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Technically feasible, ethically questionable? Psychological pitfalls of digital eavesdropping

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ABSTRACT

Digital eavesdropping refers to a little-known yet legally permissible data provenance technology that enables mobile devices to listen to personal ("face-to-face") conversations, to identify keywords, and to deliver personalized advertisements to unsuspecting users. Unlike (re-)targeting, which relies on online browsing behavioral data provenance, digital eavesdropping generates personalized advertising based on spoken (offline) words. Across seven experiments involving various products and services, it is demonstrated that digital eavesdropping elicits heightened perceptions of creepiness – exceeding that of retargeting. This creepiness triggers adverse reactions to advertisements, including negative attitudes and reduced click-through, indifferent to trait variables. These effects are especially pronounced when ads are perceived as accurately tailored to consumers' former voiced desires and, surprisingly, when consumers are explicitly informed about the ad algorithms and how digital eavesdropping operates. The findings suggest that the implementation of digital eavesdropping harms marketing effectiveness, should be approached with caution, and employed only under highly restricted circumstances.

1. Introduction, contribution, integrative theoretical framework, and research program

> "Well, you got your phone face down on the table, and you're talking about … shoe deodorizers, then you go on your computer and what pops up? A shoe deodorizing ad. Then you get an email, and it's all about shoe deodorizing. Then you're walking down the street – shoe deodorizing. You can't escape it… Uh, that's how they know!"

This example, from the first episode of season six of Netflix's hit show *Black Mirror*, titled "Joan is Awful" (Brooker and Pankiw, 2023), illustrates the general questions of this article.

Personalized advertising increasingly draws on data whose provenance is opaque to consumers. A salient case is digital eavesdropping (DE) – ads personalized from the content of private conversations captured near mobile devices – versus retargeting, a prevailing practice in advertising which relies on past online behavior (e.g., site visits, purchases). Both practices are legally permissible, yet consumers often struggle to locate the boundary between helpful personalization and unsettling surveillance. This paper examines when and why DE elicits perceived creepiness and diminishes advertising effectiveness, a topic that has not yet been systematically examined in marketing, despite the technology's increasing application (Pippig, 2024; Segijn et al., 2025). In a public reel, Instagram head Adam Mosseri (2025) addresses ongoing discussions about eavesdropping for advertising purposes. Nevertheless, the majority of users appear convinced that eavesdropping is constantly occurring, as reflected in the reel's comments, causing outrage.

The theoretical lens is creepiness, which refers to an affective response marked by emotional unease related to cognitive ambiguity about what is wrong and how to respond (Langer and König, 2018). DE is hypothesized to heighten creepiness more than retargeting because it renders the provenance and intent of data capture less legible, blurring social and contextual norms in ways consumers cannot readily diagnose. By contrast, retargeting is typically traceable to visible online actions. In digital advertising, this traceability matters because consumer decisions are low-cost and immediate: if an ad feels creepy, consumers can withhold attention, avoid clicking without resolving the uncertainty or simply ignore it. Comparing DE to retargeting enables substantial inference and isolates mechanism: personalization remains constant; only data provenance varies, so differences reflect provenance-driven reactions.

While prior work has documented concerns about data-driven

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personalization (Strycharz and Segijn, 2024), causal evidence that data provenance (DE vs. retargeting) shapes creepiness and behavior differently remains scarce. Existing studies on DE are largely survey-based (Segijn et al., 2024; Segijn et al., 2025) or correlational (Frick et al., 2021), limiting internal validity and leverage on mechanism. In addition, research has not clarified the role of personalization accuracy in DE contexts, which may signal relevance (a benefit) yet also deepen inferences about surveillance, nor has research established whether disclosing advertising algorithms about how DE works: whether it mitigates or amplifies creepiness by making surveillance more transparent (and thus understandable) or more salient (and thus unsettling).

This paper addresses these research gaps with seven experimental studies that provide causal evidence on: a) how data provenance (DE vs. retargeting) shapes creepiness and advertising effectiveness; b) how personalization accuracy under DE affects creepiness and outcomes across providers and categories; and c) whether advertising algorithm disclosure diminishes or heightens these effects. The studies span different providers and product categories and incorporate both attitudinal and behavioral outcomes, increasing robustness and practical relevance. This research also explores boundary conditions by considering individual differences (e.g., affinity for practicability in ads, privacy cynicism), assuming that consumers can simultaneously value relevance and resent opaque data practices.

Accordingly, the research addresses three questions:

RQ1: Does data provenance (DE vs. retargeting) causally increase perceived creepiness and reduce advertising effectiveness?
RQ2: How does personalization accuracy under DE influence creepiness and effectiveness across providers and product categories?
RQ3: Does advertising algorithm disclosure mitigate or amplify creepiness and its consequences?

Across studies, a single framework is adopted in which antecedents that reduce the legibility of data practices, specifically data provenance (DE vs. retargeting), personalization accuracy under DE, and advertising algorithm disclosure, increase perceived creepiness and in turn reduce advertising effectiveness. Each study manipulates one antecedent lever and tests the corresponding part of this pathway, and the framework is cumulatively evaluated across providers and product categories.

The remainder of the paper defines constructs and develops hypotheses, details the experimental designs and measures, reports results, and discusses theoretical and managerial implications for designing personalization that maximizes relevance while minimizing creepiness. Fig. 1 presents an integrative theoretical framework that synthesizes the conceptual model.

2. Theoretical background

2.1. The concept of creepiness

Research on creepiness in consumer contexts is emerging (Rajaobelina et al., 2021). Originally, McAndrew and Koehnke (2016) defined creepiness as arising from uncertain situations, where individuals feel uneasy without encountering anything explicitly frightening. Langer and König (2018) further developed the concept within psychology, describing it as a negative emotional response combined with ambiguous perceptions towards a person, technology, or situation. Operationalized through the CRoSS scale, creepiness shows two correlated facets – emotional creepiness (unease) and creepy ambiguity (uncertainty about judgments and appropriate actions) (Langer and König, 2018) – that often manifest as a single, unified perception in technology-mediated interactions (e.g., Torkamaan et al., 2019). Creepiness has been used to explain consumer reactions to recommendation systems (Torkamaan et al., 2019) and chatbots (Rajaobelina et al., 2021) that feel "too knowing" or inscrutable.

Accordingly, creepiness is broader than appearance-based eeriness and more specific than general discomfort: it refers to unease because its provenance, intention, or implications are unclear (e.g., opaque personalization or data inferences), whereas discomfort is unpleasantness that need not involve ambiguity (e.g., a clunky interface).

2.2. Bridging creepiness and its significance for online advertising with related constructs and digital eavesdropping

2.2.1. Bridging creepiness with privacy and related constructs

Research on digital advertising highlights privacy concerns, perceived control, and surveillance beliefs as core antecedents of consumer responses to data use (e.g., social listening; data-driven tailoring) and often links these to feelings of creepiness (Jagadish, 2020; Palos-Sanchez et al., 2018; Tene and Polonetsky, 2014). This research builds on this stream by distinguishing privacy concern from perceived creepiness. Privacy concern is a concrete, cognitive evaluation of identifiable data practices (e.g., whether specific data are collected, used, or shared in a given context; Hong and Thong, 2013). Creepiness, however, is a more diffuse affective state of emotional unease related to ambiguity about what is happening and how to respond (Langer and König, 2018).

In personalization, consumers may value relevance yet still experience creepiness when an ad's data provenance is unclear. This distinction helps explain "privacy paradox" findings (Mourey and Waldman, 2020): people can report high concern yet still disclose data, while creepiness emerges at the moment of exposure when provenance feels opaque. Consistent with this account, when consumers infer covert data use, they may perceive a psychological contract breach, reducing receptivity to personalized ads (Cai and Mardani, 2023).

2.2.2. Reactions to data-driven advertising and the involvement of digital eavesdropping

Previous work on online behavioral advertising has documented how perceived intrusiveness, reactance, trust, and disclosure shape responses (Stevens and Newmeyer, 2017; Tene and Polonetsky, 2014), including ad avoidance (Segijn & van Ooijen, 2022). This research positions DE within this stream as a case where provenance is especially opaque: consumers may struggle to link the ad to any visible online action, thus

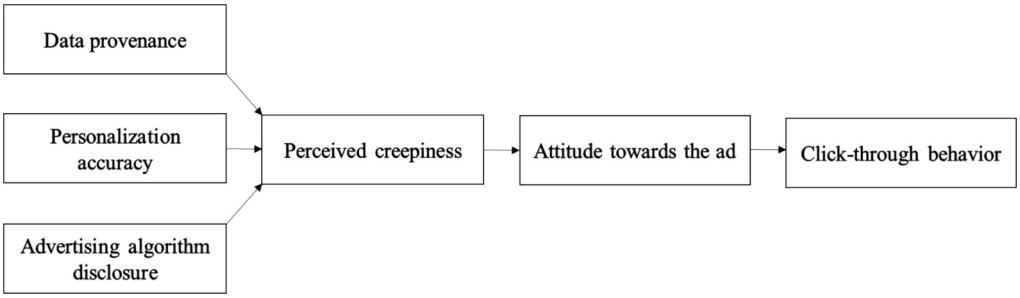

Fig. 1. Integrative theoretical framework.

elevating creepiness. This work uses DE to denote personalized ads that plausibly draw on interpersonal, near-device verbal conversations (i.e., an offline data-provenance case). Related work has used labels such as "mobile eavesdropping" (Kröger and Raschke, 2019), "surveillance effect" (Frick et al., 2021), "conversation-related advertising" (Segijn et al., 2024), and "e-eavesdropping" (Segijn et al., 2025); conceptually, DE is a specific instance of perceived digital surveillance/dataveillance in advertising. The analyses presented in this work and measures are aligned to this conversation-based provenance.

Prior research suggests that when consumers engage in social activities, such as discussing general topics, and subsequently receive recommendations related to those activities (a phenomenon known as cross-platform presentation; Torkamaan et al., 2019), their difficulty in understanding the underlying cause constitutes a key antecedent of perceived creepiness. In DE, media and marketplace developments illustrate salience and feasibility (e.g., smart-assistant listening incidents; cross-device and audio watermarking that can trigger mobile ads; Pippig, 2024; Segijn & van Ooijen, 2022), and industry discourse indicates emerging business models around "Active Listening" (Fidler, 2023), with new technologies often carrying the risk of eavesdropping, as seen with Apple's AirPods models (O'Flaherty, 2024).

While debate continues over the prevalence of DE (Kröger and Raschke, 2019), surveys report widespread familiarity and self-reported experience (Frick et al., 2021; Segijn et al., 2024; Segijn et al., 2025), and qualitative work notes consumer avoidance behaviors (e.g., device deactivation in intimate contexts; Abdi et al., 2019). DE can use audio watermarking to detect speech in media and trigger mobile ads (Segijn & van Ooijen, 2022); this is typically lawful when users accept app terms (Segijn, 2019), which they often do without thinking about it (Zhu and Zhang, 2025). Users may infer DE from cues such as targeted ads after conversations (including keyword tests), repeated occurrences, or OS microphone-access alerts.

