leads to an evaluation of the situation as ambiguous. In a marketing context, a personalized advertising activity from our opening quote highlights the ambiguity about the data collection method and the use of these data, potentially making it creepy. On the one hand, the advertising effort could have been a coincidence, but on the other hand it could have actually been an act of monitoring by the advertiser. As the stimulus allows for multiple interpretations, it is appraised as ambiguous.

A second cognitive component involves the appraisal of *intrusive surveillance*. We conceptualize intrusive surveillance as an appraisal wherein the individual evaluates the stimulus in such a way that she feels watched or spied on in an unwelcomed or disturbing way. Potentially creepy events or individuals often include intrusive surveillance aspects. The example provided above of a staring person can also be appraised as intrusively surveilling. Similarly, watching and recording individuals' behavior online and the subsequent usage of this data for communication and marketing purposes can be appraised as intrusively surveilling. Extant limited literature on creepiness confirms that activities that are perceived as creepy often involve some form of intrusiveness and watching. For example, watching individuals for an uncomfortable amount of time before interacting with them or taking pictures of individuals without consent (McAndrew & Koehnke, 2016).

In marketing, unsolicited direct communication, higher degrees of personalization or using collected private information of consumers is perceived as intrusive (Moore et al., 2015; O'Malley et al., 1997; Van Doorn & Hoekstra, 2013) and is based on surveillance of consumers (Zuboff, 2015). Also, advertising tactics that are forced (e.g., pop-up ads, Edwards et al., 2002) or based on facial recognition in stores, may be perceived creepy if consumers know that someone is actively watching or surveilling them (Boland, 2019; Frey, 2016). However, creepiness perceptions are not only limited to recent technological advances. For example, behavioral targeting, which is a form of targeted advertising based on consumers' behavior online or offline, is also perceived as creepy by some consumers (Chen, 2018). A famous example of such a tactic relates to Target. In 2012, a statistician who worked in the Target's Guest Marketing Analytics department developed a model that could detect a pregnant consumer in their second trimester based on her purchase behavior (Duhigg, 2012). Indeed, Target

appeared to have been very successful with this strategy. However, the tactic escalated when a household with a teenager girl started to receive baby-relevant ads before the parents knew that the girl was pregnant. Target quickly realized that customers felt creeped out by the fact that the company knew such personal information about their most private circumstances (Hill, 2012). All the above examples are mostly based on surveillance of people with different degrees of intrusion.

The next component in our model is *uneasiness* which represents the feeling component of our component process model. A feeling is a subjective conscious phenomenon (Scherer, 2004) and even though the term is often used as a synonym of an emotion, it is just one element in a component process model of emotion (Scherer, 2005). We conceptualize uneasiness as a mental discomfort such that individuals feel uneasy in an encounter with a potentially creepy stimulus.

According to appraisal theory, cognitive appraisals elicit feelings (Scherer, 2005). The above example of a person staring at someone for an uncomfortable amount of time could first be appraised as ambiguous in terms of a possible threat and intrusively surveilling which would result in an uneasy feeling. Regarding ambiguity, uneasiness is elicited as consumer feel uncomfortable with not knowing how to interpret a stimulus that could be potentially threatening without clear cues. The uncertainty whether positive or negative outcomes are going to happen makes individuals feel uneasy. Intrusive surveillance also elicits uneasy feelings, as consumers do not feel comfortable with the fact that they are spied on in unwelcomed way. Therefore, we hypothesize the following:

H_{1a}: A stimulus appraised as ambiguously threatening leads to the feeling of uneasiness.

H_{1b}: A stimulus appraised as intrusively surveilling leads to the feeling of uneasiness.

The final element in our process component model of creepiness is the motivational component of reactance. The motivational component represents an action tendency or other forms of action readiness (e.g., the tendency to flee or fight, Izard, 2009; Moors, 2009; Moors et al., 2013; Scherer, 2005). Reactance is a motivation arousal that includes the perception of individuals that their psychological freedom is threatened. For example, psychologically reactant consumers may perceive an attempted control over them as a threat to their freedom of choice. In those cases, individuals are motivated to regain their freedoms (Brehm, 1966; Rains, 2013; Steindl et al., 2015). We conceptualize reactance as motivational arousal that includes the perception of individuals that they are no longer completely in control of the situation and are therefore motivated to resist the stimulus that reduces their psychological freedom.

Linking uneasiness to reactance, extant work has underscored that feeling of uneasiness tends to translate into acts of reactance (Brehm, 1966). For example, it has been noted that individuals who realize that someone else is attempting to influence them feel uneasy and in turn experience reactance (Seltzer, 1983). Thus, once an uneasy feeling is evoked in an individual in the context of potentially creepy situation, reactance against the cause of this uneasiness often follows. In our context of creepiness, the uneasy feeling comes with the appraisals of threat related ambiguity and intrusive surveillance so that the underlying concern of this uneasiness resides in a perceived reduction of individual psychological freedom. Uneasiness that is evoked by ambiguity of a possible threat motivates individuals to dismiss the unpleasant stimulus which manifests in reactance. In a similar way, uneasiness that is provoked by a stimulus that was appraised as intrusively surveilling will generate the motivation to dismiss or resist the stimulus

(and consequently also the underlying brand). For example, marketing activities that are perceived as intrusive by consumers can lead to perceived uneasiness and thereby evoke their reactance (see also Edwards et al., 2002). Therefore, we expect an increased level of reactance from consumers as a consequence of evoked uneasiness. This pattern of effects is also in line with extant marketing literature, where it has been found that certain marketing activities (such as manipulative advertising) can generate a motivation to resist those activities (Clee & Wicklund, 1980). Thus, we hypothesize:

H_2: The feeling of uneasiness in the context of creepiness leads to reactance.

So far, we have discussed the different elements of our process component model of the creepiness emotion. Prior research has found that emotions can have important behavioral consequences (Izard, 2009; Williams, 2014). In general, the motivational state of reactance can lead to subsequent behavior, changes in attitude, and behavioral intentions. Prior studies show that evoked reactance has a negative impact on consumers' behavior towards the stimulus. In marketing context, psychologically reactant individuals will often act in an opposite way to what has been intended by the advertiser (with regard to the effects of reactance, see Brehm, 1966). For example, reactance can lead to consumers' ignoring the agent's recommendation or even intentionally contradicting it (Fitzsimons & Lehmann, 2004). Further, it can lead to adversarial user behavior such as not using a device that collects data (Puntoni et al., 2021). In our context of creepiness, reactance resulting from uneasiness plays an important role as the motivation arousal force to dismiss the stimulus that evoked creepiness. Specifically, the evoked reactance to perceived creepiness (e.g., the brand is introducing the stimulus that evoked creepiness) should motivate individuals to act in the opposite direction from the one intended by the advertiser and thus decrease the consumers' intention to purchase the underlying brand:

H_{3a}: Higher appraisals of intrusive surveillance and ambiguity compared to lower appraisals activate the feeling of uneasiness and thereby reactance, which in turns lowers consumers' purchase intention.

In addition to enhancing purchase intention, advertising strategies often aim to increase consumers' attitude towards the brand (Percy & Rossiter, 1992). In general, an attitude is the amount of affect for or against some object (Ajzen & Fishbein, 1975). Attitudes are useful in predicting consumer behavior and therefore a pivotal construct for scholars and practitioners (Mitchell & Olson, 1981; Spears & Singh, 2004). In our study, the corresponding brand's advertising activities serve as the stimulus that may be perceived as creepy by the consumer, resulting in uneasiness and corresponding reactance. Since advertising aims to elevate consumers' attitude towards the brand (Percy & Rossiter, 1992), the reactant individual should by definition act in the opposite direction of what was intended by the advertiser. Thus, the individual will show lower brand attitude when confronted with a creepy advertising situation.

H_{3b}: Higher appraisals of intrusive surveillance and ambiguity compared to lower appraisals activate the feeling of uneasiness and thereby reactance, which in turn lowers consumers' brand attitude.

Moderation Effect of Brand Trust

The aforementioned negative consequences of creepiness for the brand may be different depending on the consumers' prior relationship with the brand. Consumer-brand relationships have been the focus of researchers and practitioners for a long time. One of the major and most important constructs in consumer-brand relationship research is brand trust (Albert & Thomson, 2018). Trust is viewed as one of the most desired qualities in a relationship (Delgado-Ballester et

al., 2003) and most important attribute any brand can own (Smith, 2001). Brand trust is defined as "feeling of security held by the consumer in their interaction with the brand based on the perceptions that the brand is reliable and responsible for the interests and welfare of the consumer" (Delgado-Ballester et al., 2003, p. 11). When it comes to a transgression, research argues that consumers with higher levels of brand trust show more negative responses to a transgression of a brand than consumers with lower levels of brand trust (Montgomery et al., 2018). This could result from the fact that consumers feel misled and thus betrayed by the brand. Brand betrayal occurs when a brand, with which a consumer has develop a strong relationship, breaks an implicit or explicit relationship-relevant norm or obligation (Finkel et al., 2002) or fractures the relationship by engaging in a moral violation (Reimann et al., 2018). These perceived fundamental violations of moral norms include, for example, the violation of transparency and honesty (Grégoire & Fisher, 2008). In general, betrayal occurs in stronger relationships where partner trust each other and are involved. Thus, betrayal can occur when trust expectations are violated (Jones & Burdette, 1994; Rachman, 2010). Stronger prior brand relationships (i.e., higher levels of brand trust) magnify this perceived betrayal of a brand (Grégoire & Fisher, 2008). Moreover, betrayal can be harmful to the brand and have lasting consequences (Reimann et al., 2018).

When a trusted brand triggers creepiness by engaging in ambiguous and intrusively surveilling marketing activities, consumers might feel misled and thus betrayed by the brand. For example, personalized advertisements without transparency about the data collection are often evaluated as ambiguous. Similarly, collecting data using surveillance practices without explicit permission of the consumer is evaluated as intrusively surveilling. Indeed, research shows that one of the most common forms of betrayal is the disclosure of confidential information and

dishonesty (Rachman, 2010). The corresponding uneasy feeling leads to the motivation to do something about the situation that evoked creepiness by showing reactant behavior, for example, in form of lower purchase intention. This negative consequence of reactance can be magnified if the consumer has previously developed high levels of brand trust in the first place. In fact, research suggests that the experience of brand betrayal can decrease purchase intentions (Thomson et al., 2012). This pattern might be even stronger for consumers with higher levels of prior brand trust compared to lower levels since strong pre-existing relationships magnify perceived betrayal and have harmful consequences for the brand (Grégoire & Fisher, 2008). Thus, we expect that consumers with higher levels of brand trust feel more betrayed after confronted with a creepy personalized advertisement and will thus show stronger reaction in form of greater reactance and subsequently lower purchase intention than consumers with lower levels of brand trust.

H_{4a}: A stimulus leads to an uneasy feeling when perceived as ambiguous and intrusively surveilling, which in turn leads to reactance and consequently to lower purchase intention for consumers with higher levels of brand trust than for consumers with lower levels.

Empirical Studies Overview

In Studies 1a and 1b, we start out by empirically testing our proposed component process model of creepiness. In particular, we examine the appraisal components – ambiguity and intrusive surveillance - and their influence on perceived uneasiness ($H_{1a, b}$) as well as the influence of uneasiness on the motivational state of reactance (H_2). Study 1a investigates creepiness in an offline context including marketing-unrelated activities (i.e., people who collect strange things) and offline marketing-related activities (i.e., humanoid robot as a salesperson and

personalization in personal selling). Study 1b explores creepiness in online personalization marketing-related scenarios (i.e., retargeting, location marketing, video recognition, and voice recognition). Study 2 investigates whether higher versus relatively lower levels of creepiness in terms of higher (vs. lower) levels of ambiguity and intrusive surveillance lead to greater uneasiness, reactance and, subsequently, to negative consequences for the brand (H_{3a} & H_{3b}). Finally, study 3 explores the boundary condition of reactance on the purchase intention among consumers with different levels of brand trust (H_4).