Prior work (Frick et al., 2021; Kröger and Raschke, 2019; Segijn et al., 2024; Segijn et al., 2025) has already stressed the importance of investigating consumers' attitudes and behaviors regarding DE rather than dismissing these concerns as urban myths. This motivates causal tests that isolate data provenance (DE vs. retargeting) and then, within DE, examine how personalization accuracy and advertising algorithm disclosure alter creepiness and advertising effectiveness.

Table 1 synthesizes prior research on DE and highlights a distinct gap in randomized experimental studies, both in comparison to retargeting and within DE data provenance itself.

2.2.3. Ethics and contextual norms

Ethics-of-practice perspectives emphasize contextual norms and dataveillance (Luzak et al., 2023; Strycharz and Segijn, 2024): data use may be lawful yet still violate expectations about appropriate information flows. By drawing on private, near-device conversations, DE risks breaching contextual norms, which this research models psychologically as increasing perceived creepiness and, in turn, reducing advertising effectiveness. Prior work (e.g., Kim et al., 2019) typically assumes that transparency mitigates creepiness by clarifying data use. This work, however, advances the opposite prediction: algorithmic disclosure heightens creepiness by foregrounding surveillance; the experiments below directly adjudicate these competing accounts. Likewise, higher personalization accuracy may signal relevance but also intensify surveillance inferences when provenance is DE, explaining why accuracy can backfire in this context.

In sum, while privacy concerns, data-driven advertising reactions, and ethics scholarship explain why opaque data use can be problematic, causal evidence on how data provenance, personalization accuracy, and advertising algorithm disclosure shift creepiness and advertising effectiveness remains limited, revealing the gaps this multi-study investigation addresses, as depicted earlier in Fig. 1.

Table 1
Overview on prior DE research.

Research paper	Method, (*N*)	Major findings
Green, 2018	Theoretical-conceptual (–)	- always-listening tech and cross-device tracking enable covert audio collection for ad targeting; U.S. privacy law is inadequate - platform policies/self-regulation leave major transparency and consent gaps which urge federal rules
Abdi et al., 2019	Semi-structured interviews (17)	- Alexa/Google Home users hold incomplete mental models (e.g., overlooking cloud parties) which lead to non-technical coping (e.g., muting/turning off devices in intimate contexts, limiting tasks)
Kröger and Raschke, 2019	Theoretical-conceptual/case studies (–)	- always-listening tech makes covert audio capture technically feasible, raising concerns that everyday conversations can be exploited for advertising (profiling, targeting) without user awareness - demonstrated technical evidence (e.g., apps recording in the background, ultrasonic beacons) show how DE extends beyond coincidence
Frick et al., 2021	Survey-based/ correlational (227)	- belief that smart devices secretly record speech for targeted advertising is widespread; strongest predictors are low trust in devices, computer anxiety, and prior negative experience
Strycharz and Segijn, 2022	Theoretical-conceptual (–)	- conceptualization dataveillance in digital advertising as automated, continuous data collection, and introduction of the DEAL framework to explain its effects - perceived surveillance influences consumers' cognitive, affective, and behavioral responses (privacy calculus, negative emotions, chilling effects), shaping ad effectiveness and resistance
Segijn et al., 2024	Survey-based/ correlational (886)	- maps conversation-related advertising and beliefs in phones listening across US, Netherlands, and Poland - majority reported such ads (US 78 %, NL 67 %, PL 53 %); more than half believe devices listen; experiences linked to social media ads, often shortly after conversations; negative emotions (creeped out, disturbed) dominate
Segijn et al., 2025	Survey-based/ correlational (886)	- US respondents (vs. NL, PL) show strongest e-eavesdropping belief; frequency of conversation-related ads, shorter time gaps, and higher conspiracy mentality predict stronger belief; tech savviness had little effect

2.3. Consequences of digital eavesdropping

Personalized online advertising based on prior online customer activity is known as retargeting (RT) (Kim et al., 2019), a prevailing practice of online behavioral data provenance (e.g., De Keyzer et al., 2024; Grigorios et al., 2022). DE (conversational data provenance), by contrast, tailors ads from offline interactions (e.g., proximate conversations). Empirical comparisons of reactions to DE and RT and downstream marketing effectiveness are limited; existing empirical DE work

is largely survey-based (Segijn et al., 2024; Segijn et al., 2025) or correlational (Frick et al., 2021); see Table 1.

Drawing on privacy calculus (Dinev and Hart, 2006), where consumers weigh benefits (e.g., ad relevance) against costs (e.g., perceived creepiness, privacy intrusion), this work argues that DE heightens perceived disadvantages due to its heightened privacy-intrusive nature, thereby elevating perceived creepiness relative to RT, which consumers more readily link to visible online actions (De Keyzer et al., 2024). Moreover, because many interpersonal conversations lack explicit shopping intent, DE-based ads may be perceived as less relevant than RT-based ads that follow recognizable browsing or purchase cues.

Given the limited research on DE, evidence from personalization research shows that targeting tied to prior online behavior can raise privacy concerns and perceptions of creepiness, increasing ad avoidance (such as in a cross-sectional survey by De Keyzer et al., 2024) and reducing click-through intentions (Kumar et al., 2024). DE-based ads may exacerbate these issues by crossing ethical boundaries and breaching expectations about appropriate information flows, as consumers are unlikely to expect their private conversations to serve as ad prompts, not only yielding intensified feelings of creepiness but also negatively impacting advertising responses generally, as well as attitudes (consumers' evaluative judgment of the ad) and behaviors (e.g., click-through behavior towards the marketer's online shop as the conative act). Consistently, surveys associate eavesdropping incidents with negative emotions (Segijn et al., 2024) and link DE-related beliefs to broader skepticism (Segijn et al., 2025).

A complementary lens is the DEAL framework (Strycharz and Segijn, 2022): consumers hold surveillance beliefs that can be activated by a "surveillance episode" (e.g., an ad appearing after an offline conversation), heightening perceived surveillance and consumer suspicion. Under DE, such activation is intensified, and in this work's account is assumed to lead to increased creepiness, reducing advertising effectiveness. DEAL (Strycharz and Segijn, 2022) therefore explains why making provenance more legible (vs. opaque) should shift creepiness and outcomes.

Additionally, since attitude towards the ad serves as a proximal predictor of click-through behavior in digital contexts (e.g., Bleier and Eisenbeiss, 2015a), and recent meta-analyses in digital-contexts (e.g., Maseeh et al., 2021) continue to treat attitude towards the ad as the key evaluative mediator linking ad perception to ad approach/avoidance behaviors, a serial sequence is tested that preserves the mechanism that would otherwise be obscured if attitude towards the ad was omitted.

Accordingly, this hypothesizes a baseline data-provenance effect and its mechanism:

H1: DE (vs. RT) results in a stronger feeling of creepiness (a). The more creepiness consumers perceive, the more negative the attitude towards the ad (b), and in turn the lower the probability of click-through towards the marketer's online shop (c).
H2: The effect between DE (vs. RT) and a lower probability of click-through towards the marketer's online shop is serially mediated by (M1) an increase in perceived creepiness and, in turn, (M2) a less-positive attitude towards the ad.

Additionally, this paper examines whether the consequences of creepiness (rather than its formation) vary with boundary conditions, namely two trait-level orientations towards advertising: affinity for practicability in ads (valuing convenient advertising benefits; Yassin and Rawas, 2022) and privacy cynicism (the belief that meaningful privacy protection is unattainable; Choi et al., 2018). Theoretically, these traits shape consumers' tolerance for feeling creeped out (e.g., trading off convenience and utility in advertising or normalizing surveillance) and are therefore more likely to moderate the translation of creepiness into attitudes and behaviors than the perception of creepiness itself, which should be controlled for. Accordingly, the serial mediation effect expressed in H2 is tested for moderation on the b-path (creepiness → attitude) via interaction terms (creepiness × affinity for practicability; creepiness × privacy cynicism).

2.4. Overly accurate personalized advertising

While the previous sections focused on data provenance through comparing consumer responses to DE-based versus retargeting-based advertising, the following sections examine the antecedents of perceived creepiness specifically within DE-based advertising.

Consumers usually encounter varying degrees of personalized ads online (Hardcastle et al., 2025). In the context of DE, this means that online advertisements may either *vaguely* or *exactly* reflect the topics consumers have previously discussed. Bleier and Eisenbeiss (2015a) suggest the concept of personalization depth (closeness of the advertisement–interest relationship), which is similar to Torkamaan et al.'s (2019) term "personalization accuracy" (PA). PA measures how closely online advertising matches consumers' needs. This research has adopted this concept as it has been applied in online marketing, although not yet in the context of DE-based ads.

Insights into its elicited reactions can be drawn from previous studies on PA in the context of online personalization attempts. For instance, an experiment by Bleier and Eisenbeiss (2015b) revealed that when analyzing delayed exposure to banner ads after visiting a website, a moderate PA level is more effective than a high PA level (an ad depicting a product similar to versus exactly the one previously chosen). Boerman and Smit's (2023) systematic literature suggests that personalization efforts may backfire if the line between moderate and highly accurate personalization is crossed. Additional qualitative research (Herder and Zhang, 2019) supports these findings, showing that highly accurate advertisements are viewed as privacy violations, evoking feelings of creepiness, and, in the context of recommendation systems, also negatively affect brand attitudes and purchase intentions (Torkamaan et al., 2019).

In sum, this research anticipates a linear increase in perceived creepiness with higher levels of PA, referring to an enhanced fit between the offline conversation and the product advertised. Reactions should be perceived as more privacy-invasive, thus more negative, if an ad exactly matches a previous conversation. As consumers encounter varying degrees of personalization online, this research looks at three different levels of PA and hypothesizes:

H3a: The higher the level of PA (low vs. medium vs. high), the more creepiness consumers perceive.
H3b: The effect between higher PA levels and a decline in attitude towards the ad is mediated by increased creepiness.

2.5. Advertising algorithm disclosure

This research also looks at advertising algorithm disclosure and its impact, referring to the revelation of information (Mourey and Waldman, 2020). By advertising algorithm disclosure in the context of DE, this research means telling consumers about the algorithmic process used to personalize the advertisements they see, thus explaining watermarking technologies. The literature presents contrasting views on whether disclosing advertising algorithms reduces or heightens the perceived creepiness of personalized ads, labeling complex consumer responses to different amounts of disclosures as "transparency trade-offs" (Butori and Miltgen, 2023).

Experimental studies indicate that transparency about advertising algorithms can enhance ad effectiveness (Kim et al., 2019) and reduce perceived creepiness in personalized communication (Stevens and Newmeyer, 2017); it is advocated from a consumer protection as well as an ethical transparency standpoint (e.g., Luzak et al., 2023). Open disclosure of data use fosters trust and elicits more favorable cognitive, attitudinal, and behavioral responses compared to secrecy (Grigorios et al., 2022).

Although disclosures are commonly promoted from a consumer protection standpoint, from a managerial perspective, non-disclosure of how DE-based advertising operates may offer strategic advantages. Supporting this view, experiments by Segijn et al. (2024) found that informing consumers about advertising algorithms increased their perceived sense of surveillance. Another experiment conducted by Strycharz and Segijn (2024) demonstrated that consumers generally perceive watermarking (an example of dataveillance strategies in contemporary digital advertising) as an invasion of their privacy. Similarly, qualitative research by Eslami et al. (2018) suggests that explanations about algorithmic processes, whether either too vague or too precise, increase feelings of creepiness.

In sum, this research hypothesizes from a managerial perspective that non-disclosure (vs. disclosure) will lead to reduced perceptions of creepiness, thereby fostering more favorable attitudinal and behavioral responses. This effect is expected to be especially pronounced in the context of DE, which is likely perceived as a violation of privacy boundaries.

This leads to the following hypotheses:

H4a: If information regarding advertising algorithms is not disclosed (vs. disclosed), this leads to less (more) perceived creepiness.
H4b: The effect between no ad algorithm disclosure (vs. disclosure) and increased click-through behavior is serially mediated by (M1) reduced creepiness and in turn a more (M2) positive attitude towards the ad.

3. Overview of studies

Seven studies were conducted – six online experiments using Qualtrics (2025) and one behavioral lab experiment (Study 3). Participants in the experimental groups did not significantly differ in socio-demographics in any of the studies. Manipulation checks for PA (Studies 4a–c) confirmed successful experimental manipulations, see *Appendix A* for details. Discriminant validity was ensured through factor analyses, respectively. While Studies 1–3 primarily investigated whether online advertising based on DE data provenance (vs. retargeting) reduces marketing effectiveness, Studies 4a–c and 5 focused on examining marketing effectiveness specifically within the context of DE-based advertising. Table 2 provides an overview of the underlying research questions.

Table 2
Overview of research questions for each of the studies.

Study 1	Do DE-based ads, compared to RT-based ads, generally elicit more negative ad responses? (differences in data provenance)
Study 2	Do DE-based ads, compared to RT-based ads, result in heightened perceptions of creepiness, as well as more negative attitudinal and behavioral responses? Are there boundary conditions (consumer personality: affinity for practicability, privacy cynicism) of these effects?
Study 3	Are the main effects identified replicated in a behavioral lab experiment?
Studies 4a–c	Does the level of PA using DE-based ads evoke feelings of creepiness in consumers, leading to more negative attitudes towards the ad for a fictitious retailer (Study 4a)? Are these effects replicated for a well-known retailer (Study 4b) and consistent across a different product category (Study 4c)?
Study 5	From an advertiser's perspective, does the non-disclosure of ad algorithms (vs. disclosure) using DE-based ads decrease consumer perceptions of creepiness, thereby positively impacting the attitude towards the ad and click-through behavior?

3.1. Recruitment and exclusion criteria

The surveys for online studies were distributed by recruiters via email, social media channels, and direct appeals for participants, except Studies 2 and 5 which shared the same recruitment platform and were sourced from a national marketing research institute. Socio-demographics for all studies are listed in *Appendix B*.

Participants were excluded if they failed to correctly answer attention-check questions at the end of the questionnaire, indicating they had not read the vignette carefully (e.g., for studies 4a–c incorrect recall of the general topic or incorrect recognition of the mentioned product advertised). Additionally, participants with unrealistically short questionnaire durations were excluded. Participants who reported participation in the pretest or previous studies on a similar topic, or who said that their data should not be used for further consideration, were also excluded. For Studies 4c and 5, participants who incorrectly reported whether or not they had been exposed to advertising algorithm information were additionally excluded. For Study 3 (lab experiment), participants were excluded if they incorrectly realized the source the ad was based on (e.g., if ad was incorrectly attributed to previous on-screen selection in the DE-group or to previous conversation in RT-group).

3.2. Measures

Creepiness was measured using CRoSS on a 7-point Likert scale with ten items adapted from Langer and König (2018), e.g., "I felt uneasy during the situation," or, "I felt uncertain about how to interpret the situation". In the studies, creepiness is dealt with as a global construct, with each of the ten creepiness items loading on one overall creepiness factor.

To measure attitude, this paper focused on the affective dimension, using Silvera and Austad's (2004) 7-point semantic differential scale ranging from -3 to +3 (e.g., "The advertisement is likeable" vs. "unlikeable"), but also measured the cognitive dimension of attitude (e.g., "The ad is not relevant … relevant") to conceal the respective study's purpose. For the manipulation check in studies 4a–c, this research measured perceived PA with three items from Scholten (2019; "The advertisement reflected my personal situation").

For the boundary conditions tested in Study 2, privacy cynicism was measured on a 5-point Likert scale with items adapted from Lutz et al. (2020) and Choi et al. (2018), e.g., "Even if I protect my privacy, it is still violated. The affinity for practicability of the advertisement was measured on a 7-point Likert scale with items adapted from Crites Jr et al. (1994), e.g., "It is important to me that advertisements provide new product knowledge". All Cronbach's α-values exceeded 0.81, indicating satisfactory internal consistency.

Click-through was measured by analyzing whether participants clicked on a link (yes or no, binary-coded) that took them to the marketer's website (number of clicks measured actual approach behavior).

To mitigate potential common method bias, Baumgartner and Weijters' (2021) recommendations were followed. This involved employing various scale formats (e.g., both Likert and semantic differential scales). This research incorporated attention checks using both open and closed questions to ensure participants' engagement. Prior to reading the vignette, participants were instructed to respond honestly and intuitively, and had the option of opting out if they felt they could not adequately engage with the stimulus material. Based on Harman's Single Factor tests, the analyses found no evidence of common method

bias in any of the studies (see *Appendix C*), despite criticisms of this procedure (Baumgartner and Weijters, 2021).

4. Empirical studies 1–3: Data provenance (digital eavesdropping vs. retargeting)

4.1. Study 1 (N_{final} = 209, M_{age} = 29.4, 60.3 % female)

Study 1 aimed to generally test whether DE elicits more negative ad responses than RT. In an online experiment, participants were randomly assigned to one of two online experimental groups: DE or RT. Participants read a lunch scenario about suffering from chronic health issues and its medication while the phone was visible.

In the RT-group, the friend sends the medication's name via social media chat; in the DE-group, the friend mentions it aloud. Later, the protagonist notices a personalized ad for the medication. The DE-group is led to believe the conversation was overheard via the phone.

A one-way MANOVA shows that the DE- (vs. RT-)group reacted more negatively to the ad contact. See Table 3.

4.2. Study 2 (N_{final} = 359, M_{age} = 35.5, 45.7 % female)

While Study 1 focused on behavioral intentions, Study 2 not only tested attitudinal and behavioral consequences (e.g., click-through behavior) from DE-based in comparison to RT-based ads as expressed in H1 and H2a–c, but also aimed to identify boundary conditions, as in consumer personality, that potentially amplify or weaken the indirect mediation effects. A more emotional and personal product category in personalized ads – dating apps – was used, as personalized ads involving sensitive information normally evoke higher creepiness reactions (Reitinger et al., 2024). To broaden the scope, neutral products were used from Study 3 (and all upcoming studies), allowing generalization of the findings across broader product categories.

4.2.1. Procedure

Study 2 was designed as an online experiment. Participants were randomly assigned to one of two treatment groups (between-subjects design, DE vs. RT). Instead of reading a written scenario, participants were instructed to watch a video of a live message chat between two people. This method was chosen based on Langer and König (2018), who used videos to elicit creepiness effectively. It was anticipated that participants would immerse themselves more fully in the situation when observing a live chat from a first-person perspective compared to reading a written scenario (see screenshots from live message chat in Fig. 2).

In the video, the protagonist expresses a desire to date and mentions a dating app. In the DE-group, this information was provided orally in an earlier face-to face conversation, with the smartphone nearby. In the RT-group, this information was shared in writing earlier via a message chat. The protagonist emphasizes the importance of confidentiality on this topic and states that it has not yet been discussed offline or researched online.

The message chat then continues, with the protagonist reporting that when checking on the next day's weather they suddenly saw an online banner ad for the previously mentioned dating app, and they send a screenshot of this ad encounter. The source of the data used to create this ad was meant to differ between the groups: for the DE-group, the ad promoted a product based on participants' previous offline behavior (discussed orally), while for the RT-group, the ad promoted a product based on participants' previous online behavior (provided via message chat).

Finally, participants completed various scales measuring the variables outlined in the hypotheses.

Confounding checks confirmed that the live message chats were perceived as realistic, comprehensible, and immersive (all *t*-values above midpoint, *p*-values < 0.05), with no significant differences between experimental groups (all *p*-values > 0.05; see *Appendix D*).

4.2.2. Results

A one-way ANOVA revealed that the DE-group perceived more creepiness from the ad contact than the RT-group (4.20 vs. 3.26; $F(1, 357) = 34.09$, $p < 0.001$), supporting H1a.

A serial mediation analysis (PROCESS model 6) revealed that the increase in creepiness in the DE-group (vs. RT) led to a decline in attitude and, in turn, reduced click-through rates. Thus, both H1b–c and H2 were supported. See Fig. 3.

The indirect effects that operated through only perceived creepiness or attitude towards the advertisement on click-through behavior were n. s. (Bca CIs including zero).

Furthermore, the serial mediation effect outlined in H2 was not influenced by privacy cynicism or affinity for practicability. Two separate moderated mediation analyses using PROCESS model 91 were conducted for each potential moderating variable, which have shown that neither of the tests of highest order unconditional interactions (*p*-values > 0.05) nor the indices of moderated mediation (95 % Bca CIs including zero) were significant.

4.2.3. Remarks on key findings of study 2

Study 2 showed that DE-based ads (vs. RT) increase perceptions of creepiness, leading to a decline in ad attitudes and reduced click-through rates. These results indicate that DE-based advertising must first evoke perceived creepiness to reduce marketing effectiveness through a decline in both the attitude towards the ad and click-through behavior. Serial mediation estimates should be interpreted as consistent with (not definitive of) the proposed ordering, given contemporaneous measurement of mediators.

However, the critical factor appears to be that perceived creepiness triggered by DE acts as a system that is forewarning consumers.

Table 3
MANOVA results show that the DE-group reacts more negatively to the ad contact than the RT-group.

Dependent variables	*M (SD)*	Test statistics
Recommendation probability	DE-group: 2.31 (1.17) RT-group: 2.63 (1.07)	$F(1, 207) = 4.16$, $p = 0.04$
Negative word-of-mouth[a]	DE-group: 3.87 (1.08) RT-group: 3.10 (1.31)	$F(1, 207) = 21.91$, $p < 0.001$
Purchase intention[a]	DE-group: 35.63 (24.68) RT-group: 44.13 (30.69)	$F(1, 207) = 4.91$, $p = 0.03$

Note: Overall significant effect: Wilk's $\lambda = 0.90$, $F(3, 205) = 7.82$, $p < 0.001$.
$n_{\text{DE-group}} = 110$, $n_{\text{RT-group}} = 99$.
Items measured on 5-point Likert scales (except purchase intention, metric scale from 0% to 100%).
[a] Inhomogeneity of variances between the groups, additional univariate Welch's t-tests results equaled MANOVA results.