Study 1a – The Component Process of Creepiness

As is true with every other emotion, creepiness is not limited to a specific context or situation. To start investigating our process component model of creepiness in different offline marketing-related as well as marketing-unrelated situations, we conducted an online study. This study was designed to test the validity and explanatory power of our theory in situations that have been identified as creepy. We relied on current research when choosing the scenarios. Individuals who collect strange things (e.g., body parts like teeth, bones, or hair) are often perceived as creepy (McAndrew & Koehnke, 2016). Further, from the Uncanny Valley theory, we know that humanoid robots that imperfectly resemble an actual human being can provoke creepiness (Mori, 1970). Moreover, even though creepiness is often linked to online personalization, we believe that personalized marketing can be perceived similarly creepy offline (i.e, in a personal selling context in a store) if the personalization is perceived as intrusively surveilling and ambiguous (e.g., using consumers private information inappropriately). Lastly, we also included a low creepiness scenario.

Method

A sample of 276 North American participants (38% female, M_{age} = 32) participated in an online study via Amazon's Mechanical Turk. Participants were randomly assigned to one of four scenarios (personal selling, encounter with a person who collects hair, humanoid robot agent, or low creepiness scenario). The first scenario used personalization in an offline personal selling context. Participants were asked to imagine themselves in a situation where they were interested in booking a vacation and therefore visited a nearby travel agency. The agent in the travel agency seemed to know their name and most of the participant's preferences even though they have never seen the agent before and have not shared any information. They only remember that they booked a vacation with the same company a year ago. The second scenario was based on the result of a study about creepiness and the fact that people who collect strange things are perceived as creepy (McAndrew & Koehnke, 2016). In the scenario, participants were asked to imagine that they are sitting in a coffee shop and having an encounter with a person who is collecting hair. The person approaches them and politely asks for a strand of the individual's hair for their collection. The third scenario is similar to the first with the only difference being that a humanoid robot (as opposed to an individual) advised participants in the travel agency. As the theory of Uncanny Valley suggests, the robot almost perfectly resembled a human being. However, from the picture that we provided to the participants it was not completely clear that it was not a real human being. In the low creepiness scenario, participants were asked to imagine themselves in a very similar situation (i.e., booking vacation in a travel agency). However, the travel agent asked them about their name and preferences before showing them possible destinations of interest (see Web Appendix B for the detailed scenarios).

After reading one of the assigned scenarios, participants completed scales measuring ambiguity, intrusive surveillance, uneasiness, and reactance. Ambiguity was captured using a nine-item scale partially adapted from Langer and König (2018) and Kruglanski, Webster, and Klem (1993), (e.g., "I did not know how to judge this situation"). Intrusive surveillance was measured with a six-item scale developed by the authors and partly based on the scale of Li, Edwards, and Lee (2002). Participants indicated how strongly they agreed with the statement that the situation was "disturbing", "intrusive", "invasive", and "obtrusive" and made them feel "watched" and "spied on". Uneasiness was assessed with a five-item scale wherein respondents indicated how strongly they agreed with the situation making them feel "uncomfortable," "apprehensive," "unsettled," "irritated," and "uneasy". Reactance was measured with a three-item scale adapted from Bleier & Eisenbeiss (2015; e.g., "I want to resist this situation"). Additionally, to prove the intended effectiveness of our scenarios, we assessed the degree of creepiness by asking participants how creepy they perceived the situation and how creeped out they felt about the situation. All the items were measured using 7-point Likert scales ranging from 1 = "completely disagree" or "extremely unlikely" to 7 = "completely agree" or "extremely likely." These scales were all validated (see Table A.1. and A.2. in Web Appendix A for the full list of items and scale reliability).

Results and Discussion

Confirmatory Factor Analysis. To assess the reliability and validity of our constructs, we used AMOS 26, running confirmatory factor analyses for our four factors (i.e., ambiguity, intrusive surveillance, uneasiness, and reactance). The four-factor correlated model showed acceptable fit values *($\chi2(224) =646.86$, $\chi2/df = 2.89$, TLI= .91, CFI = .92, GFI = .83, SRMR = .05, RMSEA = .08).* Also, results indicate good psychometric properties for all constructs. More

specifically, the composite reliability scores exceed the threshold value of .6 (Bagozzi & Yi, 1988). Coefficient alpha values exceed the threshold value of .7 recommended by Nunnally (1978). Finally, all the factor loadings are significant ($p < .01$), which Bagozzi, Yi, and Phillips (1991) suggest as a criterion of convergent validity. The corresponding results appear in the Web Appendix A.

Manipulation Check. To check whether participants perceived the scenarios as creepy, we assessed creepiness by asking participants how creepy they perceived the situation and how creeped out they felt. We conducted an analysis of variance (ANOVA) which yielded a statistically significant difference ($F(3, 272) = 50.07$, $p < .001$). The mean scores for participants in the three potentially creepy situations revealed relatively high levels of creepiness. In the personal selling context participants perceived the situation as creepy ($M = 5.73$, $SE = .16$, $p < .001$). In the scenario with a person who collects hair participants also perceived the situation as highly creepy ($M = 5.92$, $SE = .17$, $p < .001$). In the same way, the encounter with the humanoid robot salesperson was perceived as creepy ($M = 5.09$, $SE = .19$, $p < .001$). As expected, the low creepiness group showed low levels of the perceived creepiness ($M = 2.84$, $SE = .24$, $p < .001$), a difference that was statistically significant as compared to each of the three high creepiness scenarios.

ANOVA. We conducted an ANOVA to demonstrate the hypothesized differences between our three groups with high levels of creepiness and the low creepiness group. There was a significant difference for each of ambiguity ($F(3, 272) = 21.75$, $p < .001$), intrusive surveillance ($F(3, 272) = .37.41$, $p < .001$), uneasiness ($F(3, 272) = 38.35$, $p < .001$), and reactance ($F(3, 272) = 29.13$, $p < .001$). Post hoc comparisons using Scheffé Test indicated that the mean score of the

low creepiness group for ambiguity (M = 3.40, SD = 1.70, $p < .001$) was significantly different from personal selling (M = 4.89, SD = 1.17, $p < .001$), humanoid robot (M = 4.54, SD = 1.07, $p < .001$), or person collecting strange things scenario (M = 5.14, SD = 1.13, $p < .001$). Also, the mean values for intrusive surveillance were significantly lower for the low creepiness group (M = 3.14, SD = 1.72, $p < .001$) compared to personal selling (M = 5.56, SD = 1.25, $p < .001$), humanoid robot (M = 5.10, SD = 1.60, $p < .001$), or person collecting strange things scenario (M = 5.46, SD = 1.23, $p < .001$). Similarly, uneasiness was significantly lower in the low creepiness group (M = 2.99, SD = 1.78, $p < .001$) compared to personal selling (M = 5.42, SD = 1.30, $p < .001$), humanoid robot (M = 4.83, SD = 1.61, $p < .001$), and person collecting strange things scenario (M = 5.49, SD = 1.26, $p < .001$). Finally, reactance exhibited a similar pattern such that it was significantly lower in the low creepiness group (M = 3.24, SD = 1.90, $p < .001$) compared to personal selling (M = 5.13, SD = 1.29, $p < .001$), humanoid robot (M = 4.79, SD = 1.46, $p < .001$), or person collecting strange things scenario (M = 5.57, SD = 1.28, $p < .001$).

Regression. Using a linear regression analysis, we investigated whether the appraisal of ambiguity and the appraisal of intrusive surveillance predicted participants' feeling of uneasiness triggered by the scenario. Ambiguity predicted participants' perceived uneasiness as a function of the scenario (B = .79, SE = .06, $p < .001$). The results indicated that the model explained 41% of the variance and that the model was a significant predictor of uneasiness ($F(1,274) = 191.32$, $p < .001$). Intrusive surveillance also predicted participants feeling uneasy because of the scenario (B = .88, SE = .03, $p < .001$). The model explained 73% of the variance and was a significant predictor of uneasiness ($F(1,274) = 734.30$, $p < .001$). Additionally, we conducted a multiple regression with both appraisals as predictors of uneasiness for exploratory purposes. The results indicated that the model explained 75% of the variance and that the overall model was a

significant predictor of uneasiness ($F(2,273) = 417.52$, $p < .001$). The two predictors contributed significantly to the model ($B_{ambiguity} = .25$, SE = .05, $p < .001$; $B_{intrusive\ surveillance} = .75$, SE = .04 $p < .001$). Even though we did not a priori hypothesize an interaction effect, when adding the interaction term to the multiple regression model, the model explained 87 % of the variance and was significant predictor of uneasiness ($F(3, 272) = 278.18$, $p < .001$). Though the two predictors were still significant ($B_{ambiguity} = .31$, SE = .01, $p < .001$; $B_{intrusive\ surveillance} = .81$, SE = .08 $p < .001$), the interaction term was not (B = -.01, SE = .02, $p = .43$). Next, we examined the hypothesized impact of uneasiness on consumers' reactance. The results indicated that the model explained 63% of the variance and the overall model was significant ($F(1,274) = 464.48$, $p < .001$). That is, the feeling of uneasiness significantly increased reactance (B = .76, SE = .04, $p < .001$).

Discussion. The results of study 1a show that the data support our hypothesized component process model of creepiness. Ambiguity and intrusive surveillance were meaningful predictors of the feeling of uneasiness. Uneasiness in turn led to motivational change in terms of increased individual reactance. This outcome lends support for our first ($H_{1a, b}$) and second (H_2) hypotheses in the context of offline marketing stimuli and more general stimuli that evoke creepiness. Stimuli that are evaluated as ambiguous and intrusively surveilling lead to the feeling of uneasiness and in turn to increased motivation in form of reactance. Even though our results appeared to demonstrate that either of the two appraisals is sufficient to evoke uneasiness, adding both in our model generated the highest amount of variance explained and superior predictive power. This shows the importance of both appraisals in our component process model. Our next study aims to explore this phenomenon in the timely and relevant context of online personalization advertising.

Study 1b – The Component Process of Creepiness in Online Personalization Marketing

In recent years the phenomenon of creepiness gained relevance with proliferation of new data collection methods and online personalization. These methods and tactics are often intrusive, surveilling and perceived as ambiguous by consumers. As a special case in point personalized marketing is often perceived as creepy (Chen, 2018; Newman, 2018). Against this background, study 1b explores the component process model of creepiness in the context of online personalization. We investigated the influence of the appraisals ambiguity and intrusive surveillance on the feeling of uneasiness and how the feeling of uneasiness translates into reactance. We used state-of-the-art stimuli of personalized online advertising techniques (e.g., location-based marketing, facial recognition, video tracking, and retargeting).

Method

A sample of 386 North American participants (47.4% female, M_{age} = 31) recruited via Amazon's Mechanical Turk participated in an online study. Participants were randomly assigned to one of four personalized online advertising scenarios. To enhance generalizability, three of the scenarios displayed products while the fourth displayed a service. All scenarios used fictitious yet realistic brands (coffee maker from Josh's Market, sunglasses from SIU, headphones from Listen, and travel services from Frenchman Travel Agency). We ensured ecological validity by carefully sourcing scenarios and relying on the current advertising practices that could evoke creepiness (retargeting, location-based marketing, video tracking, and voice recognition). First, participants read a story that described their online (e.g., making a search for headphones on google.com) or offline (e.g., stopping in front of the VIU shop window) behavior before seeing the advertisement. In the location-based marketing scenario, participants were asked to imagine

themselves in the following situation: While walking through the city center you stop in front of a retail store window of the company SIU that sells sunglasses. Despite never having entered the store, you see a personalized SIU advertisement on your Facebook newsfeed with the following caption: “Saw a nice pair of sunglasses? Don’t hesitate to visit our shop for consultation” later in the evening. A second scenario was in the context of retargeting and involved the following situation: You are interested in buying new headphones. You conduct a Google search to quickly find a suitable brand called LISTEN. However, you decide to delay the purchase to a later time. Later, you scroll through your Facebook newsfeed and see an advertisement of the exact same headphones that you saw on Google earlier with the following caption: “Do not wait any longer and get your LISTENS right now”. The third scenario included video tracking in a store. Participants were asked to imagine themselves in the following situation: You are looking for a coffee maker and therefore you visit the supermarket Josh’s Market. You find a particular coffee maker there that you like. You take it from the shelf and start to examine it. You do not buy the coffee maker. Later, you scroll through your Facebook newsfeed and you suddenly see an ad for a coffee maker with the caption: “Visit us again and receive 20% of your favorite coffee maker”. The last scenario includes advertisement based on voice recognition. Participants were asked to imagine themselves in the following story: You meet your friend in a local coffee shop. When you arrive, you put your phone on the table in front of you, however, you do not touch it during the whole conversation. The conversations topics include your potential plans about vacation in Paris. During the whole conversation you do not use your phone. Later at home, you are scrolling through your Facebook newsfeed and you see an advertisement from a travel company with the following caption: “Make your dream come true and explore Paris with us”. All detailed scenarios are provided in Web Appendix C.