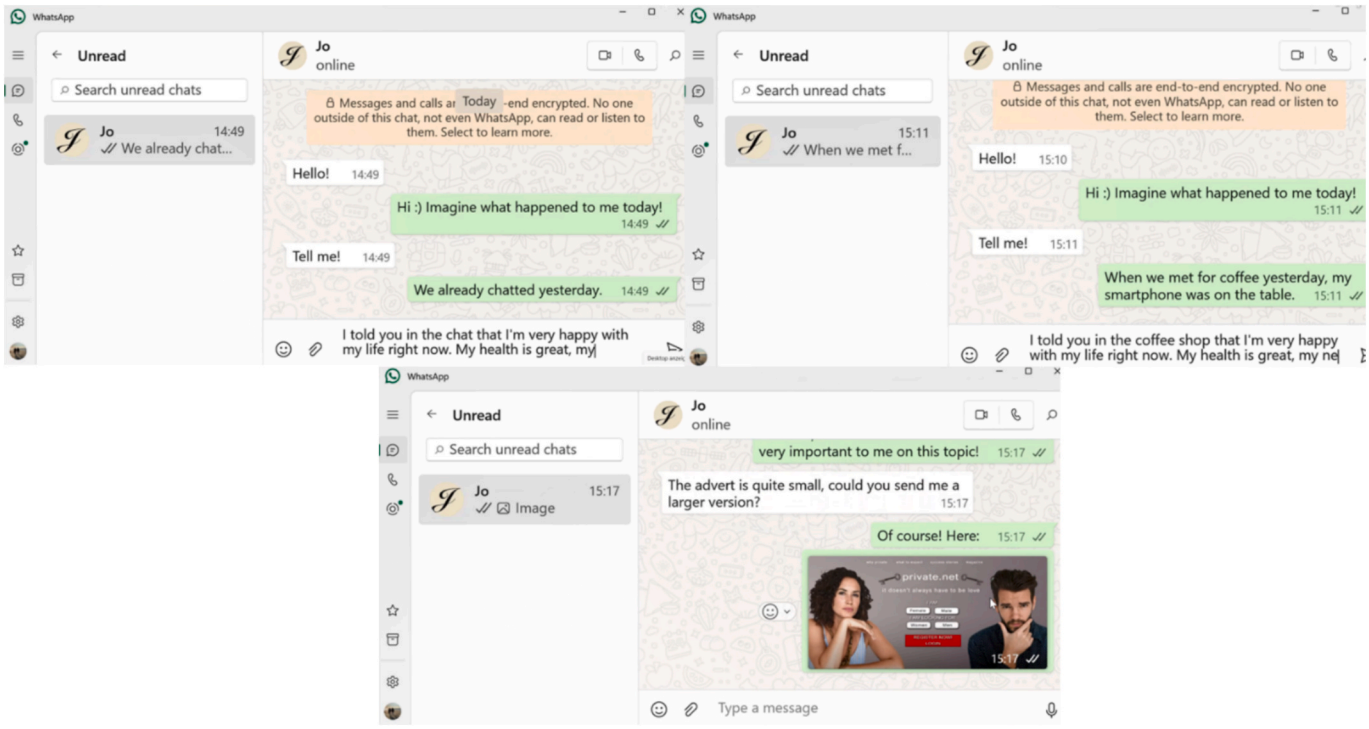

Fig. 2. Screenshots taken from video of live message chat. Top left: chat intro in RT-group, top right: chat intro in DE-group. Bottom: delivery of ad encounter, equal in both groups (123RF, 2025).

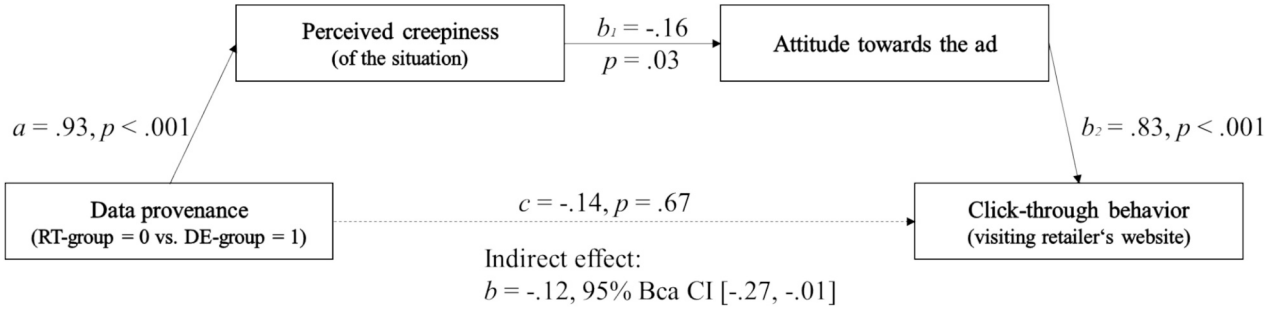

Fig. 3. H1a–c, H2: A serial mediation analysis shows that DE data provenance (vs. RT) leads to a lower probability of click-through behavior, mediated by an increase in perceived creepiness and in turn a less-positive attitude towards the ad. Note: Unstandardized regression coefficients. $n_{\text{DE-group}} = 188$, $n_{\text{RT-group}} = 171$.

Consequently, the impact may be even more severe if DE – when exhibiting features associated with dark patterns – goes unnoticed. The role of perceived DE is further examined in Study 3.

In testing for potential boundary conditions, the results suggest that the effects of DE are unaffected by consumer personality. Even consumers who prioritize practicability in online advertising or view DE as inevitable respond to DE-based ads no differently than those with lower levels of these traits.

4.3. Study 3: Behavioral lab experiment ($N_{final} = 83$, $M_{age} = 29.1$, 54.2 % female)

The studies discussed thus far employed online experiments with realistic but hypothetical scenarios. To test whether the observed effects hold in a different methodological context, a behavioral lab experiment was conducted, representing, to our knowledge, the first application of this methodological approach in DE research, and bringing a novel contribution to DE research (see also Table 1). Study 3 thereby enhances the validity and generalizability of findings on consumer reactions in this domain.

Study 3 investigated differences in perceived creepiness, relevance of, and attitudinal responses to RT- and DE-based ads. This behavioral experiment further examined whether the negative consequences of DE translate into reduced click-through rates, reflecting observable consumer behavior. Here, there was a focus on group differences and interest in the question: Does DE (vs. RT) lead to a) a stronger feeling of creepiness caused by the ad; b) lower perceived relevance of the ad; c) a less-favorable attitude towards the ad; and d) a reduced likelihood of click-through to the marketer's online shop?

4.3.1. Procedure

Participants were randomly assigned to either the RT- or DE-group (between-subjects design). They were told that the experiment was about the speed with which they processed information presented on an iPad. Before they began, however, the experimenter asked for their help to choose the best type of air-cooling fan for the lab, from a range of options. Participants in the RT-group selected their preferred fan type by typing on the iPad screen, while participants in the DE-group were shown pictures and asked to say out loud which type they would choose.

After this, several supposed tasks on the mobile device began. The

Table 4
One-way MANOVA and chi-squared test results show that the DE-group reacted more negatively to the ad contact than the RT-group.

Dependent variables	*M* (SD)_RT	*M* (SD)_DE	Test statistics
Perceived creepiness	2.60 (1.50)	2.70 (1.68)	$F(1, 81) = 0.10$, $p = 0.76$
Perceived relevance of the ad	-0.35 (1.63)	-0.95 (1.45)	$F(1, 81) = 3.20$, $p = 0.08$, $\eta^2 = 0.04$
Attitude towards the ad	0.83 (0.93)	0.21 (1.34)	$F(1, 81) = 7.84$, $p = 0.02$, $\eta^2 = 0.07$
Click-through behavior*	0.38 (0.49)	0.21 (0.41)	$\chi^2(1) = 2.77$, $p = 0.096$, $V = 0.18$

Note: Overall significant effect: Wilk's $\lambda = 0.90$, $F(3, 79) = 2.83$, $p = 0.04$.
* Binary-coded: 0 = no, 1 = yes. $n_{\text{DE-group}} = 40$, $n_{\text{RT-group}} = 43$.

goal of the final task was to count the number of headlines on the front page of a well-known, serious e-newspaper in 20 seconds. This newspaper usually has one ad in the bottom right-hand corner of the front page. In the experiment, this ad was manipulated to promote precisely the type of fan the participant had chosen earlier. It was desired that as many participants as possible in the RT-group would think that the personalized ad was the result of their previous on-screen selection, and as many as possible in the DE-group would think that their previous conversation with the experimenter had been secretly eavesdropped.

Following the tasks, participants answered several questions, measuring their attitudes and click-through behavior. Finally, they were asked whether they knew what technique for personalizing the advertisement had been used. The entire process lasted approximately 30 minutes per participant.

4.3.2. Results

A one-way MANOVA and a chi-squared test showed that DE resulted in a less-positive attitude as well as lower perceived ad relevance and click-through probability than RT, with notable effect sizes, but there were no differences in perceived creepiness (see Table 4).

Since no differences in perceived creepiness were observed between groups, and the discussion for Study 2 suggested that perceived DE and thus increased awareness of dataveillance might be necessary to elicit perceived creepiness, participants in the DE-group who reported perceiving DE were compared to those who did not.

A one-way MANOVA revealed that the former group reported significantly more negative responses (Wilk's $\lambda = 0.69$, $F(3, 39) = 5.93$, $p = 0.002$). The group who perceived DE (vs. who did not) perceived more creepiness (3.50 vs. 2.02, $F(1, 41) = 10.20$, $p = 0.003$, $\eta^2 = 0.20$).

The perceived exhaustion from the ad as well as the negative word-of-mouth initiated by the ad were also measured, and the reactions more negative for the group who perceived DE (3.05 vs. 2.04, $F(1, 41) = 5.85$, $p = 0.02$, $\eta^2 = 0.13$; 4.15 vs. 2.43, $F(1, 41) = 9.20$, $p = 0.004$, $\eta^2 = 0.18$).

4.3.3. Remarks on key findings of study 3

In this study, the impact of advertising personalized on the basis of consumers' past online behavior (RT) was systematically compared with that of advertising based on past offline behavior (DE). DE-based ads were found to be less effective and felt to be creepier when DE was perceived. The differences on perceived ad relevance and click-through behavior were not significant on a 0.05 level (p-values 0.08 and 0.10, respectively); however, the mean values were in the assumed direction and the effect sizes notable, despite the small sample size. Generally, this study validates the findings of the results shown in the previous online experiments.

Perceived creepiness was attenuated relative to prior studies. In the lab, participants may discount real surveillance, reducing creepiness and, coupled with generally low mean levels in perceived creepiness (floor effects in a lower stake setting), this may explain the non-significant aggregate effect. Accordingly, within DE, those who recognized DE reported higher creepiness than those who did not, implying that this recognition serves as a gate condition.

Despite notable effect sizes, the relatively small sample size is a limitation. Only one environment and one product were tested. Thus, a replication study might use other environments, e.g., more-sensitive products or a less-serious newspaper, since a reputable newspaper was deliberately chosen to avoid the medium triggering any suspicion.

Given the findings, it is not recommended that marketers use DE for personalization of ads. If they do, however, they should first make sure they obtain explicit permission from consumers.