Next, participants completed scales measuring the perceived creepiness of the situation in terms of ambiguity, intrusive surveillance, uneasiness, and reactance. To additionally check the creepiness level manipulation effectiveness, we asked participants how creepy they perceived the situation and how creeped out it made them feel. The constructs were measured with the same scales as in study 1a (see Web Appendix A).

Results and Discussion

Confirmatory Factor Analysis. Again, we employed AMOS 26 to run confirmatory factor analyses for our four factors (i.e., ambiguity, intrusive surveillance, uneasiness, and reactance). The four-factor correlated model fits the data acceptably ($\chi2(224) =526.85$, $\chi2/df = 2.35$, TLI= .95, CFI = .96, GFI = .89, SRMR = .05, RMSEA = .06).

Manipulation Effectiveness. The mean values of perceived creepiness were relatively high for all scenarios and significantly different from a scale midpoint. In the video tracking scenario participants perceived the situation as creepy ($M = 4.79$, $SE = .74$, $t(98) = 4.55$, $p < .001$). Similarly, in the location-based marketing scenario, participants indicated high level of creepiness ($M = 5.14$, $SE = .16$, $t(97) = 7.05$, $p < .001$). In scenario based on retargeting, participants likewise reported high levels of creepiness ($M = 5.10$, $SE = .15$, $t(91) = 7.50$, $p < .001$). Finally, in the voice recognition-based scenario, participants indicated the highest level of creepiness ($M = 5.44$, $SE = .16$, $t(96) = 8.95$, $p < .001$). The analysis of variance revealed that there were no significant difference between the four experimental groups in terms of ambiguity ($F(3, 382) = 1.14$, $p = .33$), uneasiness ($F(3, 382) = 2.33$, $p = .07$) and reactance ($F(3, 382) = 2.52$, $p = .06$). There was a significant difference between the groups on intrusive surveillance ($F(3, 382) = 4.44$, $p < .01$). Post hoc exploratory comparisons using Scheffé Test indicated that the mean score

of the scenario using video tracking for intrusive surveillance (M = 4.93, SD = 1.55) was significantly lower from the scenario using voice recognition (M = 5.61, SD = 1.26).

Regression. Using a linear regression analysis, we investigated whether the appraisal of ambiguity and the appraisal of intrusive surveillance predicted participants' feeling of uneasiness triggered by the four scenarios. Ambiguity predicted uneasy participant feeling triggered by the scenario (B = .41, SE = .05, $p < .001$). The results indicated that the model explained 18% of the variance and that the model was a significant predictor of uneasiness ($F(1,384) = 83.06$, $p < .001$). Intrusive surveillance also predicted participants' felt uneasiness (B = .86, SE = .04, $p < .001$). The model explained 59% of the variance and was a significant predictor of uneasiness ($F(1,384) = 545.58$, $p < .001$). Additionally, we investigated whether the appraisals of ambiguity and intrusive surveillance drove respondents' feeling of uneasiness in a multiple regression analysis. The results indicated that the model explains 61% of the variance and that the overall model was a significant predictor of the feeling of uneasiness, $F(2,383) = 305.54$, $p < .001$. The two predictors contributed significantly to the model ($B_{ambiguity} = .17$, SE = .03 $p < .001$, $B_{intrusive\ surveillance} = .79$, SE = .04, $p < .001$). When adding the interaction term to the multiple regression model, the model explained 78 % of the variance and was significant predictor of uneasiness ($F(3, 382) = 203.17$, $p < .001$). While intrusive surveillance was a significant predictor of uneasiness (B = .79, SE = .08, $p < .001$), neither the interaction term (B = -.001, SE = .02, $p = .95$) nor ambiguity (B = .18, SE = .14, $p = .19$) emerged significant predictors of uneasiness. As per our conceptual model, we further examined the effects of uneasiness on consumers' reactance, the motivational component in our creepiness model. The model explained 48% of the variance. As expected, the feeling of uneasiness significantly increased reactance ($F(1,384)$

=357.21, $p < .001$, B = .62, SE = 0.3, $p < .001$). The four scenarios did not significantly differ on any of the variables (see Table A.3 in Web Appendix A).

Discussion. Our second study demonstrated that our proposed component process model of creepiness also works in the relevant domain of personalized online advertising that is perceived creepy. Of particular interest is the fact that our study was able to show that new technological advances that allow marketers to track consumers evoke creepiness. The appraisals ambiguity and intrusive surveillance led to an uneasy feeling. In turn, the feeling of uneasiness had a negative impact on motivation in the form of reactance. These findings are timely since personalized online marketing is becoming increasingly more relevant in the digital world (Shankar et al., 2021). Again, our results show that even though one appraisal is sufficient to significantly predict creepiness both appraisals have more explanatory power. Our study re-confirms H_1 and H_2. The next study builds on the current one to show what consequences such creepy marketing activities can have for the brand and therefore showcase the downstream importance of creepiness in marketing.

Study 2 – High Versus Low Creepiness and The Consequences for the Brand

For marketers and practitioners, it is of great importance to know whether creepiness lowers marketing effectiveness in personalized online advertising. As we know from the literature, emotions motivate actions and thus can have important consequences (Izard, 2009). Therefore, the current study aims to explore the influence of creepiness on downstream outcomes of purchase intention and brand attitude. We used an experimental between-subjects design and manipulated the levels of creepiness (higher vs. relatively lower creepiness) by altering appraisals.

Method

A new sample of 425 European participants (45.9% female, M_{age} = 36.9) participated in an online experiment. Participants were randomly assigned to one of two pretested scenarios. In both scenarios, participants were asked to imagine themselves in a situation where they use the search engine Google to look up information about the city of Paris since they wanted to spend their vacation there. In the relatively lower creepiness group, participants made an online search on google.com. Upon entering a travel blog, participants were informed that the website uses cookies to personalize content. Next, participants went on the online booking platform booking.com to check specific travel dates for their vacation in Paris. On booking.com, participants were informed that their online behavior will be tracked. However, they had the opportunity to easily deactivate this option. Later, participants received an online ad from the company booking.com offering them vacation in Paris. In this scenario, participants received an advertisement that was based on their previous online behavior and were informed about the tracking practices. They were also able to deactivate the tracking. For those reasons, the validated scenario triggers relatively low perceived creepiness.

In the relatively higher creepiness scenario, participants were asked to imagine that they searched for “French restaurants around me” on google.com. After entering a restaurant website, first an error message with keywords like «data collect» and «browser history» appeared. Second, another message appeared that informed participants that their online behavior is tracked and used for personalization purposes. The message had no option to deactivate the tracking. Later, participants received the same booking.com advertisement as in the first scenario. The ambiguous error message as well as seemingly related but not relevant ad for vacations in Paris

and the fact that participants were tracked without permission and were not able to do anything about it suggest relatively high creepiness (see Web Appendix D for detailed scenarios).

Next, participants completed scales measuring uneasiness, reactance, brand attitude, and purchase intention. The constructs of uneasiness and reactance were measured with the same scales as in previous studies. Purchase intention was measured with a three-item scale adapted from Coyle and Thorson (2001) (e.g. "I'll be booking on Booking.com the next time I book a trip"). Brand attitude was measured with a five-item scale from Spears and Singh (2004) (e.g., "unappealing/appealing," "bad/good,").

Pretest. A sample of 80 European participants recruited via the same Clickworker panel (37.5% female, M_{age} = 40.9) as in the main study took part in the pretest to validate the relatively higher versus relatively lower creepiness manipulations. Upon random assignment to one of the two creepiness scenarios participants completed scales measuring the two appraisals ambiguity and intrusive surveillance to assess the creepiness level. The constructs were measured with the same scales as in the previous studies (see Web Appendix A). Additionally, participants indicated how credible they perceived the scenarios with two items ("the situation is credible, believable"). All items were measured using 7-point Likert scales ranging from 1 = "completely disagree" to 7 = "completely agree". See Web Appendix A for full scales and reliability information. We conducted an independent samples t-test to examine if the participants in the relatively higher creepiness condition reported higher feelings of ambiguity and intrusive surveillance than the participants in the relatively lower creepiness condition. Verifying the effectiveness of our manipulation, participants in the higher creepiness group reported higher levels of ambiguity (M = 3.60, SD = 1.47) than participants in the relatively lower creepiness

group (M = 2.29, SD = 1.27, t(78) = -4.26, p < .001). The levels of intrusive surveillance were likewise significantly higher in the higher creepiness group (M = 5.48, SD = 1.10) than in the relatively lower creepiness group (M = 4.91, SD = 1.36, t(78) = -2.06 p < .05). These results suggest that our relatively higher creepiness scenario was indeed perceived as creepier than the relatively lower creepiness scenario. Both the higher creepiness (M = 5.51, SD = 1.11) and lower creepiness (M = 6.10, SD = 1.50) scenarios were perceived as relatively credible (i.e., higher than scale midpoint; 4 The difference between the two scenarios did not reach statistical significance (t(78) = 1.86, p = .07).

Main study manipulation check. Mirroring the results of the pretest, participants in the high creepiness group reported significantly elevated levels of perceived ambiguity (M = 4.35, SD = 1.61) and intrusive surveillance (M = 4.90, SD = 1.45) than respondents assigned to the lower creepiness condition: ambiguity (M = 3.23, SD = 1.54, p = < .001) and intrusive surveillance (M = 4.13, SD = 1.58, p = < .001). These results suggest that our manipulation worked as intended.

Main study results. First, we conducted an independent samples t-test to examine if the participants in the high creepiness group (in form of higher manipulated appraisals of ambiguity and intrusive surveillance) reported higher feelings of uneasiness compared to their low creepiness group counterparts. We found a significant effect of high appraisals on participants' uneasiness such that participants in the high creepiness group reported significantly higher feelings of uneasiness (M = 4.01, SD = 1.54) than participants in the relatively lower creepiness group (M = 3.29, SD = 1.48, p = < .001). Similarly, reactance was significantly different in both

groups. That is, participants in the higher creepiness group reported higher reactance (M = 4.57, SD = 1.65) than participants in the lower creepiness group (M = 3.99, SD = 1.71, $p = < .001$).