Finally, Study 3's insights informed subsequent designs: Studies 4a–c aimed to increase ecological realism (using different providers and categories) and manipulate personalization accuracy to heighten salience. Study 5 tests whether advertising algorithm disclosure amplifies or mitigates creepiness by making conversational data use explicit.

5. Empirical studies 4A–C and 5: Personalization accuracy and advertising algorithm disclosure

5.1. Pretest

In preparation for testing the relationships expressed in H3a–b, a pretest was conducted. This pretest aimed to create vignettes with varying levels of perceived PA. Vignette studies in a scenario-based approach are well established in research both generally (Atzmüller and Steiner, 2010) and in consumer responses to advertising (Dhaigude et al., 2019).

Participants in an online survey were randomly assigned to one of three experimental groups (between-subjects design; PA: low vs. medium vs. high). They were then presented with a scenario in which they imagined meeting a friend at a café and telling them they were about to move to a new apartment. In the scenario, they showed their friend photographs of their new apartment on their phone and mentioned that they wanted to buy a piece of furniture for their new living room (note that they had *not* searched online beforehand for living-room furniture). The specific item was a red leather sofa for Group 1, a gray armchair for Group 2, and a white desk for Group 3. In the scenario, the subject then went home. When they looked at a non-specified social media app, they noticed a sponsored advertisement from an online furniture store for a red leather sofa of the fictitious brand *LeatherFurniture24*. The advertisement was the same for all three groups (see Fig. 4).

PA was manipulated through the combination of the product discussed and the item advertised. Thus, Group 1 discussed a red leather

Fig. 4. Sponsored advertisement used for pretest and in Study 4a.

Table 5
Pretest. ANOVA and contrast test results showing higher perceived PA with higher PA levels.

	Condition	*M*	SD	*n*
PA	Low	2.63	1.34	18
	Medium	4.03	1.01	20
	High	6.15	1.21	18

Effects: $F(2, 53) = 40.00$, $p < 0.001$; $p_{\text{low vs. medium}} = 0.003$, $p_{\text{medium vs. high}} < 0.001$, $p_{\text{low vs. high}} < 0.001$.
Note: α-level = 0.0125 for contrast tests subsequent to Bonferroni correction. Perceived PA measured on 7-point Likert scales.

sofa and saw an advertisement for the exact item (high PA). Group 2 discussed a gray armchair and saw an advertisement for an item from a similar product category, namely living-room furniture (medium PA). Group 3 discussed a white desk and saw an advertisement for an item from a different furniture category (low PA). As the subject had not previously searched for any item online, the implication is that their conversation had been eavesdropped via their cellphone.

A one-way ANOVA revealed an overall difference in perceived PA. Subsequent contrast tests found that the low PA condition was perceived as less personally accurate compared to the medium and high PA conditions. See Table 5 for summarized results. These findings were used to shape the selection of vignettes in Study 4a.

5.2. Study 4a ($N_{final} = 252$, $M_{age} = 27.6$, 75.8 % female)

In Study 4a, consumer reactions to various PA levels were examined, as indicated by the hypotheses H3a–b.

5.2.1. Procedure

Participants read a scenario resembling the DE incident in the pretest. They were randomly assigned to one of three groups (between-subjects design) based on perceived PA: low, medium, or high. They then rated the perceived creepiness of the situation (referring to seeing a sponsored advertisement for the same or a similar product to the one they had previously discussed) and their attitude towards the advertisement. Subsequently, attention and manipulation checks were conducted, potential control variables were measured, and participants gave their demographic details.

5.2.2. Results

First, a one-way ANOVA showed an overall difference in creepiness between the three PA groups, Welch(2, 164.90) = 16.12, $p < 0.001$. Additional contrasts showed that high PA elicits more creepiness than medium PA, and the latter more than low PA, all *p*-values < 0.01, supporting H3a, see Fig. 5.

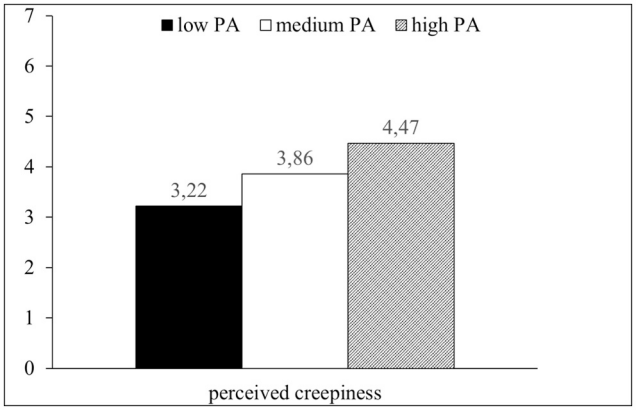

Fig. 5. H3a: Group means showing that higher PA levels lead to more perceived creepiness. Note: $n_{\text{low PA}} = 88$, $n_{\text{medium PA}} = 81$, $n_{\text{high PA}} = 83$.

Second, a mediation analysis with a multicategorical independent variable PA (model 4, sequential coding: 0 = low, 1 = medium, 2 = high; PROCESS version 3.5 enabling the inclusion of multicategorical-coded independent variables; Hayes, 2022, p. 201) showed that an increase in perceived creepiness negatively affects attitude towards the ad, and mediates the relationship between PA and the attitude towards the ad, for the comparison between both low and medium PA and medium and high PA, supporting H3b. The direct effects are NS, indicating indirect-only mediations. These findings are visually summarized in Fig. 6.

5.2.3. Remarks on key findings of Study 4a

Study 4a reveals consumers' negative responses to higher PA levels in DE, leading to a less-favorable attitude towards the advertisement due to increased perceived creepiness. These effects were found for a fictional retailer, to avoid brand name influence.

These findings could generally be replicated in two follow-up studies, first with a real retailer (Study 4b), and second when the advertised product category was changed to technical products (Study 4c).

However, as already explained in the theoretical part, there might be an alternative variable that could override perceived creepiness: creepiness reactions may be tolerated if consumers simultaneously perceive a specific advertisement as practical, thus convenient. Even though there was no evidence for its trait-characteristics moderating consequences of DE-based ads in Study 2, it is plausible to assume that its situational characteristics override perceived creepiness. This aspect is explored further in Study 5.

Additionally, to preserve internal validity for the personalization accuracy manipulation across provider/category contexts, stimuli were kept static and not provided with any outbound links. Studies 4a–c therefore model effects through attitude towards the ad as the proximal outcome, but the attitude towards the ad → click-through path (established in Study 2) is once again examined in Study 5.

5.3. Study 5 ($N_{final} = 480$, $M_{age} = 47.4$, 52.3 % female)

Study 5 sought to explore whether the negative consumer reactions to higher PA levels could be additionally elicited by advertising algorithm disclosure, as expressed in H4a–b.

Additionally, unlike Studies 4a–c, which focused on attitudinal-based measures, Study 5 measured click-through as actual consumer approach behavior.

5.3.1. Procedure

Participants were randomly assigned to one of six experimental groups using a 3 (PA: low vs. medium vs. high) x 2 (advertising algorithm disclosure: no disclosure vs. disclosure) between-subjects design. They were presented with the same scenario as in Studies 4a–b, involving DE during a conversation in a café. The product in the advertisement was changed to a piece of kitchen equipment (similar to study 4c) from the category of technical products. Participants were told that they saw a sponsored advertisement for an oven with a grill function of the fictitious online brand *KitchenEquipment24* on their social media app, which they had previously discussed wanting to buy. Depending on the PA condition, the conversation in the vignette focused on either precisely this item (high PA), a microwave (medium PA), or a dishwasher (low PA).

After reading the vignette, participants were randomly shown (or not shown) an infographic, similar to that used by Segijn & van Ooijen (2022). This infographic explained how DE works, providing textual and visual information about mobile devices listening to conversations and tailoring advertisements accordingly, thereby explaining watermarking algorithms (see Fig. 7).

The results of an attention check indicated that more participants in the disclosure group reported receiving information about advertising algorithms than those in the control group, $\chi^2(1) = 248.94$, $p < 0.001$.

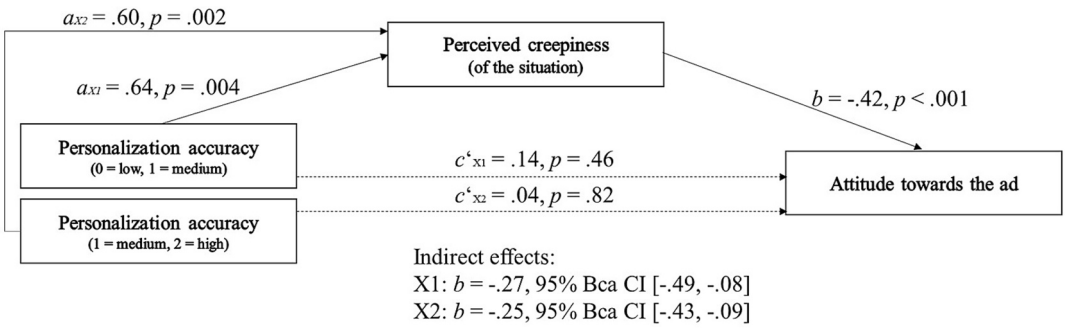

Fig. 6. H3b: Simple mediation analyses show that higher PA levels lead to a decline in the attitude towards the ad, mediated by an increase in perceived creepiness. Note: Unstandardized regression coefficients. $n_{\text{low PA}} = 88$, $n_{\text{medium PA}} = 81$, $n_{\text{high PA}} = 83$. X1 = PA low vs. medium, X2 = PA medium vs. high.

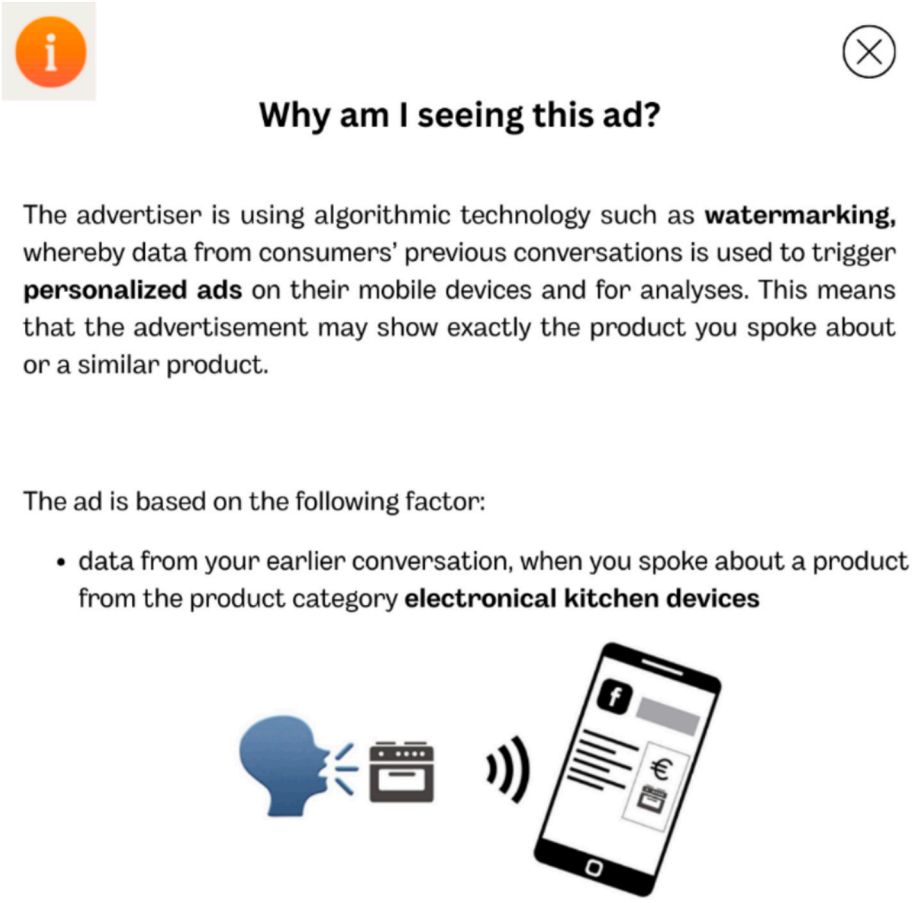

Fig. 7. Infographic, shown to the ad algorithm disclosure group.

Additionally, participants in the disclosure group found the information more comprehensible compared to the midpoint of the scale (5.45 vs. 4.00; $t(208) = 61.16$, $p < 0.001$; 7-point Likert scale). Participants then proceeded to respond to the questionnaire, as in Study 4a.

5.3.2. Results

H4a–b: Effects of Ad Algorithm Disclosure. A one-way ANOVA shows that when information about advertising algorithms is not disclosed (vs. disclosed), consumers perceive less (more) creepiness (Welch(1, 459.27) = 72.87, $p < 0.001$), supporting H4a, see Fig. 8.

Using serial mediation analysis (PROCESS model 6), a significant indirect effect was identified of no advertising algorithm disclosure (vs. disclosure) on increased click-through via decreased perceived creepiness, and in turn a more positive attitude towards the ad. The direct effect is NS, indicating indirect-only mediation, supporting H4b (see Fig. 9).

An additional pairwise contrast of indirect effects revealed that the serial indirect effect that operated through both perceived creepiness and attitude towards the ad on click-through behavior was significantly greater than the simple indirect effect through only creepiness (Δb =

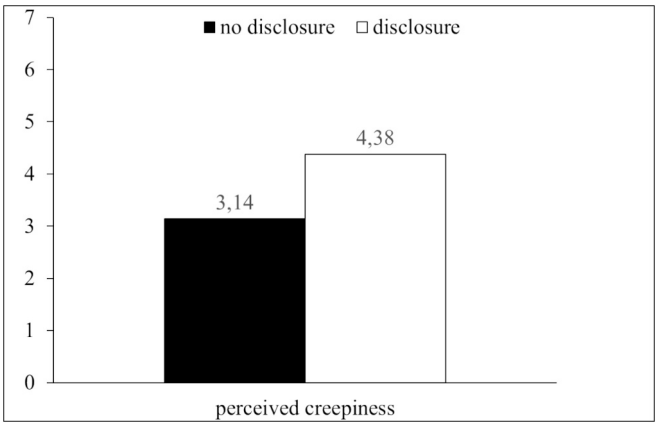

Fig. 8. H4a: Group means showing that no ad algorithm disclosure (vs. disclosure) leads to less perceived creepiness. Note: $n_{\text{no disclosure}} = 271$, $n_{\text{disclosure}} = 209$.

0.56, 95 % Bca CI [0.30, 0.90].

Explorative Analysis: Perceived Situational Practicability of the Advertisement as a Moderator. Although Study 2 found that consumers' affinity for practicability did not moderate effects as a consumer trait, it was hypothesized that its situational perception could influence the impact of increased creepiness. Thus, a further explorative analysis (PROCESS model 5) was performed, which showed that an increase in perceived creepiness reduces click-through probability via a decline in attitude towards the ad, irrespective of PA levels; $b = -0.26$, 95 %Bca CI = [-0.45, -0.13], with zero not included. However, the direct effect is moderated by the perceived situational practicability of the advertisement. For high levels of situational practicability, there is a conditional direct effect that is positive and significant ($b = 0.53$, $p = 0.002$), but this effect is not observed for medium or low levels of the moderator (p-values > 0.05). This suggests that while an increase in perceived creepiness generally reduces click-through behavior via a decline in attitude, highly perceived situational practicability of the advertisement may override the impact of perceived creepiness.

5.3.3. Remarks on key findings of Study 5

Study 5 tested whether the consequences of higher PA levels (as initially shown in Study 4a) would be similarly elicited when information is disclosed on watermarking algorithms that result in DE-ads. Confirming the expectation, this was the case. In fact, ad algorithm disclosures increase creepiness, leading to a decline in the attitude towards the ad (effects also shown in Study 4c), and ultimately reduced click-through behavior. The serial mediation effect also indicates that attitude towards the ad carries part of the impact of creepiness on click-through behavior beyond any direct creepiness-driven avoidance. This highlights that consumers are concerned about data-gathering methods that appear to invade privacy, and the increase in creepiness may serve as a forewarning that protects consumers from DE.

In addition, in an exploratory analysis, Study 5 explores the moderating role of perceived situational practicability of the advertisement, which may override any heightened creepiness responses and reverse the relationship between creepiness and click-through.

6. Summary of results

Fig. 10 conceptually summarizes the observed relationships in all studies, including the direction of effects.

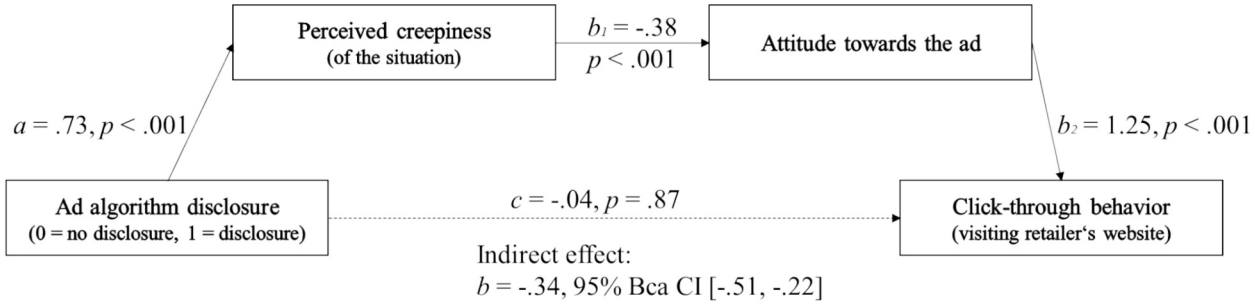

Fig. 9. H4b: A serial mediation analysis shows that no ad algorithm disclosure (vs. disclosure) leads to increased click-through behavior, serially mediated by a decrease in perceived creepiness (M1) and in turn an increase in the attitude towards the ad (M2). Note: Unstandardized regression coefficients. $n_{\text{no disclosure}} = 271$, $n_{\text{disclosure}} = 209$.

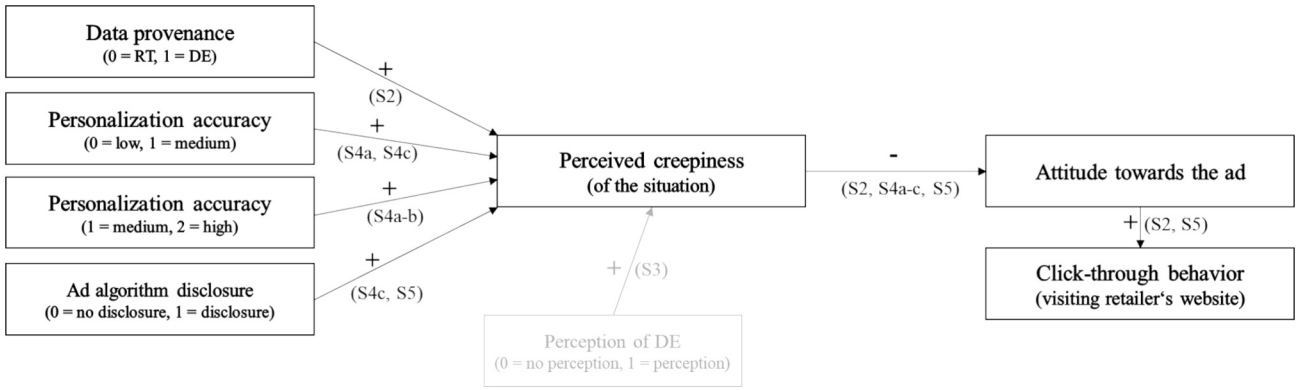

Fig. 10. Conceptual summarized results and direction of effects for data provenance, PA, and ad algorithm disclosure. S = study in which the effect was shown.

7. Overall discussion

7.1. General discussion and theoretical implications

This research examines consumer responses to data provenance: digital eavesdropping (DE, ads that plausibly draw on offline, near-device conversations) relative to retargeting (RT). Across studies, DE (vs. RT) increases perceived creepiness and reduces advertising effectiveness (attitudes, click-through), with effects intensifying when DE is made salient or recognized (e.g., via higher personalization accuracy or disclosing the algorithms DE is based on) and attenuating in low-stakes lab contexts. Within DE, greater accuracy can backfire by heightening surveillance inferences despite relevance benefits (an accuracy paradox).

From a theoretical perspective, this research positions data provenance (DE vs. RT) as a causal factor of increased perceived creepiness leading to reduced advertising effectiveness, integrates the DEAL perspective (perceived/actual surveillance leading to detrimental attitudinal and behavioral responses; Strycharz and Segijn, 2022), and identifies DE perception or recognition as a gate condition for creepiness perceptions. This also documents an accuracy paradox under DE: higher relevance can intensify creepiness when provenance is opaque. Together, these clarify when DE backfires and connect privacy, data-veillance, and advertising literature.

7.2. Managerial, policy, and ethics implications

The experiments outlined show that DE increases perceived creepiness relative to RT, and that creepiness diminishes advertising responses. Therefore, from a managerial point of view, defaulting to DE is generally unwarranted and hard to justify from a brand-risk and performance perspective. Practically, firms should prefer lower-creepiness alternatives (e.g., RT or other provenance approaches grounded in users' visible online actions), where feasible. If pursued at all (despite the consumer outrage it causes; Fowler, 2019; Mosseri, 2025), marketers should treat DE as a high-risk option and avoid over-personalized advertising through closely mirrored previously spoken content, as these heighten creepiness. Only high-relevance contexts tend to be more defensible if DE is applied. Since effects were indifferent to trait variables, segmenting by stable consumer traits is unlikely to neutralize creepiness.

Given that DE perception serves as a gate condition for creepiness perceptions, cruciality lies in situations where DE operates unnoticed (e.g., due to consumer distraction). This underscores the need to consider stricter measures, such as potentially prohibiting DE-based tracking entirely or at least implementing clear regulations governing the use of conversational data for advertising. Measurement plans can incorporate creepiness into pretests and behavioral experiments or adopt stop-rules when creepiness crosses a preset threshold. Additionally, operational hygiene should typically involve microphone-permission audits or a minimization of passive listening defaults. At a minimum, consumers should be provided with explicit opt-out mechanisms (e.g., checkboxes) when downloading apps, allowing them to control which data provenance is used for advertising.