Next, we tested the indirect effect of manipulated appraisals on brand attitude and purchase intention through uneasiness and reactance using a serial mediation model, with uneasiness modeled as affecting reactance, which in turn influences brand attitude and the intention to book vacations through booking.com using PROCESS model 6 (bootstrapping of 10,000 samples, Hayes, 2017). Thereby, high versus low appraisals served as independent variable (X), uneasiness as proximal mediator (M1), reactance as distal mediator (M2), and brand attitude and purchase intention as dependent variables (Ys). These analyses revealed significant serial mediation effects (brand attitude = -.07, SE = .03, 95% CI = [-.13, -.03], purchase intention = -.09, SE = .04, 95% CI = [-.16, -.02]). The results suggest that higher (vs. lower) ambiguity and intrusive surveillance lead to lower brand attitude and lower purchase intention, an effect that is mediated via perceived uneasiness and reactance. Relative to those assigned to the relatively low creepiness condition, those who saw the higher creepiness condition felt more uneasy (B = .71, SE = .15, p < .001), which in turn triggered more reactance (B = .68, SE = .04, p < .001) and this increased reactance lowered brand attitude (B = -.15, SE = .04, p < .001) and lower purchase intention (B = -.18, SE = .06, p < .001). Both direct effects on brand attitude and purchase intention were not significant ($B_{attitude}$ = .13, SE = .10, 95% CI = [-.07, .33]; $B_{purchase\ intention}$ = .11, SE = .16, 95% CI = [-.21, .43]). Adding gender and age as control variables did not change the results. The indirect effects through uneasiness or reactance alone (single mediator pathways) were not significant, reinforcing the importance of the uneasiness-reactance sequence (see Web Appendix C for detailed results).

Discussion. Study 2 once again demonstrated our component process model, comprehensively documenting support in its favor. Situations that were higher on creepiness in terms of perceived higher ambiguity and intrusive surveillance led to more uneasiness of the individual which in turn activated reactance. This higher motivational reactance in turn led to lower purchase intention and brand attitude. Thus, we can confirm the hypotheses H_{1a}, H_{1b}, and H_2. Of particular importance is the fact that the current study underscores the relevance of creepiness for marketers in light of its negative impact on consumer reactions to personalized online advertisements.

Study 3: Conditional Effect Depending on Prior Relationship with the Brand

As our previous study showed, consumers who are confronted with creepy advertisements show lower attitudes and intentions towards the brand. Research argues that consumers with higher levels of brand trust show disproportionately negative responses to a brand transgression than consumers with lower levels of brand trust (Montgomery et al., 2018). Against this background, we are interested in exploring a potential boundary condition wherein consumers with stronger prior brand relationship (i.e., greater brand trust) show greater reactance and thereby lower purchase intention than consumers with lower levels of prior brand trust in a creepy online advertising context.

Method

A sample of 348 North Americans (50.6% female, M_{age} = 45.5) recruited via Prolific participated in an online study. First, participants were presented with the brief information about the Nike brand saying that it is an American multinational corporation that is engaged in the design, development, manufacturing, and worldwide marketing and sales of footwear, apparel,

equipment, and accessories and is based in Portland. Next, participants indicated their trust towards the brand and their emotional brand attachment towards Nike. After these questions, participants completed two filler tasks. In the first filler tasks, participants had to rank ten animals in order of their preference. In the second filler task, participants had to describe their favorite dish. After completing two filler tasks, participants were randomly assigned to either a treatment group or a control group. Both scenarios contained the same Instagram advertisement displaying a pair of Nike sneakers. However, the story preceding the advertisement differed.

In the treatment group, participants were presented with the following scenario. They were asked to imagine themselves having a coffee and a chat with a friend at a local café. Upon arrival at the café, they placed their smartphone on the table. However, they never used or touched it during the entire conversation with their friend. Among other things, they talked to the friend about their interest in buying new sneakers. Their friend then recommended the brand Nike. They further discussed how expensive the Nike sneakers were and where to get them. During the entire time in the café, they never used their smartphone which laid untouched on the table in front of them. After the chat, the participants left the café and went home. Upon arrival home, they opened the social media app Instagram and saw an advertisement for Nike sneakers. The control group also imagined spending the afternoon with a friend in a café. However, they did not talk about sneakers or the brand Nike at all. Therefore, there was no alleged connection between the story in the café and an ad for Nike that they saw on Instagram (see detailed scenarios in Web Appendix E).

After seeing the advertisement, participants completed scales measuring ambiguity, intrusive surveillance, uneasiness, and reactance. The constructs were measured with the same

scales as in previous studies. Brand trust was measured with the scale from Delgado-Ballester et al. (2003) (e.g., "Nike is a brand that never disappoints me."). All items were measured using 7-point Likert scales ranging from 1 = "completely disagree" or "describes poorly" to 7 = "completely agree" or "describes very well." See Web Appendix A for full scales and reliability information.

Results and Discussion

Independent-samples t-test. We conducted an independent-samples t-test to examine the difference between the treatment group and the control group. The groups differed significantly on all the variables of interest. Participants in the treatment group were significantly higher on perceived ambiguity (M = 3.07, SD = 1.58; $t(332.55) = -4.39$, $p < .001$), intrusive surveillance (M = 5.00, SD = 1.97; $t(336.88) = -11.69$, $p < .001$), uneasiness (M = 4.48, SD = 2.08; $t(312.03) = -11.61$, $p < .001$), and reactance (M = 4.67, SD = 1.80; $t(346) = -7.58$, $p < .001$) than the participants in the control group who were significantly lower in perceived ambiguity (M = 2.39, SD = 1.29), intrusive surveillance (M = 2.71, SD = 1.67), uneasiness (M = 2.24, SD = 1.47), and reactance (M = 3.20, SD = 1.82).

Mediation and Moderated Mediation Analyses. First, we conducted a mediation analysis as in the previous studies to test whether our proposed component process was significant. Both indirect effects (ambiguity and intrusive surveillance as IV) were significantly lowering purchase intention (ambiguity = -.19, SE = ,04, 95% CI = [-.26, -.12]; intrusive surveillance = -.14, SE = .04, 95% CI = [-.23, -.07][4]. Further, we conducted two moderated mediation tests using ordinary least

[4] Detailed results can be found in Web Appendix E

squares path analysis with PROCESS (Model 87, bootstrapping of 10,000 samples, Hayes, 2017). Ambiguity was the independent variable in the first model and intrusive surveillance in the second. Uneasiness served as first mediator and reactance as second mediator. Brand trust served as moderator on the effect of reactance on purchase intention. Finally, purchase intention served as a dependent variable in both analyses. These analyses revealed significant negative moderated mediations for ambiguity (B= -.03, SE = .01, $CI_{95\%}$ = [-.06, -.01]) and intrusive surveillance (B = -.02, SE = .01, $CI_{95\%}$ = [-04, -.01]). Higher levels of ambiguity and higher levels of intrusive surveillance both led to greater uneasiness scores (ambiguity as X = .64, SE = .07, $p < .001$; intrusive surveillance as X = .89, SE = .02, $p < .001$). Uneasiness increased reactance in both models (ambiguity as X = .69, SE = .04, $p < .001$; intrusive surveillance as X = .37, SE = .07, $p < .001$). The interaction between reactance and brand trust significantly decreased purchase intention (ambiguity as X = -.08, SE = .03, $p < .001$; intrusive surveillance as X = -.07, SE = .03, $p < .05$). The floodlight analysis revealed that the relationship between reactance and purchase intention was significant when brand trust was higher than 3.07 in the model with ambiguity (for 81.14 % of the participants) and 2.81 in the model with intrusive surveillance (for 83.14 % of the participants). Thus, the negative effect of reactance on purchase intention was only significant for consumers with moderate and higher levels of brand trust but not for consumer with lower levels of brand trust.

Discussion. Study 3 demonstrated that personalized advertisement that is perceived as ambiguous or intrusively surveilling led to consumers' feeling of uneasiness which in turn increased reactance. The increased reactance lowered consumers' purchase intention. The results provide further evidence in favor of our proposed process component model of creepiness. Furthermore, a significant hypothesized interaction of reactance with brand trust showed that the negative effect on purchase intention is only significant for consumers with moderate and high

levels of prior brand trust but not among those with low levels. Thus, stronger prior brand trust enabled the negative impact of creepy personalized online advertisements on brands unlike weaker prior brand trust. In sum, the study further validates our proposed process model and established a boundary condition of prior brand trust.

General Discussion

Across four studies, our research systematically examined the phenomenon of creepiness emotion. The phenomenon is prevalent, timely, and important as indicated in numerous market research and consulting pieces (see Periscope by McKinsey, 2019 and The Drum, 2021). It gained increasing interest of marketers and scholars in recent years. This increased interest has developed mostly because of fast technological advances in personalized online marketing in terms of data collection and usage. Such advances can be argued to lead to creepiness among individuals. In recent years, several scholars began exploring this broader phenomenon (e.g., Langer & König, 2018; McAndrew & Koehnke, 2016). Nevertheless, a comprehensive process model of creepiness that considers relevant components of the emotion and their roles was largely missing. Additionally, only one study to date examined the phenomenon in a marketing context (Moore et al., 2015). This exploratory study failed to investigate the potential downstream consequences of creepiness for consumers' responses to marketing activities. Another study in the context of consumers' interaction with intelligence-based human-like chatbots concluded that creepiness has a negative impact on consumers' loyalty (Rajaobelina et al., 2021). Against this background, our aim was to examine creepiness in a more nuanced manner. More specifically, we investigated the component process model of creepiness emotion and the underlying role of its various components (Figure 1). Using appraisal theory, we showed

how creepiness emotion emerges in both marketing-unrelated and marketing-related situations after a stimulus is appraised as ambiguous in terms of potential threat and intrusively surveilling. These appraisals then lead to an uneasy feeling in the individual which in context of creepiness provokes reactance. Furthermore, we showed the possible consequences of this emotion for the brand in terms of lower purchase intention and lower brand attitude. Finally, we demonstrated that established brand relationships play a crucial role in creepy advertising situations. More specifically, consumers with moderate and higher levels of brand trust showed greater reactance and thereby lower purchase intention when confronted with a creepy advertisement than consumers with weaker levels. This might result from the fact that consumers feel betrayed by the brand. Research shows that stronger relationships with a brand magnify the perceived brand betrayal (Grégoire & Fisher, 2008) and thus amplify negative consequences for the brand.

Theoretical Contributions

With the elaboration and operationalization of the crucial components of creepiness we additionally provided a measurement of the creepiness emotion. Our measurement via assessment of all involved component goes beyond the limited early measurements of creepiness that had not systematically considered all crucial components (Langer & König, 2018). We extended the previously identified components by adding two novel yet crucial components, namely, intrusive surveillance and reactance. Only a measure involving all the key components can provide a comprehensive measure of such a complex emotion (Scherer, 2005) like creepiness. Therefore, our measurement tool is giving scholars and practitioners the opportunity to assess and diagnose all elements tied to individuals' perceived creepiness levels.

Our findings contribute to the literature on marketing-relevant emotions. Prior research acknowledged that creepiness is an emotional response (e.g., Langer & König, 2018; McAndrew & Koehnke, 2016), however, there is a dearth of studies that appropriately investigated the phenomenon in a nuanced way by using theories of emotion. We provide a much better understanding of the creepiness emotion by utilizing the process component model (Scherer, 2005) as well as directly incorporating and drawing upon the appraisal theory (Moors et al., 2013) to examine the various components and their respective roles in the creepiness emotion. This more complex approach is crucial to understand how the creepiness emotion emerges from appraisals and what happens in the inner psychic process of the individual. Part of our contribution also resides in the fact that we feel it is crucial to define creepiness as an emotion and not merely as a mood, anxiety or feeling. Emotions are different from moods (Halbauer & Klarmann, 2021) even though the line is occasionally difficult to draw. Moods are longer lasting than emotions, have a lower intensity and are diffuse (i.e., do not have a specific referent). Moreover, moods don't motivate actions as emotions do (Bagozzi et al., 1999). Also, anxieties are more generalized responses to an unknown threat or internal conflict (Steimer, 2002) and therefore do not have a specific referent whereas emotions require an external or "real" stimulus. Lastly, feeling as subjective emotional experience is often used as synonym of emotion, which causes confusion because feeling is just one component of an emotion. Feeling reflects the total pattern of cognitive appraisal and therefore is a component of an emotion (Scherer, 2005). In sum, we underscore that creepiness is indeed an emotion and the one that has substantive consequences.