Since DE may be lawful yet violating contextual norms, the decision to rely on DE at all warrants ethical scrutiny, given these outcomes. Importantly, disclosing how DE operates did not alleviate reactions in our settings, but rather intensified them. Thus, advertising algorithm disclosures should not be treated as a performance remedy.

However, any categorical recommendation of non-disclosure might also be unwarranted, given the inherent trade-off between short-term effectiveness and the need for consumer protection. Thus, if marketers opt for disclosures, they should be paired with actual control, as heightened creepiness perception may serve as a vital warning mechanism, alerting consumers to potential privacy violations. As a matter of fact, when informing consumers via infomercials that their conversational data was used for marketing, such disclosures should be delivered in rich-media formats rather than buried in lengthy, complex terms and conditions. A text-only format is appropriate only if consumers actively seek additional detail and report difficulty understanding the information.

7.3. Future research

Building on the experiments, several extensions can clarify boundary conditions and real-world impact. To test chilling effects (Strycharz and Segijn, 2024) and habituation in a way that mirrors current behavior, a lab or online experiment can pre-expose participants to voice input: one group types search queries, another dictates them; all participants then encounter a DE-based ad. If voice use normalizes microphone interaction, the dictation group should report lower creepiness and show improved behavioral responses (e.g., click-through, dwell time or opt-outs) than the typing group. This directly extends the data provenance manipulations while adding pre-exposure as an additional influencing variable. Likewise, A/B tests that compare DE to RT using multiple managerial behavioral outcomes (e.g., conversion, time-on-site, complaint rates, opt-out rates, or churn) could be implemented to quantify performance costs and identify stop-loss thresholds.

Building on the advertising algorithm disclosure results (which increased creepiness), a possible consideration could be varying disclosure timing (e.g., pre-exposure vs. in-ad micro-labels vs. post-hoc explanations). While earlier, more-salient disclosures may be expected to heighten creepiness, in-ad micro-labels may carry smaller penalties. Additionally, future research could test context moderators that were touched on (e.g., retailer familiarity) and replicate the design with explicit high- vs. low-familiarity brands to assess whether familiarity dampens creepiness or merely shifts its threshold.

Finally, category sensitivity (non-sensitive vs. sensitive topics) could be examined as a moderator of the DE → creepiness → behavior pathway, with stronger effects to be expected in sensitive domains.

7.4. Limitations

Three key limitations warrant consideration. First, although this research combines internally valid online experiments with a behavioral lab study, stronger ecological validity would come from field studies with natural exposure and platform-level controls. Such studies are difficult in this domain, but they would sharpen inferences about real-world prevalence and impact; the present work should be viewed as an initial experimental test in an underexplored advertising context.

Second, generalizability may vary by geography and communication norms; cross-country replications could illuminate differences in privacy attitudes and smartphone use. Relatedly, the lab setting likely attenuates effects when stakes or credibility are low; future work could embed more naturalistic signals and examine outcomes beyond immediate advertising responses (e.g., brand equity and trust recovery following DE exposure).

Third, the operationalizations of personalization accuracy and algorithmic disclosure necessarily simplify a broader practice landscape. Subsequent research could compare multiple personalization forms side by side (e.g., DE-based, retargeting-based, and synced cross-device advertising; Segijn, 2019) to disentangle how provenance and cross-channel orchestration jointly shape creepiness and marketing effectiveness.

8. Conclusion

The findings underscore a key risk for marketing executives: over-personalization, particularly when it appears to stem from conversational (DE) rather than online behavioral (RT) data provenance, triggers feelings of creepiness and in turn reduces campaign effectiveness. To address this, it is recommended to avoid excessive personalization and refrain from using offline conversations for targeted advertising. While disclosing algorithmic use may heighten consumer alarm and rejection, it signals accountability from a consumer protection perspective. Marketing leaders should strike a balance between relevance and privacy, designing personalization strategies that are effective yet ethically and perceptually appropriate. Ultimately, not every technically feasible option should be pursued in online marketing; instead, ongoing testing and refinement are essential to identify the optimal level of personalization and disclosure that maintains consumer comfort.

CRediT authorship contribution statement

Kevin Krause: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Andrea Groeppel-Klein:** Writing – review & editing, Supervision, Resources.

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Appendix A. Manipulation checks for PA

Table A1
Manipulation checks, ANOVA, and contrast tests showing higher perceived PA with higher PA levels.

	Condition	**ANOVA and contrast tests for iv PA:**											
		Study 4a ($N = 252$)			Study 4b ($N = 218$)			Study 4c ($N = 312$)			Study 5 ($N = 480$)		
		M	SD	*n*	*M*	SD	*n*	*M*	SD	*n*	*M*	SD	*n*
PA	Low	2.05	1.04	88	1.73	1.23	84	2.13	1.15	93	2.63	1.77	159
	Medium	3.59	1.47	78	2.78	1.49	65	3.03	1.30	109	3.51	1.82	148
	High	5.93	1.09	86	5.75	1.29	69	5.60	1.51	110	5.10	1.61	173

Study 4a: $Welch(2, 158.98) = 287.69$; $p < 0.001$; $p_{\text{low vs. medium}} < 0.001$, $p_{\text{medium vs. high}} < 0.001$, $p_{\text{low vs. high}} < 0.001$.
Study 4b: $Welch(2, 135.83) = 195.83$; $p < 0.001$; $p_{\text{low vs. medium}} < 0.001$, $p_{\text{medium vs. high}} < 0.001$, $p_{\text{low vs. high}} < 0.001$.
Study 4c: $Welch(2, 205.36) = 178.01$; $p < 0.001$; $p_{\text{low vs. medium}} < 0.001$, $p_{\text{medium vs. high}} < 0.001$, $p_{\text{low vs. high}} < 0.001$.
Study 5: $Welch(2, 314.35) = 92.77$; $p < 0.001$; $p_{\text{low vs. medium}} < 0.001$, $p_{\text{medium vs. high}} < 0.001$, $p_{\text{low vs. high}} < 0.001$.

Appendix B. Socio-demographics

Table B1
Socio-demographics per study.

	Study						
	1	2	3	4a	4b	4c	5
Final *N*	209	359	83	252	218	312	480
Age	29.38	53.47	29.10	27.57	29.54	28.84	47.37
Gender (% female)	60.30 %	45.70 %	54.20 %	75.80 %	81.20 %	57.40 %	52.30 %
Students (%)	/	2.50 %	61.40 %	68.30 %	61.90 %	40.10 %	3.50 %

Appendix C. Harman's single factor tests

Table C1
No indication of common method bias in any of the studies based on Harman's Single Factor tests results.

	Study						
	1	2	3	4a	4b	4c	5
Explained item variance based on forced single factor solution	40.33 %	36.08 %	27.42	32.12 %	27.05 %	27.11 %	42.51 %
Eigenvalue	2.02	12.27	9.60	7.71	8.39	8.13	14.03

Appendix D. Confounding checks, Study 2

Table D1
One sample t-tests and MANOVA results show no indication for confounding.

Dependent variables	*M* (SD)	Test statistics: one sample t-tests (midpoint of scale = 3)	Test statistics: MANOVA
I was able to follow the chat conversation.[a]	RT-group: 4.62 (0.66)	$t(170) = 32.04$, $p < 0.001$	$F(1, 357) = 1.93$, $p = 0.17$, $\eta^2 = 0.01$
	DE-group: 4.52 (0.75)	$t(187) = 27.75$, $p < 0.001$	
The situation in the chat conversation seemed realistic to me.[a]	RT-group: 3.65 (1.19)	$t(170) = 7.16$, $p < 0.001$	$F(1, 357) = 2.22$, $p = 0.14$, $\eta^2 = 0.01$
	DE-group: 3.82 (1.04)	$t(187) = 10.84$, $p < 0.001$	
The chat conversation was understandable to me.	RT-group: 4.46 (0.79)	$t(170) = 24.01$, $p < 0.001$	$F(1, 357) = 1.78$, $p = 0.18$, $\eta^2 = 0.01$
	DE-group: 4.34 (0.85)	$t(187) = 21.69$, $p < 0.001$	
I was able to put myself in the situation depicted in the chat conversation.	RT-group: 3.95 (1.02)	$t(170) = 12.16$, $p < 0.001$	$F(1, 357) = 0.12$, $p = 0.74$, $\eta^2 < 0.001$
	DE-group: 3.91 (1.09)	$t(187) = 11.46$, $p < 0.001$	

Note: MANOVA: Overall effect n.s., Wilk's $\lambda = 0.98$, $F(4, 354) = 2.17$, $p = 0.07$. $\eta^2 = 0.02$.
[a]Inhomogeneity of variances between the groups, additional univariate Welch's t-tests results equaled MANOVA results.
$n_{\text{DE-group}} = 188$, $n_{\text{RT-group}} = 171$.
Items measured on 5-point Likert scales.

References

Abdi, N., London, C., Ramokapane, K. M., Such, J. M., London, C., & Clara, S. (2019). More than smart speakers: Security and privacy perceptions of smart home personal assistants. In: *Proceedings of the Fifteenth USENIX Conference on Usable Privacy and Security* (pp. 451–466).

Atzmüller, C., & Steiner, P. M. (2010). Experimental vignette studies in survey research. *Methodology, 6*(3), 128–138. https://doi.org/10.1027/1614-2241/a000014

Baumgartner, H., & Weijters, B. (2021). Dealing with common method variance in international marketing research. *Journal of International Marketing, 29*(3), 7–22. https://doi.org/10.1177/1069031x21995871

Bleier, A., & Eisenbeiss, M. (2015a). The importance of trust for personalized online advertising. *Journal of Retailing, 91*(3), 390–409. https://doi.org/10.1016/j.jretai.2015.04.001

Bleier, A., & Eisenbeiss, M. (2015b). Personalized online advertising effectiveness: The interplay of what, when, and where. *Marketing Science, 34*(5), 669–688. https://doi.org/10.1287/mksc.2015.0930

Boerman, S. C., & Smit, E. G. (2023). Advertising and privacy: An overview of past research and a research agenda. *International Journal of Advertising, 42*(1), 60–68. https://doi.org/10.1080/02650487.2022.2122251

Brooker, C. (Writer), & Pankiw, A. (Director) (2023). Joan Is Awful. (Season 6, Episode 1) [TV series episode], in C. Brooker & A. Jones (Executive Producers). *Black Mirror,* Zeppotron.