As we showed in our studies, consequences of creepiness are manifested in lower purchase intention and reduced brand attitude. However, potentially creepy marketing activities

appear to affect consumers with moderate and higher levels of prior brand trust stronger than those with lower levels of prior brand trust. The reason lies perhaps in the fact that consumers with stronger brand trust feel more betrayed after being confronted with a creepy advertising situation than consumers with weaker brand trust. These findings reinforce extant research on brand betrayal and brand transgressions and are especially important because consumer with higher levels of brand trust tend to be more committed (Delgado-Ballester & Munuera-Alemán, 2001) and thus are likely to be of high importance for marketers. Interestingly, research on the role of prior consumer-brand relationships within the context of transgressions still remains inconclusive. On one hand, some research shows that consumers with stronger prior relationships are more willing to forgive marketer transgressions (Mattila, 2001). For example, people who are strongly emotionally attached to the brand might show more forgiveness. At the same time, betrayed consumers with strong prior self-brand connection may defend a betraying brand as to avoid a threat to the self (Angle & Forehand, 2016; Tan, Salo, & Aspara, 2019). Thus, research suggests that prior brand relationships can act as buffers or amplifiers when things go wrong. Therefore, a closer look at different brand relationship-relevant variables (e.g., self-brand connection) in the creepiness context could be of great interest for future research.

Importantly, the present work responds to the Special Issue on The Tensions and Opportunities of New Technologies in Marketing (Inman et al., 2021) in at least two distinct ways. That is, our inquiry uncovers customers' reactions (creepiness emotion and the corresponding attenuation of brand attitudes, purchase intentions) to an ever-increasing dearth of privacy in increasingly digitized marketplace as a function of greater information sharing. Additionally, our results also highlight the creepiness emotion and its resulting reduced brand attitudes and purchase intentions as critical unintended outcomes of highly targeted brand

communications, with greater prior brand relationship consumers (i.e., those who exhibit higher brand trust) being especially susceptible to these unforeseen consequences.

Managerial Implications and Future Research Directions

Our research also has several important managerial implications. It showed that creepiness starts with two appraisals, namely, ambiguity and intrusive surveillance. Thus, in order to avoid the emergence of creepiness marketers must avoid ambiguous marketing activities that use data that were previously collected through surveillance in a potentially intrusive way. For example, opt-out options or more transparency about the personal data collection and the technology utilized to collect such data might prevent the evaluation of the marketing activity as ambiguous and intrusively surveilling and thus prevent the emergence of creepiness and subsequent damage to downstream consequences like purchase intention or brand attitude. Additionally marketers could emphasize that the data collection is safe and of no potential threat for the consumer thus reducing the ambiguity of potential harm that such private data collection might cause. These measures could prevent consumers from unsubscribing from personalized marketing. As recent industry studies showed, 30% of consumers who unsubscribed from personalized advertising altogether did it because they found it creepy (Periscope by McKinsey, 2019) while 49% of consumers blacklisted creepy brands tracking their online activity (The Drum, 2021). Our research also showed that consumers who previously built trust with the brand are even more prone to react in an unfavorable way in terms of increased reactance and lower purchase intention than consumers who have not build a trusting relationship yet. Thus, when marketers use potentially creepy personalized advertising, they should not expect that their consumers with higher levels of trust would react favorably.

While our research provides some important insights about creepiness, it is not without limitations and further research is greatly needed to fully understand the relatively complex phenomenon of creepiness. First, we argue that both appraisals are conceptually part of creepiness emotion even though both significantly predicted uneasiness when tested separately. However, as our results reveled, both appraisals together show a better model fit and thus explain more of the variance. Future research should examine the effect of the appraisals more closely. For example, creating stimuli with the manipulation of only one appraisal could shed more light on this topic. Second, in our online studies we did not measure nonverbal behaviors like facial or vocal expressions (e.g., open mouth, tears, etc.) which can have a strong impact on communication and may thus have consequences, especially, in social interactions that are perceived as creepy. Some researchers see this component as important in emotions (Scherer, 2005). However, we believe that in the context of online marketing activities the role of facial and vocal expressions of the consumer is of less relevance since it is rarely disclosed to or is accessible by the marketer. Third, our study showed that consumers' brand trust is an important moderator and that consumers with higher levels of prior brand trust show stronger negative consequences when confronted with creepy marketing activities than consumers with lower levels of brand trust. However, other important variables could also have a relevant and interesting impact on the consequences of creepiness. For example, individuals' personality traits such as suspiciousness, assertiveness, and moodiness are present in reactant consumers (Seemann, Buboltz, Thomas, Soper, & Wilkinson, 2005) and may thus magnify the adverse consequences of a creepy situation. Future research could also investigate moderators that potentially mitigate the negative consequences of creepiness and even reverse/flip it.

Our research showed that personalized online marketing activities can evoke creepiness. However, we did not examine the dynamic or temporal perspective of creepiness. This could be important as the American entrepreneur Sean Parker once stated when asked if he agrees with people who find Facebook creepy: "Look — there's good creepy and there's bad creepy. Today's creepy is tomorrow's necessity" (Kellehrer, 2011). His quote suggests that perceived creepiness of a particular situation or technology may change over time. When individuals first encounter an unfamiliar situation that is somehow ambiguous and intrusively surveilling, individuals might feel high creepiness because they are not sure whether the stimulus represents a potential threat or not and if so to what extent. However, after repeated occurrence without causing any harm the response to the stimulus might become less and less strong. Repetition over time can cause habituation (Rankin et al., 2009). Consumers may get used to certain technologies and advancements over time and may thus show less emotional reactions like creepiness. Having said that, technological advances are progressing on a very fast pace. Thus, research on consumers' habituation and the potential decrease in creepiness over time in certain contexts or platforms is urgently needed.

While we used social media platform Facebook to present our personalized ads, we did not examine if creepiness is attributed to the platform as well. For example, negative emotions like creepiness might have a spillover effect that not only affects the advertising brand but also the advertising platform or even the device the advertising is displayed on (e.g., smartphone). More research is needed to investigate the potential negative effects of creepiness towards other players. Thus, future work could investigate who else or what else "suffers" from the consumers' negative downstream consequences of creepiness.

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Appendix A

Table A.3. Items and psychometric properties of study 1a and 1b.

	Study 1a				Study 1b			
Factors and Items	**Factor Loadings**	**Coefficient Alpha**	**Composite Reliability (CR)**	**Average Variance Extracted (AVE)**	**Factor Loadings**	**Coefficient Alpha**	**Composite Reliability (CR)**	**Average Variance Extracted (AVE)**
Ambiguity		.92	.92	.56		.95	.94	.66
I don't know how to judge this situation.	.79				.84			
I don't know exactly what is happening to me.	.79				.84			
Things are going on that I don't understand.	.80				.82			
This situation is ambiguous.	.64				.72			
This situation is unpredictable.	.70				.75			
I don't know how to react in a situation like this.	.72				.85			
I don't know what is going on in this situation.	.82				.87			
It is not clear to me whether this is a threatening situation.	.68				.78			
This situation is uncertain.	.77				.81			
Intrusive Surveillance		.94	.94	.73		.92	.92	.67
This situation is disturbing	.89				.84			
This situation is intrusive	.87				.87			
This situation is invasive	.89				.84			
This situation is obtrusive	.91				.80			
This situation makes me feel watched	.91				.75			
This situation makes me feel spied on	.84				.79			
Uneasiness		.94	.94	.76		.92	.92	.71
This situation makes me feel uneasy	.93				.89			
This situation makes me feel uncomfortable	.91				.88			
This situation makes me feel apprehensive	.85				.76			
This situation makes me feel irritated	.73				.80			
This situation makes me feel unsettled	.93				.88			
Reactance		.83	.84	.64		78	.78	.55
This situation is forced upon me	.74				.81			
I want to resist this situation	.75				.57			
I want to dismiss this situation	.89				.81			

Table A.2. Measurement items and Cronbach's alphas for all studies.

Scale	Items	Cronbach's alphas			
		Study 1a	**Study 1b**	**Study 2**	**Study 3**
Ambiguity	Measure based on Kruglanski et al., 1993; Langer & König, 2018 [c] • I don't know how to judge this situation. • I don't know exactly what is happening to me. • Things are going on that I don't understand. • This situation is ambiguous. • This situation is unpredictable. • I don't know how to react in a situation like this. • I don't know what is going on in this situation. • It is not clear to me whether this is a threatening situation. • This situation is uncertain.	.92	.95	-	.95
Intrusive Surveillance	Developed by authors and based on Li et al., 2002 This situation made me feel… [c] • ... watched. • ... spied on. This situation is… • ... disturbing. • ... intrusive. • ... invasive. • ... obtrusive.	.94	.92	-	.97
Uneasiness	This situation makes me feel… [c] • ... uncomfortable. • ... apprehensive. • ... unsettled. • ... uneasy. • ... irritated.	.94	.92	.94	.97
Reactance	Partially adapted from Bleier & Eisenbeiss, 2015 [c] • This situation is forced upon me. • I want to resist this situation. • I want to dismiss this situation.	.83	.78	.84	.87
Dependent Variables					
Brand Evaluation	Measure used in study 2: Brand Attitude base on Spears & Singh, 2004 [b] How would you describe your feelings towards the Booking.com brand? [b] I find Booking.com... • (1) unappealing – (7) appealing • (1) bad – (7) good	-	-	.89	-

Scale	Items	Cronbach's alphas			
		Study 1a	Study 1b	Study 2	Study 3
	• (1) unpleasant – (7) pleasant • (1) unfavorable – (7) favorable • (1) unlikable – (7) likable Purchase Intention based on Coyle & Thorson, 2001 [c] • It is very likely that I will buy travel services from Booking.co • I will book on Booking.com the next time I need travel service • I will definitely try to book on Booking.com.	-	-	.92	-
Moderator Variables					
Brand Trust	Measure used in study 3: Measure from Delgado-Ballester et al., 2003 [c] • With Nike I obtain what I look for in footwear and apparel. • Nike meets my expectations. • I feel confidence in Nike. • Nike is a brand that never disappoints me. • Nike would be honest and sincere in addressing my concerns. • I could rely on Nike to solve the problem. • Nike would make any effort to satisfy me. • Nike would compensate me in some way for the problem with footwear or apparel.	-	-	-	.95
Manipulation Checks					
Ambiguity	Measure used in study 2: [c] • I have been informed that my data will be used for personalize online advertising. • I know which technology was used to personalize the online ac	-	-	-	-
Intrusive Surveillance	Measure used in study 2: [c] • This situation makes me feel spied on. • I feel that the advertiser knows too much about me. • I feel like my personal information has been used without my permission.	-	-	-	-
Creepiness	Measure used in study 1a and 1b: [c] • This situation makes me feel creeped out. • This situation is creepy. •	-	-	-	-

Note.[a] measured using a 7-point Likert scale anchored by 1 = "describes poorly" to 7 = "describes very well"; [b] measured using a 7-point semantic differential scale; [c] measured using a 7-point Likert scale anchored by 1 = "I totally disagree" to 7 = "I totally agree"

Table A.3. Mean values, standard errors, and ANOVAS for Studies 1a and 1b.

	Study 1a					Study 1b		
Conditions Constructs	Personal Selling	Strange Person	Humanoid Robot	Low Creepiness	Video Tracking	Location Marketing	Retargeting	Voice Recognition
Ambiguity	F(3, 272) = 21.75, $p < .001$					F(3, 382) = 1.14, $p = .33$		
Mean	4.89*	5.14*	4.54 †*	3.40	4.07	3.95	3.76	4.16
Standard Error	.14	.14	.13	.22	.16	.16	.16	.16
Intrusive Surveillance	F(3, 272) = .37.41, $p < .001$					F(3, 382) = 4.44, $p < .01$		
Mean	5.56*	5.46*	5.10*	3.14	4.93[c]	5.44	5.31	5.61
Standard Error	.15	.14	.18	.22	.16	.12	.14	.13
Uneasiness	F(3, 272) = 38.35, $p < .001$					F(3, 382) = 2.33, $p = .07$		
Mean	5.42*	5.49*	4.83*	2.99	4.57	4.94	4.91	5.14
Standard Error	.16	.15	.19	.23	.17	.15	.15	.15
Reactance	F(3, 272) = 29.13, $p < .001$					F(3, 382) = 2.52, $p = .06$		
Mean	5.13*	5.57*	4.79*	3.24	4.56	5.03	4.94	5.00
Standard Error	.15	.15	.17	.25	.16	.12	.13	.13

Note. † mean value is different from the mean value of strange person at the $p < .05$ significance level; * mean value is different from the mean value of the control group at the $p < .001$ significance level; all other differences are not significant.