Butori, R., & Miltgen, C. L. (2023). A construal level theory approach to privacy protection: The conjoint impact of benefits and risks of information disclosure. *Journal of Business Research, 168*, Article 114205. https://doi.org/10.1016/j.jbusres.2023.114205

Cai, H., & Mardani, A. (2023). Research on the impact of consumer privacy and intelligent personalization technology on purchase resistance. *Journal of Business Research, 161*, Article 113811. https://doi.org/10.1016/j.jbusres.2023.113811

Choi, H., Park, J., & Jung, Y. (2018). The role of privacy fatigue in online privacy behavior. *Computers in Human Behavior, 81*, 42–51. https://doi.org/10.1016/j.chb.2017.12.001

Crites, S. L., Fabrigar, L. R., & Petty, R. E. (1994). Measuring the affective and cognitive properties of attitudes: Conceptual and methodological issues. *Personality and Social Psychology Bulletin, 20*(6), 619–634. https://doi.org/10.1177/0146167294206001

De Keyzer, F., Buzeta, C., & Lopes, A. I. (2024). The role of well-being in consumer's responses to personalized advertising on social media. *Psychology & Marketing, 41*(6), 1206–1222. https://doi.org/10.1002/mar.21977

Dhaigude, A. S., Chatterjee, D., Lilhare, S., & Ambekar, S. (2019). Vignettes-based research in behavioural operations management. *International Journal of Business Excellence, 19*(1), 65. https://doi.org/10.1504/ijbex.2019.101714

Dinev, T., & Hart, P. (2006). An extended privacy calculus model for e-commerce transactions. *Information Systems Research, 17*(1), 61–80. https://doi.org/10.1287/isre.1060.0080

Eslami, M., Kumaran, S. R. K., Sandvig, C., & Karahalios, K. (2018). Communicating algorithmic process in online behavioral advertising. In: Conference Paper at the Meeting of the Conference on Human Factors in Computing Systems, Montréal, Canada.

Fidler, K. (2023). Something we've always feared about our phones turns out to be true. Metro. https://metro.co.uk/2023/12/15/yes-right-smartphone-really-listening-19980334/.

Fowler, G. (2019). Alexa has been eavesdropping on you this whole time. The Washington Post. https://www.washingtonpost.com/technology/2019/05/06/alexa-has-been-eavesdropping-you-this-whole-time/.

Frick, N. R., Wilms, K. L., Brachten, F., Hetjens, T., Stieglitz, S., & Ross, B. (2021). The perceived surveillance of conversations through smart devices. *Electronic Commerce Research and Applications, 47*, 1–16. https://doi.org/10.1016/j.elerap.2021.101046

Green, D. (2018). Big brother is listening to you: Digital eavesdropping in the advertising industry. *Duke Law & Technology Review, 16*(1), 352–392.

Grigorios, L., Magrizos, S., Kostopoulos, I., Drossos, D., & Santos, D. (2022). Overt and covert customer data collection in online personalized advertising: The role of user emotions. *Journal of Business Research, 141*, 308–320. https://doi.org/10.1016/j.jbusres.2021.12.025

Hardcastle, K., Vorster, L., & Brown, D. M. (2025). Understanding customer responses to AI-driven personalized journeys: Impacts on the customer experience. *Journal of Advertising, 54*(2), 176–195. https://doi.org/10.1080/00913367.2025.2460985

Hayes, A. F. (2022). *Introduction to Mediation, Moderation, and Conditional Process Analysis* (third ed.). GuilfordPress.

Herder, E., & Zhang, B. (2019). Unexpected and unpredictable: factors that make personalized advertisements creepy. In: Workshop Presentation at the 23rd Meeting of the Workshop on Personalization and Recommendation on the Web and Beyond (ABIS'19), Hof, Germany.

Hong, W., & Thong, J. Y. L. (2013). Internet privacy concerns: An integrated conceptualization and four empirical studies. *MIS Quarterly, 37*(1), 275–298. https://doi.org/10.25300/MISQ/2013/37.1.12

Jagadish, H. V. (2020). Circles of privacy. *Journal of Consumer Psychology, 30*(4), 774–779. https://doi.org/10.1002/jcpy.1188

Kim, T., Barasz, K., & John, L. K. (2019). Why am I seeing this ad? The effect of ad transparency on ad effectiveness. *Journal of Consumer Research, 45*(5), 906–932. https://doi.org/10.1093/jcr/ucy039

Kröger, J. L., & Raschke, P. (2019). Is my phone listening in? On the feasibility and detectability of mobile eavesdropping. In *Data and Applications Security and Privacy XXXIII: 33rd Annual IFIP WG 11.3 Conference, DBSec 2019* (pp. 102–120). Charleston, SC, USA: Springer International Publishing.

Kumar, A., Kumar, D. V. S., & Megha, R. U. (2024). I know what you browsed last night! role of creepiness and persuasion knowledge on click intention of online behavioral advertising. *Decision, 51*(3), 303–319. https://doi.org/10.1007/s40622-024-00398-9

Langer, M., & König, C. J. (2018). Introducing and testing the creepiness of situation scale (CROSS). *Frontiers in Psychology, 9*. https://doi.org/10.3389/fpsyg.2018.02220

Lutz, C., Hoffmann, C. P., & Ranzini, G. (2020). Data capitalism and the user: An exploration of privacy cynicism in Germany. *New Media & Society, 22*(7), 1168–1187. https://doi.org/10.1177/1461444820912544

Luzak, J., Wulf, A. J., Seizov, O., Loos, M. B. M., & Junuzović, M. (2023). ABC of online consumer disclosure duties: Improving transparency and legal certainty in Europe. *Journal of Consumer Policy, 46*(3), 307–333. https://doi.org/10.1007/s10603-023-09543-w

Maseeh, H. I., Jebarajakirthy, C., Pentecost, R., Ashaduzzaman, M., Arli, D., & Weaven, S. (2021). A meta-analytic review of mobile advertising research. *Journal of Business Research, 136*, 33–51. https://doi.org/10.1016/j.jbusres.2021.06.022

McAndrew, F. T., & Koehnke, S. S. (2016). On the nature of creepiness. *New Ideas in Psychology, 43*, 10–15. https://doi.org/10.1016/j.newideapsych.2016.03.003

Mourey, J. A., & Waldman, A. E. (2020). Past the privacy paradox: The importance of privacy changes as a function of control and complexity. *Journal of the Association for Consumer Research, 5*(2), 162–180. https://doi.org/10.1086/708034

Mosseri, A. [@mosseri] (2025, October 01). Myth busting: I swear, we do not listen to your microphone [Reel]. Instagram. https://www.instagram.com/reel/DPRA3qyEgWw/?igsh=MTEzbXN2dmtqZ3E1aQ==.

123RF. (2025). © rawpixel, 123RF Free Images.

O'Flaherty, K. (2024, June 28). Apple issues new AirPods security update for eavesdropping flaw. Forbes. https://www.forbes.com/sites/kateoflahertyuk/2024/06/28/apple-issues-new-airpods-security-update-for-eavesdropping-flaw/.

Palos-Sanchez, P., Saura, J. R., & Martin-Velicia, F. (2018). A study of the effects of programmatic advertising on users' concerns about privacy overtime. *Journal of Business Research, 96*, 61–72. https://doi.org/10.1016/j.jbusres.2018.10.059

Pippig, L. (2024). Do smartphones eavesdrop on conversations? New evidence says yes. PCWorld. https://www.pcworld.com/article/2450052/do-smartphones-listen-to-everything-new-evidence-speaks-in-favour.html.

Qualtrics. (2025). https://www.qualtrics.com/.

Rajaobelina, L., Tep, S. P., Arcand, M., & Ricard, L. (2021). Creepiness: Its antecedents and impact on loyalty when interacting with a chatbot. *Psychology & Marketing, 38*(12), 2339–2356. https://doi.org/10.1002/mar.21548

Reitinger, N., Wen, B., Mazurek, M., & Ur, B. (2024). What does it mean to be creepy? Responses to visualizations of personal browsing activity, online tracking, and targeted ads. *Proceedings on Privacy Enhancing Technologies, 2024*(3), 715–743. https://doi.org/10.56553/popets-2024-0101

Scholten, J. D. F. (2019). *Online Behavioral Advertising: Lucrative or Creepy? An Experimental Study into the Effects of Level of Personalization, Data Source Creepiness and Information Disclosure on Online Behavioral Advertising Effectiveness*. University of Twente. Master's Thesis.

Segijn, C. M. (2019). A new mobile data driven message strategy called synced advertising: Conceptualization, implications, and future directions. *Annals of the International Communication Association, 43*(1), 58–77. https://doi.org/10.1080/23808985.2019.1576020

Segijn, C. M., Kim, E., Lee, G., Gansen, C., & Boerman, S. C. (2024). The intended and unintended effects of synced advertising: When persuasion knowledge could help or backfire. *International Journal of Research in Marketing, 41*(1), 156–169. https://doi.org/10.1016/j.ijresmar.2023.07.001

Segijn, C. M., Strycharz, J., Turner, A., & Opree, S. J. (2024). Conversation-related advertising and electronic eavesdropping: mapping perceptions of phones listening for advertising in the United States, the Netherlands, and Poland. *Social Media + Society, 10*(4), Article 20563051241288448.

Segijn, C. M., Strycharz, J., Turner, A., & Opree, S. J. (2025). "My phone must be listening!": Peoples' surveillance beliefs around devices "listening" to offline conversations in the US, the Netherlands, and Poland. *Big Data & Society, 12*(2), 1–15. https://doi.org/10.1177/20539517251337102

Segijn, C. M., & van Ooijen, I. (2022). Differences in consumer knowledge and perceptions of personalized advertising: Comparing online behavioural advertising and synced advertising. *Journal of Marketing Communications, 28*(2), 1–20. https://doi.org/10.1080/13527266.2020.1857297

Silvera, D. H., & Austad, B. (2004). Factors predicting the effectiveness of celebrity endorsement advertisements. *European Journal of Marketing, 38*(11/12), 1509–1526. https://doi.org/10.1108/03090560410560218

Stevens, A., & Newmeyer, C. (2017). Creepy and intrusive: a consumer's perspective of online personalized communications. In *Contemporary Issues in Social Media Marketing* (pp. 172–183). Routledge.

Strycharz, J., & Segijn, C. M. (2022). The future of dataveillance in advertising theory and practice. *Journal of Advertising, 51*(5), 574–591. https://doi.org/10.1080/00913367.2022.2109781

Strycharz, J., & Segijn, C. M. (2024). Ethical side-effect of dataveillance in advertising: Impact of data collection, trust, privacy concerns and regulatory differences on chilling effects. *Journal of Business Research, 173*, Article 114490. https://doi.org/10.1016/j.jbusres.2023.114490

Tene, O., & Polonetsky, J. (2014). A Theory of Creepy: Technology, privacy and shifting social norms. *Yale Journal of Law and Technology, 16*, 59–102.

Torkamaan, H., Barbu, C., & Ziegler, J. (2019). How can they know that? A study of factors affecting the creepiness of recommendations. In: Conference Paper at the 13th Meeting of the ACM Conference of Recommender Systems, Copenhagen, Denmark.

Yassin, C. A., & Rawas, A. E. (2022). The influence of Ducoffe's advertising value model on health care service quality perception. *International Journal of Management Technology, 9*(2), 34–46.

Zhu, H., & Zhang, M. (2025). "I don't get it, but I accept it" Exploring uninformed consent to privacy policies: A neutralization perspective. *Computers & Security, 153*, Article 104396. https://doi.org/10.1016/j.cose.2025.104396

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