Appendix B Additional Information on Study 1a

Stimuli description

Personal Selling

Imagine that you are planning to take some time off and go on a vacation. To find the perfect destination, you search on the Internet for a while. However, you decide that it's better to consult someone regarding the prices and details of possible destinations. For this reason, you go to a nearby travel agency Travelics. You walk into the agency branch. A person working there sees you and immediately greets you by your full name. You have never seen that person before but instead of raising any questions you just politely greet back. The travel agent offers you a seat and as soon as you sit down, she starts offering you destinations. She already seems to roughly know when you plan to travel and also which locations you are interested in. You try to make sense of it but you only remember that you booked a trip with the travel agency Travelics only once years ago.

Here you can see the picture that accompanied the description.

Strange Person

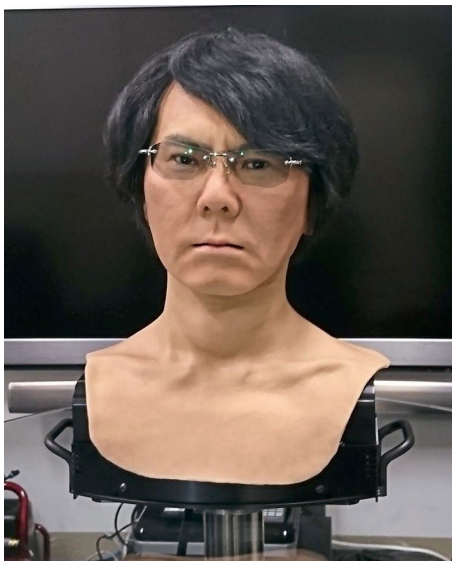
Imagine that you're sitting alone in your favorite café. You notice a middle-aged man who is sitting alone across the room and looking straight at you. You think he would look away as soon as you look him in the eyes but he seems to keep staring at you. You try to ignore him. A short while later, he approaches you. He seems polite. He asks you about your day and then starts telling you his stories without you asking him anything. He says that his name is John and his hobby is to collect human hair. John adds that it would be a huge honor for him if you could give him a small wisp of your hair for his collection. He also shows you a plastic bag full of hair that he already collected that day. You stand up and leave the café.

Here you can see the picture that accompanied the description.

Humanoid Robot Agent

Imagine that you are planning to take some time off and go on a vacation. To find the perfect destination, you search on the Internet for a while. However, you decide that it's better to consult someone regarding the prices and details of possible destinations. For this reason, you go to a nearby travel agency Travelics. Travelics use humanoid robots like the one shown below instead of real humans as travel agents. You walk into the agency branch. A humanoid robot named John shown below sees you and immediately greets you by your full name. Robot John offers you a seat and as soon as you sit down in front of him he starts offering you destinations. He already seems to roughly know when you plan to travel and also which locations you are interested in. You try to make sense of it but you only remember that you booked a trip with the travel agency Travelics only once years ago.

Here you can see the picture that accompanied the description.



Low Creepiness Group

Imagine that you are planning to take some time off and go on a vacation. To find the perfect destination, you search on the Internet for a while. However, you decide that it's better to consult someone regarding the prices and details of possible destinations. For this reason, you go to a nearby travel agency Travelics. You walk into the agency branch. A person working there sees you and immediately greets you and asks you for your name. The travel agent offers you a seat and as soon as you sit down she asks you about your preferences and the dates before she starts offering you destinations. You remember that you booked a trip with the travel agency Travelics once years ago. After the consultation you leave the agency and go back home.

Here you can see the picture that accompanied the description.

Table B.1. Regression analysis summary for ambiguity predicting uneasiness.

Antecedent	B	SE(B)	β	*t*	*p*
Constant	1.19	.27		4.39	.00
Ambiguity	.79	.06	.64	13.83	.00

Note. $R^2 = .41$.

Table B.2. Regression analysis summary for intrusive surveillance predicting uneasiness.

Antecedent	B	SE(B)	β	*t*	*p*
Constant	.48	.17		2.82	.01
Intrusive Surveillance	.88	.03	.85	27.10	.00

Note. $R^2 = .73$.

Table B.3. Regression analysis summary for uneasiness predicting reactance.

Antecedent	B	SE(B)	β	*t*	*p*
Constant	1.12	.18		6.26	.00
Uneasiness	.76	.04	.79	21.55	.00

Note. $R^2 = .63$.

Table B.4. Regression analysis for ambiguity and intrusive surveillance predicting uneasiness.

						Collinearity Statistics	
Antecedent	B	SE(B)	β	*t*	*p*	Tolerance	VIF
Constant	-.03	.19		-.18	.86		
Ambiguity	.24	.05	.20	5.30	.00	.64	1.57
Intrusive Surveillance	.75	.04	.73	19.48	.00	.64	1.57

Note. $R^2 = .75$.

Table B.5. Manipulation effectiveness for the level of perceived creepiness for Study 1a.

Conditions	Personal Selling	Strange Person	Humanoid Robot	Low Creepiness
Constructs				
Creepiness	$F(3, 272) = 50.07, p < .001$			
Mean	5.73*	5.92*	5.09†*	2.84
Standard Error	.19	.17	.19	.24

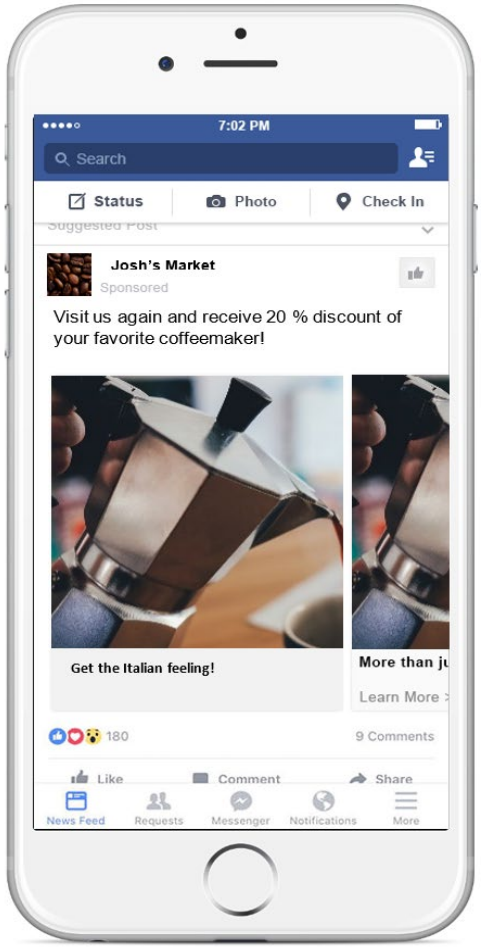
Note. † mean value is different from the mean value of strange person at the $p < .05$ significance level; * mean value is different from the mean value of the control group at the $p < .001$ significance level; all other differences are not significant.

Appendix C Additional Information on Study 1b

Stimuli Description Video Tracking

You love coffee and you know how important it is to have a good coffee maker. Since you currently don't have one you decide to see if you can find a good one in the local supermarket. You go to the supermarket Josh's Market. You take a look at the coffee makers they offer in the store. You see one particular Italian coffee maker that you like. You take it from the shelf and start examining it. However, because of the quite high price you decide not to buy it and to leave the shop. In the short time that you spent in the shop, you didn't have the chance to talk to any of the shop employees or to look at other products.

Upon arrival home, you log in to your Facebook profile and scroll through the newsfeed after which you suddenly see the following ad. Please click next and look at the ad very carefully.



Stimuli Description Location Marketing

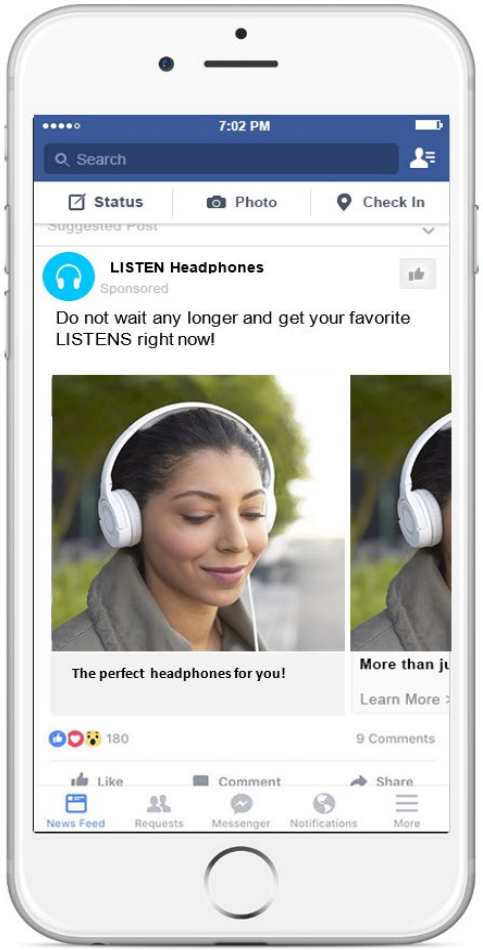
On a Saturday morning, you stroll through the city center looking for something nice to buy for yourself. A nice pair of glasses in a store window of the SIU EYEWEAR company catches your attention. After spending a short while admiring the glasses in the store window you realize that you already own a nice pair of glasses and therefore don't really need to go inside the store. You continue your way through the city for another while before meeting some friends for dinner.

Upon arrival home, you log in to your Facebook profile and scroll through the newsfeed after which you suddenly see the following ad. Please click next and look at the ad very carefully.

Stimuli Description Retargeting

You enjoy listening to good music at work. You don't want to disturb your office neighbors and so you decide to look for high quality headphones that you could use while working in the office. Since you don't know which ones would be the best for you, you start a search in Google. After searching for a while, you find the perfect headphones for you from the brand LISTEN. In addition, the white color of the headphones is to your liking. Even though you are pretty convinced that these headphones are the right ones for you, you still want to take some time and think about the costly investment.

Upon arrival home, you log in to your Facebook profile and scroll through the newsfeed after which you suddenly see the following ad. Please click next and look at the ad very carefully.



Stimuli Description Voice Regocnition

You meet your friend for a coffee in a local café. You arrive at the café where your friend is already waiting for you. Before sitting down, out of habit, you put your smartphone on the table even though you know that you will not use it. After chatting with your friend about how your day is going, you switch to the topic of traveling. You start telling your friend about your plan to travel to Paris. You talk about all the nice places you want to see and explore in Paris. Your friend gives you some suggestions regarding what to visit. For a while, you are sitting there sipping your coffee and talking about how nice it would be to spend some time in Paris. Throughout the whole conversation, you never use your smartphone that still lies untouched on the table. After a while, you say goodbye to your friend and leave the café. Upon arrival home, you log in to your Facebook profile and scroll through the newsfeed after which you suddenly see the following ad. Please click next and look at the ad very carefully.

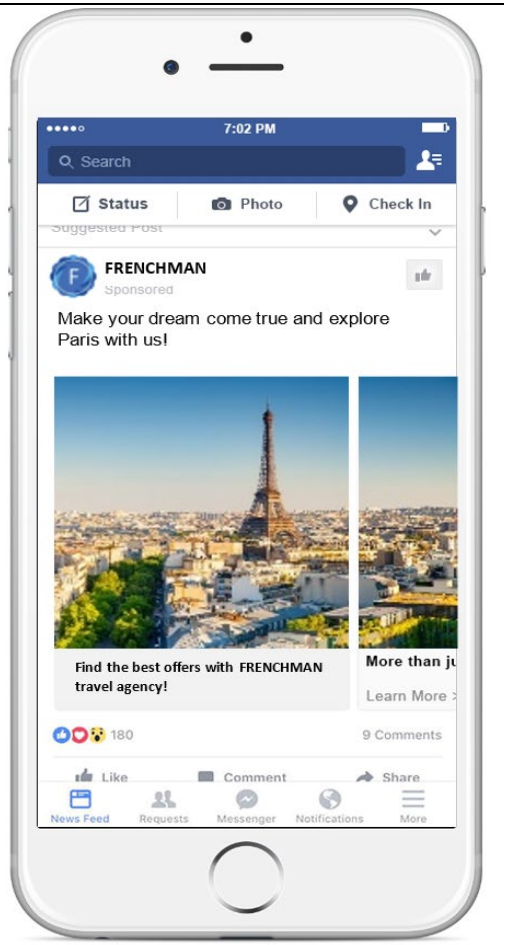


Table C.1. Regression analysis summary for ambiguity predicting uneasiness.

Antecedent	B	SE(B)	β	*t*	*p*
Constant	3.24	.19		16.63	.00
Ambiguity	.41	.05	.42	9.11	.00

Note. $R^2 = .18$.

Table C.2. Regression analysis summary for intrusive surveillance predicting uneasiness.

Antecedent	B	SE(B)	β	*t*	*p*
Constant	.32	.20		1.58	.12
Intrusive Surveillance	.86	.04	.77	23.36	.00

Note. $R^2 = .59$.

Table C.3. Regression analysis summary for uneasiness predicting reactance.

Antecedent	B	SE(B)	β	*t*	*p*
Constant	1.83	.17		10.81	.00
Uneasiness	.62	.03	.69	18.90	.00

Note. $R^2 = .48$.

Table C.4. Regression analysis for ambiguity and intrusive surveillance predicting uneasiness.

						Collinearity Statistics	
Antecedent	B	SE(B)	β	*t*	*p*	Tolerance	VIF
Constant	-.01	.21		-.05	.96		
Ambiguity	.17	.03	.18	5.26	.00	.88	1.14
Intrusive Surveillance	.79	.04	.70	20.84	.00	.88	1.14

Not. $R^2 = .61$.

Table C.5. Midpoint comparisons of creepiness using one-sample.

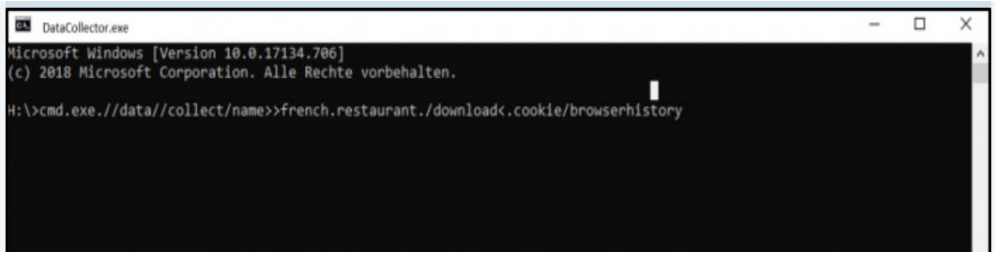
							95% Confidence Interval of the Difference	
	Mean	SE	T	*df*	Sig (2-tailed)	Mean Diff.	Lower	Upper
Video Tracking	4.79	.17	4.55	98	.00	.07	.45	1.14
Location	5.14	.16	7.05	98	.00	1.14	.82	1.46
Retargeting	5.10	.15	7.50	91	.00	1.10	.81	1.40
Voice Recognition	5.44	.16	8.95	96	.00	1.44	1.12	1.76

Appendix D Additional Information on Study 2

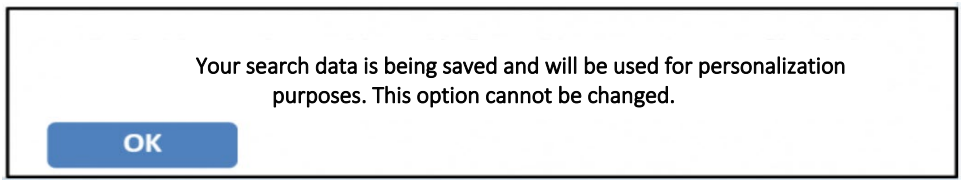
Stimuli description

Relatively High Creepiness

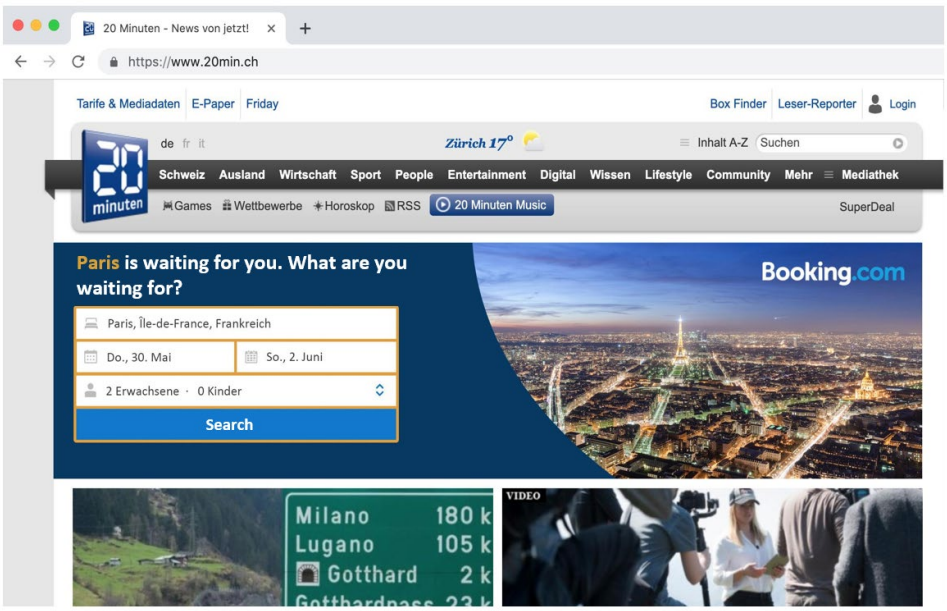
It's a Saturday morning and you've slept well. After making coffee, you sit down in front of your computer. You have no specific plans for today and decide to surf the web a bit. While surfing, you suddenly remember that you should choose a restaurant for dinner with your colleague for tonight. You know that your colleague particularly likes French food. You therefore go to www.google.com and enter the following in the search line: «French restaurants near me». You look at a couple of restaurants and find something. You reserve a table for tonight. When the reservation is confirmed on the website, the following window appears briefly.



Before you can click anything, the window closes again, and you see the originally loaded page on which you can navigate normally. When you want to close the browser, the following additional window appears.



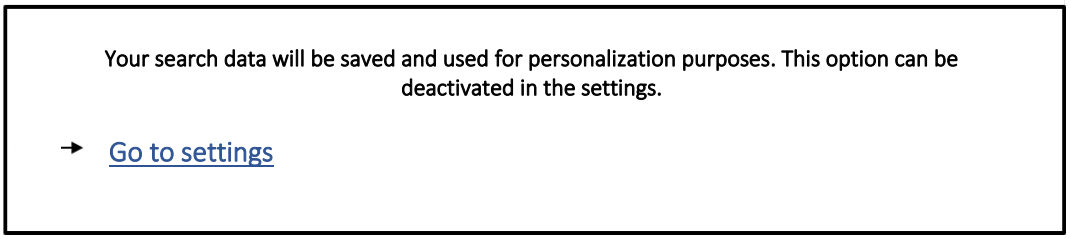
You can only click on «OK» to close the window. After that, you stop surfing the Internet. In the evening, before you go to bed, you would like to find out about current events in the world and open the page www.20min.ch (newspaper) in your browser. The following online ad appears directly on the homepage.



Relatively Low Creepiness

It's a Saturday morning and you've slept well. After making coffee, you sit down in front of your computer. You have no specific plans for today and decide to surf the web a bit. You feel the desire to go on a city trip again. You go to www.google.com and enter «Paris» in the search line because you have been wanting to visit Paris for a long time. You scroll over the first page of the search results and click on some of the results. You would like to find out more about a trip to Paris. To do so, you go to the page of a travel blogger. When the page is completely loaded, the following message appears above.

You look at a travel report about Paris and close the page. Finally, you would like to get an idea of the hotel situation in Paris. For this reason, you go to www.booking.com. After you have scanned the results of the search, you want to postpone the topic of travel until later. When you want to close the browser, the following window appears:



You take note of this and close the window. In the evening, before you go to bed, you would like to find out about current events in the world and open the page www.20min.ch (newspaper) in your browser. The following online ad appears directly on the homepage:

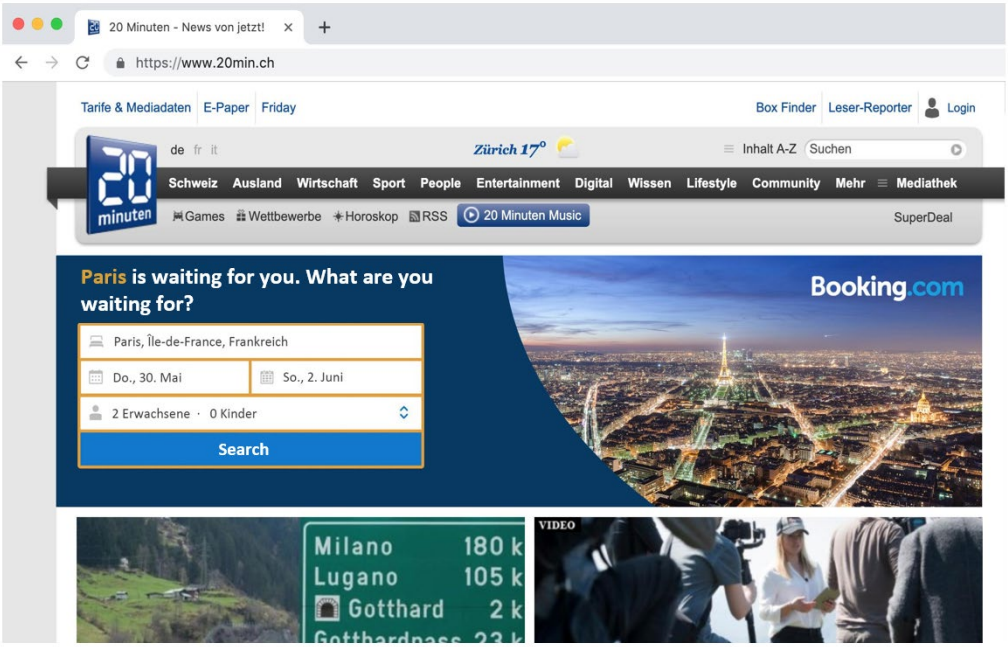


Table D.1. Mean values, standard errors, and t-test values for pretest of Study 2.

Condition	Relatively High Creepiness		Relatively Low Creepiness				
Construct	Mean	SE	Mean	SE	*t*	*df*	*p*
Ambiguity	3.60	.23	2.29	.20	-4.26	78	.00
Intrusive Surveillance	5.48	.17	4.91	.21	-2.06	78	.04
Credibility	5.51	.18	6.10	.24	1.87	78	.07

Table D.2. Regression coefficients, SE, and model summary information for brand attitude and purchase intention serial mediator model for Study 2.

	Consequent													
		Uneasiness (M_1)					Reactance (M_2)					Brand Attitude (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	2.58	2.33	11.04	.00	i_2	1.65	.23	7.12	.00	i_3	5.00	.19	26.36	.00
High vs. low appraisals	a_1	.71	.15	4.84	.00	d_1	.09	.13	.69	.49	c'_1	.13	.10	1.27	.20
Uneasiness (M_1)		—	—	—	—	d_2	.68	.04	16.06	.00	b_2	-.06	.04	-1.51	.13
Reactance (M_2)		—	—	—	—		—	—	—	—	b_3	-.15	.04	-3.99	.00
	$R^2 = .05$, $F(1,423) = 23.47$, $p < .001$					$R^2 = .40$, $F(2, 422) = 139.09$, $p < .001$					$R^2 = .09$ $F(3, 421) = 13.75$, $p < .001$				

	Consequent													
		Uneasiness (M_1)					Reactance (M_2)					Purchase Intention (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	2.58	.23	11.04	.00	i_2	1.65	.23	7.12	.00	i_3	5.05	.30	16.64	.00
High vs. low appraisals	a_1	.71	.15	4.84	.00	d_1	.09	.13	.69	.49	c'_1	.11	.16	.68	.50
Uneasiness (M_1)		—	—	—	—	d_2	.68	.04	16.06	.00	b_2	-.00	.06	-.06	.95
Reactance (M_2)		—	—	—	—		—	—	—	—	b_3	-.18	.06	-2.93	.00
	$R^2 = .05$, $F(1, 423) = 23.47$, $p < .001$					$R^2 = .39$, $F(2, 422) = 139.09$, $p < .001$					$R^2 = .03$ $F(3,421) = 4.74$, $p < .001$				

Note. Regression Coefficients are unstandardized. PROCESS models were calculated with the HC3 estimator, which means that all standard errors for continuous outcome models were based on the hc3 estimator. Level of confidence for all confidence intervals 95%.

Web Appendix E Additional Information on Study 3

Nike Brand description

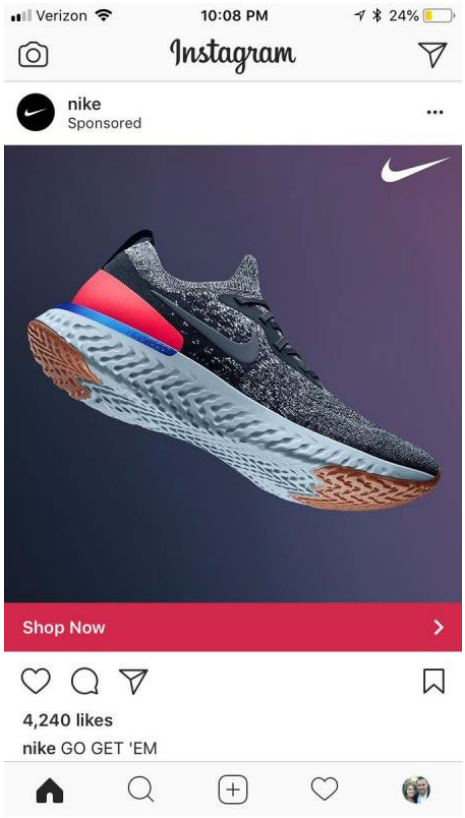
NIKE, Inc. is an American multinational corporation that is engaged in the design, development, manufacturing, and worldwide marketing and sales of footwear, apparel, equipment, and accessories. The company is headquartered near Beaverton, Oregon, in the Portland metropolitan area. It is the world's largest supplier of athletic shoes and apparel and a major manufacturer of sports equipment.

High ambiguity and intrusive surveillance

On a Saturday afternoon, you meet your good friend for a coffee in your favorite local café. You arrive at the café where your friend is already waiting for you. Before sitting down, out of habit, you put your smartphone on the table next to your coffee cup even though you know that you will not use it during the conversation. After chatting with your friend about how your day is going, you switch to the topic of shoes. You start telling your friend that you need new sneakers. Your friend gives you some suggestions regarding the sneakers. She recommends you get some Nike sneakers since she has a pair of grey Nike sneakers herself. For a while, you are sitting there sipping your coffee and talking about Nike footwear. You also discuss how expensive the Nike sneakers are and where to get them. Throughout the whole conversation, you never use your smartphone that still lies untouched on the table. After a while, you say goodbye to your friend and leave the café.

Upon arrival home, you open your social media app Instagram on your smartphone and scroll through the feed. Suddenly you see the following ad. Please click next and look at the ad very carefully.

Instagram advertisement presented to both groups.



Control Group

On a Saturday afternoon, you meet your good friend for a coffee in your favorite local café. You arrive at the café where your friend is already waiting for you. You order some coffee and stay in the café for a while. You chat with your friend about your day and other topics. After some time, you say goodbye and leave the café.

Upon arrival home, you open your social media app Instagram on your smartphone and scroll through the feed. Suddenly you see the following ad. Please click next and look at the ad very carefully.

Table E.1. Independent sample t-test results for study 3.

Condition	Treatment Group		Control Group				
Construct	Mean	SE	Mean	SE	*t*	*df*	*p*
Ambiguity	3.07	.12	2.39	.10	-4.39	332.55	.00
Intrusive Surveillance	5.00	.15	2.71	.13	-11.69	336.88	.00
Uneasiness	4.48	.16	2.24	.11	-11.61	312.03	.00
Reactance	4.67	.16	3.20	.11	-7.58	346	.00

Table E.2. Regression coefficients, standard errors, and model summary information for purchase intention serial mediator model for Study 3.

		Consequent												
		Uneasiness (M_1)					Reactance (M_2)					Purchase Intention (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	1.62	.21	7.62	.00	i_2	1.56	.16	10.04	.00	i_3	4.43	.23	19.67	.00
Ambiguity	a_1	.64	.07	9.34	.00	d_1	.02	.05	.45	.65	c'_1	.14	.07	2.06	.04
Uneasiness (M_1)		—	—	—	—	d_2	.69	.04	19.05	.00	b_2	.06	.07	.94	.35
Reactance (M_2)		—	—	—	—		—	—	—	—	b_3	-.42	.04	-6.14	.00
		$R^2 = .20$, $F(1,348) = 87.18$, $p < .001$					$R^2 = .57$, $F(2, 347) = 231.78$, $p < .001$					$R^2 = .15$, $F(3, 346) = 20.67$, $p < .001$			

		Consequent												
		Uneasiness (M_1)					Reactance (M_2)					Purchase Intention (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	-.06	.10	-.55	.58	i_2	1.32	.14	9.70	.00	i_3	4.60	.20	22.58	.00
Intrusive Surveillance	a_1	.89	.02	38.81	.00	d_1	.36	.07	5.04	.00	c'_1	.12	.10	1.18	.24
Uneasiness (M_1)		—	—	—	—	d_2	.37	.07	5.11	.00	b_2	.01	.10	.12	.90
Reactance (M_2)		—	—	—	—		—	—	—	—	b_3	-.44	.07	-6.16	.00
		$R^2 = .81$, $F(1, 348) = 1506.47$, $p < .001$					$R^2 = .60$, $F(2, 347) = 261.19$, $p < .001$					$R^2 = .15$ $F(3,346) = 19.56$, $p < .001$			

Note. Regression Coefficients are unstandardized. Level of confidence for all confidence intervals 95%.

Table E.3. Regression coefficients, standard errors, and conditional indirect effects of ambiguity on purchase intention through uneasiness and reactance for Study 3.

	Consequent													
		Uneasiness (M_1)					Reactance (M_2)					Purchase Intention (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	1.62	.21	7.62	.00	i_2	1.56	.16	10.04	.00	i_3	-.26	.57	-.45	.65
Ambiguity (X)	a_1	.64	.07	9.34	.00	d_1	.02	.05	.45	.65	c'_1	.10	.05	1.80	.07
Uneasiness (M_1)		—	—	—	—	d_2	.69	.04	19.05	.00	b_2	-.02	.05	-.33	.74
Reactance (M_2)		—	—	—	—		—	—	—	—	b_3	.11	.12	.93	.35
Brand Trust (W)		—	—	—	—		—	—	—	—	b_4	.98	.11	8.57	.00
X * W		—	—	—	—		—	—	—	—	b_5	-.08	.03	-3.04	.00
		R^2 = .20, F(1,348) = 87.18, p < .001					R^2 = .57, F(2, 347) = 231.78, p < .001					R^2 = .44, F(5.344) = 54.92, p < .001			

	Conditional Effects of Reactance at Brand Trust, M ± 1 SD					
Brand Trust	Effect	SE	*t*	*p*	LLCI	ULCI
- 1 SD	-.11	.07	-1.62	.11	-.24	.02
M	-.22	.06	-3.79	.00	-.33	-.11
+ 1 SD	-.33	.07	-4.68	.00	-.47	-.19

Note. Regression Coefficients are unstandardized. Level of confidence for all confidence intervals 95%, Number of bootstrap samples for percentile bootstrap confidence intervals: 10'000, W values in conditional tables are the mean and +/- SD from the mean.

Table E.4. Regression coefficients, standard errors, and conditional indirect effects of ambiguity on purchase intention through uneasiness and reactance for Study 3.

	Consequent													
		Uneasiness (M_1)					Reactance (M_2)					Purchase Intention (Y)			
Antecedent		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*		Coeff.	SE	*t*	*p*
Constant	i_1	-.06	.10	-.55	.58	i_2	1.32	.14	9.70	.00	i_3	-.04	.56	-.08	.94
Intrusive Surveillance	a_1	.89	.02	38.81	.00	d_1	.36	.07	5.04	.00	c'_1	.13	.08	1.61	.11
Uneasiness (M_1)		—	—	—	—	d_2	.37	.07	5.11	.00	b_2	-.09	.08	-1.14	.26
Reactance (M_2)		—	—	—	—		—	—	—	—	b_3	.06	.12	.46	.64
Brand Trust (W)		—	—	—	—		—	—	—	—	b_4	.96	.11	8.36	.00
X * W		—	—	—	—		—	—	—	—	b_5	-.07	.03	-2.71	.01
	$R^2 = .81$, $F(1, 348) = 1506.47$, $p < .001$					$R^2 = .60$, $F(2, 347) = 261.19$, $p < .001$					$R^2 = .44$ $F(5, 344) = 54.69$, $p < .001$				

	Conditional Effects of Reactance at Brand Trust, M ± 1 SD					
Brand Trust	Effect	SE	*t*	*p*	LLCI	ULCI
- 1 SD	-.14	.07	-2.01	.05	-.27	.00
M	-.24	.06	-3.97	.00	-.36	-.12
+ 1 SD	-.34	.07	-4.71	.00	-.48	-.20

Note. Regression Coefficients are unstandardized. Level of confidence for all confidence intervals 95%, Number of bootstrap samples for percentile bootstrap confidence intervals: 10’000, W values in conditional tables are the mean and +/- SD from the mean.

Photo References

Photograph of travel agency. https://www.endecor.us

Photograph of a humanoid robot Geminoid HI-1. *Hiroshi Ishiguro Laboratory*. http://www.geminoid.jp/en/index.html

Photograph of pouring coffee. *Adobe Stock*. https://stock.adobe.com/images/Pouring-coffee/217850419?as_campaign=TinEye&as_content=tineye_match&epi1=217850419&tduid=899f8c31e3f65980a0757d37eecebf53&as_channel=affiliate&as_campclass=redirect&as_source=Arvato

Photograph of cityscape of Paris by sunset. *Adobe Stock.* https://stock.adobe.com/images/cityscape-of-paris-by-the-sunset/119257632?as_campaign=TinEye&as_content=tineye_match&epi1=119257632&tduid=899f8c31e3f65980a0757d37eecebf53&as_channel=affiliate&as_campclass=redirect&as_source=Arvato

Photograph of woman with headphones. *Amazon Basic Store*. https://www.amazon.com/AmazonBasics-Lightweight-On-Ear-Headphones-Black/dp/B00NBEWB4U

Photograph of online newspaper site. *20 Minuten*. https://www.20min.ch

Photograph of Nike sneakers. *Nike.com.* https://news.nike.com/footwear/nike-epic-react-april-colorways

Declaration of Independence

I hereby declare that I have written this thesis without any help from others and without the use of documents and aids other than those stated above. I have mentioned all used sources and cited them correctly according to established academic citation rules. I am aware that otherwise the Senat is entitled to revoke the degree awarded on the basis of this thesis, according to article 36 paragraph 1 letter o of the University Act from 5 September 1996.

Bern, 21st March 2022 Alisa Petrova